

NSW Regional Forest Agreements

**A report on progress with implementation of the
New South Wales Regional Forest Agreements**



Second and third five-yearly reviews July 2004 – June 2014

**A report on the implementation of the North East, Eden
and Southern Regional Forest Agreements**

November 2017



Australian Government

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Contents

List of tables	v
List of figures	viii
List of maps	ix
Abbreviations	x
Executive summary	xiii
1 Introduction	1
1.1 Background	1
1.2 Duration	1
1.3 Five-yearly reviews	1
1.4 Implementation report for the first review period.....	2
1.5 This combined second and third review	2
1.6 Review process	3
1.7 Structure of this report	3
1.8 Significant issues and events between implementation reports.....	4
2 Progress against milestones and commitments.....	6
2.1 Principles of the Agreement.....	7
2.2 Functioning of the Agreement.....	8
2.3 Ecologically sustainable forest management.....	19
2.4 The CAR reserve system.....	46
2.5 Industry and regional development.....	52
2.6 Aboriginal heritage.....	68
2.7 Other forest uses	72
2.8 Competition principles	74
2.9 Research	75
2.10 Data access and archiving.....	79
2.11 Legally binding rights and obligations	80
3 Progress against milestones and commitments listed in attachments to the RFAs.....	85
3.1 CAR reserve system.....	85
3.2 Threatened flora and fauna and ecological communities	90
3.3 National Estate values	92
3.4 Public reporting and consultative measures	93
3.5 Improvements to the NSW Forest Management System.....	99
3.6 Private lands.....	114
3.7 Employment initiatives	115

4	Recommendations from the first five-yearly independent review	119
5	Results of monitoring sustainability indicators	140
	Criterion 1 Conservation of biological diversity	140
	Criterion 2 Maintenance of productive capacity of forest ecosystems	157
	Criterion 3 Maintenance of ecosystem health and vitality	164
	Criterion 4 Conservation and maintenance of soil and water resources	165
	Criterion 5 Maintenance of forest contribution to global carbon cycles	170
	Criterion 6 Maintenance and enhancement of long-term multiple socioeconomic benefits to meet the needs of societies	172
	Criterion 7 Legal, institutional and economic framework for forest conservation and sustainable management.....	190
	Appendix A Status of milestones and commitments	196
	Appendix B Forest management in NSW	214
	Appendix C Forest-based industries' contribution to regional and state industries	223
	Appendix D Improvements to the NSW Forest Management System	230
	Appendix E Status of management plans – NSW conservation reserve system....	243
	Appendix F Forest management zoning.....	261
	Appendix G Forest Resource and Management Evaluation System (FRAMES) ...	265
	Appendix H Additions to the CAR reserve system	271
	Appendix I Threatened flora and fauna	277
	Appendix J NSW Landscapes in RFA sub-regions	300
	Appendix K Timber production in NSW RFA regions	309
	Appendix L Chronology of priority setting in the changing R&D environment	320
	Appendix M Forest health and biosecurity selected publications list	324
	References.....	351

List of tables

Table 1:	RFAs – date of signing, date of expiry and five-yearly review periods	2
Table 2:	NSW national parks estate contribution to CAR	50
Table 3:	Changes in wood supply volume commitments over the reporting period	60
Table 4:	Hardwood plantation area successfully established and funding allocations under the long-term hardwood sawlog supply supplementation strategy	113
Table 5:	Status of response to recommendations from the Period 1 independent review	119
Table 6:	Area of forest by broad forest category, June 2011	141
Table 7:	Area of native forest by crown cover class, June 2011	141
Table 8:	Forest area by forest type, June 2006 and June 2011	142
Table 9:	Area of native forest by tenure, June 2011	143
Table 10:	Areas of forest in RFA regions by region, June 2011	143
Table 11:	Areas of forest in RFA regions by forest tenure, June 2011	143
Table 12:	Area of native forest types managed by FCNSW	144
Table 13:	Lands managed by FCNSW	144
Table 14:	Public land in the NSW RFAs contributing to the CAR reserve system as at June 2014	145
Table 15:	Private land conservation mechanisms that contribute to the CAR reserve system in NSW (June 2016)	146
Table 16:	Number of forest dwelling vertebrate species ¹	148
Table 17:	Number of forest dwelling vascular plant species	148
Table 18:	Number of forest ecological communities ¹ in NSW listed under the EPBC Act	149
Table 19:	Threatened species sightings (reported and surveyed) by FCNSW	150
Table 20:	Individual sightings of threatened species by group and status 2013–14 (monitoring by FCNSW)	150
Table 21:	Monitoring of forest dwelling species by FCNSW and/or DOI	152
Table 22:	Example forest dwelling species monitoring by OEH and NPWS in NSW RFA regions	153
Table 23:	Level of monitoring of taxonomic groups for which representative species are being monitored, June 2011	154
Table 24:	Harvestable areas and area harvested over time in NSW public native forests	158
Table 25:	Glossary of common and scientific names for plantation species in NSW	159
Table 26:	Harvest volumes by FCNSW for NSW ¹	161

Table 27: Area and proportion of harvested multiple-use public native forest effectively regenerated in NSW RFA regions 2004–05 to 2013–14	162
Table 28: Public softwood and hardwood plantation planting in NSW, 2004–2013	163
Table 29: Forest areas burnt in NSW by planned and unplanned fire, 2004–05 to 2010–11	165
Table 30: Soil and water management – area of land protected, 2005–2014	166
Table 31: FCNSW, Hardwood Forests Division, expenditure on harvest-related planning and compliance, area harvested, and penalty infringement notices, 2005–2014	166
Table 32: Area of multiple-use public forest where disturbance activities were planned, proportion assessed for risk of soil erosion, and assessed category, 2010–11	167
Table 33: FCNSW calculations of the carbon balance of hardwood state forests as at 30 June 2014	171
Table 34: Value and volumes of log production in NSW	172
Table 35: Selected forest products for NSW (includes low volume wood products and areas outside RFA regions)	173
Table 36: Number of international and domestic visitors to forest nature-based tourism destinations in NSW, 2009 and 2010	174
Table 37: Recycling of forest products in NSW	176
Table 38: Expenditure on forest management in NSW state forests	177
Table 39: Area and cost of plantings in state-owned plantations managed by FCNSW	178
Table 40: Area and proportion of forest available for general recreation and tourism on public land for NSW and Australia by tenure class	179
Table 41: State forest managed by FCNSW for recreation and visual aesthetics .	179
Table 42: Number of permits issued by Forests NSW for organised recreational activities in NSW state forests	180
Table 43: Facilities provided by FCNSW for more than 130 designated recreational visitor sites	181
Table 44: Area of land in NSW, including forest land, under Aboriginal ownership and management, Aboriginal management, Aboriginal co-management and other special rights	182
Table 45: Area of forested land on sites included in the Non-Indigenous Heritage Sites of Australia dataset	183
Table 46: Characteristics of NSW Statistical Local Areas with more than 4% employment dependence on, and more than 20 workers employed in, the forest and wood products industries	187
Table 47: Forestry worker characteristics in NSW SLAs with more than 4% employment dependence on, and more than 20 workers employed in, the forest and wood products industries, 2006 and 2011	188

Table 48: Characteristics of Indigenous communities and workers in NSW regions with more than 0.4% of the Aboriginal workforce employed in forest and wood products industries 2011	190
Table 49: Summary of Parties' progress implementing NSW RFA commitments as at June 2014.....	196
Table 50: Summary of Parties' progress implementing NSW RFA commitments (in clauses or attachments) by RFA region as at June 2014	197
Table 51: Status of the Parties' progress implementing NSW RFA commitments as at June 2014.....	198
Table 52: Area of new plantations authorised in NSW RFA regions	224
Table 53: Area of plantation development and reforestation in the North East region by FCNSW	225
Table 54: FCNSW plantations by RFA region (2001, 2005, 2011).....	225
Table 55: Estimated visitor numbers to selected tourism facilities in selected state forests.....	228
Table 56: Regional and NSW tourism awards for NSW state forest destinations, 2011–2015	229
Table 57: Alignment of OEH's EMS with the Australian EMS Standard (ISO 14001:2004)	231
Table 58: Status of conservation reserve system management plans – Eden RFA	243
Table 59: Status of conservation reserve system management plans – North East RFA.....	243
Table 60: Status of conservation reserve system management plans – Southern RFA.....	256
Table 61: Forest management zones for Eden	261
Table 62: Forest management zones for South Coast sub-region	262
Table 63: Forest management zones for Tumut sub-region.....	262
Table 64: Forest management zones for Lower North East.....	263
Table 65: Forest management zones for Upper North East.....	264
Table 66: Threatened species list – flora.....	278
Table 67: Threatened species list – fauna.....	295
Table 68: NSW Landscapes in the Lower North East RFA sub-region	300
Table 69: NSW Landscapes in the Upper North East RFA sub-region	303
Table 70: NSW Landscapes in the Eden RFA region.....	304
Table 71: NSW Landscapes in the South Coast RFA sub-region	305
Table 72: NSW Landscapes in the Tumut RFA sub-region.....	307
Table 73: Timber volumes produced (m ³ p.a.) from UNE sub-region by financial year from July 2004 to June 2014	315
Table 74: Timber volumes produced (m ³ p.a.) from LNE sub-region by financial year from July 2004 to June 2014	316

Table 75: Timber volumes produced (m ³ p.a.) from South Coast sub-region by financial year from July 2004 to June 2014	317
Table 76: Timber volumes produced (m ³ p.a.) from Tumut sub-region by financial year from July 2004 to June 2014	318
Table 77: Timber volumes produced (m ³ p.a.) from Eden region by financial year from July 2004 to June 2014	319
Table 78: Chronology of R&D priority setting	320
Table 79: Chronology of R&D compendium progress	323
Table 80: NSW DPI research papers	339
Table 81: NSW DPI – Forest research technical papers	341
Table 82: NSW DPI – Technical publication series	344
Table 83: NSW DPI – Forest resources series.....	345
Table 84: NSW DPI – Forest & Wood Products Research & Development Corporation (FWPRDC) technical publications.....	346
Table 85: NSW DPI – Research notes	346
Table 86: NSW DPI – Technical publications.....	349
Table 87: NSW DPI – Forest protection manual (leaflets).....	350
Table 88: NSW DPI – Online publications.....	350

List of figures

Figure 1: Available timber volume over time in the North East RFA region differentiated by source	114
Figure 2: Forest management framework in NSW.....	215
Figure 3: NSW Forest Agreement areas showing UNE, LNE, Southern and Eden.....	218
Figure 4: Major elements of the FCNSW Forest Management System.....	232
Figure 5: FCNSW annual area harvested by silviculture type	242
Figure 6: FRAMES structure – information flow	266
Figure 7: High quality large and high quality small timber production from North East RFA region combined from July 2004 to June 2014	310
Figure 8: High quality large and high quality small timber production from UNE sub-region from July 2004 to June 2014	310
Figure 9: High quality large and high quality small timber production from LNE sub-region from July 2004 to June 2014	311
Figure 10: High quality large and high quality small timber production from South Coast sub-region combined from July 2004 to June 2014	312
Figure 11: High quality large and high quality small timber production from Tumut sub-region combined from July 2004 to June 2014.....	312
Figure 12: High quality large and high quality small timber production from Eden region combined from July 2004 to June 2014.....	314

List of maps

Map 1:	Upper North East sub-region of the North East RFA region – CAR reserve system additions.....	272
Map 2:	Lower North East sub-region of the North East RFA region – CAR reserve system additions.....	273
Map 3:	Eden RFA region – CAR reserve system additions.....	274
Map 4:	Tumut sub-region of the Southern RFA region – CAR reserve system additions.....	275
Map 5:	South Coast sub-region of the Southern RFA region – CAR reserve system additions.....	276

Abbreviations

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences (C'wth)
ABC	Australian Broadcasting Corporation (C'wth)
ABS	Australian Bureau of Statistics (C'wth)
AFS	Australian Forestry Standard
AGS	Australian Group Selection
API	Aerial photo interpretation
AS4708	Australian Standard for Sustainable Forest Management
BMAD	Bell miner associated dieback
BSI	British Standards Institution
BWR	Beecroft Weapons Range
CAM	Common assessment method
CAR	Comprehensive, adequate and representative (reserve system)
COAG	Council of Australian Governments
CRA	Comprehensive regional assessment
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation (C'wth)
C'wth	Commonwealth (of Australia)
DAWR	Department of Agriculture and Water Resources (C'wth)
DEC	Department of Environment and Conservation (NSW)
DECC	Department of Environment and Climate Change (NSW)
DECCW	Department of Environment, Climate Change and Water (NSW)
DNR	Department of Natural Resources (NSW)
DTM	Digital terrain model
DOI	Department of Industry (NSW)
DIPNR	Department of Infrastructure, Planning and Natural Resources (NSW)
DoEE	Department of the Environment and Energy (C'wth)
DPI	Department of Primary Industries (NSW)
EC Act	<i>Export Control Act 1982</i> (C'wth)
eMAR	Environmental monitoring, assessment and reporting framework
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> (C'wth)
EPL	Environment Protection Licence
ESFM	Ecologically sustainable forest management
ESP Act	<i>Endangered Species Protection Act 1992</i> (C'wth)
FA	Forest Agreement
FCNSW	Forestry Corporation of NSW
FISAP	Forest Industry Structural Adjustment Package
FM Act	<i>Fisheries Management Act 1994</i> (NSW)
FMP	Forest Management Plan

FMS	Forest Management System
FNSW	Forests NSW
FMZ	Forest management zoning (zones)
FNPE Act	<i>Forestry and National Park Estate Act 1998</i> (NSW)
FRAMES	Forest Resource and Management Evaluation System
FWPA	Forest and Wood Products Australia
FY	Financial year
GIPA Act	<i>Government Information (Public Access) Act 2009</i> (NSW)
GIS	Geographic information system
HQL	High quality large (sawlogs)
HQS	High quality small (sawlogs)
IBRA	Interim Biogeographic Regionalisation for Australia
IFOA	Integrated forestry operations approval
ILUA	Indigenous land use agreement
ISO14001	ISO 14001:2004 – Environmental management systems – Requirements with guidance for use
JANIS	Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee
KPI	Key performance indicator
LALC	Local Aboriginal Land Council
LiDAR	Light Detection and Ranging
LNE	Lower North East (sub-region)
MER	Monitoring, Evaluation and Reporting
MIG	Montréal Process Implementation Group for Australia
MOU	Memorandum of understanding
MP C&I	Montréal Process Criteria and Indicators
NAIDOC	National Aboriginal and Islanders Day Observance Committee
n.d.	No date
NFPS	National Forest Policy Statement (1992)
NHAM	Net Harvest Area Modifier
NPWS	National Parks and Wildlife Service (NSW)
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW)
NRM	Natural resource management
NRS	National Reserve System
NSW	New South Wales
NV Act	<i>Native Vegetation Act 2003</i> (NSW)
NVC Act	<i>Native Vegetation Conservation Act 1997</i> (NSW) (repealed)
OEH	Office of Environment and Heritage (NSW)
p.a.	per annum
PAS	Threatened Species Priorities Action Statement
PEFC	Programme for the Endorsement of Forest Certification
Period 1	First five-year period of the NSW RFAs
Period 2	Second five-year period of the NSW RFAs
Period 3	Third five-year period of the NSW RFAs
PGP	Permanent growth plot

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)
PPTSP	Private Property Timber Supplementation Program
PR Act	<i>Plantations and Reafforestation Act 1999</i> (NSW)
PR Code	Plantations and Reafforestation (Code) Regulation 2001 (NSW)
PVP	Property vegetation plan
PWG	Parks and Wildlife Group (a division of the then NSW Department of Environment and Climate Change)
QAA	Quality Assurance Assessments
RACD	Resource and Conservation Division (NSW) of the then NSW Department of Infrastructure, Planning and Natural Resources
RD&E	Research, development and extension
R&D	Research and development
REDEN	Regrowth Eden
RFA	Regional Forest Agreement
RFA Act	<i>Regional Forest Agreements Act 2002</i> (C'wth)
RLC	Research Liaison Committee
RNE	Register of the National Estate
SCA	State conservation area
SEEing	Social, Environmental and Economic Report
SFNSW	State Forests of NSW
SLA	Statistical Local Area
SOFR	Australia's State of the Forests Report
SOP	Standard Operating Procedure
SRM	Strike Rate Modifier
STA	Singleton Army Training Area
STS	Single tree selection
TAFE	Technical and Further Education
TAP	Threat abatement plan
TEC	Threatened ecological community
TSC Act	<i>Threatened Species Conservation Act 1995</i> (NSW)
UNE	Upper North East (sub-region)
UNESCO	United Nations Educational, Scientific and Cultural Organization
WH	World Heritage
WSA	Wood supply agreement

Executive summary

The three Regional Forest Agreements (RFAs) in New South Wales (NSW) were signed by the State of New South Wales and the Commonwealth of Australia (C'wth) (the Parties) on:

- 26 August 1999 for the Eden RFA
- 31 March 2000 for the North East RFA
- 24 April 2001 for the Southern RFA.

The NSW RFAs establish a 20-year framework for forest management. Their purpose is to:

- identify a comprehensive, adequate and representative (CAR) reserve system and provide for the conservation of those areas
- provide for the ecologically sustainable management and use of forests
- provide long-term stability of forests and forest-based industries.

To assist in achieving the purpose of the NSW RFAs, the Parties agreed to a series of milestones, commitments and obligations for monitoring and reporting.

The RFA reporting framework includes reporting, every five years after the signing of an RFA, on progress in implementing the RFA's milestones and commitments and obligations. The first five-yearly review used the review periods of 1999–2004 for Eden, 2000–2005 for North East and 2001–2006 for Southern. For this combined second and third five-yearly review report (hereafter implementation report), the Parties have decided to streamline the reporting task. For this implementation report, for all three RFAs, the second review period ends on 30 June 2009 and the third review period ends on 30 June 2014.

This implementation report covers the second five-yearly (Period 2 – July 2004 to June 2009) and third five-yearly (Period 3 – July 2009 to June 2014) review of progress. In some instances, reporting may extend beyond 2014 where such information is likely to be useful.

The first five-yearly review of progress of implementation demonstrated considerable progress by the Parties in implementing the milestones, commitments and obligations contained in the NSW RFAs.

During Period 2 and Period 3, the Parties continued to demonstrate a significant commitment to progressing the implementation of the commitments in the NSW RFAs. Table 51 in Appendix A provides a summary of the status of each of the commitments in each of the NSW RFAs. Sections 2 and 3 of this report provide detailed information on the level of achievement of each commitment.

This implementation report uses the following categories to assess the status of the implementation of the commitments:

Status	Definition
Achieved	Undertaken and completed in Period 1, Period 2 or Period 3
Achieved outside proposed timeline	Achieved in either Period 1, Period 2 or Period 3 but outside the original proposed timeline
Achieved in part	Partially undertaken or modified
Not applicable	Not required in the reporting period
No longer applicable	Overtaken by subsequent events
Not achieved	Not commenced

Using these categories, this implementation report has assessed a total of 376 commitments in the three NSW RFAs with:

- 227 (60%) achieved
- 53 (14%) achieved outside the proposed timeline
- 56 (15%) achieved in part
- 38 (10%) not applicable or no longer applicable
- 2 (<1%) not achieved.

For a summary breakdown of achievements by RFA region, please refer to Table 49 in Appendix A.

In addition to reporting on the status of the commitments in the NSW RFAs, this implementation report also reports on the status of the delivery by the Parties of their responses to the recommendations made by the Independent Reviewer to the first five-yearly report. Of the 18 recommendations, 11 have been fully implemented, two have been partly implemented and five are underway.

Since the three NSW RFAs were signed, both the NSW and Australian governments have made a number of changes to policy and legislative settings which have implications for the commitments in the RFAs, and their delivery. These include amendments to the *Environment Protection and Biodiversity Conservation Act 1999* (C'wth) (EPBC Act), the commencement of the *Illegal Logging Prohibition Act 2012* (C'wth) and many changes to the NSW regulatory framework for the native forestry sector.

NSW and Commonwealth officials have prepared this implementation report in order to provide information on the activities of the NSW and Commonwealth governments in implementing the milestones, obligations and commitments in the three NSW Regional Forest Agreements.

The Parties welcome comment from interested stakeholders on the contents of this implementation report as part of the second and third five-yearly review of the NSW RFAs.

An Independent Reviewer will consider this implementation report and the submissions received during the public consultation period. The Independent Reviewer will make recommendations to the NSW and Commonwealth governments with regard to the ongoing implementation of the three NSW RFAs.

Clause 6 of each of the three NSW RFAs provides that the NSW and Commonwealth governments will jointly determine the process for extending the RFAs for a further period as part of the third five-yearly review.

The Parties recognise that some stakeholders may wish to make representations on the future of RFAs in NSW. The future of the RFAs lies outside the scope of this combined second and third five-yearly implementation report, which focuses on the actions in 2004 to 2014 of the Parties to achieve their NSW RFA commitments.

1 Introduction

1.1 Background

Between 1999 and 2001, the State of New South Wales and the Commonwealth of Australia (i.e. 'the Parties') entered into three Regional Forest Agreements (RFAs) covering the coastal and tablelands regions of NSW.

The three NSW RFAs were among 10 that were signed between the Commonwealth and four states – NSW, Tasmania, Victoria and Western Australia – between 1997 and 2001.

The *Regional Forest Agreements Act 2002* (C'wth) gives effect to certain obligations of the Commonwealth under the RFAs and certain aspects of the *National Forest Policy Statement* C'wth¹ (NFPS).

These NSW RFAs were signed following comprehensive regional assessments (CRAs)² of the Eden, North East and Southern regions, which provided an information base from projects commissioned to evaluate the economic, social, environmental and heritage uses and values of the forests in each RFA region. Experts contributing to the CRAs came from such fields as archaeology, botany, forest ecology, geography, geomorphology, geology, hydrology and soil science, as well as economics, regional development and social planning. The CRAs were a result of years of scientific study, consultation and negotiation with a diverse range of stakeholders.

The NSW RFAs established an agreed framework for the ecologically sustainable management and use of forests in those regions. In particular, the NSW RFAs:

- identify areas that the Parties believe are required for the purposes of a comprehensive, adequate and representative (CAR) reserve system and provide for the conservation of those areas
- provide for the ecologically sustainable management and use of forested areas in those regions
- are for the purpose of providing long-term stability of forests and forest industries
- have regard to studies and projects carried out in relation to:
 - environmental values, including old growth, wilderness, endangered species, National Estate values and World Heritage values
 - Aboriginal heritage values
 - economic values of forested areas and forest industries
 - social values (including community needs)
 - the principles of ecologically sustainable forest management (ESFM).

1.2 Duration

The duration of each RFA is 20 years with a requirement for five-yearly reviews. The dates of signing and expiry are set out in Table 1.

1.3 Five-yearly reviews

To assist in achieving the objectives of the NSW RFAs, the Parties agreed to a series of commitments (or obligations) for reporting. The Parties designated some commitments as milestones with defined actions, usually incorporating a timeline or delivery of a

¹ Commonwealth of Australia 1992, *National Forest Policy Statement*, accessed June 2017 www.agriculture.gov.au/forestry/policies/forest-policy-statement

² EPA 2013a, *Comprehensive Regional Assessments (CRAs)*, NSW Environment Protection Authority, accessed June 2017 <http://epa.nsw.gov.au/forestagreements/assessments.htm>

review/report. The short-form text of milestones is listed at Attachment 5 of the North East and Southern RFAs and at Attachment 4 of the Eden RFA (reproduced in this report in Appendix A, Table 51). The commitments are set out in the clauses (Parts 1 to 3) and attachments of the three NSW RFAs. The short-form text of these commitments is also included in Appendix A, Table 51.

Each of the NSW RFAs includes a requirement that the Parties review their performance in achieving the agreed milestones and commitments at five-yearly intervals as well as report on the monitoring of sustainability indicators (clauses 40–43 of the North East RFA and clauses 38–41 of the Eden and Southern RFAs).

The first three five-yearly review periods as agreed by the Parties are shown in Table 1.

Table 1: RFAs – date of signing, date of expiry and five-yearly review periods

RFA	Date of signing	Date of expiry	First review period	Second review period	Third review period
Eden	26 August 1999	26 August 2019	August 1999–June 2004	July 2004–June 2009	July 2009–June 2014
North East	31 March 2000	31 March 2020	March 2000–June 2005	July 2004–June 2009	July 2009–June 2014
Southern	27 April 2001	27 April 2021	April 2001–June 2006	July 2004–June 2009	July 2009–June 2014

1.4 Implementation report for the first review period

The Parties commenced the first five-yearly review of the NSW RFAs in 2008. The Parties prepared *A Draft Report on Progress with Implementation of the New South Wales Regional Forest Agreements (RFAs)* (implementation report) which reviewed their performance against the milestones (but not the other commitments) and reported on the results of their monitoring of sustainability indicators.

The implementation report was released for public consultation from 23 June to 7 September 2009.

The Parties appointed an Independent Reviewer, Mr Scott Spencer of Queensland, to review the implementation report and the 32 submissions received during the consultation period. In November 2009, Mr Spencer made 18 recommendations to the Parties³. His report was tabled in the Australian Parliament on 15 March 2010 and made publicly available on the relevant departmental websites of the Parties.

In 2014, the Parties released their Joint Government Response to Mr Spencer's recommendations. The Joint Government Response report was tabled in both Houses of the Australian Parliament – in the House of Representatives on 30 October 2014 and in the Senate on 17 November 2014. The report was subsequently made publicly available⁴ on the relevant departmental websites of the Parties.

1.5 This combined second and third review

This implementation report was jointly prepared for the combined second and third five-yearly reviews of the three NSW RFAs by the Parties.

³ Spencer S 2009, *Final Report on Progress with Implementation of NSW Regional Forest Agreements: Report of Independent Assessor*, accessed 9 November 2016, www.agriculture.gov.au/forestry/policies/rfa/publications/annual-reports/nsw

⁴ NSW and Australian Governments 2014a, *New South Wales Regional Forest Agreements: first five-yearly review*, accessed June 2017 www.agriculture.gov.au/forestry/policies/rfa/publications/annual-reports/nsw

This implementation report covers the second review period and the third review period (2004–2014). In some cases, where appropriate, reporting on progress against the milestones and commitments may extend beyond 2014.

This implementation report reviews the Parties' performance in implementing the commitments (including milestones), the results of monitoring of sustainability indicators and updates progress on the Parties' actions in response to Mr Spencer's 18 recommendations.

This review does not include a renegotiation of the RFAs. Nonetheless, the Parties can agree to minor modifications to incorporate relevant actions agreed in the Joint Government Response to the Independent Reviewer's recommendations.

1.6 Review process

This implementation report will be released for a public consultation period of at least eight weeks. This implementation report and submissions received by the NSW Environment Protection Authority (EPA), on behalf of the Parties, will be forwarded to an Independent Reviewer for analysis of information provided by the Parties and the issues raised in the submissions.

The Independent Reviewer will provide the Parties with a report analysing this implementation report and the submissions. The Parties will consider the Independent Reviewer's report and prepare a joint government response to its recommendations. Both the Independent Reviewer's report and the joint government response will be made publicly available after tabling in the Australian Parliament.

This implementation report is an important component of the process to review the NSW RFAs for the second (five to 10 years) and third (10 to 15 years) five-yearly periods. It has been prepared jointly by the following government agencies or state owned corporations:

- Australian Government Department of Agriculture and Water Resources, with input from the Department of the Environment and Energy, and
- the EPA, the NSW Department of Primary Industry (DPI Forestry), the NSW Office of Environment and Heritage (OEH).

The Forestry Corporation of NSW (FCNSW) provided significant input to many aspects of the implementation report.

Input was also provided by the NSW Department of Premier and Cabinet and the NSW Department of Planning and Environment.

1.7 Structure of this report

This implementation report details progress in implementing the NSW RFAs:

- Sections 2 and 3 outline progress with the implementation of the commitments (including those with time-bound milestones) during the combined second and third five-yearly periods.
- Section 4 presents the Parties' progress in responding to the recommendations of the independent review of the first five-yearly review in 2009.
- Section 5 reports on the monitoring of sustainability indicators using the criteria and indicators adopted by the Montréal Process Implementation Group for Australia (MIG)⁵.
- The appendices provide more detailed information to support the responses to various commitments, milestones or obligations from the NSW RFAs.

⁵ Montréal Process Implementation Group for Australia 2008, *Australia's Sustainable Forest Management Framework of Criteria and Indicators 2008 Policy Guidelines*, accessed June 2017 www.agriculture.gov.au/abares/forestsaustralia/Documents/ciframework.pdf

1.8 Significant issues and events between implementation reports

Since the NSW RFAs were signed there have been legislative and policy changes made by the NSW and Australian governments as well as significant events that have affected the implementation of some of the milestones, commitments and recommendations. Those relevant to Period 2 and Period 3 include:

- In 2003, the Commonwealth Parliament amended the *Environment Protection and Biodiversity Conservation Act 1999* (C'wth) (EPBC Act) and repealed the *Australian Heritage Commission Act 1975* (C'wth) in a national coordination of heritage protection. As part of this, the Register of the National Estate (RNE) was phased out. The RNE was frozen in February 2007 but remained a statutory register until 2012 after which date it was maintained as a non-statutory archive.
- In 2005, the *Native Vegetation Conservation Act 1997* (NSW) (NVC Act) was repealed and the *Native Vegetation Act 2003* (NSW) (NV Act) commenced.
- In NSW, softwood and hardwood plantations are regulated under the *Plantations and Reafforestation Act 1999* (NSW) (PR Act) and the *Plantations and Reafforestation (Code) Regulation 2001* (PR Code). A statutory review of the PR Act and PR Code, which began in 2005, was completed during 2010. The review process involved extensive consultation with industry and relevant government agencies.
- The Commonwealth's *Illegal Logging Prohibition Act 2012* (C'wth), which came into effect in November 2012, makes it a criminal offence to intentionally, knowingly or recklessly import or process illegally logged timber or timber products. The Act also requires importers of certain regulated timber products and processors of domestically grown raw logs to actively assess, and manage, the risk that the products they are dealing with include illegally logged timber. This is known as undertaking due diligence. The intent of these laws is to minimise the risk of illegal timber entering the Australian market.
- In August 2007, the Private Native Forestry Code of Practice (PNF Code) commenced. The PNF Code is a key part of the regulatory framework for the sustainable management of native forests. It aims to ensure the improvement or maintenance of environmental outcomes by setting minimum operating standards for harvesting in private native forests. The PNF Code was amended in 2013.
- On 1 January 2013, the *Forestry Act 2012* (NSW) (Forestry Act) commenced. It dissolved the Forestry Commission of NSW (trading as Forests NSW) and established FCNSW as a State Owned Corporation under the Forestry Act and the *State Owned Corporations Act 1989* (NSW). The Forestry Act repealed the *Forestry Act 1916* (NSW) and the *Timber Marketing Act 1977* (NSW). Parts 5A and 5B of the Forestry Act provide for the making of Forest Agreements (FAs) and the granting of integrated forestry operations approvals (IFOAs), key components of the regulatory framework for native forestry in NSW. With the commencement of the Forestry Act, the *Forestry and National Park Estate Act 1998* (NSW) (FNPE Act) was retitled as the *National Park Estate (Land Transfers) Act 1998* (NSW), and no longer contains forestry related legislation.
- Commencing in 2014, the Commonwealth, state and territory environment ministers agreed to work together to establish a common assessment method (CAM) for assessing and listing nationally threatened species and, where agreed by jurisdictions, ecological communities. The objectives were to ensure a consistent and robust listing practice across the country and to underpin continued protection of Australia's unique species. Although outside the reporting period, a memorandum of understanding (MOU)⁶ to implement this agreement formally came into force in October 2015 based on its signing by the Commonwealth and Western Australian environment ministers.

⁶ DoEE 2015, *Intergovernmental memorandum of understanding – Agreement on a common assessment method for listing of threatened species and threatened ecological communities*, accessed June 2017 www.environment.gov.au/biodiversity/threatened/publications/mou-cam

Jurisdictions can agree to apply the CAM by signing the intergovernmental MOU. In October 2016, the NSW Government signed the MOU and also opted-in to apply the CAM to ecological communities. An interjurisdictional working group oversees the implementation of the MOU.

- Although outside the reporting period, on 25 August 2017 the *Biodiversity Conservation Act 2016* (NSW) came into force and repealed the NV Act, the *Threatened Species Conservation Act 1995* (TSC Act) (NSW), *Nature Conservation Trust Act 2001* (NSW), and the *National Parks and Wildlife Act 1974* (NPW Act) (NSW).

The Parties continue to recognise that the NSW RFAs, within the context of the policy and legislative changes, retain the capacity to meet the stated purposes set out in the *Recitals* section of each RFA; namely, the RFAs:

- establish a framework for the management of forests in the RFA regions
- identify areas and regions that the Parties believe are required for the purposes of a comprehensive, adequate and representative reserve system, and provide for the conservation of those areas
- provide for the ecologically sustainable management and use of forested areas in the regions
- are for the purpose of providing long-term stability of forests and forest industries.

2 Progress against milestones and commitments

The NSW RFAs establish the framework for the management of forests in the Eden, North East and Southern regions of NSW and have played an important role in shaping ecologically sustainable management of the coastal and tablelands native forests. The three RFAs and their Attachments contain numerous milestones, commitments and obligations. While these terms are not defined in the NSW RFAs, for the purposes of this implementation report they have been defined as follows:

- Commitments – statements, actions or processes agreed to by NSW, the Commonwealth or both Parties, that are identified in the clauses or attachments to the RFAs.
- Milestones – timebound commitments identified as milestones in the RFA documents. The milestones were indicated within the clauses and attachments of the RFAs and are listed in a separate appendix to each RFA – Eden RFA (Appendix 4), North East RFA (Appendix 5) and Southern RFA (Appendix 5).
- Obligations – legally binding commitments identified in the RFAs.

In many instances, the milestones, commitments or obligations are the same, or very similar, across the three NSW RFAs. In other instances, a milestone or commitment or obligation may be mentioned in only one or two of the NSW RFAs. The Parties identified reportable commitments in accordance with the ‘scoping Agreement for the review of progress with implementation of the New South Wales Regional Forest Agreements’⁷.

Section 2 of this report provides an assessment, including qualitative and quantitative information, of the status of the Parties’ actions to implement each milestone, commitment and obligation in the NSW RFAs.

Section 3 of this report does the same for each milestone, commitment and obligation contained in the Attachments to the three NSW RFAs.

Since signing the NSW RFAs between 1999 and 2001, the Parties have made significant progress in implementing the milestones, commitments and obligations in the RFAs. Most have been achieved, although there have been some delays in timelines for completing some activities. Some commitments may no longer be applicable due to policy changes, new information, or changes in delivery mechanisms.

The Parties thoroughly assessed the three NSW RFAs to identify actionable items within the commitments and obligations. As required through a clause of each NSW RFA, the designated milestones within an Attachment to each NSW RFA are also subject to reporting through the five-yearly review. The combination of the actionable items and the designated milestones provided the suite of milestones, commitments and obligations to which the Parties have provided responses in this combined second and third five-yearly implementation report.

Table 51 in Appendix A to this report shows the status of each of the identified 376 milestones, commitments and obligations in the three NSW RFAs.

⁷ Commonwealth of Australia and State of New South Wales 2016, *Scoping Agreement for the review of progress with implementation of the New South Wales Regional Forest Agreements*, accessed June 2017 www.epa.nsw.gov.au/resources/forestagreements/scoping-agreement-review-progress-implementation-regional-forest-agreements-eden-northeast-southern.pdf

This implementation report uses the following categories to assess the status of implementation of the commitments:

Status	Definition
Achieved	Undertaken and completed in Period 1, Period 2 or Period 3
Achieved outside proposed timeline	Achieved in either Period 1, Period 2 or Period 3 but outside the original proposed timeline
Achieved in part	Partially undertaken or modified
Not applicable	Not required in the reporting period
No longer applicable	Overtaken by subsequent events
Not achieved	Not commenced

The status of implementation of the milestones, commitments and obligations in the NSW RFAs is as follows:

- 227 (60%) achieved
- 53 (14%) achieved outside the proposed timeline
- 56 (15%) achieved in part
- 38 (10%) not applicable or no longer applicable
- 2 (<1%) not achieved.

The structure of this section of the report follows the same structure, and uses the same headings, as the RFAs.

Sections 2 and 3 of this report present a summary of each milestone, commitment and obligation in a shaded text box. The text box indicates the location of the commitment in the RFA(s) and to which RFA(s) the commitment applies: ‘**AII**’, ‘**E**’ for the Eden RFA, ‘**NE**’ for the North East RFA and ‘**S**’ for the Southern RFA.

2.1 Principles of the Agreement

Duration of agreement: Milestone	Clause number
The Parties to determine the process for extending the agreement for a further period as part of the third five-yearly review.	6 (All)

This milestone has been achieved in part through the conduct of the second and third five-yearly review. The Parties will address work on implementing this commitment bilaterally.

The Parties hold a shared intent for an ongoing role for NSW RFAs, and will consider this within the process for conducting the review.

In parallel with this combined five-yearly review, the Parties will consider the feedback from the Independent Reviewer’s report, comments expressed in stakeholder and public submissions as well as information from other forums in determining the future scope, content and format of the NSW RFAs.

This Agreement may only be amended with the consent, in writing, of both Parties. The Parties agree to work co-operatively to address any differences between them as to the interpretation or implementation of the Agreement.	Clause number 8 (All)
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This ongoing commitment was achieved in Period 1, Period 2 and Period 3.

The NSW RFAs have not been amended nor have there been any differences between the Parties relating to interpretation or implementation of the NSW RFAs during Period 2 and Period 3.

The Parties agree that if a dispute arises between the Parties regarding this Agreement it must be resolved expeditiously in accordance with the provisions of clauses 10 to 14.	Clause number 9 (All)
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This ongoing commitment was achieved in Period 1, Period 2 and Period 3.

There were no disputes between the Parties during the reporting periods.

2.2 Functioning of the Agreement

Relationship to previous intergovernmental forest agreements

<p>Relationship to Previous Forest Agreements: Milestone</p> <p>This Agreement replaces the South-East Forest Agreement (SEFA) signed by the Commonwealth and New South Wales Governments on 21 December 1993, except that the Parties agree that the remaining unspent Commonwealth and State funds committed through the SEFA will remain available for regional development initiatives in the Eden region. The Parties further agree to develop within six months of the date of this Agreement an appropriate mechanism to develop and consider these initiatives.</p>	Clause number E - 17 (a)
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This milestone was achieved during Period 1 and was reported in the first five-yearly review report.

Relationship to statutory obligations

<p>Relationship to Statutory Obligations</p> <p>Neither Party will seek to use existing or future legislation to undermine or impede this Agreement.</p>	Clause number 19 (All)
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Neither party introduced legislation that undermined or impeded the NSW RFAs during Period 1, Period 2 and Period 3.

<p>National Estate</p> <p>The Parties will manage their respective responsibilities with regard to the National Estate in accordance with the provisions of this Agreement as detailed in Attachment 4 (E - Attachment 3).</p>	Clause number 21 (All)
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This commitment is no longer applicable. Further details are provided in Section 3.3.

The RNE was established in the 1970s when heritage protection was not coordinated nationally. Over time it came to include over 13,000 places, mostly of local and state significance. In 1997, the Council of Australian Governments (COAG) agreed to coordinate heritage protection and remove overlap, with each jurisdiction responsible for heritage of significance at its own level.

Based on the 1997 COAG agreement, the Australian Government in 2003 repealed the *Australian Heritage Commission Act 1975* (C'wth), enacted the *Australian Heritage Council Act 2003* (C'wth) and amended the EPBC Act to provide for the creation of two new heritage lists: the National Heritage List and the Commonwealth Heritage List (for places which are the responsibility of the Australian Government). The level of protection provided by the RNE was limited to consideration of actions by Commonwealth agencies and was superseded by stronger forms of protection available under the EPBC Act. The EPBC Act includes provisions to identify places for inclusion in the National and Commonwealth heritage lists for the protection, conservation and protection of the values of these places. The EPBC Act also includes protection of heritage on Commonwealth land and from Commonwealth actions.

The RNE was frozen on 19 February 2007, which means that no new places can be added, or any existing places, or values of places, removed. The register continued as a statutory register for five years until 19 February 2012 to allow states and territories to consider whether places on the RNE should be protected under other statutory provisions or through their own heritage registers. During this period successive Australian Government environment ministers were required to consider information in the RNE in the course of their decision-making under the EPBC Act.

All heritage places on the RNE, National Heritage List, Commonwealth Heritage List and World Heritage List can be found by searching the Australian Heritage Database⁸.

Endangered species protection	Clause number
The Commonwealth notes that its obligations to promote endangered species protection will involve ongoing co-operative work with New South Wales agencies concerning the Upper North East and Lower North East regions (E – the Eden region; S – the Southern region).	NE – 26 E – 25 S – 26

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

A number of NSW threatened species and ecological communities listed under the EPBC Act, occur in the three NSW RFA regions. The NSW and Australian governments regularly share relevant information on these species or communities as part of the Commonwealth listing processes, including under the common assessment method.

NSW largely ceased developing recovery plans from 2007. A new approach was adopted with Threatened Species Priorities Action Statements (PAS) detailing actions for each listed threatened species, population and ecological community. The PAS are implemented through the *Saving our Species* program. Further information is publicly available on the OEH website⁹.

Following NSW's move away from recovery plans as a conservation tool, the Australian Government has continued developing recovery plans¹⁰, consulting with the NSW Government as part of the process.

The Parties continued to promote the protection and management of threatened species and ecological communities through recovery planning and implementation. Joint Commonwealth–State funded work primarily involves the implementation of recovery activities for nationally listed (EPBC Act) species.

⁸ DoEE n.d., *Australian Heritage Database*, accessed 10 November 2016
www.environment.gov.au/cgi-bin/ahdb/search.pl

⁹ OEH 2017i, *Threatened Species Priorities Action Statement*, accessed June 2017
www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/programs-legislation-and-framework/priorities-action-statement

¹⁰ DoEE n.d., *Recovery Plans*, accessed 10 November 2016,
www.environment.gov.au/biodiversity/threatened/recovery.html

As part of the implementation of priority actions for recovery of threatened species and ecological communities in NSW, the Australian Government provided funding through a range of programs such as the Natural Heritage Trust, Caring for our Country, Biodiversity Fund, National Landcare Program and 20 Million Trees Program¹¹. Funding was for a range of activities across NSW – for example, support for local environmental outcomes by improving the extent, connectivity and condition of native vegetation that supports native species – and was not specifically targeted at the NSW RFA regions.

The status of recovery plans relevant to NSW RFAs are provided in Section 3.2.

In 2004, the Australian Government initiated the Species Information Partnerships project with a number of state and territory governments that aimed to improve information on threatened species listed by both jurisdictions and to enhance alignment, where appropriate, between national and state lists of threatened species. The Species Information Partnerships project has proved very successful. The Australian Government continues to work closely with NSW and other jurisdictions to build upon the outcomes of the Species Information Partnerships project, including through implementation of the CAM, which commenced in 2015 (outside the reporting period).

In July 2014, Australia’s Threatened Species Commissioner commenced working with all levels of government, scientists, the non-for-profit sector, industry and the community to deliver better outcomes for threatened species across all tenures, noting this is outside the present reporting period.

Case study

An example of an ongoing cooperative activity related to endangered species is the relocation of long-nosed potoroos (*Potorous tridactylus*) from state forests near Eden to Booderee National Park near Jervis Bay¹² where they have been extinct for many years. In late 2014, a partnership of FCNSW, Parks Australia and other collaborators trapped the potoroos to be relocated. Following monitoring of the relocated population and indications of successful re-establishment, the partnership is planning to relocate southern brown bandicoots (*Isoodon obesulus*) to Booderee National Park from state forests south of Eden.

World Heritage assessment	Clause number
The Parties agree to actively investigate, and jointly participate in the further World Heritage assessment of the relevant Australia-wide themes specified in Section 3.4.2 (Table 17) of the World Heritage Expert Panel report, including any potential contribution from the Upper North East and Lower North East regions.	NE – 27 E – 26 S – 27

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The World Heritage assessment component of the RFA process comprised a joint undertaking between the relevant states and the Commonwealth, with various stages implemented on the advice of a World Heritage Expert Panel to the Parties. In March 1999, an Expert Workshop investigated the possible World Heritage sub-theme of eucalypt-dominated vegetation. A report¹³ was produced in August 1999.

¹¹ National Landcare Program 2016, *Home*, accessed June 2017 www.nrm.gov.au/

¹² Parks Australia 2014, *Threatened Species Project Updates: Booderee National Park*, accessed 9 November 2016, www.environment.gov.au/system/files/resources/90e93561-2a04-44a0-b367-d1d186773e4e/files/booderee-potoroos-bandicoots-year1.pdf

¹³ Department of Agriculture and Water Resources 2015a, *World Heritage Expert Panel Meeting*, accessed 30 June 2017 www.agriculture.gov.au/forestry/policies/rfa/publications/whep-meeting

Any further development of World Heritage assessments of the eucalypt sub-theme will be subject to bilateral discussions between the relevant states and the Commonwealth and will take place independently of the RFA process.

<p>World Heritage properties</p> <p>Parties recognise that existing World Heritage properties within the RFA regions, and any new areas nominated for World Heritage listing subject to clause 31 will be subject to the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i>.</p> <p>(S - Parties recognise that any areas nominated for World Heritage listing subject to clause 31 will be subject to the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i>).</p>	<p>Clause number</p> <p>NE – 28</p> <p>S – 28</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

The Parties recognise the Gondwana Rainforests of Australia¹⁴ in the North East RFA region as a declared property in terms of the EPBC Act.

There have been no World Heritage nominations within the three NSW RFA regions over the three five-year periods.

Within RFA regions, forestry operations conducted in accordance with RFAs obtain approvals through the EPBC Act provisions in Part 4, Division 4, section 38. The assessment and approval requirements in Part 3 of the EPBC Act do not apply to forestry operations within an RFA region¹⁵, except where operations are within World Heritage or Ramsar wetland sites. This is to avoid duplication, as RFAs are considered to meet the objects of the EPBC Act. A similar provision applies to activities covered by the *Great Barrier Reef Marine Park Act 1975* (C'wth).

<p>World Heritage Nomination for the Greater Blue Mountains</p> <p>The Parties agreed in 1997 to develop a World Heritage Nomination for the Greater Blue Mountains region in reference to the Eucalypt theme. The nomination was submitted in 1998 and is currently undergoing assessment. A section of the Lower North East RFA Region forms part of the nominated area. The Parties have agreed to develop funding and management arrangements for the nominated property.</p>	<p>Clause number</p> <p>NE – 29</p>
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This commitment was achieved during Period 1.

In 2000, 1.032 million hectares of the Greater Blue Mountains Area, which comprises eight protected areas in two blocks, was inscribed on the World Heritage List. The Greater Blue Mountains Area was one of 15 World Heritage places included in the National Heritage List on 21 May 2007¹⁶.

¹⁴ DoEE n.d., *World Heritage Places – Gondwana Rainforests of Australia*, accessed 9 November 2016, www.environment.gov.au/heritage/places/world/gondwana

¹⁵ The explanatory notes that accompanied the EPBC Bill 1998 state that: 'The objects of this Act will be met through the RFA process for each region and, accordingly, the Act does not apply to forestry operations in RFA regions'.

¹⁶ DoEE n.d., *World Heritage places – Greater Blue Mountains*, accessed 9 November 2016 www.environment.gov.au/heritage/places/world/blue-mountains

World Heritage Nominations The Commonwealth agrees that it will give full consideration to the potential social and economic consequences of any World Heritage Nomination of places in the Upper North East and Lower North East regions and that any such nomination will only occur after the fullest consultation and with agreement of the State.	Clause number NE – 30 E – 27 S – 29
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This is an ongoing commitment and was not applicable in Period 1, Period 2 and Period 3.

There have been no World Heritage nominations within the three NSW RFA regions over the three five-year periods.

The Greater Blue Mountains and Gondwana Rainforests of Australia¹⁷, within NSW (North East RFA region) and Queensland, were two of the 15 World Heritage places included in the National Heritage List on 21 May 2007.

World Heritage Nominations involving any part of the forest estate The Parties agree that any World Heritage Nomination involving any part of the forest estate in the Upper North East and Lower North East regions will be from within the CAR Reserve System.	Clause number NE – 31 E – 28 S – 30
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This is an ongoing commitment and was not applicable in Period 1, Period 2 and Period 3.

There have been no World Heritage nominations within the three NSW RFA regions over the three five-year periods.

The National Heritage Protocol (adopted by the then Environment Protection and Heritage Ministerial Council in April 2004) stated that as a general principle, future nominations for World Heritage listing will be drawn from the National Heritage List.

Management arrangements for any World Heritage Nomination The Parties agree that before any World Heritage Nomination is made: (a) all necessary management arrangements, including joint policy coordination arrangements will be agreed; (b) all related funding issues will be resolved to the satisfaction of both Parties; and (c) The Parties will develop an agreed management plan that is suitable for consideration for bilateral accreditation under Section 46 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> .	Clause number NE – 32 E – 29 S – 31
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This ongoing commitment was not applicable in Period 1, Period 2 and Period 3.

There were no World Heritage nominations within the three NSW RFA regions over the three five-year periods.

¹⁷ DoEE n.d., *World Heritage Places – Gondwana Rainforests of Australia*, accessed 9 November 2016, www.environment.gov.au/heritage/places/world/gondwana

<p>Environment Protection and Biodiversity Conservation Act amendment: Milestone (NE)</p> <p>The Commonwealth undertakes to use its best endeavours to secure the enactment of legislation which amends the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (C'wth) by inserting definitions of "forestry operations", "RFA forestry operations" and "RFA or Regional Forest Agreement" identical to those contained in the <i>Regional Forest Agreements Bill</i> (C'wth) and introduce such legislation into the Parliament of the Commonwealth by 30 June 2000 (S – by 14 August 2000).</p>	<p>Clause number</p> <p>NE – 33</p> <p>S – 32</p>
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This milestone commitment was achieved during Period 1 and was reported in the first five-yearly review report.

The *Regional Forest Agreements Act 2002* (C'wth) (RFA Act) fully came into force on 3 May 2002.

In section 38 of the EPBC Act, the definitions for 'RFA forestry operations' and 'RFA or Regional Forest Agreement' have been included in that section and are identical to those definitions contained in the RFA Act. There is no definition for 'forestry operations' in the RFA Act but there is a definition in the EPBC Act¹⁸.

<p>Exports of hardwood Woodchips</p> <p>Parties note that current Commonwealth export arrangements provided that, after 31 March 2000, exports of hardwood Woodchips from native forests will only be permitted from areas covered by an RFA.</p> <p>(E – after 31 December 1999)</p>	<p>Clause number</p> <p>NE – 34</p> <p>E – 30</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

In relation to the clause deadline date, the Eden RFA was signed on 26 August 1999 and the North East RFA on 31 March 2000. With the signing of these RFAs by the agreed dates, any hardwood chip exports from native forests for these NSW RFA regions was permitted under the Commonwealth export arrangements existing at that time in the *Export Control Act 1982* (C'wth) (EC Act).

<p>Export Control Act 1982 exemption</p> <p>The Parties note that no controls under the Export Control Act 1982 (C'wth) will apply to hardwood Woodchips or Unprocessed Wood sourced from the Upper North East and Lower North East regions while this Agreement is in place.</p>	<p>Clause number</p> <p>NE – 35</p> <p>E – 31</p> <p>S – 33</p>
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This ongoing commitment was achieved in Period 1, Period 2 and Period 3.

¹⁸ '**forestry operations**' means any of the following done for commercial purposes:

- (a) the planting of trees;
 - (b) the managing of trees before they are harvested;
 - (c) the harvesting of forest products;
- and includes any related land clearing, land preparation and regeneration (including burning) and transport operations. For the purposes of paragraph (c), forest products means live or dead trees, ferns or shrubs, or parts thereof.

The Export Control (Hardwood Wood Chips) Regulations 1996 made under the EC Act state that woodchips derived from hardwood native forests are only permitted to be exported if they are:

- i. derived from a region to which an RFA applies; or
- ii. exported under a restricted shipment licence.

As the three NSW RFAs came into force between 1999 and 2001, under the Export Control (Regional Forest Agreements) Regulations 1997 all export controls on woodchips and other unprocessed wood from the NSW RFA regions (except for unprocessed wood products sourced from plantations) were lifted.

Under the Export Control (Unprocessed Wood) Regulations 1986 (C'wth), unprocessed wood sourced from plantations is required to be licensed for export, except where a state's code of practice for plantations would substantially protect environmental and heritage values. The NSW code of practice was assessed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) during 1997 and found to meet this requirement. This code was approved by the Australian Government minister in February 1998 and export controls were removed.

During 2012, CSIRO reassessed the NSW plantation forestry code of practice¹⁹ and found it would satisfactorily protect environmental and heritage values. The Australian Government minister approved the code in May 2013²⁰.

<p>New South Wales confirms that its <i>Upper North East Region Forest Agreement</i> and <i>Lower North East Forest Agreement</i> (NSW, 5 March 1999) and any Integrated Forestry Operations Approvals for all or part of the Upper North East and Lower North East regions are parts of the New South Wales Forest Management System and are means by which New South Wales will implement obligations and undertakings arising from this Agreement.</p> <p>Milestone (S)</p> <p>(S – Consistent with clause 47, NSW agrees to have in place a Forest Agreement covering the Southern region and have granted an Integrated Forestry Operations Approval applying to the Southern region by 30 June 2001.)</p>	<p>Clause number</p> <p>NE – 36</p> <p>E – 33</p> <p>S – 34</p>
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This ongoing milestone and commitment was achieved in Period 1, Period 2 and Period 3.

The FAs²¹ for the Upper North East (UNE), Lower North East (LNE), Eden and Southern regions are integral parts of the NSW Forest Management System (FMS) (Appendix B). The UNE, LNE and Eden FAs were made in 1999. The Southern FA was made in 2002.

Each FA has a 20-year duration. The UNE and LNE FAs cover the same area as the North East RFA region. The Eden and Southern FAs cover the same areas as the Eden and Southern RFA regions.

¹⁹ Department of Agriculture and Water Resources 2016, *National principles related to wood production in plantations*, accessed June 2017 <http://agriculture.gov.au/forestry/australias-forests/plantation-farm-forestry/principles>

²⁰ Commonwealth of Australia 2013, *Notice of Approval of Plantation Forestry Codes of Practice in New South Wales, Victoria, Western Australia, Tasmania, the Australian Capital Territory and the Northern Territory*, accessed 5 July 2017 www.legislation.gov.au/Details/C2013G00832

²¹ EPA 2016a, *NSW Forest Agreements*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/FAS.htm

The IFOAs²² for the UNE, LNE, Eden and Southern regions were made at the same time as the four FAs. They are also integral parts of the NSW FMS (Appendix B). The IFOAs provide a single approval for environmental planning and assessment, protection of the environment and threatened species conservation.

The FAs and IFOAs are two means by which NSW implements its obligations and undertakings arising from the three NSW RFAs.

In 2013, NSW committed to remake²³ the four coastal IFOAs. The objectives of the remake are to:

- reduce the costs associated with implementation and compliance
- improve the clarity and enforceability of the IFOAs, including the conditions of environment protection, threatened species and fisheries licences held by FCNSW
- recognise innovations in best regulatory practice, incorporate advances in technology and deliver a contemporary regulatory framework that is fit for purpose.

The remake is expected to be completed in Period 4.

<p>Notifying the Commonwealth of changes to FAs and IFOAs</p> <p>New South Wales undertakes to notify the Commonwealth within fourteen days of any amendment or termination of a FA or amendment, suspension or revocation of any Integrated Forestry Operations Approvals which applies to either of the Upper North East and Lower North East regions. Copies of any FA or Integrated Forestry Operations Approvals will be provided to the Commonwealth within fourteen days.</p>	<p>Clause number</p> <p>NE – 37</p> <p>E – 35</p> <p>S – 36</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3.

The FAs were not amended or terminated in Period 1 or Period 2 or Period 3.

The IFOAs were not suspended or revoked in Period 1 or Period 2 or Period 3.

All amendments to FAs and IFOAs are made in a transparent manner. The Forestry Act requires the NSW Minister for the Environment to notify the public of IFOA amendments by way of notices in statewide and local newspapers, and to put hard copies of the amendments on public display in NSW Government offices.

NSW made several amendments to the IFOAs in Periods 1, 2 and 3, including some which resulted from a review of the FAs and IFOAs in 2010²⁴. While the amendments were posted on the NSW Environment Protection Authority website²⁵, and consequently were publicly available for all interested stakeholders including the Commonwealth, NSW did not notify the Commonwealth within the specified 14 days.

In June 2013, NSW provided the Commonwealth with a bulk notification for amendments dated between December 2001 and March 2013 covering all four coastal IFOAs. The NSW advice provided website links for the amendments to the IFOAs and belatedly satisfies the requirement to provide copies to the Commonwealth.

²² EPA 2016b, *Integrated Forestry Operations Approvals (IFOAs)*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/IFOAs.htm

²³ EPA 2016c, *Coastal IFOA remake*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/coastlIFOAs.htm

²⁴ EPA 2016d, *Review of NSW forest agreements and integrated forestry operations approvals*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/FASreview.htm

²⁵ EPA 2016b, *Integrated Forestry Operations Approvals (IFOAs)*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/IFOAs.htm

In view of the amendment issue outlined above, NSW commits to notifying the Commonwealth within 14 days of any amendment or termination of an FA or any amendment, suspension or revocation of any IFOA relevant to an RFA region.

Milestones

Annual reporting – first five years: Milestone This Agreement establishes milestones as given in Attachment 5 (E – Attachment 4 and S – Attachment 5) and the Parties will report annually on their achievement during the first five years, using an appropriate public reporting mechanism.	Clause number NE – 39 E and S – 37
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This milestone commitment was achieved during Period 1 and was reported in the first five-yearly review report.

Five-yearly review

Review of the performance of the Agreement Within each five year period, a review of the performance of the Agreement will be undertaken. The purpose of the five-yearly review is to provide an assessment of progress of the Agreement against the established milestones, and will include: (a) The extent to which milestones and obligations have been met, including management of the National Estate; (b) The results of monitoring of Sustainability Indicators; and (c) Invited public comment on the performance of the Agreement.	Clause number NE – 40 E and S – 38
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This ongoing commitment was achieved in part during Period 1 and was reported in the first five-yearly review report. This commitment was not achieved during Period 2 and was achieved in part during Period 3.

In April 2014, the then Parliamentary Secretary to the Commonwealth Minister for Agriculture advised the then NSW Minister for the Environment and Heritage in writing that discussions should begin between the Parties on the 10 and 15 year (combined second and third five-yearly) reviews of the NSW RFAs.

The report of May 2009²⁶ outlined the progress with implementation against agreed milestones (Attachment 5 of North East and Southern RFAs and Attachment 4 of Eden RFA) and constituted the first five-yearly review of the three NSW RFAs. The implementation report was delivered late and did not report on the commitments, other than those made in milestones. The Parties completed the first five-yearly review of NSW RFAs in 2010 with the forwarding of the Independent Reviewer's report²⁷ to the relevant Ministers of the Australian and NSW governments and its tabling in the Australian Parliament.

²⁶ New South Wales Minister for Climate Change and the Environment and the Australian Minister for Agriculture, Fisheries and Forestry 2009, *A Draft Report on Progress with Implementation of the New South Wales Regional Forest Agreements, North East RFA, Eden RFA, Southern RFA*, accessed 9 November 2016 www.environment.nsw.gov.au/resources/forestagreements/09200drafttra.pdf

²⁷ Spencer S 2009, *Final Report on Progress with Implementation of NSW Regional Forest Agreements: Report of Independent Assessor*, accessed 9 November 2016, www.agriculture.gov.au/forestry/policies/rfa/publications/annual-reports/nsw

The Parties have signed a Scoping Agreement for this combined second and third five-yearly NSW RFAs review, consistent with the clause above, and have compiled this report as the first step in the review process. This report outlines the progress with implementation against the agreed milestones, commitments and obligations as well as progress against actions in response to the recommendations from the first five-yearly review. It constitutes a component of the combined second and third five-yearly reviews of the NSW RFAs. This report was developed jointly between the Parties and has been released for public comment.

<p>Modification of RFAs post review</p> <p>While the review process will not open up the Agreement to re-negotiation, both Parties may agree to some minor modifications to incorporate the results of the review as per clause 8.</p>	<p>Clause number</p> <p>NE – 41</p> <p>E and S – 39</p>
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This ongoing commitment was not applicable during Period 1, Period 2 and Period 3.

No modifications were made to the three NSW RFAs between the signing date of each RFA and the end of Period 3 as a result of the progress with the implementation reporting process.

<p>Outcomes of the review: Milestone</p> <p>The outcomes of the review will be made public. The mechanism for the review will be determined by both Parties before the end of the five-year period and the review will be completed within three months.</p>	<p>Clause number</p> <p>NE – 42</p> <p>E and S – 40</p>
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This milestone was achieved outside the proposed timeline for Period 1, Period 2 and Period 3.

The review referred to in this clause is the report by the Independent Reviewer. The outcomes of the review include the joint government response to the Independent Reviewer's report.

Two elements of this milestone cannot be achieved prior to the preparation and release of the relevant five-yearly review of progress with implementation (the implementation report), namely 'the outcomes of the review will be made public' and 'the review will be completed within three months'.

The outcomes of the Period 1 review were made publicly available²⁸ and the Parties will make the outcomes of this combined Period 2 and Period 3 review publicly available, as required by section 10 of the RFA Act.

The Parties determined the mechanism for the Period 1 review through a Scoping Agreement²⁹ after the end of Period 1 (i.e. outside the proposed timeline).

The Parties did not consider Period 2 separately. The Parties determined the mechanism for the combined Period 2 and Period 3 review through a Scoping Agreement³⁰, which was signed after the end of Period 3 (i.e. outside the proposed timeline).

²⁸ NSW and Australian Governments 2014a, *New South Wales Regional Forest Agreements: first five-yearly review*, accessed June 2017 www.agriculture.gov.au/forestry/policies/rfa/publications/annual-reports/nsw

²⁹ Commonwealth of Australia and State of New South Wales 2008, *Scoping Agreement for the first review of progress with implementation of the New South Wales Regional Forest Agreements*, accessed October 2017 www.agriculture.gov.au/SiteCollectionDocuments/rfa/publications/annual-reports/nsw/nsw-rfa-5-year-review-2008.pdf

³⁰ Commonwealth of Australia and State of New South Wales 2016, *Scoping Agreement for the review of progress with implementation of the New South Wales Regional Forest Agreements*, accessed June 2017 www.epa.nsw.gov.au/resources/forestagreements/scoping-agreement-review-progress-implementation-regional-forest-agreements-eden-northeast-southern.pdf

The Parties agreed in the Scoping Agreement for the combined Period 2 and Period 3 review that the process for conducting the review will include:

- A report, prepared by officials, on progress with implementation of the NSW RFAs (this implementation report).
- Public submissions on the implementation report.
- The appointment of an Independent Reviewer to review the implementation report and the public submissions. The Independent Reviewer delivers a report within three months.
- The Independent Reviewer’s report is tabled in the Australian Parliament.
- The Parties jointly respond to the Independent Reviewer’s report, and the joint government response is tabled in the Australian Parliament and subsequently made publicly available. The tabling of the Independent Reviewer’s report and the joint government response is to take three months.

For Period 1, the Independent Reviewer’s report was delivered in the proposed timeline in November 2009, three months after the closure of the stakeholder consultation period on the Draft Report on Progress with Implementation of the New South Wales Regional Forest Agreements (RFAs) North East RFA, Eden RFA, Southern RFA.

For the combined Period 2 and Period 3 review, it is the Parties’ intention that the report of the Independent Reviewer will be delivered within the specified three months, as indicated in the Scoping Agreement for the combined Period 2 and Period 3 review.

<p>Tabling the signed Regional Forest Agreement: Milestone (NE & S)</p> <p>The Commonwealth will table in the Commonwealth Parliament the signed RFA and when completed the annual reports detailing achievement of the milestones for the first four years of the Agreement and the first five-yearly review on performance against milestones and commitments.</p>	<p>Clause number</p> <p>NE – 43</p> <p>E and S – 41</p>
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This ongoing milestone commitment was achieved outside the proposed timeline during Period 1, Period 2 and Period 3.

The NSW RFAs and the Annual Reports were tabled in the Australian Parliament and reported under Milestones 5 and 6 in the first five-yearly report, except for two Annual Reports for the Southern RFA.

The 2004–05 and 2005–06 Annual Reports for the Southern RFA were tabled in both houses of the Australian Parliament on 16 September 2009³¹.

The Independent Reviewer’s report (November 2009) of the first five-yearly review was tabled in the Australian Parliament on 15 March 2010 (House of Representatives) and 16 March 2010 (Senate)³².

³¹ Parliament of Australia 2009a&b, *Regional Forest Agreements Reports New South Wales Southern Region 2004–05*, accessed 9 November 2016, www.aph.gov.au/Parliamentary_Business/Chamber_documents/Tabled_Papers/

³² NSW and Australian Governments 2014a, *New South Wales Regional Forest Agreements: first five-yearly review*, accessed June 2017 www.agriculture.gov.au/forestry/policies/rfa/publications/annual-reports/nsw

The Joint Government Response³³ to the Independent Reviewer’s report (February 2014) was tabled in the Australian Parliament on 30 October 2014 (House of Representatives) and 24 November 2014 (Senate).

These last two reports are publicly available on the Parties’ websites.

2.3 Ecologically sustainable forest management

All Australian jurisdictions, including NSW, are parties to the National Forest Policy Statement 1992³⁴ and its principles of ecologically sustainable development.

The NSW RFAs define ESFM as ‘forest management and use in accordance with the specific objectives and policies for ecologically sustainable development as detailed in the National Forest Policy Statement’.

In the three NSW RFAs, the NSW Government confirmed its commitment to the achievement³⁵ of ESFM consistent with the following five principles:

Principle 1: Maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate

Principle 2: Ensure public participation, access to information, accountability and transparency in the delivery of ESFM

Principle 3: Ensure legislation, policies, institutional framework, codes, standards and practices related to forest management require and provide incentives for ecologically sustainable management of the native forest estate

Principle 4: Apply precautionary principles for prevention of environmental degradation

Principle 5: Apply best available knowledge and adaptive management processes.

These five principles are annotated (and further elaborated on) at Attachment 14 to the North East RFA, Attachment 14 to the Eden RFA, and Attachment 13 to the Southern RFA.

Elements of ESFM	Clause number
<p>The Parties agree that ESFM is an objective which requires a long-term commitment to continuous improvement and that the key elements for achieving it are:</p> <ul style="list-style-type: none"> a. the establishment of a CAR Reserve System (Attachment 1(A) and Attachment 1(B)) [E and S - Attachment 1]; b. the development of internationally competitive forest products industries; and c. integrated, complementary and strategic forest management systems capable of responding to new information. 	<p>NE – 44 E and S – 42</p>

This is an ongoing commitment and was achieved in Period 1, Period 2 and Period 3.

³³ NSW and Australian Governments 2014b, *Joint Australian and New South Wales Government Response to the Final Report on Progress with Implementation of the NSW Regional Forest Agreements: Report of the Independent Assessor*, accessed 9 November 2016 www.agriculture.gov.au/SiteCollectionDocuments/rfa/publications/annual-reports/nsw/jointresponse-nswrfa.pdf

³⁴ Commonwealth of Australia 1992, *National Forest Policy Statement*, accessed June 2017 www.agriculture.gov.au/forestry/policies/forest-policy-statement

³⁵ See clauses 46NE, 44E, 44S

Detailed responses to this clause are provided in this implementation report at:

- Section 2.4 (The CAR reserve system) and Section 3.1 (CAR reserve system) for part (a)
- Section 2.5 (Industry and regional development) and Appendix C (Forest-based industries' contribution to regional and state industries) for part (b)
- Section 3.5 (Improvements to NSW Forest Management Systems) and Appendix D (Improvements to the NSW Forest Management System) for part (c).

<p>Achievement of ESFM on Public and Private Land</p> <p>New South Wales confirms its commitment to the achievement of ESFM on Public and Private Land consistent with the principles of Ecologically Sustainable Forest Management at Attachment 14, and to the ongoing review and subsequent implementation of its legislation, policy, plans, Codes and Regional Prescriptions to ensure ESFM objectives can be achieved in a more efficient regulatory environment.</p>	<p>Clause number</p> <p>NE – 46</p> <p>E and S – 44</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

NSW reaffirms that it is committed to the achievement of ESFM on public and private land consistent with the principles that guide ESFM³⁶. As well as the following paragraphs, further information on ESFM and improvements to the NSW Forest Management System is provided in Appendix D.

On public land

Management of the formal reserve system

The NPW Act sets out the framework for managing protected areas, including forest ecosystems, in NSW. The objects of the NPW Act are: the conservation of nature; the conservation of objects, places and features of cultural value in the landscape; fostering public appreciation of nature and cultural heritage; and providing for the management of land preserved under the NPW Act.

The NPW Act includes several categories of protected area, which allow different levels of sustainable visitor use. Reserve categories include national parks, historic sites, state conservation areas, regional parks, karst conservation reserves, nature reserves and Aboriginal areas. Permissible activities in these reserves 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 NPW Act outlines the functions of the Chief Executive of the National Parks and Wildlife Service (NPWS) relating to reservation of land including proposals for adding land to the reserve system. In considering proposed additions, the Chief Executive must have regard to whether the proposal is consistent with the establishment of a comprehensive, adequate and representative reserve system.

Management of state forests: IFOAs

The *Forestry Act 2012* (NSW) provides that the Minister for Forestry and Lands and the Minister for the Environment may jointly make an integrated forestry operations approval (IFOA). An IFOA integrates the regulatory regimes for environmental planning and assessment, for the protection of the environment and for threatened species conservation. It describes the forestry operations covered by the approval, and sets out conditions subject

³⁶ Department of Agriculture and Water Resources 2015b, *Ecologically sustainable forest management*, accessed June 2017 www.agriculture.gov.au/forestry/policies/rfa/about/esfm

to which those operations are to be carried out. The IFOAs include licences issued under the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act), the TSC Act and the *Fisheries Management Act 1994* (NSW) (FM Act).

The EPA's compliance program

The EPA monitors FCNSW's native forestry operations to ensure they comply with the conditions in the IFOAs. The EPA's reports annually on the compliance results.

The EPA also undertakes regular proactive audits which aim to identify good and poor forestry practices.

In addition, the EPA conducts investigations when non-compliances are identified. The EPA regularly responds to questions and concerns raised by the community, which sometimes result in detailed investigations.

The EPA's regulatory program includes:

- monitoring, assessing and reporting on compliance with the conditions in IFOAs, including targeted audits and investigations
- periodic reviews of compliance strategies
- development of guidelines and procedures for forestry operators
- responding to incidents reported by the community
- education and training activities for stakeholders.

EPA staff have expertise in environment protection, threatened species, soil, water, policy and regulation. They work closely with specialists in indigenous culture and heritage, science and ecology, and legal services to audit compliance with IFOAs.

FCNSW's management of forests

FCNSW's management of state forests is certified to the Australian Standard for Sustainable Forest Management (AS4708–2013)³⁷. This standard has been recognised through the international Programme for the Endorsement of Forest Certification (PEFC), which states that: 'PEFC promotes this independent certification and provides assurance mechanisms to demonstrate to consumers that the wood used in their products comes from sustainably managed forests'³⁸.

FCNSW's Environmental Management System (EMS) sets the framework for achieving and continually improving its environmental performance by systematically measuring and monitoring performance. During the reporting period, the EMS was certified to ISO 14001:2004 *Environmental management systems – Requirements with guidance for use*. Although outside the reporting period, the EMS is currently certified to ISO 14001:2015.

FCNSW's Forest Management Plans³⁹ (FMPs) include ESFM commitments and ESFM management outcomes which replaced the ESFM plans published in 2005 (see clause 48NE).

The PR Code contains standards for plantation establishment and management and for harvesting operations on authorised plantations.

³⁷ Standards Australia 2013, *Home*, accessed July 2017 www.forestrystandard.org.au/

³⁸ PEFC 2017, *Requirements & Criteria*, accessed July 2017, www.pefc.org/standards/sustainable-forest-management/requirements-criteria

³⁹ FCNSW 2016h, *Forest Management Plans*, accessed 9 November 2016, www.forestrycorporation.com.au/management/sustainable-forest-management/esfm

In addition, FCNSW prepares an annual Sustainability Supplement⁴⁰ to its annual report, which reports on many indicators which demonstrate ESFM.

Further detail on the FCNSW FMS may be found in the responses to clause 48NE and Appendix D.

On private land

In NSW, private native forestry (PNF) was regulated under the NV Act and Native Vegetation Regulation 2013 as at June 2014. Under the NV Act, PNF operations may be undertaken only with an approved PNF property vegetation plan (PVP) and must comply with the PNF Code.

The PNF Code is an important component of the regulatory framework for the ecologically sustainable management of PNF operations. Developed to maintain and/or improve environment outcomes, the PNF Code sets minimum operating standards for harvesting in private native forests.

The PR Code contains standards for plantation establishment and management and for harvesting operations on authorised plantations.

Ongoing review and implementation of an efficient regulatory environment

NSW reaffirms its commitment to ongoing review and subsequent implementation of its legislation, policy, plans, codes and regional prescriptions to ensure ESFM objectives can be achieved in an efficient regulatory environment. Some examples of this commitment include:

- On 1 January 2013, the *Forestry Act 1916* (NSW) and the *Timber Marketing Act 1977* (NSW) were repealed and the *Forestry Act 2012* (NSW) commenced.
- In Period 1, Period 2 and Period 3, numerous amendments were made to the IFOAs for the UNE⁴¹, LNE⁴², Eden⁴³ and Southern⁴⁴ FA regions.
- In Period 3 (2013), the NSW Government announced its intention to remake the four coastal IFOAs into a single coastal IFOA. The replacement of four regulatory instruments by a single IFOA will streamline the regulatory framework.
- In Period 3 (2013), the EPA and OEH finalised a review of the Native Vegetation Regulation 2013 and the PNF Code.

<p>Amendment of Forest Management System to implement RFA</p> <p>New South Wales agrees that in providing for ESFM, its Forest Management System will be amended to implement the undertakings of this Agreement, including those specified in Attachments 6, 8 and 12 (Part D) (E – Attachments 5 and 7, S – Attachments 6 and 8).</p>	<p>Clause number</p> <p>NE – 47</p> <p>E and S – 45</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

⁴⁰ See, for example, FCNSW 2014b, *Sustainability Supplement 2013–14*, NSW Government, Sydney, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/544120/forestry-corporation-of-nsw-sustainability-supplement-2013-14.pdf

⁴¹ EPA 2017a, *Upper North East region forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/UpperNEIFOA.htm

⁴² EPA 2017b, *Lower North East region forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/LowerNEIFOA.htm

⁴³ EPA 2017c, *Eden forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/EdenIFOA.htm

⁴⁴ EPA 2017d, *Southern region forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/SouthernIFOA.htm

The achievement of commitments under Attachments 6 (North East and Southern) and 5 (Eden) are described in Section 3.4 (Public reporting and consultative measures) and those under Attachment 8 (North East and Southern), Attachment 12 (North East) and Attachment 7 (Eden) are described in Section 3.5 (Improvements to NSW FMS).

<p>Establishment of FA and IFOA – Southern region</p> <p>Following processes outlined in the <i>Forestry and National Park Estate Act 1998</i>, NSW will establish by 30 June 2001 a Forest Agreement covering the Southern region and an associated Integrated Forestry Operations Approval applying to the Southern region which are consistent with this Agreement, the Integrated Forestry Operations Approvals and Forest Agreements presently in place in NSW.</p>	<p>Clause number</p> <p>S – 46</p>
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This commitment was achieved outside the proposed timeline during Period 1.

The Southern FA and IFOA were made on 3 May 2002, which was 10 months later than specified by this clause. The Southern FA and IFOA were made in accordance with the *Forestry and National Park Estate Act 1998* (NSW) (FNPE Act) and have remained in place.

In the latter part of Period 3 in 2012, the NSW Parliament amended the FNPE Act. The amendments included the transfer of the sections relating to FAs and IFOAs to the Forestry Act and renaming the FNPE Act to the *National Park Estate (Land Transfers) Act 1998* (NSW). The Forestry Act, which commenced on 1 January 2013, provides for the making of FAs and the granting of IFOAs.

The Southern FA and IFOA cover the South Coast and Tumut sub-regions of the Southern RFA region.

<p>Environmental Management Systems/Forest Management Systems</p> <p>New South Wales undertakes to:</p> <p>NE – Maintain Forest Agreements covering both the Upper North East and Lower North East regions</p> <p>E – Maintain a Forest Agreement covering the Eden region for the duration of this Agreement</p> <p>S - Make by 30 June 2001 and maintain for the duration of this Agreement a Forest Agreement covering the Southern region.</p>	<p>Clause number</p> <p>NE – 48 (a)</p> <p>E – 46 (a)</p> <p>S – 47 (a)</p>
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These ongoing commitments were achieved during Period 1, Period 2 and Period 3.

There are currently four NSW FAs⁴⁵, covering the northern and southern coastal and adjoining tablelands forested regions of NSW. Three were made in 1999 for the UNE, LNE and Eden regions. The final one was made in May 2002 for the Southern region. These FAs are for 20 years and they have been maintained by NSW over the three five-yearly RFA review periods.

⁴⁵ EPA 2016a, *NSW Forest Agreements*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/FAS.htm

<p>Environmental Management Systems/Forest Management Systems: Milestone</p> <p>NE –Maintain for the duration of this Agreement an Integrated Forestry Operations Approvals covering the Upper North East and Lower North East regions, consistent with Attachments 1A, 1B, 3, 4, 8 and 12</p> <p>E – Grant within three months of the date of this agreement and maintain for the duration of this Agreement an Integrated Forestry Operations Approval covering the Eden region, consistent with Attachments 1, 2, 3, and 7</p> <p>S –Grant by 30 June 2001 and maintain for the duration of this Agreement an Integrated Forestry Operations Approval covering the Southern region, consistent with Attachments 1, 3, 4, and 8]</p>	<p>Clause number</p> <p>NE – 48 (b)</p> <p>E – 46 (g)</p> <p>S – 47 (b)</p>
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The milestones to grant IFOAs for the Eden and Southern RFAs were achieved during Period 1 and reported in the first five-yearly review report. The commitment to maintain IFOAs in all regions for the duration of each RFA was achieved in Period 1, Period 2 and Period 3.

IFOAs for each of the four NSW FAs were made by NSW at the same time as the FAs were made. The IFOAs have been current over the three five-yearly RFA review periods although they have been amended, as required, by NSW (see clause 37).

As indicated in the response to clause 46S, the Southern region FA and IFOA were made in May 2002, which was marginally outside the clause’s targeted achievement date but within the first five-yearly review period.

<p>Environmental Management Systems/Forest Management Systems: Milestone</p> <p>Complete and publish plans of management for areas dedicated under the <i>National Parks and Wildlife Act 1974</i> (NSW) by 1 January 2005 (E – by 1 January 2002 and S – by 31 January 2006)</p>	<p>Clause number</p> <p>NE – 48 (c)</p> <p>E – 46 (b)</p> <p>S – 47 (c)</p>
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The ongoing milestone commitment was achieved in part during Period 1, Period 2 and Period 3.

Reserve or park plans of management⁴⁶ have been prepared over the three reporting periods subject to NSW resourcing constraints. Where a reserve does not have an approved plan of management, a statement of management intent⁴⁷ provides basic information and management principles/policies pending the formal adoption of a plan of management.

Appendix E provides an update of the information compiled for the first five-yearly report (NSW & Australian Governments 2009: in Appendix 2 Management Plans)⁴⁸, which provided for each RFA region: the name of the conservation reserve, its tenure status and the status of management plan preparation and finalisation under five (or six) categories for the conservation reserve system.

⁴⁶ OEH 2017b, *Plans of management*, accessed July 2017
www.environment.nsw.gov.au/parkmanagement/ParkManagementPlans.htm

⁴⁷ OEH 2017c, *Statements of management intent*, accessed July 2017,
www.environment.nsw.gov.au/parkmanagement/StatementsOfManagementIntent.htm

⁴⁸ New South Wales Minister for Climate Change and the Environment and the Australian Minister for Agriculture, Fisheries and Forestry 2009, *A Draft Report on Progress with Implementation of the New South Wales Regional Forest Agreements, North East RFA, Eden RFA, Southern RFA*, accessed 9 November 2016 www.environment.nsw.gov.au/resources/forestagreements/09200draftdfa.pdf

For the UNE and LNE sub-regions, of the 330 reserves which were gazetted (dedicated) as of 1 January 2005, 73% had an adopted plan of management as of 30 June 2014. For the Eden and Southern RFA regions, of the 132 reserves which were gazetted (dedicated) as of 1 January 2005, 90% had an adopted plan of management as of 30 June 2014.

Environmental Management Systems/Forest Management Systems: Milestone	Clause number
Complete and publish Regional ESFM Plans for State forests under the Forestry Regulation 1999 (NSW) under the <i>Forestry Act 1916</i> (NSW) by 30 June 2000	NE – 48 (d) E – 46 (c) S – 47 (d)
(E – by 1 April 2000 and S – by 31 December 2001)	

The milestone commitment was achieved outside the proposed timeline in Period 2.

The five regional ESFM plans for state forests that cover the NSW RFA regions – Eden, North East (Upper), North East (Lower), Southern (South Coast) and Southern (Tumut)⁴⁹ – were published by the then Forests NSW in 2005 with an operative date of 1 July 2005. The ESFM plans set out the 10 broad strategies, performance indicators and measureable outcomes for forest management implementation in the relevant FA region.

A review of the regional ESFM plans commenced at the end of Period 3 during 2014. While outside the reporting period, in December 2016, FCNSW released the *Forest Management Plan for the Coastal Forests of NSW*⁵⁰, which has replaced the ESFM plans. The new FMP incorporates FCNSW's commitments to ESFM and outlines the objectives and management focus areas over the next five years.

Environmental Management Systems/Forest Management Systems: Milestone	Clause number
Implement the Forest Management Zoning system for the Upper North East and Lower North East regions by 30 June 2000	NE – 48 (e) E – 46 (d) S – 47 (e)
(E – by 1 October 1999 and S – by 31 December 2001)	

The milestone commitment was achieved during Period 1 and reported in the five-yearly review report.

While this commitment has been reported as achieved, the Parties recognise that forest management zoning (FMZ) is an ongoing process for the FCNSW state forest estate. Accordingly, Appendix F provides an update of information compiled for the first five-yearly report (NSW & Australian Governments 2009: in Appendix 7 FMZ), and provides within each RFA region, the state forest area by hectares and percentage of total state forest area under the eight forest management zones⁵¹.

⁴⁹ FCNSW 2016h, *Forest Management Plans*, accessed 9 November 2016, www.forestrycorporation.com.au/management/sustainable-forest-management/esfm

⁵⁰ FCNSW 2016a, *Forest Management Plan for the Coastal Forests of NSW*, accessed July 2017, www.forestrycorporation.com.au/__data/assets/pdf_file/0011/669008/hardwood-forests-forest-management-plan.pdf

⁵¹ State Forests of NSW 1999, *Managing our forests sustainably: Forest management zoning in NSW State Forests*, accessed 9 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0003/438402/managing-our-forests-sustainably-forest-mgt-zoning-in-nsw-state-forests.pdf

<p>Environmental Management Systems/Forest Management Systems: Milestone</p> <p>Manage cultural values, both Aboriginal and non-Aboriginal, in the Upper North East region, consistent with the guidelines in the <i>Protective Mechanisms for Cultural Heritage – Generic Version</i> and the Lower North East region consistent with the guidelines in the <i>Protective Mechanisms for Cultural Heritage – Lower North East</i> as outlined in clause 92, Attachment 4 and the principles in Attachment 10 (E (e)- clause 79, Attachment 3 and the principles in Attachment 9 and S - clause 90, Attachment 4 and the principles in Attachment 10).</p> <p>The Commonwealth acknowledges that the Cultural Heritage Guidelines attached to both the <i>Upper North East Integrated Forestry Operations Approval</i> (December 1999) and the <i>Lower North East Integrated Forestry Operations Approval</i> (December 1999) are consistent with the above documents.</p>	<p>Clause number</p> <p>NE – 48 (f)</p> <p>E – 46 (e)</p> <p>S – 47 (f)</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Cultural heritage

Further information on managing Aboriginal cultural values is provided at clause 92NE, 79E and 90S.

During Period 1, Period 2 and Period 3, FCNSW (including its previous entities) maintained a register of known non-Aboriginal cultural values. Processes for managing these values are provided in FCNSW's Forest Management System, and are described in Appendix D.

During Period 1, Period 2 and Period 3, OEH (including its previous entities) managed non-Aboriginal cultural values across NSW including in the regions covered by the NSW RFAs. The Heritage Division of OEH maintains the State Heritage Register and Aboriginal Places. It manages the Heritage Grants Program which is designed to help owners, managers and communities to know, value and care for their heritage. It also manages the State Heritage Emergency Works Program for projects that aim to avert the immediate risk of damage or further damage to items listed on the State Heritage Register or with an Interim Heritage Order. Items listed on the State Heritage Register that are located within the areas covered by the NSW RFAs can be searched on an interactive online map on the OEH website⁵².

⁵² Heritage Council of New South Wales 2008, *Attractions listed on the State Heritage Register*, accessed July 2017, www.environment.nsw.gov.au/heritageapp/visit/home.aspx?regionid=22

<p>Environmental Management Systems/Forest Management Systems: Milestone</p> <p>Implement the review and monitoring processes and develop the strategic and operational requirements of sustainable yield systems and processes using enhanced Forest Resource and Management Evaluation System (FRAMES) as described in Attachment 12 (Part E) to enable the review of sustainable yield by 1 December 2006 as described in Attachment 12 (Part B)</p> <p>(S as described in Attachment 8 to enable the review of Sustainable Yield by 1 December 2006)</p> <p>(E Develop and implement an inventory system for regrowth forests and review the calculation of Sustainable Yield using methods consistent with Attachment 11 and the principles and processes used in the Forest Resource and Management Evaluation System (FRAMES), in time for the first RFA review.)</p>	<p>Clause number</p> <p>NE – 48 (g)</p> <p>E – 46 (f)</p> <p>S – 47 (g)</p>
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The milestone commitment in the North East RFA was achieved during Period 1 and reported in the five-yearly review report. The milestone commitment in the Eden and Southern RFAs was achieved outside the proposed timeline during Period 2.

FCNSW has maintained a process of development of FRAMES and strategic level wood supply projections across the North East and Southern RFA regions. The FRAMES system and resource forecasts have been independently reviewed on a number of occasions. Appendix G provides an overview of this continual development process. A full report on FRAMES is publicly available⁵³.

Initial modelling of the Eden region multi-aged resource was conducted consistent with the inventory processes used in FRAMES. The development of Regrowth EDEN (REDEN), to model fire and harvesting regrowth in the Eden region, was finalised in 2002–03. Further refinement of REDEN allowed strategic planning of the regrowth resource to occur, consistent with the principles of FRAMES. A report on the Eden forest resource modelling was completed in response to the 2009 Auditor-General’s Performance Audit report and the report was made publicly available⁵⁴. Although outside the reporting period, the Eden RFA region was incorporated into the full FRAMES model in 2015–16, replacing REDEN (Appendix G).

<p>Environmental Management Systems/Forest Management Systems: Milestone</p> <p>Develop and implement environmental management systems in accordance with the principles outlined in Attachment 8 (E (h) – Attachment 7 and S – Attachment 8) within five years (S – by 30 April 2004).</p>	<p>Clause number</p> <p>NE – 48 (h)</p> <p>E – 46 (h)</p> <p>S – 47 (h)</p>
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⁵³ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

⁵⁴ Forests NSW 2012c, *Performance Audit Report Yield Forecasts – Eden Regional Forest Agreement*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0010/439417/Yield-forecasts-eden-regional-forest-agreement.pdf

The milestone commitment was achieved outside the proposed timeline in Period 3.

FCNSW, including its previous entities, developed its FMS for the production forest estate to be compliant with an EMS. This was demonstrated by the initial certification of FCNSW’s EMS in June 2006 and its continuing certification⁵⁵ to the international EMS standard as adopted in AS/NZS ISO 14001:2004 – *Environmental management systems – Requirements with guidance for use*. The conservation reserve system within State forest tenure (FMZ 1 Special protection, FMZ 2 Special management and FMZ 3a Harvesting Exclusion⁵⁶) is covered by FCNSW’s EMS.

OEH has developed and implemented an EMS during Period 3 for the national parks, reserves and other public land managed by the National Parks and Wildlife Service (NPWS), a functional area of OEH. A management system equivalent to an EMS for park management, which covers all areas of NPWS on-park operations is predominantly being delivered through the Park Management Program (PMP). The PMP addresses the core requirements of an EMS framework that could function through the relevant Australian Standard® including defining management objectives, clear policy, planning, implementation and operations and monitoring and evaluation.

Monitoring, reporting and consultative mechanisms

<p>Report on the results of monitoring of Sustainability Indicators</p> <p>New South Wales will report on the results of monitoring of Sustainability Indicators which are described in the report ‘Criteria, Indicators, Targets and Monitoring Processes of Ecologically Sustainable Forest Management for the Upper North East and Lower North East RFA regions’ (E - Attachment 9 of its Eden Region Forest Agreement). Reporting against the indicators will be consistent with the framework document A Framework of Regional (Sub-National) Level Criteria and Indicators of Sustainable Forest Management in Australia (Department of Primary Industries and Energy 1998) developed by the Montréal Process Implementation Group (MIG).</p>	<p>Clause number</p> <p>NE – 49</p> <p>E – 47</p> <p>S – 48</p>
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This ongoing commitment was achieved during Period 1 and reported in the first five-yearly review report. This ongoing commitment was achieved during Period 2 and Period 3.

The ESFM indicators (sustainability indicators) are described in Table 1 and Attachment 9 of the NSW FAs for the UNE and LNE sub-regions, Table 2 and Attachment 9 of the Eden FA and Table 2 and Attachment 7 of the NSW FA for the Southern region.

The criteria and indicators developed by NSW are consistent with the Montréal Process criteria and indicators adopted at the national level.

The NSW Government is committed to sustainability reporting. Section 69H(1) of the Forestry Act requires the NSW Minister for the Environment to prepare an annual report on each FA region including with respect to ESFM in the region and compliance with any IFOA for the region. Prior to the commencement of the Forestry Act, the *Forestry and National Park Estate Act 1998* (NSW) had the same requirement.

⁵⁵ FCNSW 2016c, *Sustainable forest management: Certification*, accessed 9 November 2016 www.forestrycorporation.com.au/management/sustainable-forest-management/certification

⁵⁶ Areas managed by FCNSW are assigned to a forest management zone (FMZ) category based on the management priority for that forested or non-forested land.

Progress on the implementation of NSW Forest Agreements and IFOAs is reported annually. The annual reports provide a snapshot of:

- results of monitoring ecologically sustainable forest management criteria and indicators, and timber supply
- compliance with IFOAs for each region
- achievement of milestones defined in each of the four NSW Forest Agreements.

The NSW Government has published an annual report on the ESFM criteria and indicators since 1999–2000 for the Eden and NE (Upper and Lower) RFA regions, and since 2002–03 for the Southern RFA region. These annual reports include monitoring on sustainability indicators on an as-needs basis. The reports ⁵⁷ up to, and including that for 2012–13, are available on the EPA website. Reports for 2013–14 (within the reporting period) and 2014–15 (outside the reporting period) will be published on the EPA website following tabling in the NSW Parliament. While outside the reporting period, the 2015–16 report is currently being finalised.

The results of monitoring of sustainability indicators for Period 2 and Period 3 are provided in Section 5. NSW also reports on the results of monitoring of sustainability indicators through the national five-yearly State of the Forests Report (SOFR)⁵⁸. The most recent SOFRs, published in 2008 and 2013, cover most of the combined second and third five-yearly review period. Consequently, results for various sustainability indicators are provided in the national level report.

Continuation of public reporting activities and on-going opportunities for public participation	Clause number NE – 50
Comprehensive Regional Assessments and the development of this Agreement have provided extensive opportunities for public participation and reporting. Parties recognise that the public reporting activities and on-going opportunities for public participation and consultation associated with existing New South Wales and Commonwealth processes and instruments will continue. A range of these processes and improvements are listed in Attachment 6 (E – Attachment 5 and S – Attachment 6).	E – 48 S – 49

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Attachment 6 of the North East and Southern RFAs and Attachment 5 of the Eden RFA list the public reporting and consultative mechanisms relevant to forest management in the NSW RFA regions. These include the mechanisms which existed before the RFAs were signed and additional reporting and consultative mechanisms to be implemented upon the signing of the NSW RFAs.

The Parties continue to implement public reporting activities and ongoing community consultative mechanisms relevant to NSW's RFA regions.

In particular, the NSW Government places a high importance on opportunities for public participation and reporting, and NSW Government agencies have often incorporated requirements for public consultation and participation and reporting into legislation.

⁵⁷ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

⁵⁸ ABARES 2013a, *Australia's State of the Forests Report 2013*, accessed 9 November 2016 www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2013

Public reporting: native forest management

Section 69G of the Forestry Act requires the Ministers who are parties to an FA to jointly review each NSW FA and IFOA every five years, and requires that the public be given an opportunity to participate in the review. Previously these provisions were included in the FNPE Act until its amendment in 2012.

Section 69H of the Forestry Act requires the NSW Minister for the Environment to prepare an annual report, which is made publicly available, on each FA including with respect to ESFM practices in the region and compliance with any IFOA for the region.

OEH reports on the clearing of native vegetation, including forest areas used for PNF.

The NSW DOI authorises plantations under the *Plantations and Reafforestation Act 1999* (NSW) (PR Act) and reports authorisations on the DOI website⁵⁹.

The *Annual Reports (Departments) Act 1985* (NSW) provides that OEH, the Department of Primary Industries (DPI) and the EPA must prepare, table in the NSW Parliament and make publicly available annual reports on their operations. These annual reports include material on these agencies' forest management activities.

The *Annual Reports (Statutory Bodies) Act 1984* (NSW) provides that FCNSW must prepare, table in the NSW Parliament and make publicly available an annual report on its operations.

Section 24A of the *State Owned Corporations Act 1989* (NSW) provides that FCNSW's annual report must include a section that identifies departures from the performance targets, including financial targets, set out in the annual Statement of Corporate Intent and the reasons for any such departures.

Section 24A of the *State Owned Corporations Act 1989* (NSW) provides that FCNSW's accounting, including its reporting on its annual accounts, must comply with the *Public Finance and Audit Act 1983* (NSW).

Community consultative mechanisms: native forestry

There are detailed statutory requirements regarding the making, amending and revoking of NSW FAs. Section 69D of the Forestry Act provides for the public to be given an opportunity to participate in the making of an FA and that the public participation is to include giving notice of a proposed FA, making the proposed FA available for inspection, and inviting and considering representations in connection with the proposed FA.

Similarly, Section 69F of the Forestry Act provides that the public is to be given an opportunity to participate in amending or revoking an FA and that the public participation is to include giving notice of the proposed amendment or revocation, making the proposed amendment available for inspection, and inviting and considering representations in connection with the proposed amendment or revocation.

Section 69I of the Forestry Act provides that the NSW Minister for the Environment must give public notice of the making of an FA or the granting of an IFOA.

In Period 3, the EPA led a consultation process to inform the remake of the coastal IFOAs. During August and September 2013, the EPA, FCNSW and Department of Primary Industries (DPI) – Fisheries NSW met with representatives from peak conservation and industry stakeholder groups to discuss key issues for the coastal IFOA remake.

On 24 February 2014, a discussion paper outlining the key elements of the proposed coastal IFOA and legislative amendments was released for public comment. Six independently

⁵⁹ NSW Department of Industry n.d., *Plantation forestry*, accessed 10 November 2016 www.crownland.nsw.gov.au/forestry/plantation-forestry

facilitated community information sessions were held across coastal NSW and in Sydney. Consultation on the discussion paper closed on 9 April 2014.

An independent facilitator's report on feedback received at the community information sessions was made available on the EPA's website. The report summarises key themes and issues raised by the representatives of community, industry, and conservation stakeholder groups.

The NSW Government received 877 submissions in response to the discussion paper on the remake of the coastal IFOAs. All public submissions were made available on the EPA's website. The NSW Government reviewed the public submissions and published a summary report outlining the key themes and issues raised. It also outlines how the NSW Government will use this information in developing the draft Coastal IFOA⁶⁰.

Private Native Forestry Code of Practice

In 2012, a draft of the proposed Native Vegetation Regulation 2013 and the PNF Code were released for public consultation. During the public consultation period, the EPA ran nine PNF-specific information sessions around NSW.

In addition, a discussion paper on protection of koala (*Phascolarctos cinereus*) habitat under the PNF framework was released. Community feedback was sought on how to improve the identification and protection of koala habitat. Another six information sessions were held with local government councils and peak industry and conservation stakeholders on koala management under the PNF Code.

The EPA also held two information sessions about logging limitations on steep slopes in the PNF Code for Northern NSW.

The EPA received 136 submissions in relation to PNF, with 47 submissions focusing on koalas. The EPA published a summary⁶¹ of stakeholder submissions on the PNF Code.

In response to feedback received during the public consultation period, the NSW Government made some specific changes to the PNF Code to address specific issues raised.

Community consultation: plantations

A statutory review of the PR Act and PR Code, which began in 2005, was completed during 2010. The review process involved extensive consultation with industry and government agencies.

A Better Regulation Statement was prepared prior to public consultation; the Statement was released for public exhibition from December 2009 until February 2010. Twenty-nine submissions were received from a range of stakeholders. The draft Amendment Bill and draft Amendment Regulation were revised to take into account issues raised during the public consultation period. The amendments to the PR Act were made in 2010 and commenced on 1 January 2011. There were four changes as follows:

- new fire protection provisions
- revised provisions to meet best practice environmental standards
- introduction of application fees
- other measures to improve the effectiveness of the Act and Code.

⁶⁰ EPA 2016c, *Coastal IFOA remake*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/coastlIFOAs.htm

⁶¹ EPA 2016f, *Review of Private Native Forestry Code of Practice*, accessed 9 November 2016, www.epa.nsw.gov.au/pnf/pnfreview.htm

Annual reporting on FAs and IFOAs: Milestone	Clause number
As required by the <i>Forestry and National Park Estate Act 1998</i> (NSW), New South Wales will report annually to Parliament on compliance with any Integrated Forestry Operations Approval for the Upper North East and Lower North East regions [E – Eden region and S – Southern region] and the New South Wales <i>Upper North East Region Forest Agreement</i> and <i>Lower North East Region Forest Agreement</i> [E – Eden Region Forest Agreement and S – Southern Region Forest Agreement]. New South Wales will also furnish a copy of the reports to the Commonwealth [NE & S] within fourteen days of their tabling.	NE – 51 E – 49 S – 50

This ongoing milestone commitment was achieved in part during Period 1 and reported in the first five-yearly review report. The ongoing commitment was achieved in part for Period 2 and Period 3.

In 2012, the FNPE Act was amended to remove the provisions relating to FAs and IFOAs and to rename it the *National Park Estate (Land Transfers) Act 1998* (NSW). The provisions relating to FAs and IFOAs were transferred to the Forestry Act.

Section 69H of the Forestry Act, which commenced on 1 January 2013, requires annual reporting to the NSW Parliament on each FA including with respect to ESFM in the region and compliance with any IFOA for the FA region. The FNPE Act had the same requirements, prior to its amendment.

To streamline the reporting process, a single annual implementation report is prepared and published for the four FAs and their IFOAs.

Annual reports on the implementation of the NSW FAs and IFOAs have been completed and tabled in the NSW Parliament from 1999–2000 to 2012–13⁶². The 2013–14 and 2014–15 annual reports are being finalised and will be tabled in the NSW Parliament. Further information is provided in Section 3.4.

While annual implementation reports have been tabled in the NSW Parliament, NSW has not provided copies to the Australian Government. However, the provision of the annual implementation reports on the NSW EPA's website assures transparency for the reporting process and allows the Australian Government, key stakeholders and the general public to access the annual implementation reports.

Accreditation

Forest Management Systems	Clause number
The Commonwealth accredits as providing for continuing improvement in ESFM New South Wales Forest Management Systems (including its legislation, policies, codes for the Upper North East and Lower North East regions, plans and management practices applying to both Public and Private land), as agreed to be amended in this Agreement, particularly those undertakings in clause 48(a), (b), (d), (e), (g), (h) and 57 (E - 46(a), (b), (d), (e), (g), (h) and 56 and S – 43, 47(a), (b), (d), (e), (g), (h) and 56). The System includes:	NE – 52 E – 50 S – 51

⁶² EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

- | | |
|---|--|
| <ul style="list-style-type: none"> • The New South Wales Upper North East Region Forest Agreement and Lower North East Region Forest Agreement; • Integrated Forestry Operations Approvals for the Upper North East and Lower North East regions; • Regional ESFM Plans for the Upper North East and Lower North East regions; • New South Wales processes for forecasting Sustainable Yield from both for the Upper North East and Lower North East region; • Codes of Practice and Eco-Field Guide for Public Lands; • Codes of Practice for Private Lands; • The <i>Native Vegetation Conservation Act 1997</i> (NSW); • The SFNSW Native Forest Management System; and • The NPWS Environmental Management System. | |
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The ESFM section of the RFAs (clauses 44NE to 48NE) provides the overarching basis for the NSW FMS. Attachment 8 of the North East and Southern RFAs and Attachment 7 of the Eden RFA provide further details.

In the years since the signing of the NSW RFAs, the NSW FMS has undergone continual improvement, as evidenced by a suite of amendments and augmentations to its components. The NSW Government continues to examine improvements in ESFM for the components of its FMS, which are outlined in the responses to clauses 42NE, 44NE and 48NE above and in Appendix D.

During Period 2 and Period 3, some major improvements were made to components of the NSW FMS. For example, the four IFOAs have undergone numerous revisions including:

- seven amendments⁶³ were made to the UNE IFOA in Periods 1, 2 and 3
- five amendments⁶⁴ were made to the LNE IFOA in Periods 1, 2 and 3
- six amendments⁶⁵ were made to the Eden IFOA in Periods 1, 2 and 3
- four amendments⁶⁶ made to the Southern IFOA in Periods 1, 2 and 3.

In addition, in Period 2, the NVC Act was repealed and the NV Act commenced.

In Period 2, the PNF Code⁶⁷ commenced in August 2007. The PNF Code is a key part of the regulatory framework for the sustainable management of native forests. It aims to ensure the improvement or maintenance of environmental outcomes by setting minimum operating standards for harvesting in private native forests. The PNF Code was amended⁶⁸ in Period 3.

⁶³ EPA 2017a, *Upper North East region forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/UpperNEIFOA.htm

⁶⁴ EPA 2017b, *Lower North East region forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/LowerNEIFOA.htm

⁶⁵ EPA 2017c, *Eden forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/EdenIFOA.htm

⁶⁶ EPA 2017d, *Southern region forest agreement and IFOA*, accessed July 2017, www.epa.nsw.gov.au/forestagreements/SouthernIFOA.htm

⁶⁷ EPA 2016g, *Private Native Forestry*, accessed 10 November 2016, www.epa.nsw.gov.au/pnf/index.htm

⁶⁸ EPA 2016f, *Review of Private Native Forestry Code of Practice*, accessed 9 November 2016, www.epa.nsw.gov.au/pnf/pnfreview.htm

The PNF Code is in four parts with each part applying to a particular area in NSW. The 'Northern NSW – Land north of the Sydney CBD' and 'southern NSW – Land south of the Sydney CBD' parts of the PNF Code apply to the NSW RFA regions. The other two parts apply to inland NSW.

FCNSW published the eco-field guide for the South Coast sub-region, *Field Guide to Flora, Fauna and Heritage Features of Forest Management on the South Coast of NSW, Forests NSW* in late 2005. FCNSW considered an eco-field guide for the Tumut sub-region but deemed it to be unnecessary. The South Coast sub-region eco-field guide is used for the Tumut sub-region where appropriate.

In 1998, prior to the signing of the Eden RFA, FCNSW had published the eco-field guide for the Eden RFA region, *Field Guide to Flora, Fauna and Heritage Features of Forest Management of South East of NSW, State Forests of NSW*.

An eco-field guide for the Upper North East and Lower North East sub-regions (North East RFA region) was published in 2000 and reported in Period 1.

Sustainability indicators

During the combined second and third five-yearly review timeframe, Australia's State of the Forests Report 2013⁶⁹ (SOFR 2013) was published. This document provides for a national reporting process and is the fourth in the series of SOFRs since 1998. The purpose of the report is to keep the public informed about Australia's forests, their management, use and conservation, and to provide information on how they are changing. It is also used to report on the state of Australia's forests to the world.

SOFR 2013 provides a key source of comprehensive, current information on Australia's forests for use by industry, state, territory and Australian governments, and research and educational institutions. It also underpins a range of Australia's international reporting requirements, e.g. Global Forest Resource Assessment⁷⁰.

Information found in Section 5 is the contribution that NSW made during the reporting period for the development of the SOFR 2013 report. Some of these indicators have been updated to the end of the reporting period with readily available information contained in published documents, for example, FCNSW annual reports and sustainability supplements.

The NSW EPA publishes annual reports⁷¹ on the implementation of the Forest Agreements and IFOAs. These reports, which cover all the areas covered by the three NSW RFAs, include detailed reporting on sustainability indicators.

⁶⁹ ABARES 2013a, *Australia's State of the Forest Report 2013*, accessed 9 November 2016 www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2013

⁷⁰ Food and Agriculture Organization n.d., *Global Forest Resources Assessments*, accessed 9 November 2016 www.fao.org/forest-resources-assessment/en/

⁷¹ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

<p>Implementing mechanisms to monitor and review sustainability indicators</p> <p>Parties agree that the current Forest Management System will be enhanced by implementing mechanisms to monitor and review the sustainability of forest management practices. To ensure this occurs, Parties agree that:</p> <p>The Sustainability Indicators referred to in clause 49 (E – clause 47 and S – clause 48) are consistent with the Montréal Process Criteria in Attachment 9 (E – Attachment 8), and take into account the Framework of Regional (Sub-National) Level Criteria and Indicators of Sustainable Forest Management in Australia developed by the MIG;</p>	<p>Clause number NE – 53 (a) E and S – 52 (a)</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The sustainability indicators (referred to in clauses 49NE, 49S and 47E) are consistent with the Montréal Process Criteria and Indicators, and take into account the Framework of Regional (Sub-National) Level Criteria and Indicators of Sustainable Forest Management in Australia developed by the MIG.

<p>Implementing mechanisms to monitor and review sustainability indicators</p> <p>Parties agree that the current Forest Management System will be enhanced by implementing mechanisms to monitor and review the sustainability of forest management practices. To ensure this occurs, Parties agrees that:</p> <p>Both Parties agree that the indicators referred to in clause 49 (E – clause 47) are to be trialed and assessed during the first five year period to ensure they are practical, measurable, cost-effective and capable of being implemented at the regional level;</p>	<p>Clause number NE – 53 (b) E and S – 52 (b)</p>
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This ongoing commitment was achieved outside the proposed timeline in Period 3.

The sustainability indicators were assessed in 2010 to ensure they are practical, measurable, cost-effective and capable of being implemented at the regional level⁷².

<p>Implementing mechanisms to monitor and review sustainability indicators</p> <p>Parties agree that the current Forest Management System will be enhanced by implementing mechanisms to monitor and review the sustainability of forest management practices. To ensure this occurs, Parties agrees that:</p> <p>Reporting on the indicators referred to in clause 49 (E – clause 47) will be under the headings of the Montréal Process Criteria as in Attachment 9 (E – Attachment 8).</p>	<p>Clause number NE – 53 (c) E and S – 52 (c)</p>
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This ongoing commitment was achieved.

⁷² EPA 2016h, *Ecologically Sustainable Forest Management Criteria and Indicators for the NSW Forest Agreement regions*, accessed 9 November 2016
www.epa.nsw.gov.au/resources/forestagreements/revise-ecologically-sustainable-forestry-management-criteria-indicators-160178.pdf

Reporting on the sustainability indicators has been undertaken using the seven criteria of the Montréal Process Criteria and Indicators (MP C&I)⁷³. Along with the Commonwealth, and the other states and territories, NSW contributes to Australia’s reporting on sustainability indicators through the SOFR. The NSW annual reports⁷⁴ on these sustainability indicators are publicly available.

<p>Implementing mechanisms to monitor and review sustainability indicators: Milestone (NE & S)</p> <p>Parties agree that the current Forest Management System will be enhanced by implementing mechanisms to monitor and review the sustainability of forest management practices. To ensure this occurs, Parties agrees that:</p> <p>Both Parties agree to further develop, review, and if necessary revise Sustainability Indicators in time for the first five-yearly review.</p>	<p>Clause number</p> <p>NE – 53 (d)</p> <p>E and S – 52 (d)</p>
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This milestone and commitment was achieved outside the proposed timeline.

As noted in the Period 1 draft report (p.20), since the signing of the RFAs the 1998 indicators have been updated. In April 2008, *Australia’s Sustainable Forest Management Framework of Criteria & Indicators 2008 – Policy Guidelines*⁷⁵ was published.

The Parties, acting in their own capacity or combined with the other states and territories, have not undertaken a further review of the sustainability indicators. The current framework of criteria and indicators for sustainable forest management in NSW was adopted in 2008 after a major revision in 2005–06 and has been used in the national State of the Forest reporting in 2008 and 2013.

Private land

<p>Reaffirming NFPS commitments</p> <p>The Parties reaffirm their commitments made in the National Forest Policy Statement (1992) to the conservation and management of the private forest estate. The Parties note that New South Wales has provisions under the <i>Native Vegetation Conservation Act 1997</i> (NSW) for native vegetation retention controls to regulate the clearance of native forest on Private Land.</p>	<p>Clause number</p> <p>NE – 54</p> <p>E and S – 53</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

NSW supports its commitments made in the NFPS to the conservation and management of the private forest estate through the regulatory frameworks for plantations and for PNF.

NSW plantations on all tenures are regulated under the PR Act and the PR Code, which commenced in December 2001 and was amended in 2010–2011.

⁷³ Montréal Process Working Group 2009, *Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests*, The Montréal Process, 4th edition, accessed June 2017 www.montrealprocess.org/Resources/Criteria_and_Indicators/index.shtml

⁷⁴ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

⁷⁵ Montréal Process Implementation Group for Australia 2008, *Australia’s Sustainable Forest Management Framework of Criteria and Indicators 2008 Policy Guidelines*, accessed June 2017 www.agriculture.gov.au/abares/forestsaustralia/Documents/ciframework.pdf

The PR Act promotes plantation establishment on essentially cleared land, and provides a streamlined authorisation process. It provides that all plantations larger than 30 hectares need to be authorised by the NSW DOI.

The PR Code contains standards for plantation establishment and management and for harvesting operations on authorised plantations.

This regulatory framework facilitates investment in plantations by establishing a standard and consistent approval process while protecting soil, water and biodiversity and improving service delivery levels.

The NSW regulatory framework provides for the sustainable management of private native forests. It regulates the clearing of native forest on private land and sets minimum operating standards for PNF operations.

In Period 2, the PNF sector in NSW became fully regulated when the Native Vegetation Regulation 2007 and the PNF Code⁷⁶ commenced in 2007.

In Period 3, a review of the Native Vegetation Regulation 2007 and the PNF Code led to the repeal of the Native Vegetation Regulation 2007, the passing of the Native Vegetation Regulation 2013 and minor amendments to the PNF Code for Northern NSW.

Under the *Native Vegetation Act 2003* (NSW) and the Native Vegetation Regulation 2007, forestry operations conducted for PNF require an approved PNF property vegetation plan (PNF PVP) and must comply with the PNF Code.

The PNF Code establishes a regulatory framework for the sustainable management of private native forests by ensuring that operations improve or maintain environmental outcomes. It contains provisions for:

- protecting habitat and biodiversity
- protecting catchments by minimising soil erosion and reducing contamination of waterways
- maintaining the forest structure
- protecting Aboriginal and other cultural heritage values.

Each of the PNF Code's four parts applies to a particular area in NSW. The parts of the PNF Code that apply to the NSW RFA regions are those for:

Northern NSW – land north of the Sydney CBD, i.e. latitude 33°52'02.71S and

Southern NSW – land south of the Sydney CBD, i.e. latitude 33°52'02.71S.

Between 1 August 2007, when the PNF Code was introduced, and 30 June 2014, 2,923 PVPs were approved for PNF. These approved PVPs, including some subsequently varied or terminated, cover 553,463 hectares of private native forest⁷⁷.

The EPA undertakes compliance and enforcement activities related to the PNF Code.

<p>ESFM for private landholders</p> <p>The Parties agree to encourage private forest owners to ensure that their management operations are consistent with ESFM practices.</p>	<p>Clause number</p> <p>NE – 55</p> <p>E and S – 54</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

⁷⁶ EPA 2016i, *Private Native Forestry Code of Practice*, accessed 10 November 2016, www.epa.nsw.gov.au/pnf/CodeofPractice.htm

⁷⁷ OEH 2016a, *NSW Report on Native Vegetation 2013–14*, accessed 10 November 2016 www.environment.nsw.gov.au/resources/nativeveg/nsw-report-native-vegetation-2013-14.pdf

NSW encourages private native forest owners to ensure their management operations are consistent with ESFM practices. Since 2003, PNF in NSW has been regulated under the NV Act, the Native Vegetation Regulation 2013 and the PNF Code since 2007.

Harvesting of wood for the purposes of PNF requires approval through a PNF PVP that ensures environmental outcomes are improved or maintained. A PNF PVP is a legally binding agreement between a landholder and the EPA. Once a PNF PVP is entered into landholders must implement the minimum operating standards set out in the PNF Code as applicable to one of the four relevant regions in NSW. The EPA provides extensive material on PNF for landholders to sustainably harvest native vegetation on private property⁷⁸.

The PR Code was published in 2001 and based on the *Forest Practices Related to Wood Production in Plantations: National Principles* (February 1995)⁷⁹. The PR Code contains standards relating to biodiversity, protection of soil and water, protection of places, objects and items of heritage significance, bushfire hazard reduction and harvesting operations. All of these standards are consistent with ESFM practices and NSW encourages private plantation owners to undertake their management of plantations in a manner consistent with such ESFM practices.

The PR Code sets clear guidelines for plantation establishment and management, provides certainty for developers of plantations (i.e. if an application meets the requirements set out in the PR Code it will be authorised) and delivers appropriate environmental safeguards. It applies to both public and private plantation growers on a range of land tenures. During Period 2 and Period 3, DPI published factsheets on private plantation forestry for landholders, including *Best Management Practices for retained areas in forestry plantations* (DPI 2009)⁸⁰.

<p>Management of CAR values</p> <p>CAR Values which are priorities for the CAR Reserve System and which occur on Private Land will be dealt with by the principles and mechanisms outlined in Attachments 1(A), 1(B) and 2 (E – Attachments 1 and 12 and S – Attachments 1 and 2). Parties agree the values listed at Attachment 2 (E – Attachment 12) can be managed consistently with the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub committee (JANIS) Reserve Criteria through a range of mechanisms, with the consent of the land owner, as specified in Attachment 2 (E – Attachment 12). Priorities for protection of Forest Ecosystems are given in Tables 1 and 2 of Attachment 2 (E – Table 1 of Attachment 12). All conservation mechanisms for the establishment of the Private Land component of the CAR Reserve System will be voluntary.</p>	<p>Clause number</p> <p>NE – 56</p> <p>E and S – 55</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

⁷⁸ EPA 2016g, *Private Native Forestry*, accessed 10 November 2016, www.epa.nsw.gov.au/pnf/index.htm

⁷⁹ Ministerial Council on Forestry, Fisheries and Aquaculture 1995, *Forest Practices Related to Wood Production in Plantations: National Principles*, accessed 10 November 2016 www.agriculture.gov.au/SiteCollectionDocuments/forestry/australias-forest-policies/principles_wood_production.pdf

⁸⁰ DPI 2009, *Best Management Practices for retained areas in forestry plantations*, accessed 25 August 2017 www.crownland.nsw.gov.au/__data/assets/pdf_file/0017/720413/BMP-for-retained-areas-in-forestry-plantations.pdf

NSW has a reserve establishment plan, which acknowledges the long-term nature of reserve-building and recognises that meeting the CAR objectives on public land may take some decades⁸¹. The seven formal reserve categories identified in the NPW Act are national parks, historic sites, state conservation areas, regional parks, karst conservation reserves, nature reserves and Aboriginal areas.

In addition to managing CAR values on public land, in Period 2 and Period 3, the NSW Government provided programs through OEH to encourage and support private landholders to voluntarily conserve and manage CAR values and threatened species on private land, through the Conservation Partners Program⁸².

Although outside the reporting period, as at 30 June 2017, 336,350 hectares in the NSW RFA regions were under private land conservation agreements that contribute to CAR reporting. This includes voluntary conservation agreements under the NPW Act, registered property agreements under the (repealed) *Native Vegetation Conservation Act 1997* (NSW), trust agreements under the (repealed) *Nature Conservation Trust Act 2001* (NSW) and Indigenous Protected Areas. Section 3.6 provides further information on the CAR reserve system applicable to private land.

Information about the options for conservation on private land is made publicly available through the OEH website⁸³ along with statistics by bioregion on the areas held under those options.

Milestone	Clause number
New South Wales agrees to produce a Code of Practice for timber harvesting of native forest on Private Lands by the first five-yearly review.	NE – 57 E and S – 56

This milestone commitment was achieved outside the proposed timeline in Period 2.

In August 2007, the PNF Code commenced. It has four parts; the Northern NSW and Southern NSW parts apply to the NSW RFA regions (see clause 52NE).

In Period 3, the EPA and OEH finalised a review of the PNF regulatory framework which included a review of the PNF Code. Amendments were made to the Northern NSW part of the PNF Code, and the revised Code commenced on 23 September 2013.

Milestone	Clause number
Parties recognise that a Code of Practice for Plantations on Private Lands is to be completed by 31 December 2000 (S – by 30 June 2001).	NE – 58 S – 57

This milestone commitment was achieved outside the proposed timeline in Period 1.

The PR Code⁸⁴ commenced in December 2001.

⁸¹ OEH 2015a, *What are our priorities in acquiring land?*, accessed 10 November 2016, www.environment.nsw.gov.au/acquiringland/WhatAreOurPrioritiesInAcquiringLand.htm

⁸² OEH 2016b, *Partnerships with landholders*, accessed 10 November 2016, www.environment.nsw.gov.au/cpp/ConservationPartners.htm

⁸³ OEH 2016c, *Conservation programs*, accessed 10 November 2016 www.environment.nsw.gov.au/conservationprograms/index.htm

⁸⁴ NSW Department of Industry n.d., *Plantation forestry*, accessed 10 November 2016 www.crownland.nsw.gov.au/forestry/plantation-forestry

<p>Establishment of CAR Reserve System</p> <p>New South Wales confirms that the CAR Reserve System has been established through this Agreement, including Attachment 2, and that conservation levels achieved in that reserve system will not subsequently be used as a basis for preventing timber harvesting being carried out on Private Lands. Consistent with clause 18 this is not to be interpreted as preventing voluntary conservation measures to protect CAR Values on Private Land.</p>	<p>Clause number</p> <p>NE – 59</p> <p>S – 58</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

NSW considers that conservation levels achieved in its CAR reserve system have not been used as a basis for preventing timber harvesting on private lands.

Table 2 and Appendix H provide details on the level of reservation of forest and non-forest ecosystems in the CAR reserve system within the NSW RFA regions as at June 2014.

In NSW, there are a variety of mechanisms that encourage landowners to implement voluntary conservation measures to protect CAR values on private land including conservation agreements, wildlife refuges, Land for Wildlife, biobanking agreements, and legally binding land covenants (e.g. Nature Conservation Trust). With the exclusion of Land for Wildlife agreements, all of these mechanisms are agreements between the landholder and the NSW Government (or government trust).

As noted in clause 54NE, since Period 1, PNF in NSW is allowed under the NV Act and the Native Vegetation Regulation 2013, and the PNF Code⁸⁵.

Threatened flora and fauna

<p>Protection of rare or threatened flora and fauna species and ecological communities</p> <p>The Parties agree that the CAR Reserve System, actions under the New South Wales Biodiversity Strategy, <i>Threatened Species Conservation Act 1995</i> (NSW) [and the <i>Endangered Species Protection Act 1992</i> (C'wth) (and the equivalent parts of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (C'wth) when it commences)], <i>Forestry and National Parks Estate Act 1998</i> (NSW) and the application of a range of management strategies, management plans and the Integrated Forestry Operations Approval will provide for the protection of rare or threatened flora and fauna species and ecological communities.</p> <p>[E – and the <i>Endangered Species Protection Act 1992</i> (C'wth) and S – and <i>Environment Protection and Biodiversity Conservation Act 1999</i> (C'wth)]</p>	<p>Clause number</p> <p>NE – 60</p> <p>E – 57</p> <p>S – 59</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The Parties acknowledge that the CAR reserve system and NSW's management of forest areas (clause 52NE), as amended by the NSW RFAs, provide for the protection of threatened flora and fauna and ecological communities, including those listed at the national level and fauna designated as migratory species.

⁸⁵ EPA 2016i, *Private Native Forestry Code of Practice*, accessed 10 November 2016, www.epa.nsw.gov.au/pnf/CodeofPractice.htm

The TSC Act establishes the legislative framework for the conservation of threatened species⁸⁶, populations and ecological communities of plants and animals in NSW and remains in place as NSW’s primary biodiversity legislation. The NSW Threatened Species Priority Action Statement outlines strategies for recovery and threat abatement for threatened species, populations and ecological communities. The *Saving our Species* program⁸⁷ implements priority actions through its conservation projects. Both the TSC Act and *Saving our Species* apply across NSW and are applicable to the NSW RFA regions.

In 2010, a statutory review of the TSC Act was commenced by the NSW Government with the publication of a background paper⁸⁸. In 2013, the NSW Government announced a comprehensive overhaul of the NV Act, the TSC Act and related biodiversity legislation. In 2014, the NSW Government further announced a Biodiversity Legislation Review Panel to review NSW’s biodiversity legislation, i.e. the NV Act, the TSC Act and parts of the *National Parks and Wildlife Act 1974* (NSW) [NPW Act]. Although outside the reporting period, in 2015, the NSW Government accepted the panel’s recommendations and undertook to develop new biodiversity legislation to implement the panel’s recommendations.

Licences issued under the TSC Act, the POEO Act and the Fisheries Management Act are core elements of the IFOAs granted under the Forestry Act.

Early in the life of the NSW RFAs, the Commonwealth’s EPBC Act and the EPBC Regulations 2000, which commenced on 16 July 2000, replaced the *Endangered Species Protection Act 1992* (C’wth) (ESP Act). The Commonwealth’s EPBC Act and the EPBC Regulations 2000 are the primary national legislation for threatened flora, fauna and ecological communities. During Period 1, Period 2 and Period 3, the EPBC Act and the TSC Act operated together to provide for the legislative protection of threatened flora, fauna and ecological communities.

Recovery Plans and Threat Abatement Plans	Clause number
Where threatened species, ecological communities and threatening processes restricted to New South Wales are listed under both the <i>Threatened Species Conservation Act 1995</i> (NSW) and the <i>Endangered Species Protection Act 1992</i> (C’wth), any new or revised Recovery Plans or Threat Abatement Plans will be jointly prepared to meet the requirements of both Acts. Where Recovery Plans or Threat Abatement Plans under the <i>Threatened Species Conservation Act 1995</i> (NSW) meet the requirement of the <i>Endangered Species Protection Act 1992</i> (C’wth), the Commonwealth will consider adopting them under Section 46 of the <i>Endangered Species Protection Act 1992</i> (C’wth).	NE – 61 E – 58 S – 60

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

In cases where a threatened species occurs in more than one state or territory, funds have been made available both to, and by, other states and territories and the Australian

⁸⁶ OEH n.d., *Threatened Species*, accessed June 2017 www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species

⁸⁷ OEH 2016d, *Saving our Species Program*, accessed 10 November 2016, www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program

⁸⁸ OEH 2010, *Threatened Species Conservation Act Statutory Review Background Paper*, accessed 1 September 2017 www.environment.nsw.gov.au/resources/threatenedspecies/10823tscactreview.pdf

Government to implement recovery plans⁸⁹. Over most of Period 1, Period 2 and Period 3, the NSW Government collaborated with the Australian Government to prepare recovery plans for species listed as threatened under the EPBC Act (C'wth) and the TSC Act (NSW). However, in recent years, the NSW Government has largely moved away from recovery plans as a conservation tool, and the Australian Government is now preparing relevant recovery plans in consultation with the state government.

Recovery plans were prepared cooperatively with the Australian Government for threatened species and ecological communities listed under both the TSC Act and the EPBC Act (see Table 66 and Table 67 in Appendix I). Completed recovery plans⁹⁰ have been prepared for a single species, a group of species, or for part of the range of a species.

The Australian Government adopted recovery plans for species endemic to NSW during Period 1, Period 2 and Period 3 (see Table 66 and Table 67 in Appendix I) and the recovery plans can be accessed on the OEH website, as indicated above for recovery plans, and they can also be accessed on the Australian Government Department of the Environment and Energy (DoEE) website⁹¹.

Threat abatement plans

Since July 2004, the NSW Government has made one threat abatement plan (TAP): the *NSW Fox threat abatement plan 2010*⁹².

During Period 1, Period 2 and Period 3, the Australian Government had in place the following TAPs establishing a national framework to guide and coordinate Australia's response to the impacts of a number of threats:

- threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi*
- threat abatement plan for predation by European red fox
- threat abatement plan for predation by feral cats
- threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs
- threat abatement plan for competition and land degradation by rabbits
- threat abatement plan for competition and land degradation by unmanaged goats.

Recovery plans

Since July 2004⁹³, the NSW Government has made and/or adopted the following threatened species recovery plans⁹⁴. Some of these recovery plans have also been adopted as national plans under the EPBC Act.

⁸⁹ Recovery plans set out actions needed to stop the decline of, and support the long-term recovery of threatened species and ecological communities.

⁹⁰ OEH 2016f, *Recovery Plans*, NSW Office of Environment and Heritage, accessed 10 November 2016, www.environment.nsw.gov.au/threatenedspecies/RecoveryPlans.htm

⁹¹ DoEE 2017, *Recovery Plans adopted under the EPBC Act in Species Profile and Threats Database*, accessed 10 November 2016 www.environment.gov.au/cgi-bin/sprat/public/publicshowallrps.pl

⁹² OEH 2011a, *NSW Fox Abatement Plan*, accessed 10 November 2016, www.environment.nsw.gov.au/pestsweeds/Foxes.htm

⁹³ The TSC Act was amended in 2004, including changes that made recovery plans optional.

⁹⁴ OEH n.d., *Threatened species recovery plans*, accessed June 2017 www.environment.nsw.gov.au/Topics/animals-and-plants/threatened-species/threatened-species-recovery-plans

Flora⁹⁵

- sunshine wattle (*Acacia terminalis* subsp. *terminalis*) 1 April 2010
- *Asterolasia elegans* 2011
- nightcap oak (*Eidothea hardeniana*) September 2004⁹⁶
- Deane's melaleuca (*Melaleuca deanei*) 13 August 2010
- Angus's onion orchid (*Microtis angusii*) 2010
- nodding geebung (*Persoonia nutans*) 1 January 2006
- North Rothbury persoonia (*Persoonia pauciflora*) 2012
- spiked rice-flower (*Pimelea spicata*) 1 January 2006
- tranquillity mintbush (*Prostanthera askania*) 1 January 2006
- Wollemi pine (*Wollemia nobilis*) 1 December 2006
- *Zieria involucrata* 1 January 2006
- Ingram's zieria (*Zieria ingramii*) 1 February 2007
- *Grevillea beadleana* 1 July 2004

Table 66 in Appendix I provides an extensive list of threatened flora species with the updated status of recovery plans and/or conservation advices⁹⁷.

Fauna

- bush stone-curlew (*Burhinus grallarius*) 1 February 2006
- southern brown bandicoot (*Isodon obesulus*) 1 November 2006
- eastern freshwater cod (*Maccullochella ikei*)⁹⁸ May 2004
- large forest owls (powerful owl [*Ninox strenua*], sooty owl [*Tyto tenebricosa*] and masked owl [*Tyto novaehollandiae*]) 1 October 2006
- brush-tailed rock-wallaby (*Petrogale penicillata*) 1 May 2008
- koala (*Phascolarctos cinereus*) 1 November 2008
- southern corroboree frog (*Pseudophryne corroboree*) 2012
- Gould's petrel (*Pterodroma leucoptera leucoptera*) 1 November 2006.

Table 67 in Appendix I provides an extensive list of threatened fauna species with the updated status of recovery plans and/or conservation advices.

Ecological communities

- Kurri Sand Swamp Woodland in the Sydney Basin Bioregion 1 April 2008
- Cumberland Plain Woodland in the Sydney Basin Bioregion 1 January 2011
- Coastal Upland Swamps in the Sydney Basin Bioregion (recovery plan not required under EPBC Act but is covered by an approved conservation advice, approved 17 July 2014)
- Hunter Valley Weeping Myall (*Acacia pendula*) Woodland (adopted by Commonwealth 30 January 2014)

⁹⁵ OEH 2016g, *Publication Search*, accessed June 2017 www.environment.nsw.gov.au/research-and-publications/publications-search

⁹⁶ Although outside the reporting period, this plan was sunsetted by the Australian Government under the *Legislation Act 2003* (C'wth) on 1 October 2015.

⁹⁷ DoEE 2017, *Recovery Plans adopted under the EPBC Act in Species Profile and Threats Database*, accessed 10 November 2016 www.environment.gov.au/cgi-bin/sprat/public/publicshowallrps.pl [Note: there is no website with a list of conservation advices]

⁹⁸ DPI n.d., *Eastern Freshwater Cod Recovery Plan*, accessed 18 August 2017 www.dpi.nsw.gov.au/fishing/species-protection/conservation/what/recovery/efc

- Lowland Grassy Woodland in the South East Corner Bioregion (recovery plan not required under EPBC Act but is covered by an approved conservation advice, approved 16 February 2013)
- Lowland Rainforest of Subtropical Australia (recovery plan not required under EPBC Act but is covered by an approved conservation advice, approved 25 November 2011)
- Temperate Highland Peat Swamps on Sandstone (recovery plan not required under EPBC Act but is covered by an approved conservation advice, approved 1 October 2008)
- Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion (recovery plan not required under EPBC Act but is covered by an approved conservation advice, approved 25 November 2011)
- Upland Wetlands of the New England Tablelands and the Monaro Plateau Sandstone (recovery plan not required under EPBC Act but is covered by an approved conservation advice, approved 1 October 2008)
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (adopted by Commonwealth 21 February 2013).

NSW largely ceased developing recovery plans from 2007, however most plans that were under development at that time were completed after 2007. Instead, actions for each listed threatened species, population and ecological community are included in the NSW Threatened Species Priorities Action Statement (PAS) which is used to:

- identify strategies to help recover threatened plants and animals
- establish priorities to implement these strategies
- identify actions for all listed species, populations and ecological communities
- identify actions to manage key threatening processes.

Following a review of the PAS, the *Saving our Species* program was launched in 2013 and now underpins threatened species management in NSW. *Saving our Species* implements the PAS by delivering conservation projects for threatened species, populations and ecological communities. From 25 August 2017, threatened species management in NSW will be delivered under the *Biodiversity Conservation Act 2016* (NSW). The Biodiversity Conservation Act will allow for a Biodiversity Conservation Program to be established which reflects the approach of the *Saving our Species* program. Further information on the *Saving our Species* program is publicly available⁹⁹.

Implementation of management prescriptions or actions identified in jointly prepared and agreed Recovery Plans or Threat Abatement Plans	Clause number NE – 62
The Parties agree that the management prescriptions or actions identified in jointly prepared and agreed Recovery Plans or Threat Abatement Plans will be implemented as a matter of priority, including through the Integrated Forestry Operations Approval on State forest.	E – 59 S – 61

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

NSW confirms that each IFOA includes a licence issued under the TSC Act and that the IFOAs implement the management prescriptions and actions identified in the recovery plans and TAPs.

⁹⁹ OEH 2017a, *Saving our Species program*, accessed 6 September 2017
www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program

NSW collaborates with the Australian Government to prepare recovery plans for nationally listed threatened species under the EPBC Act. The actions within recovery plans that are given the highest priority are those that will give the best conservation outcomes for the species.

In Period 2, the TSC Act was amended. From 2007, the requirement to prepare recovery plans for each threatened species in NSW has been replaced by a requirement to prepare a Priorities Action Statement (PAS) for each threatened species.

During the reporting period, NSW implemented the priority management prescriptions and actions identified in jointly prepared and agreed recovery plans or threat abatement plans through the PAS and associated *Saving our Species* conservation projects.

Preparation of recovery plans	Clause number
Recovery Plans for items listed under both Acts and extending beyond New South Wales will be prepared jointly with New South Wales and other relevant governments to be considered for adoption under Section 46 of the <i>Endangered Species Protection Act 1992</i> (C'wth) (S – under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (C'wth)).	NE – 63 E – 61 S – 62

This ongoing commitment was achieved during Period 1 and Period 2, and was no longer applicable in Period 3.

Section 269A(7) of the EPBC Act provides that the Commonwealth Minister may adopt a plan made by a state or territory.

Section 269A(3) of the EPBC Act provides that the Commonwealth Minister may make a recovery plan jointly with one or more states and territories.

NSW consulted the Australian Government on the preparation of recovery plans during the three reporting periods but no recovery plans were made jointly.

As of 2007, this commitment is no longer applicable as NSW no longer prepares recovery plans (see commitment 61).

Consultation on the priorities for listing of threatened species, ecological communities and threatening processes, and the preparation of Recovery Plans	Clause number
Parties will continue to consult on the priorities for listing of threatened species, ecological communities and threatening processes, and the preparation of Recovery Plans, recognising that priorities can change in the light of new information. Currently agreed priorities and commitments for the next five years are outlined in Attachment 3 (E – Attachment 2 and S – Attachment 3).	NE – 64 E – 62 S – 63

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The NSW Scientific Committee is responsible for determining which species, populations and ecological communities should be listed under the TSC Act. In Period 2 and Period 3, the Committee¹⁰⁰ consulted the Australian Government on listing of threatened species, ecological communities and threatening processes. The Commonwealth also consulted with NSW on national listing of threatened species, ecological communities and key threatening

¹⁰⁰ OEH 2016h, *Our Research*, accessed June 2017 www.environment.nsw.gov.au/research/

processes in Period 2 and Period 3, including through the Species Information Partnerships project.

By December 2014 NSW had completed 90 recovery plans in consultation with the Australian Government. Of the 90 recovery plans approved in NSW, six contain actions for more than one threatened entity. These are known as ‘multi-species plans’¹⁰¹.

Table 66 and Table 67 in Appendix I list the threatened flora and fauna species which were recorded as priorities in the recovery planning process as well as confirmed in Annex E of the Joint Government Response to the report of the first five-year review¹⁰². The list provides a status as at the signing of each NSW RFA and the current status under the TSC Act and the EPBC Act as well as the NSW management stream¹⁰³ for the conservation of the species.

2.4 The CAR reserve system

Primary function of the CAR Reserve System	Clause number
Parties agree that the primary function of the CAR Reserve System is to ensure the conservation and protection of Environmental and Heritage Values.	NE – 65 E – 63 S – 64

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The Parties confirm that the primary functions of the CAR reserve system are supported through legislation, management activities and programs, and appropriate reserve management plans with monitoring and review mechanisms.

Information on the status of the CAR reserve system for the NSW RFA regions is provided in the responses to clauses 66NE to 72NE.

Satisfying the JANIS criteria	Clause number
Parties agree that the CAR Reserve System as identified on Map 1(A) and Map 1(B) (E and S – Map 1) and presented in Attachment 1(A), Attachment 1(B) and Attachment 2 (E – Attachment 1 and S – Attachment 1 and Attachment 2), satisfies the JANIS Reserve Criteria. Each element of the CAR Reserve System, with the exception of Commonwealth owned or leased land, will be administered in accordance with New South Wales legislation.	NE – 66 E – 64 S – 65

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

¹⁰¹ OEH 2014a, *Biodiversity Legislation Review OEH Paper 3: Conservation Action*, accessed 6 September 2017 www.environment.nsw.gov.au/resources/biodiversity/140862conservation.pdf

¹⁰² NSW and Australian Governments 2014b, *Joint Australian and New South Wales Government Response to the Final Report on Progress with Implementation of the NSW Regional Forest Agreements: Report of the Independent Assessor*, accessed 9 November 2016 www.agriculture.gov.au/SiteCollectionDocuments/rfa/publications/annual-reports/nsw/jointresponse-nswrfa.pdf

¹⁰³ OEH 2016d, *Saving our Species Program*, accessed 10 November 2016, www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program

The Parties confirm that at the end of Period 1 the CAR reserve system satisfied the JANIS Reserve Criteria based on the established forest and non-forest ecosystems.

NSW confirms that the CAR reserve system is administered in accordance with NSW legislation. For NSW RFA reporting purposes on public land:

- Dedicated reserves comprise national parks and nature reserves under the NPW Act and flora reserves under the Forestry Act.
- Informal reserves comprise state conservation areas and regional parks under the NPW Act and FMZ 2 areas under FCNSW's forest management zoning system.
- Areas reserved by prescription comprise FMZ 3 areas under FCNSW's forest management zoning system.

For NSW RFA reporting purposes, the conservation mechanisms on private land that contribute to the CAR reserve system include: conservation agreements¹⁰⁴, Nature Conservation Trust conservation land covenants¹⁰⁵, biobanking agreements¹⁰⁶, registered property agreements (in perpetuity agreements only)¹⁰⁷ and Indigenous Protected Areas¹⁰⁸.

DoEE reports every two years at the national level on the National Reserve System (NRS). This reporting is based on the Interim Biogeographic Regionalisation for Australia (IBRA)¹⁰⁹ bioregions. The concept of comprehensiveness, adequacy and representativeness (CAR) is still used as a guide to help determine if a proposed site should be included in the NRS. Further information on reporting through the Collaborative Australian Protected Area Database and the bioregions' representativeness is publicly available¹¹⁰.

The JANIS criteria are still in place as an agreed set of criteria to establish CAR reserves, set up by the NFPS Implementation Sub-Committee (1997) through the report *Nationally Agreed Criteria for the Establishment of a Comprehensive Adequate and Representative Reserve System of Forests in Australia*¹¹¹.

Maps showing changes to each NSW RFA's CAR reserve system since the commencement of each RFA to 30 June 2014 are provided at Appendix H.

¹⁰⁴ OEH 2015b, *Conservation Agreements*, accessed 10 November 2016
www.environment.nsw.gov.au/cpp/ConservationAgreements.htm

¹⁰⁵ Nature Conservation Trust 2017, *Covenants*, accessed June 2017 <https://www.nct.org.au/our-land/what-we-do/covenants/>

¹⁰⁶ OEH 2016i, *BioBanking: a market-based scheme*, accessed 10 November 2016
www.environment.nsw.gov.au/biobanking

¹⁰⁷ Registered Property Agreements were made under the NVC Act. Although this Act has since been replaced by the NV Act, it provided for property agreements to protect and manage areas of native vegetation on private property. Where agreements were registered, this meant that they were registered on the title of the land. The term of registration was variable, but in some cases agreements were registered in perpetuity.

¹⁰⁸ Department of the Prime Minister and Cabinet n.d., *Indigenous Protected Areas – IPAs*, accessed June 2017 www.dpmpc.gov.au/indigenous-affairs/environment/indigenous-protected-areas-ipas

¹⁰⁹ DoEE n.d, *Australia's Bioregion Framework*, accessed 6 September 2017
www.environment.gov.au/land/nrs/science/ibra/australias-bioregion-framework

¹¹⁰ DoEE 2016, *CAPAD 2016*, accessed 5 September 2017
<http://environment.gov.au/land/nrs/science/capad/2016>

¹¹¹ NFPS Implementation Sub-Committee 1997, *Nationally Agreed Criteria for the Establishment of a Comprehensive Adequate and Representative Reserve System of Forests in Australia*, National Forest Policy Statement Implementation Sub-Committee, accessed 5 September 2017
www.agriculture.gov.au/SiteCollectionDocuments/rfa/publications/nat_nac.pdf

Reporting on NSW Landscapes

In lieu of comparable reporting being readily available for forest and non-forest ecosystems, NSW can provide an indication of progress in maintaining a CAR reserve system through reporting against NSW Landscapes (also known as Mitchell Landscapes)¹¹² as its surrogate for regional ecosystems. NSW Landscapes are areas of land with relatively homogenous geomorphology, soils and broad vegetation types¹¹³, which have been mapped at 1:250,000 scale. They are used to address NRS agreements for the development of a CAR reserve system, including reporting on the NRS targets using the IBRA bioregions. IBRA is the NRS' planning framework, the fundamental tool for identifying reservation targets and setting priorities to meet them. Appendix J (Table 68 to Table 72 inclusive) indicates the level of protection of NSW Landscapes in each NSW RFA region. NSW Landscapes are not a suitable proxy for forest ecosystems and therefore do not directly address the JANIS criteria.

NSW Landscapes mapping¹¹⁴ was undertaken in 2002 to provide a meaningful framework for the NSW Ecosystems Database and, by creating a consistent statewide map using the best available data, it also provides the means for developing conservation priorities and tracking conservation progress across NSW. In the definition of ecosystems within the NSW Ecosystems Database, emphasis was given to geologic, geomorphic and pedologic factors. The mapping project was dependent on existing data that could be used to construct geomorphic units that were then assembled into coherent 'ecosystems'. Improvements have been made to the original mapping (compiled in 2002), and the mapping is currently in its third version (last updated in 2008). It still retains limitations and remains an interim surrogate for regional ecosystems until a more considered and detailed alternative is developed.

<p>Implementation and management of the CAR Reserve System by NSW</p> <p>New South Wales agrees to implement, manage and conserve the Upper North East region CAR Reserve System described in Attachment 1(A) (E and S – Attachment 1) and identified on Map 1(A) (E and S – Map 1) and the Lower North East region CAR Reserve System described in Attachment 1(B) and identified on Map 1(B), with the exception of Commonwealth owned or leased land.</p>	<p>Clause number</p> <p>NE – 67</p> <p>E – 65</p> <p>S – 66</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3.

NSW manages its CAR reserve system in a manner that is detailed in clause 48(c)NE, 46E and 47S. The majority of the substantive reserve tenures within the CAR reserve system are covered by reserve or park plans of management.

Where no reserve or park plans of management are in place, a publicly available statement of management intent¹¹⁵ has been prepared which articulates the values, threats and key

¹¹² Mitchell P 2008, *NSW Landscapes Mapping: Background and Methodology*, Department of Environment and Climate Change, NSW Government, Sydney, accessed 12 September 2017 www.environment.nsw.gov.au/resources/conservation/EcosystemsMethodology.pdf

¹¹³ OEH 2016j, *Vegetation Information System*, NSW Office of Environment and Heritage, accessed 10 November 2016 www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm

¹¹⁴ Mitchell P 2002, *Descriptions for NSW (Mitchell) Landscapes Version 2*, Department of Environment and Climate Change, NSW Government, Sydney, accessed 12 September 2017 www.environment.nsw.gov.au/resources/conservation/landscapesdescriptions.pdf

¹¹⁵ OEH 2017c, *Statements of management intent*, accessed July 2017, www.environment.nsw.gov.au/parkmanagement/StatementsOfManagementIntent.htm

management directions. The remaining parks require more extensive and targeted consultation with Aboriginal communities before the statements of management intent or reserve/park plans of management are finalised.

All parks within the NSW RFA regions are covered by a Regional Pest and Weed Management Strategy¹¹⁶ and a Reserve Fire Management Strategy¹¹⁷.

Appendix E provides a list of the conservation reserves in each NSW RFA region indicating the status or change in status of management planning as at the end of Period 1 and the end of Period 3.

The CAR reserve system in NSW RFA regions as at June 2014 is displayed in Appendix H in Map 1 and Map 2 (UNE and LNE sub-regions of North East RFA region), Map 3 (Eden RFA region), and Map 4 and Map 5 (Tumut and South Coast sub-regions of the Southern RFA region).

<p>Implementation and management of the CAR Reserve System by the C'wth</p> <p>The Commonwealth agrees to manage and conserve those parts of the CAR Reserve system on Commonwealth owned or leased lands consistent with the conditions outlined in Attachment 1(B) (S – Attachment 1).</p>	<p>Clause number</p> <p>NE – 68</p> <p>S – 67</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The Department of Defence has reported on the implementation of this clause in relation to the Singleton Army Training Area (STA)¹¹⁸ (North East RFA) located south of Singleton and south-west of Branxton, and the Beecroft Weapons Range (BWR)¹¹⁹ (Southern RFA) located east of Vincentia on Jervis Bay. Further details are provided in Section 3.1.

<p>Enhancements to the CAR Reserve System</p> <p>Parties agree that through the acquisition of Private Land (by voluntary sale), transfer of lands of the Crown, or transfer of land from an existing reserve tenure to one of higher conservation protection status, enhancements to the CAR Reserve System could occur. Both Parties agree that such enhancements to the CAR Reserve System will not impede the management of State forest lands or the meeting of the wood supply commitments in this Agreement (Clauses 79, 80 and 84). (S- clauses 76, 77, 79, 80, 81).</p>	<p>Clause number</p> <p>NE – 69</p> <p>S – 68</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

¹¹⁶ OEH 2015c, *Pest and weed management in NSW national parks*, accessed 10 November 2016 www.environment.nsw.gov.au/pestsweeds/pestweedmgmtnsw.htm

¹¹⁷ OEH 2017d, *Managing fire in NSW national parks*, accessed July 2017 www.environment.nsw.gov.au/fire/mngfireinnswnatpks.htm

¹¹⁸ Department of Defence 2013, *Singleton Military Area, New South Wales*, accessed 10 November 2016 www.defence.gov.au/id/_Master/docs/NCRP/NSW/0356SingletonMilitaryAreaNSW.pdf

¹¹⁹ Department of Defence n.d., *Welcome to Beecroft Weapons Range from the Department of Defence*, accessed 16 November 2016 www.pointperp.com/PDF/Welcome_to_Beecroft_Weapons_Range.pdf

The NSW Government added various lands to the CAR reserve system during Period 2 and Period 3 as shown in Table 2. These additions did not impact on timber supply or wood supply agreements (WSAs).

See also the response to clauses 74NE, 69E and 73S for an example of how the NSW Government implemented a land transfer in a way that did not impede the meeting of the wood supply commitments.

Table 2 provides the contribution to the CAR reserve system from the national park estate and does not include state forest or Commonwealth lands that may contribute to the CAR reserve system in NSW. Areas in the CAR reserve system in the NSW state forest estate in each RFA region or sub-region by year over the reporting period are provided in FMZ¹²⁰ tables in Appendix F. The relationship between FMZ and CAR reserve categories is described in *Managing our forests sustainably: Forest Management Zoning in NSW State forests* (State Forests of NSW 1999)¹²¹.

The area of public land in the CAR reserve system in NSW RFA regions as at June 2014 is provided in Table 14 in Section 5 *Results of monitoring sustainability indicators* (in the response to indicator 1.1.c).

Table 2: NSW national parks estate contribution to CAR

Reporting period	Area (hectares)			
	Eden	Upper North East	Lower North East	Southern
RFA commencement	25/8/99	31/3/00	31/3/00	24/4/01
– dedicated ¹	253,983	502,966	1,141,763	1,291,069
– informal ²	0	29,468	40,881	6,671
Period 1 additions	25/8/99 – 30/6/04	31/3/00 – 30/6/05	31/3/00 – 30/6/05	24/4/01 – 30/6/06
– dedicated	2,805	73,613	59,038	17,336
– informal	1,456	30,862	44,235	26,042
Period 2 additions	1/7/04 – 30/6/09	1/7/05 – 30/6/10	1/7/05 – 30/6/10	1/7/06 – 30/6/11
– dedicated	1,927	21,129	41,448	11,223
– informal	0	3,417	19,426	6,101
Period 3 additions ³	1/7/09 – 30/6/14	1/7/10 – 30/6/14	1/7/10 – 30/6/14	1/7/11 – 30/6/14
– dedicated	403	717	5,923	588
– informal	0	699	723	4
Total CAR reserves (30/6/14)	260,574	662,870	1,353,438	1,359,033

Source: Data on additions to the national parks estate provided by OEH

Table notes: (1) Dedicated reserves: national parks and nature reserves (NPW Act); Flora reserves (Forestry Act)

(2) Informal reserves: SCAs and regional parks (NPW Act); relevant zones under FMZ (Forestry Act)

(3) Due to the variable commencement dates for the RFAs, Periods 1 and 3 do not represent a five-year period for the UNE, LNE or Southern regions.

¹²⁰ The FMZ classifications in Appendix F relate to the following CAR reserve categories: FMZ1 = dedicated (formal) reserves; FMZ2 = informal reserves; FMZ3a and FMZ3b = values protected by prescription.

¹²¹ State Forests of NSW 1999, *Managing our forests sustainably: Forest management zoning in NSW State Forests*, accessed 9 November 2016

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

<p>Licences and occupation permits in the CAR Reserve System</p> <p>In the incorporation into the CAR reserve system of lands of the Crown over which a licence or occupation permit is held NSW will:</p> <ul style="list-style-type: none"> • confirm the presence of CAR Values needed for reservation; • through consultation, take into consideration any existing interests in the land of the licensee or permit holder; • ensure where practicable that suitable transition arrangements apply; and • ensure that practical and legal access remains available where such access to adjacent private, licenced or leased land currently crosses or falls within land to be added to the CAR reserve system under this agreement. 	<p>Clause number</p> <p>NE – 70</p> <p>S – 69</p>
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This commitment was not applicable in Period 1, Period 2 and Period 3.

In Periods 2 and 3, the NSW Government did not add to the CAR reserve system any land over which a licence or occupation permit was held.

<p>Changes to the CAR Reserve System</p> <p>Parties agree that changes to the CAR Reserve System will only occur in accordance with this Agreement, will be made publicly available and will not lead to a net deterioration in the representation or protection of identified CAR Values, except that minor changes to the levels of representation or protection of specific CAR values may occur.</p>	<p>Clause number</p> <p>NE – 71</p> <p>E – 66</p> <p>S – 70</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Any potential revocation of land reserved under the NPW Act requires an Act of Parliament to revoke the land tenure for another tenure. The Bills associated with any such revocation, and the subsequent Acts, are made publicly available.

Over Period 2 and Period 3, a total of 404 hectares was revoked from the CAR reserve system, comprised of approximately 19 hectares in the UNE, 55 hectares in the Lower North East, 295 hectares in Southern (of which 141 hectares occurred in Kosciuszko National Park to accommodate an upgrade of the Alpine Way) and 35 hectares in Eden. This resulted in only very minor changes to the levels of representation or protection of specific CAR values. All changes to the CAR reserve system in NSW are publicly available¹²².

Enhancements to the reserve system in the NSW RFA regions greatly exceeded the area of revocations and are discussed under clause 69NE. There have not been any changes to the CAR reserve system that have led to a net deterioration in the representation or protection of identified CAR values.

¹²² OEH 2015a, *What are our priorities in acquiring land?*, accessed 10 November 2016, www.environment.nsw.gov.au/acquiringland/WhatAreOurPrioritiesInAcquiringLand.htm

<p>Changes to the levels of protection of individual values as a result of changes to the CAR Reserve System</p> <p>Parties agree that best endeavours will be used to maintain the levels of protection of National Estate Values in a regional context, however, minor changes to the levels of protection of individual values may occur as a result of changes to the CAR Reserve System in State forest.</p>	<p>Clause number</p> <p>NE – 72</p> <p>E – 67</p> <p>S – 71</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

As indicated in the response to clause 21, the RNE was established in the 1970s when heritage protection was not coordinated nationally. In 1997, COAG agreed to coordinate heritage protection and remove overlap, with each jurisdiction responsible for heritage of significance at its own level. The RNE was frozen on 19 February 2007. Two new heritage lists were created in 2003 – the National Heritage List (for places with outstanding heritage value to the nation) and the Commonwealth Heritage List (for places which are the responsibility of the Commonwealth).

During Period 3, the Parties committed to the management of ‘national estate values’ as the term ‘national estate’ is still used in the RFA Act. The term is interpreted by the Parties in a way consistent with its original intent to mean values of those places, being components of the natural or cultural environment in Australia, that have been assessed and recognised for their aesthetic, historic, scientific or social significance or other special value for future generations as well as for the present community by the Australian or NSW governments. This may include components of the natural or cultural environment that are now listed in the National Heritage List, the Commonwealth Heritage List or the NSW Heritage Register.

Forest ecosystems reporting

Attachment 1 in each of the NSW RFAs reported the percentage reservation status of forest and non-forest ecosystems in the CAR reserve system. Updated reporting on the reservation status of forest ecosystems has not occurred at a statewide level due to factors that limit the capacity to provide reasonable comparative data. These include:

- refinement of the forest ecosystem classifications over the years following the signing of the NSW RFAs
- a subsequent shift in the underlying data used to define ecosystems, i.e. the use of plant community types (all structural elements) rather than the forest types (tree canopy and species) used in the CRA process.

Effectively the forest ecosystem classification systems used for the CRAs and reported in the NSW RFAs have become redundant in light of scientific improvements that have continued to occur for statewide vegetation programs. This indicates how RFAs provide for continual improvement of forest management.

Further information on the NSW method for determining regional ecosystems is provided in the response to clauses 66NE, 64E and 65S in Section 2.4.

2.5 Industry and regional development

<p>Establishment of sustainability strategy for timber supplies</p> <p>The Parties note that the New South Wales Eden Region Forest Agreement establishes the sustainability strategy for timber supplies.</p>	<p>Clause number</p> <p>E – 72</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

FCNSW manages its forest estate to produce a range of forest products, services and environmental benefits. The sustainability strategy established in the NSW Eden Region Forest Agreement is reflected in FCNSW's Forest Management Policy, which highlights the importance of the sustainable management of our forests.

<p>State forest outside the CAR Reserve System</p> <p>The Parties agree that State forest outside the CAR Reserve System is available for timber harvesting in accordance with this Agreement and the laws of New South Wales.</p>	<p>Clause number</p> <p>NE – 73</p> <p>E – 68</p> <p>S – 72</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Timber harvesting in state forest outside the CAR reserve system is allowed in accordance with the NSW RFAs and with relevant NSW legislation.

Those areas of state forest outside formal reserves and informal reserves are available for wood production except for those areas protected through the application of the environmental licences in the IFOAs designed to protect threatened ecological communities.

In Period 3, major reforms were made to the NSW legislation applying to timber harvesting in state forest outside the CAR reserve system.

In 2012, the FNPE Act was amended to remove the provisions relating to FAs and IFOAs and to rename it the *National Park Estate (Land Transfers) Act 1998* (NSW). The provisions in the FNPE Act relating to FAs and IFOAs were transferred to the Forestry Act, which commenced on 1 January 2013.

The FAs and the IFOAs include detailed requirements applying to forestry operations generally, restricted logging operations near the boundary of certain areas, logging and harvesting operations, forest products operations, ongoing forest management operations, ancillary road construction and other matters pertinent to management activities in state forests.

<p>Supply to sawmills in the Eden region</p> <p>New South Wales agrees to supply to sawmills in the Eden region a minimum of 25,000 m³ p.a. of Quota Sawlogs for the first five years and a minimum of 24,000 m³ p.a. of Quota Sawlogs for the subsequent 15 years of the term of this Agreement. In addition, a minimum of 345,000 tonnes p.a. of Pulpwood for 20 years is to be supplied from the Eden region. From this Pulpwood, up to 23,000 m³ p.a. of suitable material will be selected to be supplied as non-quota Sawlogs for 20 years</p>	<p>Clause number</p> <p>E – 73</p>
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This ongoing commitment was achieved during Period 1 and reported in the first five-yearly review report. This ongoing commitment was achieved in part during Period 2 and Period 3.

During Period 2 and Period 3, the average annual quota sawlog volume provided to mills in the Eden RFA region was 23,449 m³. In the same periods, an annual average of 301,000 tonnes of pulpwood was supplied from the Eden RFA region. An average annual volume of 8,000 m³ of non-quota sawlogs was also supplied from the Eden RFA region.

Appendix K provides further explanation on the average figures reported above based on the annual figures for the quota logs, which had an impact on the supply of pulpwood logs and non-quota logs between 2004–05 and 2013–14.

<p>Open tendering of non-quota specialty Sawlogs and craftwood sourced in the Eden region</p> <p>New South Wales agrees to regularly offer, through an open tendering or other competitive process, non-quota specialty Sawlogs and craftwood sourced in the Eden region for the duration of this Agreement. The offers will be structured in terms of species, specifications, supply and volumes such that it will be feasible for users of low quantities of timbers to apply. Applications will be sought periodically through advertisements in regional newspapers and consultation with potential buyers.</p>	<p>Clause number E – 74</p>
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This ongoing commitment was no longer applicable during Period 2 and Period 3.

Since the Eden RFA was signed, there has been little interest and no market for these products.

<p>Changes to the total area of State Forest – not to affect wood supply</p> <p>The Parties agree that any changes to the total area of State Forest or areas excluded from harvesting or Regional Prescriptions applied to State forest will not lead to net deterioration in the capacity to supply wood from the Upper North East Region and Lower North East Region, in terms of volume as specified in this Agreement and terms of species and quality.</p>	<p>Clause number NE – 74 E – 69 S – 73</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

In Period 1, the NSW Parliament passed the *National Park Estate (Reservations) Act 2003* (NSW), which transferred certain lands from state forests and into the national park estate¹²³. The decision to transfer this land, which included ‘iconic forest areas’ in north-east NSW, to the CAR reserve system was based on scientific assessment of the full range of forest attributes.

After assessment of the implications for timber supplies, the NSW Government introduced a series of measures to maintain timber supplies, including:

- amendment of environmental prescriptions to remove the buffer-on-buffer effect to allow wood to be harvested while continuing to protect water quality
- changes to the threatened species licence to allow more flexible management approaches to support conservation outcomes
- confirming for timber production the interim forest management zones (i.e. FMZ 8) that were not included in the initial estimates of timber supply
- the then State Forests of NSW purchasing private forested land, funded by the NSW Government, which added around 5,000 m³ of sawlogs to the annual supplies of timber (Appendix K).

¹²³ Parliament of New South Wales 2003, *Second Reading Speech, National Park Estate (Reservations) Bill*, (Official Hansard), accessed 9 November 2016
www.parliament.nsw.gov.au/bills/DBAssets/bills/SecondReadSpeechLA/385/A2403.pdf

<p>a. The Parties acknowledge that forest-based industries in the Upper North East and Lower North East regions contribute to both the regional and State economies and are an essential component of many communities in the regions. The Parties intend that this Agreement will enhance opportunities for further growth and development of forest-based industries in the Upper North East and Lower North East regions.</p> <p>b. The Agreement will provide long-term stability for these industries through including long-term certainty of timber supply. This stability will facilitate industry development through:</p> <p>i. new investment, plantation development, reforestation, downstream processing, value-adding and jobs growth in forest-based industries;</p> <p>ii. further introduction of new technology, enhanced utilisation of regrowth timber for sawn products, thinning of regrowth forests and more efficient utilisation of residual wood;</p> <p>c. There will be significant economic opportunities in other forest-based industries, such as:</p> <p>i. tourism and recreation; and</p> <p>ii. mineral exploration and Mining.</p> <p>d. Additional opportunities for enhancement of forest based industries are anticipated arising from the Long-term Timber Supply Strategy (Attachment 12).</p>	<p>Clause number NE – 75 E – 70 S – 74</p>
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This ongoing commitment was:

- for part (a) achieved in part during Period 2 and Period 3
- for part (b) achieved in part during Period 2 and Period 3
- for part (c) achieved during Period 2 and Period 3.

The response to part (d) is covered in the commitments made under Attachment 12 (NE).

To support the achievements against this commitment, further information is provided in Appendix C.

<p>Timber availability through harvesting trials</p> <p>New South Wales agrees that if any timber becomes available through the harvesting trials outlined in its <i>Eden Region Forest Agreement</i> it all will be made available to industry provided this is consistent with this Agreement, including the provisions relating to Ecologically Sustainable Forest Management, and that there are no adverse environmental effects, including deleterious effects on CAR Values.</p>	<p>Clause number E – 75</p>
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This ongoing commitment was not applicable during Period 1, Period 2 and Period 3.

In Period 1, Period 2 and Period 3, as there were no harvesting trials in the area covered by the Eden RFA, no timber was made available to industry from trials¹²⁴.

¹²⁴ Although outside the Eden RFA region, NSW has made timber available to industry from harvesting trials; for example, FCNSW undertook trials of selective harvesting in unmapped drainage lines in the South Coast sub-region and LNE /UNE FA regions. Timber produced from these harvesting trials contributed to timber supply in those FA regions (Southern and NE RFA regions).

<p>Greater security of access to forest resources</p> <p>As part of providing greater security of access to forest resources, the Commonwealth will not prevent enterprises obtaining, using or exporting the quantities of timber, Woodchips or Unprocessed Wood products sourced from the Upper North East and Lower North East regions in accordance with this Agreement.</p>	<p>Clause number</p> <p>NE – 76</p> <p>E – 71</p> <p>S – 75</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

On commencement of each of the NSW RFAs between 1999 and 2001, the Export Control (Regional Forest Agreements) Regulations lifted all export controls on woodchips and other unprocessed wood sourced from native forests in the respective RFA region. Restrictions on the export of plantation-sourced wood had been lifted in February 1998 following the approval of the NSW code of practice for plantations¹²⁵ by the Australian Government minister.

Section 38 of the EPBC Act states that Part 3 (Requirements for Environmental Approvals) of that Act does not apply to certain RFA forestry operations that are undertaken in accordance with the relevant clauses of the RFAs. This is to avoid duplication as RFAs are considered to meet the objects of the EPBC Act. In addition, an amending provision of the EPBC Act, which commenced on 19 February 2007, states that in deciding if approval is required for a proposed development, the Commonwealth Environment Minister must not consider any adverse impacts of any RFA forestry operations in making their decision.

As the NSW RFAs were maintained over the second and third five-yearly reporting periods, they met the necessary conditions in relation to export control of woodchips and unprocessed wood products, which had been established with the signing of each NSW RFA.

<p>Review of timber volumes</p> <p>New South Wales agrees that the timber volumes made available under this Agreement will be reviewed using the processes described in clause 46(f), and in accordance with the provisions of this Agreement. Any additional sustainable timber volumes identified in this way will be made available to industry provided this is consistent with this Agreement, including the provisions relating to Ecologically Sustainable Forest Management, and that there are no adverse environmental effects, including deleterious effects on CAR Values.</p>	<p>Clause number</p> <p>E – 76</p>
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This ongoing commitment was not applicable during Period 2 and Period 3.

Reviews of timber volumes conducted under clause 46(f)E did not identify any additional timber volumes. No additional volume was made available to industry.

FCNSW commenced inventory plot measurement and capture of Light Detection and Ranging (LiDAR) data in the Eden RFA region during 2013 and 2014. While outside this reporting period, FRAMES modelling of the wood resource availability commenced for the Eden RFA region in 2015.

¹²⁵ NSW Government 1997, Timber Plantations (Harvest Guarantee) Regulation 1997 (NSW) including Schedule 1 Timber Plantations (Environmental Protection) Harvesting Code 1997, accessed 25 August 2017 www.legislation.nsw.gov.au/regulations/1997-315.pdf

Appendix G provides an overview of the FRAMES process as it will be applied to the Eden RFA region and a full report is publicly available¹²⁶.

<p>Supply of high quality large logs in the southern region</p> <p>NSW agrees to supply a minimum of 48,500 m³ p.a. of high quality large logs from the South Coast Sub Region and a minimum of 48,000 m³ p.a. of high quality large logs from the Tumut Sub Region for 20 years from 1 January 2001.</p>	<p>Clause number</p> <p>S – 76</p>
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This ongoing commitment was achieved during Period 1 and reported in the first five-yearly review report. This ongoing commitment was achieved during Period 2 and Period 3.

During Period 2 and Period 3, NSW made available for purchase by industry the high quality large (HQL) sawlog volumes in line with clause 76S; however, industry did not purchase up to the volumes made available for supply. Contractual arrangements set out in the WSAs determine the actual volumes supplied by FCNSW and purchased by industry.

NSW supplied HQL from the South Coast sub-region to industry in line with the volumes specified in the relevant WSAs. In Period 2, an annual average volume of 42,447 m³ of HQL was produced from the South Coast sub-region, and in Period 3, the annual average volume was 37,396 m³.

During Period 2, NSW supplied HQL from the Tumut sub-region to industry in line with volumes specified in the relevant WSAs. In Period 2, an annual average volume of 21,158 m³ of HQL was produced from the Tumut sub-region.

During Period 3, supply from the Tumut sub-region declined significantly to an annual average volume of 6,675 m³. The decline was due to several factors including sawmill closures, which impacted demand levels, and a temporary ban on harvesting in part of the Bago Plateau when a population of the endangered yellow-bellied glider (*Petaurus australis*) was found. Further information is provided in the response to clause 79S.

While outside the reporting period, volumes harvested in the Tumut sub-region are increasing again as new WSAs have been signed, and the monitoring of yellow-bellied glider populations has allowed harvesting to recommence in areas under prescriptions within the *Population Management Plan Bago Plateau Yellow-bellied Glider*¹²⁷.

The volumes in the WSAs differ from those in clause 76S, as described in Appendix K. Further information on annual volumes over Period 2 and Period 3 is provided in Appendix K.

<p>Wood Supply Agreements</p> <p>The timber volumes in clause 76 will be allocated under twenty year Wood Supply Agreements. These agreements will take effect from 1 January 2001 for the South Coast Sub Region and as early as possible, but no later than 1 January 2002, for the Tumut Sub Region.</p>	<p>Clause number</p> <p>S – 77</p>
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¹²⁶ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

¹²⁷ FCNSW 2013, *Population Management Plan: Bago Plateau Yellow-Bellied Glider* (*Petaurus australis*), accessed 10 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0008/476396/Population-management-plan-Bago-Plateau-Yellow-Bellied-Glider.pdf

This commitment was achieved outside the proposed timeline during Period 1 and was reported in the first five-yearly review report (p.96).

WSAs for both the South Coast and Tumut sub-regions were signed in November 2003.

<p>Implementation of Long-term Timber Supply Strategy and Sustainable Yield Systems and Processes</p> <p>NSW Agrees to implement the Long-term Timber Supply Strategy and Sustainable Yield Systems and Processes as outlined in Attachment 12 of this Agreement.</p>	<p>Clause number NE – 78</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

NSW confirms it has implemented the necessary actions for the long-term supply of timber and maintained FRAMES and resource forecasts for the North East RFA region. Section 3.5 outlines responses to the Attachment 12 commitments.

<p>Supply of high quality large logs in the Tumut Sub Region</p> <p>The volumes described in clause 76 from the Tumut Sub Region will be comprised of 18,500 m³ of Ash and 29,500 m³ of mixed hardwood logs. It is noted that an additional 1,000 m³ p.a. of Quota Sawlogs (a sawlog having dimensions and quality that are equal to or greater than those specified in the Wood Supply Agreements between SFNSW and sawlog-using customers) will be supplied from Ingebirah State Forest in the Tumut Sub Region to the Eden RFA Region over the period of this Agreement. This 1,000 m³ p.a. for the Eden RFA Region is additional to the Tumut Sub Region High Quality Large Log volume of 48,000 m³.</p>	<p>Clause number S – 79</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3.

In Period 2, an average annual volume of 21,158 m³ of HQL sawlogs were produced from the Tumut sub-region. These were predominantly (80%) alpine ash (*Eucalyptus delegatensis*).

In Period 3, volumes harvested from Tumut sub-region declined significantly as a result of changes in the sawmiller customer base and the impact of the listing by the NSW Government of the yellow-bellied glider on the Bago Plateau as an endangered population¹²⁸. In this period, an average of 6,675 m³ of HQL sawlogs were produced each year.

While outside the reporting period, volumes harvested in the sub-region are increasing again as new WSAs have been negotiated and signed, and the monitoring of yellow-bellied glider populations has allowed harvesting to recommence in many areas under prescriptions within the *Population Management Plan Bago Plateau Yellow-bellied Glider*¹²⁹.

While an average annual volume of 608 m³ of quota sawlogs were produced from Ingebirah State Forest, it was all harvested in Period 3. Harvesting in Ingebirah State Forest is undertaken periodically to incorporate a number of years' sawlog allocation to justify a

¹²⁸ OEH 2011b, *Yellow-bellied Glider on the Bago Plateau – endangered population listing*, accessed 10 November 2016 www.environment.nsw.gov.au/determinations/yellowbelliedgliderpopfd.htm

¹²⁹ FCNSW 2013, *Population Management Plan: Bago Plateau Yellow-Bellied Glider* (*Petaurus australis*), accessed 10 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0008/476396/Population-management-plan-Bago-Plateau-Yellow-Bellied-Glider.pdf

harvesting contractor moving into the isolated state forest for a sawlog/pulpwood operation. It also involves discussion with the sawmill customer to ensure its ability to market the sawn products within its normal species mix.

Further information on annual volumes over Period 2 and Period 3 is provided in Appendix K.

<p>Arrangements for pulp grade timber/pulpwood in the South Coast Sub Region</p> <p>The Parties note that for the South Coast Sub Region, arrangements for pulp grade timber/pulpwood include an amount of 97,000 tonnes p.a., being a quantity which reflects the maximum supply levels contracted at the date of this Agreement.</p>	<p>Clause number S – 80</p>
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This ongoing commitment was achieved in Period 1, Period 2 and Period 3.

An average of 85,000 tonnes p.a. of pulpwood timber was produced along with 12,000 tonnes p.a. of residue during Period 2 and Period 3. While this annual average equates to the agreed maximum supply level, it provides an outlet for low quality residues to be removed with higher quality products enhancing the silvicultural prescriptions used on the sub-region's state forests.

<p>Supply of high quality large sawlogs and Large Veneer Logs in the Upper North East and Lower North East Regions</p> <p>Under the Sustainable Wood Supply Strategy, NSW agrees to supply 129,000 m³ per annum for 20 years in the Upper North East Region and 140,000 m³ p.a. in the Lower North East Region of high quality large sawlogs and Large Veneer Logs. Annually, approximately 20,000 m³ of high quality large sawlogs and Large Veneer Logs allocated in the Upper North East Region will be sourced from the Lower North East Region over the period of the Agreement.</p> <p>Harvesting of 109,000 m³ p.a. from the Upper North East Region and 160,000 m³ p.a. from the Lower North East Region of high quality large sawlogs and Large Veneer Logs will occur to supply Wood Supply Agreement holders. Contracted commitments and other arrangements associated with Wood Supply Agreements allow for the carrying forward of volumes under-cut or over-cut in any one year.</p>	<p>Clause number NE – 79</p> <p>NE – 80</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3.

During Period 1, the sustainable yield and contracted supply volumes were revised down after the volume review undertaken for clause 81NE. The review and outcomes are documented in the response to Milestone 56 in the first five-yearly implementation report (pp.94–95). Although the supply volumes were revised down as a result of this review and incorporated into WSAs, the North East RFA was not amended to reflect the revised volumes (see response at clause 83NE). In the UNE the supply volume was revised down from 129,000 m³ p.a. to 83,686 m³ p.a. Further revisions to wood supply volume commitments have been made in subsequent periods, and these are summarised in Table 3.

During Period 2, the UNE sub-region produced an average annual volume of 67,290 m³ of HQL products and during Period 3, an average annual volume of 60,014 m³ of HQL products. These volumes are well below the volume set in this clause at just under 60% of the 109,000 m³ p.a. available. The volumes produced are also below the revised wood supply volume commitments for the UNE during these periods.

During Period 2, the LNE sub-region produced an average annual volume of 128,729 m³ of HQL products and during Period 3, an average annual volume of 109,377 m³ of HQL products. These volumes are well below the volume set in this clause at around 75% of the 160,000 m³ p.a. available. The volumes produced meet the revised wood supply volume commitments for the LNE during these periods (differences may occur due to when the variations came into effect and allowing for overcuts/undercuts for each year).

Appendix K outlines the various reductions to available volume throughout the reporting period that have resulted in these lower than sustainable yield volumes being cut. Table 3 provides a summary of changes in the WSA volume commitments over time.

Table 3: Changes in wood supply volume commitments over the reporting period

RFA sub-region	RFA commitment	WSA revision – Period 1	WSA revision – Period 2	WSA revision – Period 3
	(m ³ per annum)			
UNE	129,000	83,686	83,686	83,686
LNE	140,000	125,814	125,814	102,091 ¹
Total	269,000	209,500	209,500	185,777

Source: SFNSW, FNSW, FCNSW

Table notes: (1) In 2012, a customer sold its allocation of 23,723 m³ p.a. to the State of NSW, reducing wood supply commitment volumes in that period.

<p>Volumes in the Upper North East and Lower North East Regions subject to a FRAMES and wood supply review: Milestone</p> <p>The volumes in clause 79 are subject to a FRAMES and wood supply review to be completed by 1 December 2006. The review will be an input to the determination of the annual volume of high quality large sawlogs and Large Veneer Logs to be made available to industry for the balance of the term of this Agreement. Reviews will be conducted using enhanced FRAMES developed through Part E of Attachment 12 and be based on the Sustainable Wood Supply Strategy, the area available for harvesting in the <i>Upper North East Region Forest Agreement</i> (1999) and <i>Lower North East Region Forest Agreement</i> (1999) as defined through net harvestable area exclusions and the Integrated Forest Operations Approval (1999). The reviews will also consider the contribution to the Sustainable Wood Supply Strategy of any additions to the area available for harvesting resulting from the purchase of Private Land and development of new public hardwood Plantations (Part C, Attachment 12).</p>	<p>Clause number NE – 81</p>
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This milestone commitment was achieved in part during Period 1 and was reported in the first five-yearly review report. The commitment was achieved in Period 2 and Period 3.

In May 2012, the NSW Government established a steering committee to investigate the issues associated with timber supply on the North Coast including sustainability of supply to the end of the term of current wood supply agreements in 2023 and over the long term. An agreement to reduce the harvest of high quality sawlogs on the NSW North Coast would allow the continued maturing of forests as part of a NSW Government plan to ensure the long-term sustainable supply of timber from the region's forests. A summary of the outcomes of this investigation was published in 2014¹³⁰.

¹³⁰ DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017
www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

FCNSW has maintained a process of continual development of FRAMES and strategic level wood supply projections across all NSW RFA regions. FRAMES has been independently reviewed on a number of occasions. Appendix G provides an overview of FRAMES with a full report being publicly available¹³¹.

In addition to reviews of FRAMES and wood supply undertaken in Period 1, further independent reviews were completed in Period 2 (Auditor General’s Report, Performance Audit, *Sustaining Native Forest Operations*, Forests NSW, Sydney April 2009¹³²), and Period 3 through Project 2023¹³³.

Supply of high quality small logs	Clause number
High quality small logs will be supplied at a minimum of approximately 4,850 m ³ p.a. for the South Coast Sub Region and at levels greater than 1999 contracted volumes for the Tumut Sub Region, being 3,085 m ³ p.a. (1,500 m ³ p.a. hardwood and 1,585 m ³ p.a. Ash).	S – 81

This commitment was achieved during Period 1. This commitment was achieved during Period 2 and Period 3 (for South Coast sub-region). This commitment was achieved in part during Period 2 and Period 3 (for Tumut sub-region).

In Period 2, the South Coast sub-region produced an average annual volume of 6,002 m³ of high quality small (HQS) sawlogs while during Period 3, the sub-region produced an average annual volume of 6,692 m³ of HQS sawlogs.

Tumut sub-region produced an average annual volume of 2,335 m³ in Period 2 and 112 m³ in Period 3 of HQS sawlogs with the supplied volume being dominated by alpine ash.

The substantial drop off in HQS volume in the Tumut sub-region is attributed to the reasons outlined in the response to clause 79S.

Further information on annual volumes over Period 2 and Period 3 is provided in Appendix K.

Review to inform additional supplementation	Clause number
Informed by the review in clause 81, NSW will consider additional supplementation of high quality large sawlogs and Large Veneer Logs having regard to the long-term Sustainable Yield after 2018.	NE – 82

This commitment was achieved during Period 1 and was reported in the first five-yearly review report. This commitment was achieved in Period 2 and Period 3.

NSW considered additional supplementation of HQL sawlogs and large veneer logs, and implemented the Private Property Timber Supplementation Program (PPTSP), the details of which are provided in the response to Attachment 12, 19 NE.

¹³¹ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

¹³² Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017 www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

¹³³ DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017 www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

<p>Supply arrangements for other Forest Products in the Southern Region</p> <p>Supply arrangements for other Forest Products (including poles, piles, girders, veneer logs, high quality small logs, Low Quality Logs and pulp logs) from forest operations will be in accordance with current and future market demands.</p>	<p>Clause number</p> <p>S – 82</p>
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This commitment was achieved during Period 2 and Period 3.

Volumes of other forest products were supplied from harvesting operations producing high quality timber to meet clause 76S, to achieve maximum value for each tree felled and converted into the highest value log product, deliver silvicultural requirements in the forest to ensure regeneration and in line with market availability at the time. The volumes by log product produced in the South Coast and Tumut sub-regions are provided in Table 75 and Table 76 respectively, in Appendix K.

Supply arrangements for forest products will continue to meet market demands subject to sustainable yield considerations. Production and marketing of forest products, other than HQL sawlogs, is determined by product availability in proposed forest operations and marketed accordingly.

<p>Changes in contracted volumes: Milestone</p> <p>Any changes in the contracted volumes specified in clause 79 resulting from the review process outlined in clause 81 will be incorporated into this Agreement through Clause 8 and will be advised to holders of Wood Supply Agreements prior to 1 December 2006. These volumes will then be available to industry until the end of 2018.</p>	<p>Clause number</p> <p>NE – 83</p>
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This milestone was reported as completed in the first five-yearly review report. This milestone was achieved in part during Period 2 and Period 3.

The changes to contracted volumes documented in Milestone 56 in the first five-yearly report (pp.94–95) extended the commitment period to 2023 but were not incorporated into the North East RFA through clause 8NE.

In 2012, a review was undertaken on FCNSW’s log supply under its WSA contracts for the North Coast, i.e. UNE and LNE sub-regions. As a consequence of the review and following negotiations with WSA holders, some new WSAs came into effect and will run until 2028.

The Parties have not used the mechanism in clause 8NE to amend the North East RFA as the mechanism in clause 81NE provides the means to vary contracted volumes through wood supply reviews based on FRAMES.

Further information on annual volumes over Period 2 and Period 3 is provided in Appendix K.

<p>Supply of forest products</p> <p>The Forest Products referred to in clauses 80, 81 and 82 will be supplied as a result of the management and harvesting of forests (including thinning operations) to meet the volumes specified in clause 76.</p>	<p>Clause number</p> <p>S – 83</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3.

FCNSW has confirmed that HQL, HQS, pulpwood and other wood products were extracted by integrated harvesting operations to meet quota sawlog volumes committed under clause 76S.

Further information on annual volumes over Period 2 and Period 3 is provided in Appendix K.

<p>Supply to mills in the North East Region</p> <p>In addition to the timber in clause 79, NSW agrees to supply 2,846 m³ to mills in the Upper North East Region and 5,911 m³ to mills in the Lower North East Region of high quality large sawlogs under transitional arrangements in 2000.</p>	<p>Clause number</p> <p>NE – 84</p>
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This commitment was achieved during Period 1.

Sales data for the year 2000 is in a format no longer able to be analysed in detail. As such it is not possible to differentiate these small, transitional volume commitments from the total volumes produced. In lieu of detailed sales data, the Parties have provided volumes of HQL produced from native forest and hardwood plantations for the two financial years which cover this calendar year. The volumes produced over these years are provided below and indicate that the transitional volume commitments were met.

During 1999–2000 the actual volume produced from the UNE sub-region was 118,444 m³, which adequately meets the harvest commitment (from 80NE) of 109,000 m³ p.a. plus the transitional arrangement additional commitment of 2,846 m³.

During 1999–2000 the actual volume produced from the LNE sub-region was 167,529 m³, which adequately meets the harvest commitment (from 80NE) of 160,000 m³ p.a. plus the transitional arrangement additional commitment of 5,911 m³.

During 2000–01, the volume of HQL produced from native forest and hardwood plantations in the UNE sub-region was 91,254 m³ and from the LNE sub-region was 135,845 m³.

The change in HQL volumes committed in the North East RFA region under WSAs over time are provided in Figure 7, Appendix K.

<p>Supply of high quality small sawlogs in the North East Region</p> <p>High quality small sawlogs will be supplied at levels greater than 1999 contracted volumes. In addition NSW will use their best endeavours to provide a greater proportion of the high quality small sawlogs resource through Wood Supply Agreements to enhance security for processors.</p>	<p>Clause number</p> <p>NE – 85</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3 (UNE sub-region). This ongoing commitment was achieved during Period 1, Period 2 and Period 3 (LNE sub-region).

The volume of HQS sawlogs in 1999 was reported as 66,382 m³ for the UNE sub-region and 45,640 m³ for the LNE sub-region.

In the UNE sub-region over Period 2 and Period 3, the HQS sawlog volumes to customers were between 50% and 75% of the 1999 contracted volumes but represented the availability of such logs in the diverse localities and forest types harvested each year.

In the LNE sub-region over Period 2 and Period 3, the HQS sawlog volumes to customers have on average exceeded the 1999 contracted volumes to ensure extra log volume for customers including WSA holders.

Further information on annual volumes over Period 2 and Period 3 is provided in Appendix K.

<p>Arrangements for pulp grade timber in the North East Region</p> <p>Arrangements for pulp grade timber include an amount of approximately 30,000 tonnes p.a. in the Upper North East Region and approximately 152,000 tonnes p.a. in the Lower North East Region, being a quantity which reflects supply levels current at the date of this Agreement. In addition, existing supply arrangements for other Forest Products (including poles, piles, girders, high quality small sawlogs, low quality timber and small veneer logs) from forest operations will be honoured.</p>	<p>Clause number NE – 86</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3.

The UNE sub-region produced an average annual volume of 26,000 tonnes p.a. of pulpwood in Period 2 and 12,000 tonnes p.a. of pulpwood in Period 3. These annual volumes were below the supply levels indicated at the signing of the North East RFA but reflected the economically available pulpwood from suitable native forest or plantation harvesting operations in the UNE sub-region.

The LNE sub-region produced an annual average volume of pulpwood of 135,000 tonnes p.a. in Period 2 and 141,000 tonnes p.a. in Period 3, also from native forest or plantation harvesting operations. These annual volumes were around 90% of the supply levels indicated at the signing of the North East RFA and reflected a wood resource closer to the customers' facilities and from more favourable pulpwood species, including blackbutt, flooded gum and Sydney blue gum. One customer is still purchasing pulpwood for domestic production purposes utilising a range of species with an annual input of between 15,000 and 25,000 tonnes.

The supply of pulpwood from the UNE ceased in 2013. The supply of pulpwood from the LNE sub-region declined in 2012 following the closure of the main woodchip export company's chipping facility at Tea Gardens and subsequently, its storage and export facility at Kooragang Island, Newcastle. The closure was related to the high Australian dollar, which made other sources more competitive to supply pulpwood fibre for Japan.

Annual sales of poles, piles, girders, low quality sawlogs and small veneer were in line with commitments and market demand during Period 2 and Period 3.

Further information on annual volumes over Period 2 and Period 3 is provided in Table 73 for UNE and Table 74 for LNE sub-regions in Appendix K.

<p>Supply arrangements in the North East Region</p> <p>The quantities referred to in clause 86 simply reflect supply arrangements existing at the date of this Agreement. Other quantities of Forest Products will be supplied as a result of the management and harvesting of forests to meet the volumes specified in the Wood Supply Agreements for high quality large sawlogs and Large Veneer Logs (refer to clause 79). This will not result in a net increase in the High Quality Large Sawlog or Large Veneer Log volumes specified in clause 79.</p>	<p>Clause number NE – 87</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Volumes of other forest (log) products were supplied from harvesting operations producing high quality timber to meet clause 79NE and pulpwood to meet clause 86NE. The log supply from harvesting operations is managed to achieve maximum value for each tree felled and converted into the highest value log product to deliver silvicultural requirements in the forest, and thereby ensuring regeneration and in line with market availability at the time. The annual volumes by log product for Period 2 and Period 3 are provided in Appendix K.

The total volume of high quality large products, including volumes of other products referred to in Clause 86NE, were produced well within the overall volume limits specified in clause 79NE.

<p>Enhancement of silvicultural programs and reforestation works Wherever possible New South Wales will enhance silvicultural programs and reforestation works to improve the productive capacity of State forests. (S – Such programs and works will be conducted in accordance with other clauses contained in this Agreement.)</p>	<p>Clause number NE – 88 E – 77 S – 84</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Silvicultural programs are undertaken to maintain or enhance the productivity of the state forest estate. Site specific silviculture to deliver this outcome is described in individual operational harvesting plans. The State Forests of NSW Native Forest Silviculture Manual¹³⁴ was published in 2001 and although outside the reporting period, was updated in 2015¹³⁵. Ongoing training in silvicultural techniques has been conducted for FCNSW employees and the contract harvesting crews.

Programs included substantial native forest regrowth and hardwood plantation thinning early in the term of the NSW RFAs to maximise growth of high value products and targeted regeneration programs. Regeneration monitoring programs, which identified problems in regeneration in Australian Group Selection (AGS) silviculture areas in blackbutt (*Eucalyptus pilularis*) forests on the North Coast, led to an increase in regeneration harvesting practices using single tree selection (STS) methods from 2007. This substantially improved regeneration outcomes.

The EPA has expressed concerns that regeneration harvesting, as practised on the mid-North Coast since 2007, is inconsistent with the intent of the current IFOAs. However the definition of STS within the IFOA is highly interpretable. Although outside the reporting period for this implementation report, this issue is currently the subject of consideration by the NSW Government as part of the IFOA remake process.

The annual areas of silvicultural treatments are published in FCNSW’s annual reports or sustainability supplements. STS is the preferred silvicultural system used in the NSW RFA regions with a smaller area of regrowth thinning (mainly thinning from below) and, specifically for the Eden RFA region, alternate coupe harvesting using a modified shelterwood system. Further information on development of silviculture practices is provided in Appendix D.

<p>The Parties agree that the timber volume to be supplied from the South Coast Sub Region and the Tumut Sub Region as provided in clause 76, is to be on a non-declining even-flow Sustainable Yield basis for the period modelled by FRAMES (being 180 years).</p>	<p>Clause number S – 85</p>
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This ongoing commitment was achieved in part during Period 1, Period 2 and Period 3.

¹³⁴ Jurskis V & State Forests of NSW (2001) *Native Forest Silviculture Manual*, NSW Government Sydney.

¹³⁵ FCNSW 2015d, *Native Forest Silviculture Manual*, accessed 28 August 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0005/438404/native-forest-silviculture-manual.PDF

The volume supplied from the South Coast sub-region and Tumut sub-region was below the commitment levels stated in the Southern RFA. However, in both sub-regions, WSA commitments in the first three five-yearly periods were above the non-declining even-flow sustainable yield modelled by FRAMES. Consequently, planned supply volumes from Period 4 onwards have been reduced below the non-declining even-flow model to balance out the higher WSA commitments sourced during Period 1, Period 2 and Period 3.

Sustainable yield forecasts comparing non-declining even-flow and WSA volumes for the Southern RFA South Coast¹³⁶ and Tumut¹³⁷ sub-regions were published in 2011 and 2012 respectively. These forecasts assessed two wood supply scenarios:

- Even flow – the objective of this scenario was to maximise the even supply of HQL volume over a 50-year period, while maintaining a smoothed longer-term wood flow over a greater than 100-year planning horizon.
- WSA– the objective of this scenario was to meet the then current (2008-2020) WSA volumes, while continuing to maximise long term sustainable supply levels of HQL.

<p>WSA – the objective of this scenario was to meet current (2008-2020) WSA volumes, while continuing to maximise long term sustainable supply levels of HQL.</p> <p>To achieve the non-declining even-flow Sustainable Yield for South Coast Sub-Region agreed in clause 85[S]:</p> <ul style="list-style-type: none"> • NSW will carry out silviculture (such as thinning), purchase land for timber production and plantation establishment, may purchase timber rights, and enter into joint ventures for plantations, and carry out other appropriate measures. • NSW will expend up to \$5 million on these measures (Attachment 11 of the RFA). In addition, \$1.5 million will be expended on silvicultural thinning to increase timber yields in the relevant period on other areas of State forests. • The Parties agree to jointly contribute a further \$2.5m (drawn in equal shares from Commonwealth and NSW contributions) from the Forest Industry Structural Adjustment Package (FISAP) for a project of regional significance to carry out silvicultural thinning and plantation establishment (but not land purchase) on those other areas of State forests. 	<p>Clause number S – 86</p>
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This commitment was achieved in part during Period 1, Period 2 and Period 3.

Silviculture works were carried out between 2001 and 2006. Both non-commercial thinning and post-harvest stand improvement treatments occurred in approximately 7,000 hectares of state forest mainly in the South Coast sub-region.

Supplementation of timber from private property (i.e. purchase of timber rights) is ongoing and is integrated with existing state forest operational planning processes. Timber harvesting on private property was carried out during 2008, 2011 and 2013 with 1,025 m³ being made available to FCNSW WSA customers.

¹³⁶ Forests NSW 2011a, *Yield Forecasts – Southern Regional Forest Agreement, South Coast sub-region*, Forests NSW, Pennant Hills, accessed 15 November 2016
www.forestrycorporation.com.au/__data/assets/pdf_file/0008/439415/Yield-Forecasts-Southern-Regional-Forest-Agreement-South-Coast-sub-region.pdf

¹³⁷ Forests NSW 2012b, *Yield Forecasts – Southern Regional Forest Agreement, Tumut sub-region*, Forests NSW, Pennant, accessed 15 November 2016 Hills,
www.forestrycorporation.com.au/__data/assets/pdf_file/0006/439413/Yield-Forecasts-Southern-Regional-Forest-Agreement-Tumut-sub-region.pdf

Private property land purchase for the purpose of timber production is ongoing. An area totalling 323 hectares adjoining Bodalla State Forest and Flat Rock State Forest was bought during the reporting periods.

Of the \$5 million provided by the NSW Government for silviculture and/or land purchases, approximately \$3 million was spent during Period 1, Period 2 and Period 3. The unspent portion of this allocation remains with FCNSW for land acquisition and timber purchase.

The additional \$1.5 million provided by the NSW Government for silvicultural thinning, and the \$2.5 million provided through the FISAP for silvicultural thinning or plantation establishment were fully expended during Period 1, Period 2 and Period 3.

The NSW FISAP commenced in 2002. The Commonwealth FISAP commenced in 1995–96 and applied for five years to June 2000 (or up to 18 months after an RFA between the Commonwealth and the relevant state was completed).

Further information on the FISAP is provided in the response to clause 111NE.

<p>FISAP</p> <p>Both Parties are committed to the development and implementation of hardwood timber industry development initiatives through the Forest Industries Structural Adjustment Program.</p>	<p>Clause number</p> <p>NE – 89</p> <p>S – 87</p> <p>E – 78</p>
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This commitment was achieved during Period 1 and Period 2. FISAP formally wound up in 2007 (during Period 2). This commitment is not relevant to Period 3.

The NSW FISAP (August 2002) provided financial assistance to businesses and industry bodies to prepare and implement new project or program initiatives that would develop the NSW native forest timber industry. There were three components of the program – worker assistance, industry development assistance and business exit assistance – which were directed to rural communities working in regional industries (see clause 111NE). Each government committed to provide \$60 million towards the program (the Commonwealth FISAP commenced in 1995–96).

Expenditure in RFA regions under FISAP timber industry development and employment initiatives has included the following:

UNE and LNE

- \$7.5 million expended to purchase forested or substantially forested private properties to increase native forest wood resources, especially HQL.
- \$4.97 million expended to assist native forest sawmilling companies to meet log haulage costs to obtain quota HQL supplies from outside their usual areas of supply.

Eden

- Over \$1 million allocated between 2002 and 2005 to contractors to purchase mechanised harvesting and wood extraction equipment and conduct training to enable the transfer of crews from multi-aged forest harvesting to commercial regrowth thinning to enhance the future sawlog resource.

Southern

- \$2.5 million in FISAP funds and an additional \$0.6 million from the NSW Government were expended under the Sawlog Productivity Program – Silvicultural Program with the aim of improving the sawlog productivity of South Coast native forests by culling unmerchantable trees in degraded native forest stands, thereby releasing potentially merchantable young trees to grow into higher value products. This initiative was to have employed 16 staff at its peak.

Further information on FISAP is included in the response to clause 111NE.

<p>Objectives for industry and regional development</p> <p>Both Parties agree that this Agreement will promote the following objectives:</p> <p>(a) maximising opportunities for employment in the timber and forest industry and for any workers displaced as a result of the implementation of the CAR Reserve System; and</p> <p>(b) development of an environmental management system, and MIG criteria and indicator monitoring program to a standard which would allow certification of the system under the ISO14000 series.</p>	<p>Clause number</p> <p>NE – 90</p> <p>S – 88</p> <p>E – 78 (c) and (d)</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The Parties acknowledge that the NSW RFAs promote the objectives of:

- maximising employment opportunities, where available
- developing an EMS
- developing a monitoring program for the MIG criteria and indicators for sustainable forest management, which involve both the Australian and NSW governments, when required, which will allow certification under the ISO14000 series.

The development of the EMS is addressed by the responses in clauses 46NE, 48(h)NE, 52NE and 108.8NE and in clauses 47(h)S, 51S and 106.8S.

2.6 Aboriginal heritage

<p>Guidelines and measures to ensure the appropriate management of Aboriginal heritage</p> <p>New South Wales agrees to develop guidelines and a package of measures that will be implemented to ensure the appropriate management of Aboriginal heritage including the maintenance of traditional historic uses and values, and to facilitate ongoing Aboriginal involvement in the management of the Upper North East and Lower North East regions.</p> <p>The principles to be applied in the Upper North East are those in the Protective Mechanisms for Cultural Heritage – Generic Version and for the Lower North East region those in the Protective Mechanisms for Cultural Heritage – Lower North East [S – Protective Mechanisms for Cultural Heritage – Southern Region] in addition to the principles at Attachment 4 and Attachment 10. [E – The principles to be applied are at Attachment 3 and Attachment 9]</p>	<p>Clause number</p> <p>NE – 92</p> <p>E – 79</p> <p>S – 90</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Develop guidelines

All Aboriginal objects and places on all land tenures are protected under the NPW Act.

The NSW OEH manages Aboriginal heritage under a range of policies and procedures, including the Aboriginal Regional Assessment Policy, the Management of Aboriginal Cultural Material Policy and Guideline¹³⁸, and the Aboriginal cultural heritage provisions of the NPW Act.

¹³⁸ OEH 2016k, *Aboriginal Heritage: Culture and history*, accessed 9 November 2016, www.environment.nsw.gov.au/nswcultureheritage/AboriginalPeopleAndCulturalLife.htm

The NSW OEH is legislatively responsible for the proper care and preservation of Aboriginal objects, including Aboriginal remains in NSW. OEH manages Aboriginal heritage in accordance with the following:

- National Parks and Wildlife Regulation 2009 (NSW)
- Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW 2010c)
- Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010d)
- Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010e)
- Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011c)
- Repatriation of Aboriginal Cultural Material (including ancestral remains) Policy
- Aboriginal Cultural Heritage Conservation Works Procedural Guidelines.

The IFOAs include limited measures to ensure the protection and management of Aboriginal heritage for operations undertaken by FCNSW, especially in planning and harvesting of native forests. These outcomes are primarily delivered through legal requirements for FCNSW to comply with the NPW Act.

FCNSW has developed *Operational Guidelines for Aboriginal Cultural Heritage Management*¹³⁹ to ensure it complies with the requirements of the NPW Act when conducting forestry operations. These guidelines were updated in 2010 in response to changes under the NPW Act. The guidelines represent a due diligence code of practice approach to the identification and protection of Aboriginal heritage. Application of these guidelines is one component of a broader consultation approach with local communities to encourage involvement in the management and use of state forests. Information regarding Aboriginal community consultative processes are reported in FCNSW's annual reports¹⁴⁰.

Facilitate ongoing Aboriginal involvement

Aboriginal involvement in the management of the national parks estate

Aboriginal joint management is one of the main ways that the NSW Government, through OEH, facilitates Aboriginal involvement in managing the national parks estate. This involves a partnership between OEH and Aboriginal communities for the management of a park or reserve. Joint management in NSW has a long history, with the first formal agreement being the leaseback of Mutawintji National Park, in the far west region north-east of Broken Hill, as an Aboriginal owned park in 1998.

Since 1998, OEH has negotiated 28 joint management agreements with Aboriginal communities, covering 2.2 million hectares, or about 25% of the national parks estate. This is likely to increase in the future. The national parks estate provides critically important places for Aboriginal communities to connect with their country and practice their culture.

Aboriginal joint management has significant benefits, including Aboriginal employment, support for Aboriginal organisations and businesses, opportunities to practise and pass on Aboriginal culture, improved management and interpretation of Aboriginal cultural heritage, enhanced visitor experiences in parks, and improved knowledge and expertise by park managers.

¹³⁹ Forests NSW 2010a, *Operational Guidelines for Aboriginal Cultural Heritage Management*, Forests NSW, Pennant Hills, accessed 10 November 2016
www.environment.nsw.gov.au/resources/cultureheritage/ddcop/ddcop-ForestsNSW.pdf

¹⁴⁰ FCNSW n.d., *Annual Reports*, accessed 16 November 2016
www.forestrycorporation.com.au/resources/pubs/corporate/annual-report

There are three types of Aboriginal joint management arrangements in NSW:

- Aboriginal ownership and lease back arrangements. Under Part 4A of the NPW Act, the legal title to a dedicated reserve is returned to Aboriginal ownership (Local Aboriginal Land Councils (LALCs) to hold on behalf of the Aboriginal Owners) then leased back to the NSW Government under mutually agreed conditions. Lease payments are spent on the care, control and management of the park.
- Indigenous land use agreements (ILUAs), developed in response to Native Title claims made under the *Native Title Act 1993* (C'wth). These are voluntary agreements between the native title group and other key stakeholders in the management of lands and waters pursuant to the Native Title Act.
- Memoranda of understanding (MOUs). The most common form of joint management in NSW parks is a non-binding MOU with an Aboriginal community. MOUs recognise the local Aboriginal peoples' cultural association with a park and ensure greater involvement in its management. An advisory committee, which provides advice to the NSW Government on the management of the park, can be established.

Examples of joint management agreements within the NSW RFA regions include:

- Eden – Biamanga (Part 4A)
- North East – Arakwal (ILUA), Gaagal Wanggaan (Part 4A), Githabul (ILUA), Saltwater (MOU) and Yarriabini (MOU)
- Southern – Gulaga (Part 4A).

There are more than 200 Aboriginal members of boards and committees making decisions about the joint management of parks in NSW.

Although outside the reporting period, in 2014–15, data from 20 of the 28 joint management boards/committees include:

- Around 100 Aboriginal people were employed in joint management in various capacities including rangers, joint management coordinators, field officers, Aboriginal liaison officers, administrative support officers and casual discovery guides.
- More than 28 Aboriginal people were employed through other Aboriginal organisations to work on projects for the joint management committee, boards of management and negotiations.
- Approximately 150 committee / board / Aboriginal community members attended training sessions, which included Indigenous land management, governance, job application, resume writing and job interview skills training.
- Committees, boards and Aboriginal community members carried out a range of cultural heritage assessments, including site surveys.
- Committees, boards and Aboriginal community members participated in a number of film productions including the ABC *Catalyst* program documentary *Toorale Man* and a film on Mount Grenfell screened on National Indigenous Television.
- At least 13 Aboriginal businesses contracted for work, including Aboriginal cultural heritage assessments, fencing, weed control, bush regeneration and film production.

OEH administers the Aboriginal Park Partnerships Funding Program, a contestable annual funding program for Aboriginal/OEH partnerships across all co-managed or joint managed parks.

Aboriginal involvement in the management of state forests

FCNSW fosters partnerships with Aboriginal groups and communities including arrangements for joint management activities and community developments on state forest.

Examples of joint management partnerships in place or under development in the North East RFA region at the end of Period 3 include:

- Darkinjung LALC – for the joint management of Warre Warren Aboriginal Place in McPherson State Forest
- Karuah LALC – negotiations on joint management of the Bulahdelah Mountain Aboriginal Place are in progress
- Githabul Rangers – working on forest improvements in Toonumbar State Forest near Kyogle including weed management, cultural burning and road maintenance projects.

FCNSW's other Aboriginal community activities

FCNSW also promotes a range of Aboriginal community activities and developments in the NSW RFA regions:

- FCNSW is developing partnership arrangements with Aboriginal Green Teams, including Taree Indigenous Development and Employment and the Darrunda Wajaarr Green Team (Coffs Harbour), for conservation works in state forests and Aboriginal Places.
- FCNSW supports the Saltwater Freshwater Festival on the North Coast providing bark for canoe making and string making free of charge.
- Although the following events are not specific to a NSW RFA region, FCNSW sponsors the Koori Knockout (Rugby League tournament) and NAIDOC Week activities.

FCNSW's Aboriginal partnerships program aims to empower local communities by providing shelters, toilets and water tanks for cultural camping centres in the forest and by improving access roads. Bark slabs and firewood are provided from existing harvesting operations. Examples of partnerships between FCNSW and the Aboriginal community in place or under development in the North East RFA region (unless otherwise stated) by the end of Period 3 include:

- Keepa Keepa Land Based Permit on Sugarloaf Range west of Newcastle – cultural camping and teaching.
- Anaiwan Land Based Permit in Riamukka State Forest (Walcha area) – cultural camping and teaching utilising an old forestry depot.
- Githabul ILUA in the Kyogle, Woodenbong and Tenterfield areas – working in partnership over the native title and surrounding forest areas. Dedicated camping and teaching shelter set up.
- Bundian Way – cross agency development with Eden LALC. Working on camping and roading improvements to improve the walk. These activities are in the Eden RFA region.
- McPherson State Forest which is inland of the Central Coast – Bara Barang enterprise development application in process for cultural camping, teaching and tourism. Permit also being issued for seed collection for the Bara Barang nursery of traditional plants. Also considering contracting opportunities.
- FCNSW provides Aboriginal people with free firewood permits to enhance opportunities to use bush resources. At Purfleet-Taree LALC, FCNSW delivers around 25 tonnes of firewood logs free to the community prior to each winter for Aboriginal youth to cut and chop into firewood and provide to elders for heating. In addition, FCNSW has provided a permit to Biripi Aged Care at Purfleet to collect wood from nine state forests for elders to teach Aboriginal youth how to make traditional wooden tools.
- FCNSW provides large sheets of bark for canoe making on request free of charge to community groups and in partnership with the NSW Department of Education. Each year a new canoe is made for Corroboree Sydney, which celebrates our nation's Indigenous culture and is featured at the Australian Museum in Sydney. FCNSW provides the Kempsey LALC with a permit for the long-term use of FCNSW's Kempsey depot as an Aboriginal Men's Shed and storage.
- Although outside the reporting period, FCNSW is working with LALCs in the Grafton area to protect a significant massacre site discovered in 2015 during highway pre-construction surveys and will dedicate the area as an Aboriginal Place and seek co-management with the community via a land-based permit.

2.7 Other forest uses

Forest uses other than timber production	Clause number
Parties agree that forest uses other than timber production will be determined in accordance with New South Wales legislation with due regard for protection of Environment and Heritage Values. In some limited circumstances that do not relate to the substance of this Agreement (for example foreign investment approval, export controls for non-forest products and major infrastructure developments) Commonwealth legislative provisions may also apply.	NE – 95 E – 82 S – 93

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

Sustainable forest management must achieve a balance between the conservation of biodiversity, cultural heritage uses and values and the socioeconomic benefits of public forests to NSW rural and regional communities. In addition to wood production for various wood-processing facilities, other resources from public native forests include commercial and domestic firewood, craftwood, e.g. burls and slabs, wood chop blocks, charcoal, broombush, apiculture, grazing, mining, water production and supply, wildflower and native plant picking (including protected plants under permit), seed collection, land rentals for infrastructure, e.g. telecommunication sites, extraction of basic raw materials including gravel, rock and sand, and although not a resource, FCNSW also provides for the granting of research permits.

Public native forests are also used for a variety of recreation and tourism activities including four-wheel driving, car rallies, trail bike riding, mountain biking, orienteering, rogaining, fishing, hunting feral animals, fossicking, horse riding, commercial facilities under permit and camping. Forest uses other than wood production for industry development continue to be determined in accordance with NSW legislation and expressed through policy, codes, procedures and guidelines which ensure due regard for protection of the forested environment, conservation of biodiversity and cultural heritage uses and values.

NSW legislation covering these other uses and activities not specifically covered in the Forestry Act includes the *Environmental Planning and Assessment Act 1979* (NSW), the *Mining Act 1992* (NSW), the *Game and Feral Animal Control Act 2002* (NSW) and the *Firearms Act 1996* (NSW).

Mining Operations within parts of the CAR Reserve System	Clause number
The Parties agree that Mining Operations are permitted within parts of the CAR Reserve System which are State forest or Crown Reserves in Attachment 1. A condition of Mining Operations in Informal Reserves is that: CAR Values that are compatible with those Mining Operations be maintained; and for CAR Values not compatible with those Mining Operations, conservation be provided for elsewhere. Where a Mining Operation is not compatible with that part of the CAR Reserve System described as values protected by prescription in Attachment 1, NSW will use best endeavours to ensure that conservation of these values is provided for elsewhere.	E – 84

<p>The Parties agree that Mining Operations are permitted within parts of the CAR Reserve System which are State forest or Crown Reserves in Attachments 1(A) and 1(B) (S – Attachment 1). In Informal Reserves, or in those parts of the CAR Reserve System described as ‘Values Protected by Prescription’ in Attachments 1(A) and 1(B) (S – Attachment 1), NSW agrees that CAR values, as identified in Attachments 1(A) and 1(B) (S – Attachments (sic) 1), that are compatible with those Mining Operations will be maintained while CAR values, as identified in Attachments 1(A) and 1 (B) (S – Attachments (sic) 1), not compatible with those Mining Operations will, where practicable, be provided for elsewhere</p>	<p>NE – 97 S – 95</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

The NSW regulatory framework does not preclude mining operations in state forests or in Crown reserves.

Mining operations are subject to regulation under the *Mining Act 1992* (NSW), *POEO Act* and *Environmental Planning and Assessment Act 1979* (NSW).

Approval to undertake mining operations is subject to a range of conditions imposed under these Acts.

In the context of Crown reserves, State Conservation Areas (SCAs) are the only category of reserved land where mining and petroleum activities are legally permissible, subject to approval from OEH or the NSW Minister for the Environment.

Certain types of mining and petroleum exploration and production activities are permissible within SCAs under section 47J of the NPW Act. These activities are not permitted in other reserves, such as national parks and nature reserves, unless they are ‘existing interests’ within the meaning of the NPW Act.

The management principles and provisions regulating mining in SCAs (sections 30G and 47J of the NPW Act) provide for mineral and petroleum exploration and production activities to be undertaken in SCAs. Reference must still be made to any plan of management for an SCA to confirm that the activity is permissible, and clearly, that regard must be had for the conservation of natural and cultural values.

Section 47M of the NPW Act requires that the NSW Minister for the Environment review the status of land within SCAs in consultation with the Minister for Mineral Resources every five years. Under this section, land within an SCA that is not subject to an authority, lease, licence or permit under the relevant mining legislation may be reserved as a national park or nature reserve.

In 2007–08, the then Department of Environment and Climate Change (DECC) undertook a five-yearly review of NSW SCAs¹⁴¹. This review resulted in four SCAs and parts of four other SCAs covering 3,963 hectares having their reserve status changed to national parks. Two SCAs covering 104 hectares were changed to nature reserves. Of the 10 changes in tenure, the North East RFA region had four national parks and two nature reserves while the Southern RFA region had three national parks. The final national park was not in an RFA region.

The second five-yearly review of state conservation areas in 2013 resulted in one SCA and parts of two other SCAs covering 32,700 hectares having their reserve status changed to national parks. Six SCAs covering 3,164 hectares were changed to nature reserves. Of the nine changes in tenure, the North East and Southern RFA regions both had one national

¹⁴¹ DECC 2008, *Review of State Conservation Areas: Report of the first five-year review of State Conservation Areas under the NPW Act*, accessed 16 November 2016, www.environment.nsw.gov.au/resources/parks/08516SCAreview.pdf

park and one nature reserve each. One national park and four nature reserves were not in an RFA region.

Details of the two five-yearly reviews and their outcomes are publicly available¹⁴².

The NSW Government reaffirms that it is committed to any CAR values being maintained where such mining operations are planned or undertaken in parts of the CAR reserve system.

<p>Mining Operations subject to environmental impact assessment</p> <p>New South Wales will ensure that any proposed Mining Operations will be subject to environmental impact assessment (including species impact statements where required) under the provisions of the <i>Environment Planning and Assessment Act 1979</i> (NSW). Mining Operations will be subject to the <i>Mining Act 1992</i> (NSW), and the <i>Petroleum (Onshore) Act 1991</i> (NSW). Mining will be in accordance with an approved Mining Operations Plan and Annual Environmental Management Reports. Rehabilitation of any sites disturbed by Mining Operations will be carried out in accordance with the provisions of the relevant statutes (including the <i>Environmental Planning and Assessment Act 1979</i> (NSW) and the <i>Mining Act 1992</i> (NSW)) and it will aim to achieve world’s best practice.</p>	<p>Clause number</p> <p>NE – 98</p> <p>S – 96</p> <p>E – 85</p>
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

In NSW, all proposed mining operations are subject to the requirements of the *Environmental Planning and Assessment Act 1979* (NSW), including its provisions for environmental impact assessment and, where required, for species impact statements.

In NSW, all mining operations are subject to either the *Mining Act 1992* (NSW) or the *Petroleum Onshore Act 1991* (NSW). These Acts provide that mining may be undertaken only in accordance with an approved Mining Operations Plan. They also require the mine operator to publish environmental management reports each year.

In instances where rehabilitation of mining sites is required, the NSW Government confirms that rehabilitation will be carried out in accordance with legislative provisions.

2.8 Competition principles

<p>Competition Principles Agreement: Milestone (E)</p> <p>Parties recognise that under the Competition Principles Agreement, Governments aim to achieve more transparency and greater efficiency in Government owned business enterprises. The Commonwealth agrees that the day to day pricing and allocation arrangements for wood from public forests are matters for New South Wales. New South Wales confirms its commitment to the pricing and allocation principles set out in the <i>National Forest Policy Statement</i>. New South Wales confirms that legislation and policies relevant to the allocation and pricing of hardwood logs from State forests will be reviewed as part of the Competition Principles Agreement (E – before the end of 1999. Competitive neutrality principles will be taken into account in any changes following the review).</p>	<p>Clause number</p> <p>NE – 99</p> <p>E – 86</p> <p>S – 97</p>
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¹⁴² OEH 2014b, *Review of State conservation areas*, accessed 2 August 2017 www.environment.nsw.gov.au/parktypes/SCAreview.htm

This milestone commitment was achieved during Period 1 and reported in the first five-yearly review report. This commitment was achieved during Period 2 and Period 3.

NSW reaffirms its commitments made under the Competition Principles Agreement¹⁴³. In January 2013, the Forestry Commission of NSW (trading as Forests NSW) was dissolved, and FCNSW was established as a State Owned Corporation under the Forestry Act and the *State Owned Corporations Act 1989* (NSW). The principal objectives of FCNSW include being a successful business, operating as efficiently as comparable businesses and maximising the net worth of the state’s investment in FCNSW. FCNSW functions are listed in section 11 of the Forestry Act, and include carrying out forestry operations, selling timber and establishing and maintaining plantations.

The establishment of FCNSW allowed for the clear separation of operational and policy functions in different entities. FCNSW focused on forestry operations, and the then NSW DPI focused on forestry industry policy. Although outside the reporting period, the forestry industry policy role is now in DOI.

2.9 Research

<p>Establishment of a Research Liaison Committee: Milestone</p> <p>The results of the Comprehensive Regional Assessments of the forest values of the Upper North East and Lower North East regions indicated a number of areas requiring further research. New South Wales will establish a Research Liaison Committee to identify research priorities relating to forest management and publish a list of priorities by August 2000 (S – by 30 September 2001). Parties have outlined themes for further research in Attachment 7 (E – Attachment 6 and S – Attachment 7).</p>	<p>Clause number</p> <p>NE – 100</p> <p>E – 87</p> <p>S – 98</p>
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This milestone was achieved during Period 1 and reported in the first five-yearly review report. The milestone was no longer applicable during Period 2 and Period 3.

The Research Liaison Committee (RLC) was formed in October 2000 consisting of representatives of the then DECC, the Department of Planning, and Forests NSW. An inaugural meeting was held in November 2000. The committee’s work informed the research agendas of the then constituent agencies; however, the committee was disbanded in 2002 and replaced by a network partnership approach to research planning and development. Research activities, including published papers, are reported in agency annual reports.

The targeted partnership approach is used in the identification of specific research priorities relating to the needs of the interested partners and is a feature of forestry research and development (R&D).

¹⁴³ Council of Australian Governments 1997, *Competition Principles Agreement – 11 April 1995*, accessed 10 November 2016, www.coag.gov.au/about-coag/agreements/competition-principles-agreement

<p>Priorities of the Research Liaison Committee</p> <p>In developing priorities, the Research Liaison Committee will take account of priorities arising out of the Comprehensive Regional Assessment process for the Upper North East and Lower North East regions, particularly those outlined in the reports titled <i>Criteria, indicators, targets and monitoring processes of Ecologically Sustainable Forest Management for the Upper North East and Lower North East RFA Regions</i> and <i>Knowledge and Information Gaps for the Upper North East and Lower North East and Southern CRA/RFA regions</i>.</p>	<p>Clause number</p> <p>NE – 101</p> <p>E – 88</p> <p>S – 99</p>
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This commitment was achieved during Period 1. This commitment was no longer applicable during Period 2 and Period 3 as the RLC was disbanded in 2002. While the RLC has been disbanded, the Parties recognise the need for ongoing research.

The priority themes for future forest management research in NSW, identified in the relevant attachments of the NSW RFAs, in Period 1 were:

- silviculture
- flora and fauna conservation
- fire ecology
- stem defect and wood quality in regrowth forests
- climate change
- biological inventory
- value added end use
- sustainability indicators
- Aboriginal and non-aboriginal heritage.

The refocusing and development of research priorities is an ongoing process and continues to be a feature of forest R&D activity.

Over time, the R&D priorities have changed, but remain similar to these original priority themes and continue to be addressed in the current R&D prioritisation processes. The initial RFA process (1999) identified that the major priority of future research in NSW would be an understanding of environmental impacts and the development of appropriate mechanisms to monitor and continually improve the sustainability of forest management practices. Accordingly, statewide research has continued along these themes beyond the disbanding of the RLC in 2002.

For Period 2, State Forests of NSW had five programs in its Research and Technical Services Division. After the formation of the NSW Department of Primary Industries (DPI) in July 2004, Forests NSW was established and retained two programs (tree breeding and silviculture), while three programs (Forest Health, Forest Ecology and New Forests) were transferred to the Resources Research Branch, NSW DPI Science & Research to become the Forest Resources Research Unit.

For Period 3, the forest research sub-program delivered by the Forest Resources Research Unit included three themes which covered research activities in:

- forest ecology and sustainability
- forest resource assessment and security
- forest carbon, bioenergy and biofuels.

Also during Period 3, Forests NSW was dissolved and FCNSW was established as a State Owned Corporation on 1 January 2013.

Beyond Period 3 and outside the reporting period, current R&D themes are developed by interactions with industry, funding bodies and government priorities. These include:

- forest health and biosecurity
- ecology and sustainability
- forest resource assessment
- carbon in forests and harvested wood products.

Details can be found on the NSW DOI Forestry *Research and science* webpage¹⁴⁴.

For NSW, research priorities and the changing R&D environment has been reported annually through the progress reports¹⁴⁵ on the implementation of NSW FAs and IFOAs.

Appendix L provides a chronology of the changing R&D priorities in NSW.

A significant amount of forest ecology research was undertaken prior to the reporting periods, covering specific forest flora, fauna and impacts on forest ecology such as fire and climate change. A full list of publications is provided in Appendix M.

<p>Compendium of New South Wales Forest Research: Milestone New South Wales will prepare by the first five-yearly review, a Compendium of New South Wales Forest Research that will provide a bibliography of research in progress as well as published and unpublished works.</p>	<p>Clause number NE – 102 E – 89 S – 100</p>
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This milestone was achieved in part during Period 1 and reported in the first five-yearly review report. The milestone is no longer applicable for Period 2 and Period 3.

The Parties agree that there is little value in maintaining a bibliography of research with the heightened use of search engines and the availability of electronic information since the beginning of Period 2.

The publication of research project outcomes and reports continues to be a feature of forestry R&D project activity by individual agencies. For example, FCNSW published an annual report on its forest research activities, which includes a compilation of all publications and conference papers by FCNSW staff published throughout the year.

During Period 2 and Period 3, published research project outcomes and reports could be accessed through the relevant agency websites; however, due to machinery of government changes some publications (for example, Forests NSW Research and Development Annual Reports) are no longer available online.

<p>Development of joint research projects Parties agree to consult each other in the development of joint research projects that may affect the Agreement and note that the subject areas and priorities may change throughout the duration of the Agreement.</p>	<p>Clause number NE – 103 E – 90 S – 101</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

¹⁴⁴ DOI 2017, *Forestry: science and research*, accessed 2 August 2017
www.crownland.nsw.gov.au/forestry/science-and-research

¹⁴⁵ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016,
www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

Research projects undertaken over the review periods were not conducted via the mechanism provided for in this clause; however, the R&D priorities for NSW guided the conduct of relevant research by various organisations and are detailed in Appendix L.

Forest and Wood Products Australia (FWPA) was established in 2007 as an industry owned company, replacing the Forest and Wood Products Research and Development Corporation. FWPA promotes joint R&D projects, which continue to be a feature of R&D activity.

Also during Period 2 and Period 3, major collaborative programs matured or emerged. These included the Cooperative Research Centre (CRC) for Forestry and the National Primary Industries Research, Development and Extension (RD&E) framework respectively. These initiatives developed sector strategies for R&D for the forest and wood products sector but limited progress was made due to constraints on resources. Although outside the reporting period, the forest and wood products forum in 2014–15 initiated a process of strategy development designed to ensure that RD&E meets the future needs of the forest and wood products sector and the Australian public. Industry levies are matched by a Commonwealth contribution and are allocated by FWPA to R&D priorities for industry development. Resource allocation for conservation forest science research priorities is generally funded by state-based agencies with specific and targeted interests; the funding pool is smaller and is focused on biodiversity issues.

NSW was a core partner in the development of many of these strategies. They were compiled on the basis of extensive stakeholder consultation with representatives of the forest and wood products sector, government, and the providers and funders of forest and wood product R&D.

The CRC for Forestry began operating in late 2005 as a ‘new from existing’ CRC, following the conclusion of operations of the CRC for Sustainable Production Forestry (1997–2005), which was preceded by the CRC for Temperate Hardwood Forestry (1991–97). Achievements of these CRCs are publicly available¹⁴⁶.

Public availability of research reports	Clause number
Parties agree to make publicly available, wherever possible, research reports relevant to this Agreement.	NE – 104 E – 91 S – 102

This commitment was achieved during Period 1, Period 2 and Period 3.

Legislation requires NSW Government agencies to release information to the public. The *Government Information (Public Access) Act 2009* (NSW) authorises and encourages the public release of government information by agencies; gives members of the public an enforceable right to access government information; and provides that access to government information is restricted only when there is an overriding public interest against disclosure. NSW reaffirms that it will make publicly available, wherever possible, research reports relevant to the NSW RFAs.

The publication of project outcomes and reports continues to be a feature of forest R&D activity. Appendix M provides information covering all review periods on publications, papers, reports and notes related to the forest and wood products sector.

Research project outcomes and reports that are publicly available include:

¹⁴⁶ CRC for Forestry 2012, *Ideas to impact: 21 years of forestry innovation*, accessed 16 November 2016, www.crcforestry.com.au/publications/downloads/CRCForestry-Ideas-to-impact-ONLINE-FINAL.pdf

- NSW forest research papers and publications (including Table 80 to Table 88 in Appendix M)
- FCNSW publications¹⁴⁷
- OEH R&D papers (Appendix M).

The research information provided in clause 101(NE) and in this clause is publicly available in the published journals and other papers referred to but not specifically on the agency websites. The NSW Government may consider publishing relevant forest research on the agency websites during subsequent reporting periods.

Other research relevant to NSW was provided through national organisations, including the CSIRO, FWPA, and the Joint Venture Agroforestry Program¹⁴⁸.

Also, a summary¹⁴⁹ of the 21 years of the achievement of the three forestry-related CRCs is publicly available.

2.10 Data access and archiving

<p>Develop Data Agreement: Milestone</p> <p>Parties agree to develop an agreement concerning the management of the data including models used to develop this Agreement within six months of the date of this Agreement. The data agreement will cover:</p> <ul style="list-style-type: none"> • ownership and custodianship; • archival lodging and location and associated documentation standards; and • access, use and maintenance of the data. <p>The data principles at Attachment 13 will form the basis for the data agreement.</p>	<p>Clause number E – 92</p>
<p>Access to data</p> <p>Parties agree to manage and provide access to Data, including models used to develop this Agreement, in accordance with the Data Agreement at Attachment 13 of this Agreement.</p>	<p>Clause number NE – 106 S – 104</p>

This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

A data exchange agreement between the NSW and Australian governments was signed on 1 August 2001. Data schedules relevant to the data access agreement were developed by the Parties.

<p>Archival copies of Data: Milestone</p> <p>The Parties also agree to lodge archival copies of Data within six months of signing this Agreement (S – by 30 June 2001).</p>	<p>Clause number NE – 105 E – 93 S – 103</p>
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¹⁴⁷ FCNSW n.d., *Publications*, accessed July 2017 www.forestrycorporation.com.au/resources/pubs

¹⁴⁸ Land and Water Australia 2009, Joint Venture Agroforestry Program, accessed 25 August 2017 <http://lwa.gov.au/programs/joint-venture-agroforestry-program>

¹⁴⁹ CRC for Forestry 2012, *Ideas to impact: 21 years of forestry innovation*, accessed 16 November 2016, www.crcforestry.com.au/publications/downloads/CRCForestry-Ideas-to-impact-ONLINE-FINAL.pdf

This milestone commitment was achieved during Period 1 and was reported in the first five-yearly review report.

A comprehensive report on the status of data archiving was completed in Period 2.

2.11 Legally binding rights and obligations

Forest management

<p>New South Wales will:</p> <p>In accordance with clause 99(NE), 86(E), 97(S), under the Competition Principles Agreement review legislation and policies relevant to the allocation and pricing of hardwood logs from State forest</p>	<p>Clause number</p> <p>NE – 108.1</p> <p>E – 95.1</p> <p>S – 106.1</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE99, E86 and S97, as well as at Milestone 43 in the first five-yearly review report.

<p>New South Wales will:</p> <p>In accordance with clause 51(NE), 49(E), 50(S), and as required by the <i>Forestry and National Parks Estate Act 1998</i> (NSW) report annually to Parliament on compliance with any Integrated Forestry Operations Approval for the Upper North East and Lower North East regions (Eden region/Southern region) and the New South Wales <i>Upper North East Forest Region Agreement</i> and <i>Lower North East Region Forest Agreement</i> (<i>Eden Region Forest Agreement/Southern Region Forest Agreement</i>)</p>	<p>Clause number</p> <p>NE – 108.2</p> <p>E – 95.2</p> <p>S – 106.2</p>
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This commitment was achieved in part during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE51, E49 and S50.

<p>New South Wales will:</p> <p>In accordance with clause 37 and 51(NE), 35 and 49(E), 36 and 50(S), furnish to the Commonwealth within 14 days:</p> <p>(a) a copy of annual reports of compliance with the New South Wales Upper North East Region Forest Agreement and Lower North East Region Forest Agreement (E – Eden Region Forest Agreement and S – Southern Region Forest Agreement) and Integrated Forestry Operations Approval for the Upper North East and Lower North East regions (E – Eden region and S – Southern region), required by section 21 of the <i>Forestry and National Parks Estate Act 1998</i> (NSW);</p> <p>(b) a copy of any Forest Agreement and Integrated Forestry Operations Approvals for the Upper North East and Lower North East regions (E – Eden region and S – Southern region), and any amendments to those documents; and</p> <p>(c) notification of termination, suspension or revocation of any Forest Agreement and Integrated Forestry Operations Approval</p>	<p>Clause number</p> <p>NE – 108.3</p> <p>E – 95.3</p> <p>S – 106.3</p>
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This commitment was achieved in part during Period 1, Period 2 and Period 3.

A detailed response is provided at clauses NE37 and NE51, E35 and E49, and S36 and S50.

<p>New South Wales will: In accordance with clause 48a(NE), 46a(E), 46 & 47a(S), maintain a Forest Agreement covering the Upper North East and Lower North East regions [E – Eden region and S – Southern region] for the duration of this Agreement</p>	<p>Clause number NE – 108.4 E – 95.4 S – 106.4</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE48a, E46a, S46 and S47a.

<p>New South Wales will: In accordance with clause 48b(NE), 46g(E), 47b(S), maintain an Integrated Forestry Operations Approval covering the Upper North East and Lower North East regions [E – Eden region and S – Southern region] for the duration of this Agreement</p>	<p>Clause number NE – 108.5 E – 95.8 S – 106.5</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE48b, E46g and S47b.

<p>New South Wales will: In accordance with clause 48d(NE), 46c(E), 47d(S), complete and publish Regional ESFM Plans for State forests under the <i>Forestry Regulation 1999</i> (NSW) [E – <i>Forestry Regulation 1994</i> (NSW)] under the <i>Forestry Act 1916</i> (NSW) by 30 June 2000 [E – by 1 April 2000 and S – by 31 December 2001]</p>	<p>Clause number NE – 108.6 E – 95.5 S – 106.6</p>
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This commitment was achieved outside the proposed timeline during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE48d, E46c and S47b.

<p>New South Wales will: In accordance with clause 48g(NE), 47g(S), implement the review and monitoring processes and develop the strategic and operational requirements of sustainable yield systems and processes using enhanced Forest Resource and Management Evaluation System (FRAMES) as described in Attachment 12 (Part E) [S – Attachment 8] enable the review of Sustainable Yield by 1 December 2006 [NE - as described in Attachment 12 (Part B)] In accordance with clause 46f(E), develop and implement an inventory system for regrowth forests and review the calculation of Sustainable Yield using methods consistent with Attachment 11 and the principles and processes used in the Forest Resource and Management Evaluation System (FRAMES), in time for the first RFA review</p>	<p>Clause number NE – 108.7 E – 95.6 S – 106.7</p>
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This commitment was achieved for NE48g and achieved outside the proposed timeline for S47g and E46f during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE48g, E46f and S47g.

<p>New South Wales will: In accordance with clause 48h(NE), 46h(E), 47h(S), develop and implement environmental management systems in accordance with the principles outlined in Attachment 8 [E – Attachment 7] within five years</p>	<p>Clause number NE – 108.8 E – 95.9 S – 106.8</p>
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This commitment was achieved outside the proposed timeline in the RFAs in Period 2 and Period 3.

A detailed response is provided at clause NE48h, E46h and S47h.

<p>New South Wales will: In accordance with clause 57(NE & S), 56(E), produce a code of practice for timber harvesting of native forest on Private Lands by the first five-yearly review</p>	<p>Clause number NE – 108.9 E – 95.7 S – 106.9</p>
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This commitment was achieved outside the proposed timeline during Period 2.

A detailed response is provided at clause NE57, E56 and S57.

<p>New South Wales will: In accordance with clause 78(NE), implement the Long-term Timber Supply Strategy for the regions as at Attachment 12 of this Agreement</p>	<p>Clause number NE – 108.10</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE78.

<p>New South Wales will: In accordance with clauses 79-84(NE), 76-79(S), maintain contracted supply for High Quality Large Sawlogs [NE - and Large Veneer Logs]</p>	<p>Clause number NE – 108.11 S – 106.10</p>
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The commitments in NE79–84 and S76–79 were achieved or achieved in part during Period 1, Period 2 and Period 3.

Detailed responses are provided at clauses NE79–84 and S76–79.

<p>The Commonwealth will: Not prevent enterprises obtaining, using or exporting the quantities of timber, Woodchips or Unprocessed Wood products sourced from the Upper North East and Lower North East regions [E – Eden region and S – Southern region] in accordance with this Agreement.</p>	<p>Clause number NE – 109.1 E – 96.1 S – 107.1</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE35, E31 and S33.

<p>The Commonwealth will:</p> <p>Maintain accreditation of New South Wales' Forest Management System for the Upper North East and Lower North East regions [E – Eden region and S – Southern region] as agreed to be amended in this Agreement as set out in clause 52 providing any changes to the system are consistent with the provisions of this Agreement.</p>	<p>Clause number</p> <p>NE – 109.2</p> <p>E – 96.2</p> <p>S – 107.2</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

A detailed response is provided at clause NE52, E50 and S51.

Compensation

<p>Compensation</p> <p>Refer to the RFAs (clauses 110.1 to 110.20) for details of the provisions for compensation.</p>	<p>Clause number</p> <p>NE – 110</p> <p>E – 97</p> <p>S – 108</p>
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This ongoing commitment was not applicable during Period 1, Period 2 and Period 3.

There were no claims by either of the Parties against the extensive provisions in the compensation clauses of the NSW RFAs during Period 2 and Period 3.

Employment and industry development assistance

<p>Provision of assistance through the NSW Forest Industry Structural Adjustment Package</p> <p>The Commonwealth and State Governments are committed to the provision of assistance, by way of the NSW Forest Industry Structural Adjustment Package, to native forest businesses and workers directly affected by restructuring of the NSW forest industry in accordance with the outcomes of this Agreement. The Commonwealth commits \$60 million, effective upon signing of all currently proposed RFAs, and the State Government \$60 million to the NSW FISAP to achieve the required level of restructuring and to assist in the creation of an ecologically sustainable, efficient and internationally competitive timber industry with a focus on value-adding, investment growth, and job creation.</p> <p>Native forest hardwood timber industry initiatives through the NSW Forest Industry Structural Adjustment Package</p> <p>The Parties will facilitate native forest hardwood timber industry initiatives through the implementation of respective responsibilities in the operation of the Forest Industry Structural Adjustment Program in accordance with jointly agreed guidelines. The Parties further agree to give priority to the consideration of the proposed initiatives outline in Attachment 10.</p>	<p>Clause number</p> <p>NE – 111</p> <p>S – 109</p> <p>E – 98</p>
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This commitment was achieved during Period 1 and Period 2.

A memorandum of understanding between the Parties was developed for a *New South Wales Forest Industry Structural Adjustment Package* (NSW FISAP)¹⁵⁰.

The Australian and NSW Governments, in partnership, committed \$120 million (\$60 million from each government) over five years from 1996 (Commonwealth component) to assist the industry in moving to long-term sustainable and profitable harvesting and production processes. The NSW funding component commenced in 2002 for five years. The assistance was tailored to help those forestry and wood-processing workers and businesses wishing to invest in the hardwood timber industry or those businesses wishing to exit from the industry.

The NSW FISAP formally wound up in June 2007 after expending approximately \$131.5 million on programs to assist 192 businesses and 683 displaced forest workers.

The NSW FISAP had three major programs:

1. *Industry Development Assistance* (\$77.2 million) was aimed at assisting wood-processing businesses wishing to invest in new value-adding and further upgrading for processing facilities. Financial assistance was provided for a wide range of developments including:

- plant and equipment upgrades
- better recovery and utilisation of resource
- value adding residue utilisation
- plantation establishment/improvement
- improved log harvesting, extraction and handling systems
- redevelopment and new employment within the industry
- training and retraining initiatives.

2. *Worker Assistance* (\$29.5 million) was provided for retraining and re-skilling for jobs in the restructured native timber industry for both current and former employees in the timber industry. Assistance included preparatory and vocational training, wage subsidies, relocation costs including support in the purchase of a home, income support and, as a last resort, special redundancy payments.

3. *Business Exit Assistance* (\$24.8 million) was provided to contractors and sawmillers who wished to exit the industry due to the structural changes in timber supply arrangements.

The NSW FISAP closed during Period 2. A final report on FISAP was presented to the NSW Parliament in December 2007¹⁵¹.

¹⁵⁰ Department of Agriculture and Water Resources n.d., *Commonwealth Forest Industry Structural Adjustment Package*, accessed 10 November 2016
www.agriculture.gov.au/forestry/policies/rfa/publications/deferred/wood-paper/commonwealth-fisap

¹⁵¹ NSW Government 2007, *Report to Parliament by the NSW Minister for Primary Industries on Forestry Industry Restructuring Expenditure and Brigalow and Nandewar Areas Expenditure, December 2007*, accessed 28 August 2017
<https://www.parliament.nsw.gov.au/la/papers/DBAssets/taledpaper/webAttachments/50275/Brigalow%20and%20Nandewar.pdf>

3 Progress against milestones and commitments listed in attachments to the RFAs

3.1 CAR reserve system

Attachment 1 in the Eden, North East and Southern RFAs provides information on the extent of and the forest ecosystems within the CAR reserve system for each NSW RFA region.

Milestone Att 1, 4, 2nd dot point [Eden]	Plans of Management for Crown Reserves will be prepared by 1 January 2002 as outlined in the New South Wales <i>Eden Region Forest Agreement</i> .
Att 1 (A), 4, 2nd dot point [North East]	Plans of Management for Crown Reserves will be prepared by 1 January 2005 as outlined in the New South Wales <i>Upper North East Region Forest Agreement</i> .
Att 1 (B), 4, 2nd dot point [North East]	Plans of Management for Crown Reserves will be prepared by 1 January 2005 as outlined in the New South Wales <i>Lower North East Region Forest Agreement</i> .
Att 1, 4, 2nd dot point [Southern]	Plans of Management for Crown Reserves will be prepared by 31 January 2006.

These milestones were achieved during Period 1 and were reported in the first five-yearly review report except for the recategorisation of two Crown Reserves in the Southern RFA region. This milestone was achieved in Period 2.

The Crown Reserves – Mullengandra and Woomargama of the Tumut sub-region – were re-classified as SCAs by notice in the NSW Government Gazette No. 73 on 15 May 2009 in Period 2.

Appendix E (Table 58, Table 59 and Table 60) provides a list of the conservation reserve system areas with management plan status¹⁵². Each published management plan provides a map or maps showing the boundaries of the conservation reserve and the area of the reserve.

Milestone Att 1 (A), 5 [North East] Att 1 (B), 5 [North East] Att 1, 5 [Southern]	NSW will finalise boundaries of the CAR Reserves to enable its implementation within 6 months of signing this Agreement. NSW will finalise boundaries of the CAR Reserves with the exception of the Forest Management Zoning System by 30 June 2001. The Forest Management Zoning System will be finalised by 31 December 2001.
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These milestones were achieved during Period 1, and reported in the first five-yearly review report.

¹⁵² The seven formal reserve categories identified in the NPW Act are: national parks; historic sites; state conservation areas; regional parks; karst conservation reserves; nature reserves; and Aboriginal areas.

Att 1, 9 [Eden]	New South Wales will, by 1 April 2000, produce a Regional ESFM Plan for the Eden region that includes Forest Management Zoning within State forests as described in the document <i>Forest Management Zoning in State Forests</i> , (SFNSW 1999).
Att 1 (A), 7 [North East]	New South Wales will, by 30 June 2000, produce a Regional ESFM Plan for the Upper North East region that includes Forest Management Zoning within State forests as described in the document <i>Forest Management Zoning in State Forests</i> , (SFNSW 1999).
Att 1 (B), 11 [North East]	New South Wales will, by 30 June 2000, produce a Regional ESFM Plan for the Lower North East region that includes Forest Management Zoning within State forests as described in the document <i>Forest Management Zoning in State Forests</i> , (SFNSW 1999).
Att 1, 7 [Southern]	New South Wales will, by 31 December 2001, produce a Regional ESFM Plan for the Southern region that includes Forest Management Zoning within State forests as described in the document <i>Forest Management Zoning in State Forests</i> , (SFNSW 1999).

This commitment was achieved outside the proposed timeline in Period 2.

The regional ESFM plans for the Upper North East, Lower North East, South Coast and Tumut sub-regions and Eden region were published by NSW in 2005 with an operative date from 1 July 2005. Forest management zones within state forests in each RFA region were tabulated and mapped within the ESFM plan as at July 2005.

Regional ESFM plans provide a blueprint for achieving the principles of ESFM¹⁵³. They set out the broad strategies, performance indicators and measurable outcomes for state forest management within the RFA region for five years from the commencement date.

During Period 2 and Period 3, there were no reviews of or revisions to the regional ESFM plans. Although outside the reporting period, FCNSW reviewed the regional ESFM plans and published the *Forest Management Plan for the Coastal Forests of NSW* (FMP) in 2016¹⁵⁴.

The FMP is a summary of FCNSW's approach to sustainable forest management. It outlines the legal and regulatory framework, reiterates a commitment to ESFM and to maintaining certification to the Australian Standard for Sustainable Forest Management (AS 4708) and ISO 14001 Environmental Management Systems.

The state forest areas within the eight FMZs for each RFA region have been updated to June 2014 in Appendix F. This is an update on information previously supplied in Appendix 7 of the first five-yearly review report which covered the period 1999–2000 to 2005–06 for the upper and lower sub-regions of the North East RFA region and the Eden RFA region, and the period 2002–03 to 2005–06 for the Southern RFA region.

¹⁵³ FCNSW 2016h, *Forest Management Plans*, accessed 9 November 2016, www.forestrycorporation.com.au/management/sustainable-forest-management/esfm

¹⁵⁴ FCNSW 2016a, *Forest Management Plan for the Coastal Forests of NSW*, accessed July 2017, www.forestrycorporation.com.au/__data/assets/pdf_file/0011/669008/hardwood-forests-forest-management-plan.pdf

Milestone	
Att 1, 7 [Eden]	New South Wales agrees to establish all Dedicated Reserve and Informal Reserve components of the CAR Reserve System within six months of signing this Agreement.
Att 1 (A), 8 [North East] Att 1 (B), 12 [North East]	New South Wales agrees to establish all Dedicated Reserve and Informal Reserve components of the CAR Reserve System within six months of signing this Agreement.
Att 1, 8 [Southern]	New South Wales agrees to establish all Dedicated Reserve and Informal Reserve components of the CAR Reserve System by 30 June 2001 and 31 December 2001 respectively.

This milestone and commitment was achieved during Period 1 and reported in the first five-yearly review report.

In order to provide an indication of the current extent of the CAR reserve system in the NSW RFA regions, this milestone and commitment has been updated in a spatial format for Period 2 and Period 3.

Additions to the CAR reserve system since each RFA commenced are provided in Table 2, Section 2.4 and illustrated in the maps provided in Appendix H.

Att 1 (B), 8-10 [North East] [for Singleton Army Training Area] Att 1, 10-12 [Southern] [for Beecroft Weapons Range]	<p>The Commonwealth agrees to manage those areas of Commonwealth owned land identified in the [NE - STA; S - BWR] as CAR Informal Reserves and to take all reasonable steps for the protection of identified CAR values, on the following conditions:</p> <ul style="list-style-type: none"> • Condition 1. That the reserve does not exclude Defence activities that would not compromise the maintenance of the CAR values. Necessary Unexploded Ordnance management will not be impeded by any Informal Reserve declaration or this agreement. • Condition 2. That the establishment of the reserve is based on existing Defence management arrangements as prescribed in the [NE - Singleton Area Environmental Management Plan (1998)/S - Beecroft Peninsula Environmental Management Plan (1999)] rather than any modification of existing tenures which may be detrimental to Defence's usage of the training areas. • Condition 3. That Defence is the sole approving agency for the Defence Environmental Management Plans that prescribe the management regime for the reserve. Defence will however consult with relevant State and Commonwealth agencies on the appropriateness of the management regimes. • Condition 4. Consultation on management by Defence of Defence activities in the training area will be achieved in the consultation process with State and Local authorities and other stakeholders in the review of the Environmental Management Plan for the [NE - STA/S - BWR].
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	<ul style="list-style-type: none"> • Condition 5. Public comment on changes to the reserve boundary will occur except in circumstances proscribed by national defence protocols. • Condition 6. The reserve boundary will delineate the actual CAR values. <p>Defence will establish all operational and environmental management buffer zones around the reserve based on particular land use activities that may occur adjacent to the reserves. The buffers will be identified in the Defence Environmental Management Plans.</p> <p>The Department of Defence will identify this CAR Informal Reserve on Commonwealth land on operational and planning maps.</p> <p>The CAR Informal Reserves on Commonwealth land will be included in future Environmental Management Plans prepared for the area.</p>
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These ongoing commitments were achieved during Period 1, Period 2 and Period 3.

North East RFA

The STA¹⁵⁵ continues to be a property with high value for forest biodiversity as well as for military training. It remains one of the largest remnants of forest vegetation on the floor of the Hunter Valley and supports many threatened flora and fauna species listed under Commonwealth and state threatened species legislation.

The value of the site has been demonstrated by the sighting of flocks of swift parrots (*Lathamus discolor*) and the presence of other woodland birds that are rare or absent from their former ranges in the Hunter Valley. Recent vegetation surveys uncovered new records of rare and threatened plants and new distributional limits for several significant species.

The six conditions refer to a 1998 Singleton Area Environmental Management Plan¹⁵⁶; however, Defence policy requires an EMS to manage all the environmental and heritage values. Defence policy is to integrate environmental management into the normal business of managing its land and resources for multiple purposes, primarily military preparedness and capability. In this regard, military instructions are regularly reviewed to ensure lands are not over used and activities do not negatively impact on the CAR values.

The EMS documents the biodiversity values of each site and prescribes management actions to ensure Defence activities do not adversely affect these values. As part of this, the Department works closely with state and local agencies to develop and implement components of the EMS, such as bushfire management, threatened species monitoring, catchment management, feral animal control and native fauna management.

¹⁵⁵ Department of Defence n.d., *Welcome to Beecroft Weapons Range from the Department of Defence*, accessed 16 November 2016
www.pointperp.com/PDF/Welcome_to_Beecroft_Weapons_Range.pdf

¹⁵⁶ This management plan isn't available and environmental management of training areas are now covered by the Defence EMS. Training Area Sustainability, Monitoring and Reporting Plans have been developed and are only available to Defence staff. Accessed 4 September 2017
www.defence.gov.au/estatemangement/governance/Policy/TrainingAreas/EnvironmentalManagement.asp

Within this framework, site level management plans are developed and are continually reviewed under the EMS. At STA, these plans include:

- Singleton Military Area Bushfire Management Plan 2014–2019
- Singleton Training Area Land Management Manual 2009
- Singleton Training Area Sustainability Monitoring and Reporting Plan 2011
- Singleton Military Area Vertebrate Pest Management Plan and Annual Control Program
- Singleton Military Area Weed Management Plan and Annual Control Program.

The Department of Defence will continue to manage the environmental values of the STA in general alignment with the six conditions for the protection of the CAR Informal Reserves values.

The STA is subject to pressures from people and activities outside Defence's control that may in the future adversely affect those values.

Southern RFA

The BWR continues to be a property with high value for biodiversity as well as for military training. It supports many threatened flora and fauna species listed under Commonwealth and state threatened species legislation.

The value of the site has been demonstrated by the successful translocation of the eastern bristlebird (*Dasyornis brachypterus*) under the National Recovery Plan for Eastern Bristlebird¹⁵⁷.

The six conditions refer to a 1999 Beecroft Peninsula Environmental Management Plan¹⁵⁸; however, Defence policy requires an EMS to manage all the environmental and heritage values. Defence policy is to integrate environmental management into the normal business of managing its land and resources for multiple purposes, primarily military preparedness and capability. In this regard, military instructions are regularly reviewed to ensure lands are not over used and activities do not negatively impact on the CAR values.

The EMS documents the biodiversity values of each site and prescribes management actions to ensure Defence activities do not adversely affect these values. As part of this, the Department works closely with state and local agencies to develop and implement components of the EMS, such as bushfire management, threatened species monitoring, catchment management, feral animal control and native fauna management.

The Department of Defence will continue to manage the environmental values of the BWR in general alignment with the six conditions for the protection of the CAR Informal Reserves values.

The BWR is formally gazetted as a Public Access Area and borders Jervis Bay Marine Park. It is subject to pressures from people and activities outside Defence's control that may in the future adversely affect those values.

¹⁵⁷ DoEE 2012a, *National Recovery Plan for Eastern Bristlebird* *Dasyornis brachypterus*, accessed 10 November 2016 www.environment.gov.au/resource/national-recovery-plan-eastern-bristlebird-dasyornis-brachypterus

¹⁵⁸ This management plan is no longer in force and all environmental matters are now under the Defence EMS which is an internal system used only by Defence personnel.

Att 1, 14 [Eden]	Management plans identified in Section 2-3 of the New South Wales [<i>Eden/Upper North East/Lower North East Forest Agreement</i>] for Dedicated Reserve and Informal Reserve elements of the CAR Reserve System will clearly identify the CAR Values and the actions being taken in each reserve to appropriately manage and conserve those values.
Att 1, 14 (A) [North East]	
Att 1, 18 (B) [North East]	
Att 1, 18 [Southern]	

This commitment was achieved during Period 1, Period 2 and Period 3.

These management plans provide information on the key values in the reserves including the natural (biological, geological, geomorphological, landscape) values, cultural values and heritage values (through a statement of significance). The key management directions and objectives are achieved through management operations to implement the plan.

The status of management plans for the NSW conservation reserve system in the Eden, North East and Southern RFA regions is provided in Appendix E, in Table 58, Table 59 and Table 60 respectively.

3.2 Threatened flora and fauna and ecological communities

Attachment 2 of the Eden RFA and Attachment 3 of the North East and Southern RFAs provided the NSW and national status of threatened flora and fauna species and ecological communities as well as status of recovery plans for NSW public lands prior to the signing of each RFA.

Table 66 and Table 67 in Appendix I provide updated information as at 2014 on the status of threatened flora and fauna species respectively under the NSW TSC Act and the EPBC Act. These tables also provide each species' NSW management stream category as well as the status of recovery plan or conservation advice.

The status of threatened flora and fauna species and ecological communities is reviewed and recommendations on threat categories are considered by the NSW Scientific Committee (established under the NSW TSC Act)¹⁵⁹. OEH's website provides an overview of the framework for the protection of threatened and priority species in NSW¹⁶⁰.

Milestone	Current priorities for developing Recovery Plans for threatened forest dependent fauna and flora for the next five years are provided in Table 1.
Att 2, 2 & Table 1 [Eden]	
Att 3, 2 & Table 1 [North East]	
Att 3, 2 & Table 1 [Southern]	

¹⁵⁹ OEH 2016e, *About the NSW Scientific Committee*, accessed 9 November 2016, www.environment.nsw.gov.au/committee/AboutTheNSWSscientificCommittee.htm

¹⁶⁰ OEH 2016f, *Recovery Plans*, accessed 10 November 2016, www.environment.nsw.gov.au/threatenedspecies/RecoveryPlans.htm

These milestones were achieved in part during Period 1, Period 2 and Period 3.

The current status of recovery plans for threatened flora and fauna is provided in Appendix I in Table 66 and Table 67 respectively.

The Parties note that some actions have not been completed due to changes to national and state recovery plan priorities over the five-year review periods. As indicated in the NSW RFAs, changes to the lists at the respective tables are due to:

- new information on species becoming available from research or operational implementation
- the allocation of appropriate funding through a range of programs being provided to develop the recovery plans
- the inclusion of unlisted species having a higher priority than species on current lists
- the delisting of species following multi-state review of their distribution and abundance.

Since 2007, the development of new recovery plans in NSW has been replaced by the preparation of NSW Threatened Species PAS¹⁶¹.

Milestone Att 2, 4 [Eden]	A Threat Abatement Plan under the <i>Threatened Species Conservation Act 1995</i> (NSW) for Predation by the European Red Fox is due for completion in December 1999.
Att 3, 4 [North East]	A Threat Abatement Plan under the <i>Threatened Species Conservation Act 1995</i> (NSW) for Predation by the European Red Fox is due for completion in July 2000.
Att 3, 4 [Southern]	A Threat Abatement Plan under the <i>Threatened Species Conservation Act 1995</i> (NSW) for Predation by the European Red Fox is due for completion by December 2001.

This milestone and commitment was achieved for the Southern RFA and achieved outside the proposed timeline for the Eden and North East RFAs during Period 1 and reported on in the first five-yearly review report.

This TAP has been updated and further TAPs have been prepared or updated during Period 2 and Period 3.

The initial NSW ‘Threat Abatement Plan for predation by the red fox (*Vulpes vulpes*)’ was published in December 2001 but has been superseded by a revised plan published in December 2010¹⁶². The national TAP for predation by the European red fox was published in 2008, replacing an earlier TAP published in 1999. In 2014, the Australian Government Minister for the Environment agreed that a variation to the TAP be drafted.

The initial national ‘Threat abatement plan for predation by feral cats’ was published in 1999 but has been superseded by a revised plan published in December 2008¹⁶³. The Australian Government will be reviewing this TAP during the next five-year review period.

¹⁶¹ OEH 2017i, *Threatened Species Priorities Action Statement*, accessed June 2017
www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/programs-legislation-and-framework/priorities-action-statement

¹⁶² OEH 2017k, *Threat abatement plans*, accessed July 2017
www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/programs-legislation-and-framework/threat-abatement-plans

¹⁶³ Department of the Environment, Water, Heritage and the Arts 2008a, *Threat Abatement Plan for predation by feral cats*, accessed 10 November 2016,
www.environment.gov.au/biodiversity/threatened/publications/tap/predation-feral-cats

The initial national ‘Threat Abatement Plan for competition and land degradation by feral rabbits’ was published in 1999 but has been superseded by a revised plan which was published in October 2008¹⁶⁴. The Australian Government reviewed this TAP in 2013 and work commenced on the preparation of a new one in 2014. Although outside the reporting period, the Australian Government Minister for the Environment and Energy made a new TAP in December 2016.

In July 2006, the NSW Government published its TAP¹⁶⁵ for bitou bush (*Chrysanthemoides monilifera* ssp. *rotundata*) and boneseed (*C. monilifera* ssp. *monilifera*).

The initial national ‘Threat Abatement Plan for competition and land degradation by feral goats’ was published by the Commonwealth of Australia in 1999. This plan has been superseded by a revised plan which was published in 2008¹⁶⁶. A review of the TAP in 2013 concluded that the issues raised in the 2008 TAP and the objectives are still valid and likely to be into the future. The review concluded that some of the actions under the objectives were no longer relevant or of the highest priority and recommended that the TAP be re-made.

A statement of intent was prepared and published in April 2008 for ‘Infection of native plants by *Phytophthora cinnamomi*’. It is not a statutory document but lists a range of actions that can be undertaken by an organisation to manage the fungal threat to a number of threatened species and ecological communities in NSW. On 31 January 2014, the ‘Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi*’ commenced¹⁶⁷.

3.3 National Estate values

Attachment 3 of the Eden RFA and Attachment 4 of the Southern RFA provide information on the National Estate and its listings at the time of signing these RFAs. The changes to the implementation of the National Estate are provided in the response to clause 21 of the three NSW RFAs. Attachment 4 of the Eden RFA and Attachment 5 of the Southern RFA listed one milestone for each RFA region relating to the National Estate for reporting under five-yearly reviews.

<p>Milestone Att 3, 8 [Eden]</p>	<p>Parties endorse the joint preparation of a set of Statewide Guidelines for the Management of Cultural Heritage Values and Places in New South Wales Forests based on the outcomes of the Protecting Cultural Heritage Values and Places in NSW Forests project. Both Parties agree to finalise these guidelines by the end of 1999.</p>
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This milestone was achieved during Period 1 and reported in the first five-yearly review report.

¹⁶⁴ Department of the Environment, Water, Heritage and the Arts 2008b, *Threat Abatement Plan for competition and land degradation by rabbits*, accessed 10 November 2016, www.environment.gov.au/resource/competition-and-land-degradation-rabbits

¹⁶⁵ NPWS 2006, *Approved – NSW Threat Abatement Plan: Invasion of native plant communities by Chrysanthemoides monilifera*, accessed 10 November 2016 www.environment.nsw.gov.au/resources/pestsweeds/BitouTAPText.pdf

¹⁶⁶ Department of the Environment, Water, Heritage and the Arts 2008c, *Competition and land degradation by unmanaged goats*, accessed 10 November 2016 www.environment.gov.au/resource/competition-and-land-degradation-unmanaged-goats

¹⁶⁷ DoEE 2014, *Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi*, accessed 10 November 2016 www.environment.gov.au/biodiversity/threatened/publications/threat-abatement-plan-disease-natural-ecosystems-caused-phytophthora-cinnamomi

<p>Milestone Att 4, 14 [Southern]</p>	<p>Parties note that New South Wales, in consultation with the Commission, has agreed to undertake the identification and assessment of outstanding cultural heritage values in these remaining areas by 31 December 2001.</p>
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This milestone was achieved during Period 1 and reported in the first five-yearly review report.

3.4 Public reporting and consultative measures

Attachment 5 of the Eden RFA and Attachment 6 of the North East and Southern RFAs table documents, actions and processes relating to public reporting and consultative mechanisms that have been implemented by relevant state departments and agencies.

<p>Att 5, 1 (n) [Eden] Att 6, 1 (n) [North East] Att 6, 2 (f) [Southern]</p>	<p>Production of annual ESFM Reports on progress for meeting targets in Regional ESFM Plans and reporting on criteria, indicators and targets for the [E - Eden region/NE – Upper North East and Lower North East regions] in accordance with New South Wales [E - <i>Eden Region Forest Agreement</i>/NE - <i>Upper North East and Lower North East Region Forest Agreement</i>].</p> <p>Production of annual ESFM Reports on progress for meeting targets in Regional ESFM Plans and reporting on criteria, indicators and targets for the Southern region in accordance with clause 49 and the New South Wales Forest Agreements under the <i>Forestry and National Park Estate Act 1998</i> (NSW).</p>
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This commitment was achieved during Period 1, Period 2 and Period 3.

Section 69H of the Forestry Act requires the NSW Minister for the Environment to prepare an annual report on each Forest Agreement including with respect to ESFM in the region and compliance with any IFOA for the region. The annual reports include reporting against the ESFM criteria and indicators which align with those adopted by MIG. Copies of the annual reports for the years 1999–2000 to 2012–13 are published online¹⁶⁸. The 2013–14 annual report will be made publicly available when published.

FCNSW was publishing a sustainability supplement to its annual report. These supplements comprise a snapshot of a suite of indicators which are based on the Montréal Process C&Is.¹⁶⁹ Previously, FCNSW’s sustainability reporting was provided through similar mechanisms but to a wider suite of environmental, economic and social values and indicators.

¹⁶⁸ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

¹⁶⁹ FCNSW n.d., *Annual Reports*, accessed 16 November 2016 www.forestrycorporation.com.au/resources/pubs/corporate/annual-report

Att 5, 1 (o) [Eden] Att 6, 1 (o) [North East] Att 6, 1 (n) [Southern]	Production of annual Environmental and Social Values report at a statewide level on the progress and performance of State Forests of NSW in accordance with New South Wales [Eden/Upper North East/Lower North East] Region Forest Agreement. Production of annual Environmental and Social Values report at a statewide level on the progress and performance of State Forests of NSW in accordance with New South Wales Forest Agreements and the <i>Forestry and National Park Estate Act 1998</i> (NSW).
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

At the end of Period 3, FCNSW was publishing a sustainability supplement to its annual report. These reports covered a wide suite of environmental, economic and social indicators related to the forest estate that it managed.

The reports covering Period 2 and Period 3 are:

- Social, Environmental and Economic Report (SEEing)– 2004–05 to 2008–09
- Sustainability Reporting Supplement – 2009–10 to 2010–11
- Supplementary Sustainability Indicator Data – 2011–12
- Sustainability Supplement – 2012–13 to 2013–14¹⁷⁰.

Milestone Att 5, 1 (p) [Eden] Att 6, 1 (p) [North East] Att 6, 1 (o) [Southern]	Publication of a New South Wales State of Parks report by April 2000. Publishing a New South Wales State of Parks report by April 2001. Publishing a New South Wales State of Parks report by 31 August 2001.
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This milestone was achieved during Period 1 and reported in the first five-yearly review report.

Two further State of the Parks reports¹⁷¹, following the previous report in 2001, were published in 2004 and 2007. In 2010, the report was published but was renamed to 'Management of the NSW park system'. The latest report presents a snapshot of the NSW park system as at July 2014 and provides a broad overview and assessment of the approaches used to manage the NSW park system.

The State of the Parks reports, along with the complementary State of the Catchment reports, contribute to the NSW State of the Environment reports¹⁷² which have been prepared at three-yearly intervals from 1991.

¹⁷⁰ FCNSW n.d., *Publications*, accessed July 2017 www.forestrycorporation.com.au/resources/pubs

¹⁷¹ OEH 2015d, *State of the parks*, NSW Office of Environment and Heritage, accessed 10 November 2016 www.environment.nsw.gov.au/sop/index.htm

¹⁷² EPA n.d., *New South Wales State of the Environment reporting*, accessed July 2017 www.epa.nsw.gov.au/soe/

<p>Milestone</p> <p>Att 5, 1 (q) [Eden]</p> <p>Att 6, 1 (q) [North East]</p> <p>Att 6, 2 (g) [Southern]</p>	<p>Production of an annual report for the New South Wales [Eden/North East/Southern] Region Forest Agreement with respect to Ecologically Sustainable Forest Management in the region, and compliance with any Integrated Forestry Operations Approval for the region. As required by the <i>Forestry and National Park Estate Act 1998</i> (NSW).</p>
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This ongoing milestone and commitment was achieved during Period 1, Period 2 and Period 3.

Commencing in 1999–2000, the EPA has published an annual report¹⁷³ covering the implementation of the four NSW FAs and tabled these reports in the NSW Parliament, with the latest report covering 2012–13 (see response to Attachment 5, 2 (i)E).

The annual reports provide progress on:

- achievement of milestones in the NSW FAs
- monitoring of ESFM criteria and indicators for each financial year
- compliance with the IFOA for the relevant FA region.

In 2012, the FNPE Act was amended. The requirement to produce an annual report for the FA regions now resides in section 69H of the Forestry Act.

<p>Milestone</p> <p>Att 5, 2 (b) [Eden]</p>	<p>Publishing the document Ecologically Sustainable Forest Management for the Eden RFA Assessment within six months.</p>
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This milestone was achieved during Period 1 and reported in the first five-yearly review report.

<p>Milestone</p> <p>Att 6, 2 (b) [North East]</p> <p>Att 6, 2 (b) [Southern]</p>	<p>Publish Eco-Field Guides for the Upper North East and Lower North East regions by 30 June 2000.</p> <p>Publish Eco-Field Guides for the Southern region by 31 December 2001.</p>
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This milestone was achieved during Period 1 for the North East RFA and reported in the first five-yearly review report. The milestone was achieved outside the proposed timeline for the Southern RFA during Period 2.

FNSW published an eco-field guide for the Upper North East and Lower North East sub-regions (North East RFA region) in 2000.

In the Southern RFA region, FNSW published in late 2005 the eco-field guide for the South Coast sub-region, *Field Guide to Flora, Fauna and Heritage Features of Forest Management on the South Coast of NSW, Forests NSW*. FNSW considered an eco-field guide for the Tumut sub-region but deemed it to be unnecessary. FNSW utilises this guide for both the South Coast and Tumut sub-regions where appropriate.

¹⁷³ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

In 1998, prior to the signing of the Eden RFA, SFNSW had published the eco-field guide for the Eden region, *Field Guide to Flora, Fauna and Heritage Features of Forest Management of South East NSW, State Forests of NSW*.

Milestone	
Att 5, 2 (c) [Eden]	Document the basis for silvicultural practices and publish silvicultural guidelines for commercial forest types by the 31 March 2000.
Att 6, 2 (c) [North East]	Document the basis for silvicultural practices and publish the native (sic) <i>Forest Silviculture Manual</i> (SFNSW) by the 31 December 2000.
Att 6, 2 (c) [Southern]	Document the basis for silvicultural practices and publish the <i>Native Forest Silviculture Manual</i> (SFNSW) by the 31 March 2001.

This milestone was achieved during Period 1 and reported in the first five-yearly review report.

Milestone	
Att 5, 2 (d) [Eden]	Publishing the results from the Yambulla and Tantawangalo Research Catchments by the year 2000.

This milestone was achieved in part during Period 1 and achieved outside the proposed timeline during Period 3.

The Tantawangalo studies¹⁷⁴ and Yambulla study¹⁷⁵ were reported in the first five-yearly review report.

A further article was published for the Yambulla study in 2013 to conclude the activities in these research catchments¹⁷⁶.

Milestone	
Att 5, 2 (e) [Eden]	Publishing the results from the Eden Burning Study by the first five-yearly review.

This milestone was achieved in part during Period 1 and achieved outside the proposed timeline in Period 2.

¹⁷⁴ Lane PNJ & Mackay SM 2001, Streamflow response of mixed-species eucalypt forests to patch cutting and thinning treatments, *Forest Ecology and Management*, 143: 131–142

Ryan PJ, Williams RD & Mackay SM 1989, *Technical paper no. 48, Tantawangalo research catchments 1, Soil variability in relation to terrain*, Forestry Commission, New South Wales.

¹⁷⁵ Two articles were published for the Yambulla study during Period 1:

(i) O'Connell DA and Ryan PJ 2002, Prediction of three key hydraulic properties in a soil survey of a small forested catchment, *Australian Journal of Soil Research*, 40: 191–206

(ii) Roberts S, Vertessy R and Grayson R 2001, Transpiration from *Eucalyptus sieberi* (L Johnson) forests of different age, *Forest Ecology and Management*, 143, 153–161.

¹⁷⁶ Webb A & Jarret B 2013, Hydrological response to wildfire, integrated logging and dry mixed species eucalypt forest regeneration: The Yambulla experiment, *Forest Ecology and Management* 306: 107–117, accessed 28 April 2017

www.researchgate.net/publication/256499087_Hydrological_response_to_wildfire_integrated_logging_and_dry_mixed_species_eucalypt_forest_regeneration_The_Yambulla_experiment

A research paper (Bridges 2005) containing the results and an overview of the Eden Burning Study¹⁷⁷ was published in January 2005. Other supplementary reports have been produced relating to ecological impacts and sustainability of timber harvesting, fire patchiness and changes in understorey plant species richness (e.g. Binns & Bridges (2003)¹⁷⁸, Penman et al. (2007)¹⁷⁹, Penman et al. (2008a)¹⁸⁰ and Penman et al. (2008b)¹⁸¹).

<p>Milestone</p> <p>Att 5, 2 (f) [Eden]</p> <p>Att 6, 2 (d) [North East]</p> <p>Att 6, 2 (d) [Southern]</p>	<p>Documenting and publishing a description of the New South Wales Forest Management System covering Public and Private Lands in time for the first five-yearly review.</p>
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This milestone was achieved outside the proposed timeline in Period 4 and is included in this implementation report at Appendix B.

<p>Milestone</p> <p>Att 5, 2 (g) [Eden]</p>	<p>Publishing within three months a description of the FRAMES system referred to in clause 46(f).</p>
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This milestone was achieved during Period 1 and reported in the first five-yearly review report.

<p>Milestone</p> <p>Att 5, 2 (h) [Eden]</p>	<p>Publishing by the first five-yearly review a description of the methods and results of calculating Sustainable Yield on Public Land, and publishing in time for subsequent five-yearly reviews independent audits of Sustainable Yield, as outlined in Attachment 11.</p>
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¹⁷⁷ Bridges RG 2005, *Effects of logging and burning regimes on forest fuel in dry sclerophyll forests in South-Eastern New South Wales: Initial results (1986–1993) from the Eden burning study area*, NSW Government, Sydney, accessed 8 August 2017

www.dpi.nsw.gov.au/content/research/areas/resources-research/forest-resources/pubs/Ecological-Impacts-and-Sustainability-of-Timber-Harvesting-and-Burning-in-Coastal-Forests-on-the-Eden-Area-Establishment-and-Progress-of-the-Eden-Burning-Study.pdf

¹⁷⁸ Binns D L & Bridges R G 2003, *Ecological Impacts and Sustainability of Timber Harvesting and Burning in Coastal Forests on the Eden Area Establishment and Progress of the Eden Burning Study*, accessed 8 August 2017 www.dpi.nsw.gov.au/content/research/areas/resources-research/forest-resources/pubs/Ecological-Impacts-and-Sustainability-of-Timber-Harvesting-and-Burning-in-Coastal-Forests-on-the-Eden-Area-Establishment-and-Progress-of-the-Eden-Burning-Study.pdf

¹⁷⁹ Penman TD, Kavanagh RP, Binns DL, and Melick DR 2007, 'Patchiness of prescribed burns in dry sclerophyll eucalypt forests in south-eastern Australia', *Forest Ecology & Management*, 252:24–32, d), accessed 4 September 2017 www.sciencedirect.com/science/article/pii/S0378112707004410

¹⁸⁰ Penman TD, Binns DL, and Kavanagh RP 2008a, 'Quantifying successional changes in response to forest disturbances' *Applied Vegetation Science* 11: 261–268, e), accessed 4 September 2017 www.ingentaconnect.com/content/opulus/avs/2008/00000011/00000002/art00013

¹⁸¹ Penman TD, Binns DL, Shiels RJ, Allen RM, and Kavanagh RP 2008b, 'Changes in understorey plant species richness following logging and prescribed burning in shrubby dry sclerophyll forests of south-eastern Australia' *Austral Ecology*, 33: 197–210, accessed 4 September 2017 <https://scholars.uow.edu.au/display/publication36220>

<p>Att 6, 2 (e) [North East] Att 6, 2 (e) [Southern]</p>	<p>Publishing by 1 December 2006 a description of the methods and results of calculating Sustainable Yield on Public Land, and publishing in time for subsequent five-yearly reviews independent audits of Sustainable Yield, as outlined in [NE - Attachment 12/S - Attachment 8].</p>
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This milestone was achieved outside the proposed timeline during Period 2 and Period 3.

A report on the Eden forest resource modelling was completed in response to the 2009 Auditor-General’s Performance Audit report and the report was made publicly available¹⁸². It provided information on REDEN, as the model used in the Eden RFA region, which was not consistent with FRAMES as utilised in the other NSW RFA regions. Although outside the reporting period, the Eden RFA region was incorporated into the FRAMES model in 2015–16, replacing the REDEN model (Appendix G).

Similarly, reports on the South Coast and Tumut sub-regions completed in response to the 2009 Auditor-General’s Performance Audit report were made publicly available¹⁸³ in 2011 and 2012 respectively.

Independent reviews of FRAMES, which have been undertaken but not specifically linked to the five-year review periods, are reported on in the responses to commitments and milestones in Section 3.5 and in Appendix G.

<p>Milestone Att 5, 2 (i) [Eden] Att 6, 2 (f) [North East] Att 6, 2 (h) [Southern]</p>	<p>From 1999 the New South Wales government will table in each House of Parliament an annual report on its [<i>Eden/Upper North East Region Forest Agreement/Lower North East Region Forest Agreement</i>] which will include an ESFM report and the outcomes of compliance with any Integrated Forestry Operations Approval for the region.</p> <p>From 2001 the New South Wales government will table in each House of Parliament an annual report on its Forest Agreement covering the Southern region which will include an ESFM report and the outcomes of compliance with any Integrated Forestry Operations Approval applying to the region.</p>
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This milestone was achieved during Period 1, Period 2 and Period 3.

An annual report¹⁸⁴ is prepared on the implementation of the NSW FAs for the Eden, Southern, LNE and UNE sub-regions as required by the FNPE Act until 31 December 2012 and, since 1 January 2013, by the Forestry Act. The report provides progress on:

- achievement of milestones in the NSW FAs for each financial year

¹⁸² Forests NSW 2012c, *Performance Audit Report Yield Forecasts – Eden Regional Forest Agreement*, accessed July 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0010/439417/Yield-forecasts-eden-regional-forest-agreement.pdf

¹⁸³ Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017
www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

¹⁸⁴ EPA 2016j, *Monitoring and annual reporting of NSW Forest Agreements*, accessed 10 November 2016
www.epa.nsw.gov.au/forestagreements/monitoringandreview.htm

- results of monitoring of ESFM criteria and indicators and timber supply by relevant NSW agencies
- compliance with the IFOAs.

Annual reports for the NSW FAs have been tabled in the NSW Parliament¹⁸⁵ as follows:

- 1999–2000 on 4 June 2002
- 2000–01 on 15 November 2006
- 2001–02 on 15 November 2006
- 2002–03 on 22 September 2009
- 2003–04 on 22 September 2009
- 2004–05 on 22 September 2009
- 2005–06 on 22 September 2009
- 2006–07 on 22 September 2009
- 2007–08 on 1 December 2010
- 2008–09 on 4 May 2011
- 2009–10 on 24 November 2011
- 2010–11 on 6 May 2014
- 2011–12 on 6 May 2014
- 2012–13 on 20 November 2014.

3.5 Improvements to the NSW Forest Management System

Attachments 7 and 11 of the Eden RFA, Attachments 8 and 12 of the North East RFA and Attachment 8 of the Southern RFA list a range of items that relate to improvements in the NSW FMS on public lands, including wood supply strategies and sustained yield.

In regards to the NSW agencies referred to in those attachments, since the signing of the NSW RFAs between 1999 and 2001, State Forests of NSW (SFNSW) is now FCNSW, and the NSW NPWS is now a functional area of NSW OEH rather than a stand-alone agency.

New South Wales will further improve its Forest Management System across forest management agencies and land tenures by:

Att 7, 1 [Eden]	NSW National Parks and Wildlife Service developing an Environmental Management System (EMS), for lands dedicated under the <i>National Parks and Wildlife Act 1974</i> (NSW) consistent with the following broad principles:
Att 8, 1 (a) [North East] (Milestone)	NSW National Parks and Wildlife Service developing an Environmental Management System (EMS) by April 2004 (S – by 30 April 2004), for lands dedicated under the <i>National Parks and Wildlife Act 1974</i> (NSW) consistent with the following broad principles:
Att 8, 2 (b) [Southern] (Milestone)	

This milestone and commitment was achieved in part during Period 1 and reported in the first five-yearly review report. This milestone and commitment was achieved outside the proposed timeline during Period 2 and Period 3.

The PMP managed by NPWS provides the EMS to deliver on this commitment for the various tenures under the nature conservation reserve system.

¹⁸⁵ Parliament of New South Wales n.d., *New South Wales Forest Agreement Annual Reports*, accessed 21 September 2017
www.parliament.nsw.gov.au/search/Pages/results.aspx?k=forest%20agreements#k=forest%20agreement%20annual%20report

Att 7, 2 [Eden]	State Forests of NSW developing a Native Forest Management System as an EMS, with the objective of achieving system certification comparable with the ISO 14000 series.
Att 8, 1 (b) [North East] (Milestone)	State Forests of NSW developing, by April 2001 (S – by 30 April 2001) a Native Forest Management System as an EMS, to a standard which would allow certification of the system under the ISO 14000 series.
Att 8, 2 (c) [Southern] (Milestone)	

This milestone and commitment was achieved in part during Period 1 and reported in the first five-yearly review report. This milestone and commitment was achieved outside the proposed timeline during Period 2 and Period 3.

The EMS currently used by FCNSW received certification under ISO 14001 in 2006 and FCNSW has maintained certification during Period 2 and Period 3 following ongoing certification surveillance and recertification audits.

The third-party certification of the EMS currently used by FCNSW was awarded at the end of Period 1 for the Southern RFA region and outside Period 1 for the Eden and North East RFA regions.

Milestone Att 7, 12 [Eden] Att 8, 1 (l) [North East] Att 8, 2 (l) [Southern]	Incorporating by the first five-yearly review within Regional ESFM Plans and plans of management under the NPW Act, provisions that address in an integrated fashion bush and other fires to ensure ecologically sustainable management of the forest estate. These plans will be consistent with the NSW Biodiversity Strategy and any Bush Fire Risk Management Plans.
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This milestone was achieved during Period 1 and was reported in the first five-yearly review report.

Milestone Att 7, 13 [Eden] Att 8, 1 (n) [North East] Att 8, 2 (n) [Southern]	Establishing a process, including public reporting, for regular audits of compliance and reviews of Codes of Practice, Eco-Field Guides and/ Regional Prescriptions by December 2002 (S – by 31 December 2002) and undertake audits at first and subsequent five-yearly reviews of the Agreement. This process is to be included in any environmental management system, including the SFNSW Native Forest Management System.
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This ongoing milestone was achieved during Period 1 and was reported in the first five-yearly review report. This ongoing milestone was achieved during Period 2 and Period 3.

Att 8, 2 (a) [Southern]	Developing consistent with this Agreement, a Regional ESFM Plan, a New South Wales <i>Southern Region Forest Agreement</i> , and an Integrated Forestry Operation Approval.
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This commitment was achieved during Period 1 and was reported in the first five-yearly review report.

The NSW FA for the Southern region was signed on 3 May 2002. The IFOA for the Southern region was signed on 3 May 2002 and commenced on 13 May 2002.

The five regional ESFM plans for state forests, covering the NSW RFA regions of Eden, North East (Upper), North East (Lower), Southern (South Coast) and Southern (Tumut), were published by the then Forests NSW in 2005 with a starting date of 1 July 2005. Although outside the reporting period, these five regional ESFM plans have been replaced by the Forest Management Plan for the Coastal Forests of NSW (FCNSW 2016)¹⁸⁶.

<p>Milestone</p> <p>Att 8, 1 (m) [North East]</p> <p>Att 8, 2 (m) [Southern]</p>	<p>Incorporating by the first five-yearly review within Regional ESFM Plans and plans of management under the <i>National Parks and Wildlife Act 1974</i>, integrated feral animal and weed control programs.</p>
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This milestone was achieved during Period 1 and was reported in the first five-yearly review report.

<p>Milestone</p> <p>Att 8, 1 (o) [North East]</p> <p>Att 8, 2 (o) [Southern]</p>	<p>Establishing by April 2001 demonstration areas in both the Upper North East and Lower North East regions for illustrating silvicultural practices and the suite of silvicultural regimes referred to in the <i>Upper North East Region Forest Agreement</i> and <i>Lower North East Region Forest Agreement</i> for use in field supervisor training and public education.</p> <p>Identifying areas in the Southern region for illustrating silvicultural practices and the suite of silvicultural regimes for use in field supervisor training and public education.</p>
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The milestone for the North East RFA region was achieved during Period 1 and was reported in the first five-yearly review report. The milestone for the Southern RFA region was achieved during Period 2.

FCNSW established three sites in the Southern RFA region, as silvicultural demonstration areas, in the Bodalla State Forest, Corunna State Forest and Termeil State Forest. These locations are associated with long-term forest research.

An additional site was established in Nadgee State Forest in the Eden RFA region for demonstration of silvicultural practices associated with native forest regrowth originating from bushfires or harvesting disturbance.

FCNSW established three demonstration sites in the North East RFA region:

- a site demonstrating AGS and STS silviculture in blackbutt forests on Queens Lake State Forest
- a site demonstrating STS silviculture for dry hardwood forest types in Kiwarrak State Forest
- a site demonstrating STS and thinning for tablelands forest types in Tuggolo State Forest.

The sites were established and training conducted in 2001 and 2002 for FCNSW staff on the North Coast. Follow-up training was held in 2007 in Queens Lake State Forest after a second cycle of AGS. The overall objective of the demonstration sites in both RFA regions was met.

¹⁸⁶ FCNSW 2016f *Forest Management Plan for the Coastal Forests of NSW*, accessed 4 September 2017 www.forestrycorporation.com.au/management/sustainable-forest-management/esfm

In all NSW RFA regions, the sites were used to assist with training of FCNSW staff, harvesting contractors and machine operators, by covering a range of forest types and silvicultural regimes permissible under the relevant IFOA. They were also used for public education on silvicultural practices to industry groups, school groups, universities and government departments and agencies.

Ongoing silvicultural training occurs; however, this is now undertaken in areas immediately before or following harvesting so maintenance of particular demonstration sites is not required.

Milestone	
Att 8, 1 (q) [North East] Att 8, 6, (b) [Southern]	Developing by the end of 2010, a model to predict recruitment and maintenance of habitat trees over time.

This milestone was achieved during Period 1 and was reported in the first five-yearly review report.

A model of the current and predicted distribution and abundance of hollow trees for the UNE sub-region was produced in 2001 and the work has been incorporated into the application of FRAMES. Further information is provided in Appendix D in the subsection titled 'Model to predict recruitment and maintenance of habitat trees over time'.

Att 8, 1 (s) [North East] Att 8, 2 (p) [Southern]	The <i>Native Forest Silviculture Manual</i> (SFNSW) to be published by 31 December 2000 [S – by 31 March 2001] will outline the scientific basis for site specific silvicultural regimes and the silvicultural decisions and guidelines to where such regimes are to be applied. Parties note that a peer review process will form part of the public consultation process as identified in Attachment 6.
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This commitment was achieved during Period 1 and was reported in the first five-yearly review report.

The State will improve administrative arrangements and cooperation and coordination by State agencies to facilitate the timber industry utilising private forest resources, including:

Att 12, 21, 2 nd dot point [North East]	NSW will develop a regulatory framework that enables a more efficient and integrated approval process to allow for effective private forestry development. Codes of Practice for private plantations and private native forests will be in place within five years in accordance with clauses 57 and 58. The State will also provide advice regarding marketing and pricing.
8, 3, 3 rd dot point [Southern]	NSW will develop a regulatory framework that enables a more efficient and integrated approval process to allow for effective private forestry development. Codes of Practice for private native forests and private plantations will be in place within five years and by 30 June 2001 respectively in accordance with clauses 56 and 57. The State will also provide advice regarding marketing and pricing.

This commitment was achieved in part during Period 1 and reported in the first five-yearly review report. The commitment was achieved in part during Period 2 and Period 3.

The NSW regulatory framework for private forestry (native forests and plantations) is described in Appendix B.

The PNF Code was introduced in 2007. NSW EPA maintains an information hub¹⁸⁷ to provide advice to private landholders with native forests wishing to access information about PNF and the PNF Code¹⁸⁸.

The PR Code commenced in 2001 and applies to both private and public plantations of native or exotic species.

During Period 2 and Period 3, NSW DPI maintained an information page to provide advice to private landholders on the regulatory framework for private forestry, covering plantation forestry, farm forestry and private native forestry. Publications, industry contacts and a series of factsheets were provided, including advice on selecting a harvesting contractor.

Specific advice on marketing and pricing was not published.

Att 8, 3, 5 th dot point [Southern]	NSW will ensure that an integrated Code of Practice is developed for plantation activities across all tenures, under the <i>Plantations and Reafforestation Act 1999</i> (NSW) and that the environmental standards in the objects of this Act and its linkage with the <i>Native Vegetation Conservation Act 1997</i> (NSW) are maintained.
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This commitment was achieved during Period 1.

The PR Code commenced in 2001 and applies to both private and public plantations of native or exotic species.

Att 12, 21, 5 th dot point [North East] (Milestone)	Parties agree that a private forest inventory of northern NSW to determine the basis of yield of wood products from Private Land is required. Parties will use their best endeavours to promote an inventory of private forests, with the agreement of forest owner groups, with the objective of having an inventory in place within five years.
Att 8, 4 [Southern]	Parties agree that a private forest inventory of southern NSW to determine the basis of yield of wood products from Private Land is required. Parties will use their best endeavours to promote an inventory of private forests, with the agreement of forest owner groups.

This milestone for the North East RFA was achieved in part during Period 1 and Period 2.

This commitment for the Southern RFA was not achieved in Period 1, Period 2 or Period 3.

Several studies were undertaken in Period 1 and one in Period 2 to assess the private forest inventory in the North East RFA area, including:

¹⁸⁷ EPA 2016k, *Private native forestry information hub*, accessed 10 November 2016
www.epa.nsw.gov.au/pnf/infohub.htm

¹⁸⁸ EPA 2016i, *Private Native Forestry Code of Practice*, accessed 10 November 2016,
www.epa.nsw.gov.au/pnf/CodeofPractice.htm

- Southern New England Tablelands Private Forest Inventory (2001)¹⁸⁹, which provides detail of the extent and nature of native forests on private land on the southern end of the New England Tablelands
- Private Native Forest and Plantation Resource NSW North Coast (2002)¹⁹⁰, which provides the area of private native forest, broad forest types and yield data, and documented the size, age classes and species composition of both the public and private hardwood plantation resource
- Private Native Forest Resource Inventory and Mapping NSW Mid North Coast (2007 and updated in February 2014)¹⁹¹, which identified and quantified the current and potential commercial timber resource available on private land including location, species or broad forest type, site quality, total resource and estimated commercially available volumes, and areas of cleared land suitable for plantations.

While outside the reporting period, a comprehensive project is currently underway by NSW Forest Science (the forest research team within NSW DOI) that is characterising and mapping the private native forest timber resources on the NSW North Coast in the North East RFA region. This project is expected to be completed by December 2017.

A private forest inventory has not been prepared for the Southern RFA region.

Milestone Att 8, 5 [Southern]	SFNSW will publish all FRAMES CRA reports for the Southern region by 30 September 2001.
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This milestone was achieved during Period 1 and reported in the first five-yearly review report.

Consistent with the development of a statewide FRAMES system NSW agrees to:

Milestone Att 12, 22 4 th dot point [North East] Att 8, 6, (d) [Southern]	Report the annual production of all timber products.
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This milestone was achieved during Period 1 and reported in the first five-yearly review report. This milestone was achieved during Period 2 and Period 3.

Annual reports on progress with the implementation of the NSW FAs and IFOAs provide figures on all timber products from public native forests. These reports are publicly available from 1999–2000 up to and including 2012–13¹⁹².

¹⁸⁹ McDonald P & Brandis J 2001, *Southern New England Tablelands Private Forest Inventory*, accessed 10 November 2016 www.rdani.org.au/files/pages/projects/farm-forestry-northern-inland-forestry-investment-group/southern-new-england-private-forest-inventory-2001/SNET_Private_Forest_Inventory__2001.pdf

¹⁹⁰ Northern New South Wales Forestry Services 2002, *The Private Native Forest & Plantation Resource NSW North Coast*, accessed 10 November 2016 http://rdanorthernrivers.org.au/download/food_and_fibre/forestry/The%20Private%20Native%20Forest%20and%20Plantation%20Resource%202002.pdf

¹⁹¹ Jay A 2014, *Private Native Forest Resource Inventory and Mapping NSW Mid North Coast*, accessed 10 November 2016 www.bluechipforestry.com.au/bchipPDF/MNC_InvtryBC.pdf

¹⁹² EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

General information regarding the supply and demand for timber and wood products is available from Timber NSW¹⁹³, which is the peak state body representing the timber and forest products industry in NSW.

FCNSW's sustainability supplement¹⁹⁴ to the annual reports provides information on timber and wood products from the Crown resource but at the statewide level rather than the NSW RFA region level.

Early in the reporting period (2005), NSW DPI reported on 'Production and use of forest products in Australia' (Ximenes & Gardner 2005)¹⁹⁵.

Att 12, 22, 5 th dot point [North East]	Undertake additional inventory plot measurement consistent with FRAMES principles to improve the accuracy of volume estimates at the Regional Level, funded at \$500,000 per year for the first five years of this Agreement.
Att 8, 6, (e) [Southern] (Milestone)	Undertake within the first five year period, additional inventory plot measurement consistent with FRAMES principles to improve the accuracy of volume estimates at the regional level.

This milestone and commitment was reported as underway in the first five-yearly review report. This milestone and commitment was achieved in part during Period 2 and Period 3.

During 2003, 50% of North Coast inventory plots were measured.

As at 2014, the inventory measurement program was up-to-date for the South Coast sub-region and the Eden RFA region. Plot measurement was behind schedule in the North East RFA region, with the previous measurement of 1,104 plots (55% of North Coast plots) being older than the planned 10-year remeasurement period in native forest.

A report on the status and progressive improvements in FRAMES¹⁹⁶ identified limitations with inventory plot measurement status and practices as at 2009. The report also identifies improvements made in strategic inventory since that time.

Although outside the reporting period, FCNSW has put a major effort into reducing the inventory backlog on the North Coast. The first stage of this program, undertaken in 2016, measured 431 plots in state forests north and west of Coffs Harbour. The second stage of the program will target more than 500 plots in state forests between Coffs Harbour and Taree to the south. By the end of 2016, the backlog of plots greater than 10 years old had been reduced to 865 plots. The 2017 measurement program will further reduce the backlog to 19% of the active North Coast plots. In addition, 336 inventory plots were measured in blackbutt plantations on the North Coast. A review of the Native Forest Inventory Framework, due to commence in 2017, will examine the extent to which future plot measurements can link to LiDAR and plot imputation analysis.

¹⁹³ Timber New South Wales 2016, *Our Industry*, accessed 9 November 2016 <http://timbernewsw.com.au/our-industry/>

¹⁹⁴ FCNSW n.d., *Annual Reports*, accessed 16 November 2016 www.forestrycorporation.com.au/resources/pubs/corporate/annual-report

¹⁹⁵ Ximenes FA and Gardner WD 2005, *Production and use of forest products in Australia*, Department of Primary Industries, Sydney, accessed 10 August 2017 www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/389862/Production-and-Use-of-Forest-Products-in-Australia.pdf

¹⁹⁶ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

Milestone	
Att 12, 22, 6 th dot point [North East]	Monitor FRAMES performance through comparison of actual versus predicted volumes each 12 months for 20 years
Att 8, 6, (f) [Southern]	Monitor FRAMES performance through comparison of actual versus predicted volumes annually.

This ongoing milestone was achieved during Period 1 and was reported in the first five-yearly review report. This ongoing milestone was not achieved in Period 2 and was achieved in part during Period 3.

FCNSW has continued to monitor and audit the reconciliation of FRAMES performance and published two reconciliations during Period 3, which assessed the periods July 2005 to June 2010 (Forests NSW 2012a)¹⁹⁷, and July 2008 to June 2013 (FCNSW 2014a)¹⁹⁸.

While outside the reporting period, a further reconciliation for the North East and Southern (South Coast sub-region) RFA regions has been completed, as at June 2015, for actual versus FRAMES predicted volumes (covering the period 2010–11 to 2014–15) with the report being made publicly available¹⁹⁹.

Att 8, 6, (g) [Southern]	Map, monitor and report on measures associated with silviculture that are carried out through clause 86 and the effect on Sustainable Yield.
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This ongoing commitment was achieved during Period 1, Period 2 and Period 3.

As reported in clause 86(S), the areas treated by non-commercial thinning and post-harvest stand improvement in the South Coast sub-region have been mapped and incorporated into FCNSW's geographic information system (GIS) database covering the Southern RFA region. A one-off assessment of the treatments was conducted to ensure ESFM plan objectives were met.

FRAMES requires a suite of inventory plots to provide forest stand data as part of the strategic inventory for modelling of sustained yield. The treated and purchased areas have inventory plots, as per the stratified sampling used to designate requisite plots, which will monitor the effects of these treatments on the growth of the purchased native forests.

Monitoring of forest growth through permanent growth plots (PGPs) is undertaken within the treated areas.

FCNSW record silviculture treatment information in the Forest Record and Events Database, which is a spatial database.

¹⁹⁷ Forests NSW 2012a, *Performance Audit Report: FRAMES Reconciliation*, accessed 15 November 2016, www.forestrycorporation.com.au/__data/assets/pdf_file/0005/439412/FRAMES-Reconciliation.pdf

¹⁹⁸ FCNSW 2014a, *FRAMES Actual vs Predicted Harvest Reconciliation – 2008/09 to 2012/13*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0006/526893/FRAMES-Reconciliation-2013.pdf

¹⁹⁹ FCNSW 2016d, *FRAMES Actual vs Predicted Harvest Reconciliation – F2010/11 to F2014/15*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0005/701852/frames-reconciliation-report-2010-11-2014-15.pdf

Further information on FRAMES is available in Appendix G and is publicly available on the FCNSW website²⁰⁰.

<p>Att 11, 5 [Eden] (Milestone)</p>	<p>New South Wales will establish a continuous FRAMES development program for the Eden region consistent with the Statewide FRAMES and including the following elements before the first five-yearly review: [the Eden RFA includes 10 dot points not listed here]</p>
<p>Att 12, 24 [North East] Att 8, 7, [Southern] (Milestone)</p>	<p>New South Wales will consult with the Commonwealth in the establishment of an ongoing FRAMES development program for the Upper North East and the Lower North East regions [S - Southern region]. It is expected that this program will be implemented by 1 December 2006 and will include the following elements: [the NE RFA includes 10 dot points and the Southern RFA includes 12 dot points not listed here]</p>

These ongoing milestones and commitments were achieved in part during Period 1 and were reported in the first five-yearly review report. These milestones and commitments were achieved in part during Period 2 and Period 3.

Although outside the reporting period, the regrowth forests in the Eden RFA region were incorporated into the full FRAMES model in 2015–16, replacing the REDEN model (Appendix G).

FRAMES was under continuous review and development between 1997 and 2004 by the FRAMES Technical Committee of the Resource and Conservation Assessment Council and the Resource and Conservation Division (RACD) of the then NSW Department of Infrastructure, Planning and Natural Resources (DIPNR). Further information on the reviews is provided in the section 'Independent reviews of FRAMES' in Appendix G.

All RFA regions are now covered by FRAMES; as such, any reviews, development work or improvements apply to all NSW RFA regions.

FRAMES has undergone a process of continual improvement since its inception, with development direction arising from the findings of various internal and external reviews, as well as technological advances and the availability of new resource management information. This process has ensured that FRAMES continues to provide relevant strategic timber resource modelling for native forests in NSW.

While released outside of the reporting period, FCNSW has published a comprehensive report on FRAMES development and implementation, much of which covers the reporting period²⁰¹. The report describes the chronological development of FRAMES from the commencement of the RFAs up to 2009, when the Auditor-General's report, *Sustaining Native Forest Operations*, was released, and the subsequent improvements since 2009.

²⁰⁰ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

²⁰¹ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

NSW agrees to the following:

Milestone	
Att 12, 15, 2 nd dot point [North East]	[NSW agrees to...] Commission and publish an independent review of the enhanced systems and process, models, information base, and assumptions which contribute to the FRAMES system (by 1 December 2006)
Att 8, 8, 1 st dot point [Southern]	[NSW agrees to...] Commission and publish an independent review of the enhanced systems and process, models, information base, and assumptions which contribute to the FRAMES system applying to both the South Coast and Tumut sub-regions of the Southern region by 1 December 2006.
Att 11, 1 [Eden]	The Parties agree to commission a review of the systems and processes used, and the Sustainable Yield calculated from Public Land as a result of the New South Wales review of Sustainable Yield described in clause 46(f), to be completed and published in time for the first five-yearly review.

This milestone was achieved during Period 1 for the North East and Southern RFAs. This milestone was not achieved during Period 1 for the Eden RFA.

The NSW Government undertakes regular reviews of FRAMES to enhance systems and processes, models, the information base and assumptions. Although some of these reviews are outside the reporting period, and some focus on regions external to the RFA regions, they demonstrate the NSW Government’s ongoing, long-term commitment to the review and enhancement of FRAMES. These reviews are summarised in Appendix G.

North East RFA

The North East RFA milestone was reported as ‘completed’ in the first five-yearly review report on progress (under Milestone 50) with the publication of the ‘Review of Projected Timber Yields for the NSW North Coast’ (Vanclay 2002).

Southern RFA

The Southern RFA milestone was reported as ‘concluded’ in the first five-yearly review report on progress (under Milestone 50), which stated that the review undertaken for the North East RFA region satisfied the requirements for the review in the Southern RFA region.

Eden RFA

The Eden RFA commitment, which was included under Milestone 53 in the first five-yearly report on progress, was reported as ‘underway’, but no specific details were included.

The Parties did not commission a review of systems and processes used, or the sustainable yield calculated, from public land in the Eden RFA region.

During Period 1, the NSW Government developed an alternative yield model for the Eden RFA region, called REDEN, which was used to determine the sustainable yield in the Eden RFA region (refer to the response provided at Eden RFA clause 46(f)). The Parties have not commissioned a review of REDEN.

While the NSW Government reviewed yield forecasts for the Eden RFA region in 2012²⁰², the Parties did not commission a review of these sustainable yield calculations.

²⁰² Forests NSW 2012c, *Performance Audit Report Yield Forecasts – Eden Regional Forest Agreement*, accessed July 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0010/439417/Yield-forecasts-eden-regional-forest-agreement.pdf

In 2015–16, which is outside the reporting period, FCNSW incorporated the Eden RFA region into the full FRAMES model, replacing REDEN (Appendix G). FCNSW commissioned an independent review of the FRAMES model, including the Eden RFA region, which was published in 2017 (Brack 2017)²⁰³.

Further information on FRAMES can be found in Appendix G and a comprehensive report on FRAMES is publicly available²⁰⁴.

<p>Att 12, 15, 3rd dot point [North East] (Milestone)</p>	<p>Using the results of the above FRAMES enhancement and review, NSW will review the timber resource and the annual volume which may be harvested from 2007 – 2018 consistent with the overall Sustainable Wood Supply Strategy to achieve a long-term Sustainable Yield and to optimise sustainable use objectives consistent with this Agreement (by 1 December 2006)</p>
<p>Att 8, 8, 2nd dot point [Southern]</p>	<p>Undertake a review of Sustainable Yield every five years using enhanced FRAMES systems and information bases. The results of which will inform the annual volume which may be harvested from Southern region (or sub-region) being mindful of achieving long-term Sustainable Yield and optimising sustainable use objectives consistent with this Agreement.</p>

This milestone for the North East RFA was achieved during Period 1. This commitment for the Southern RFA has been achieved in part.

North East

Forests NSW released the report *A Review of Wood Resources on the North Coast* in 2004. This review provided a revised sustainable yield volume of 222,000 m³ for the first five years and then 200,000 m³ from year six to year 20.

The NSW Government subsequently reviewed North Coast resource availability in 2012²⁰⁵
²⁰⁶.

²⁰³ Brack C 2017, *FRAMES Review*, accessed 26 April 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0011/701849/frames-review.pdf

²⁰⁴ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

²⁰⁵ DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017
www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

²⁰⁶ FCNSW 2015e, *North Coast Resource Assessment Summary 2015*, accessed 1 September 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0005/716126/north-coast-resource-assessment-summary.pdf

Southern

Forests NSW undertook a review of yield forecasts in the Southern RFA South Coast sub-region²⁰⁷ in 2011 and in the Tumut sub-region²⁰⁸ in 2012. The NSW Government has not conducted reviews of the sustainable yield in the Southern RFA region every five years.

Att 11, 2 [Eden] (Milestone)	New South Wales will undertake independent audits of Sustainable Yield to be completed and published in time for each subsequent five-yearly review.
Att 12, 23 [North East] (Milestone)	NSW will commission independent audits of the progress of the Sustainable Wood Supply Strategy to be completed and published in time for the second and third five-yearly reviews.
Att 8, 8, 3 rd dot point [Southern]	Undertake independent audits of Sustainable Yield to be completed and published in time for each subsequent five-yearly review.

These milestones and commitment were achieved in part during Period 1. These milestones and commitment were achieved in part during Period 2 and Period 3.

External independent reviews of FRAMES have been conducted by: Dr Brian Turner (1998); Professor Jerry Vanclay (2002); Dr Cris Brack (river red gum) (2009); NSW Auditor General's Performance Audit 'Sustaining native forest operations' (2009); FRAMES review for Boral (2010); URS North Coast Resources Review – Project 2023 (2012); Dr Cris Brack (review of implementation in Cypress) (2016); and Dr Cris Brack (review of FRAMES modelling systems and process in Eden) (2016). Further details on these reviews are provided in Appendix G.

Although some of these reviews were undertaken prior to or after the second and third reporting periods, and some focus on regions external to the RFA regions, they demonstrate an ongoing, long-term commitment to the review and enhancement of FRAMES. All of these reviews found that the FRAMES model design, structure and operation provided a solid and reliable basis for strategic yield prediction.

Independent reviews for the North East RFA region were completed in Period 2 (2009 Audit Office Performance Audit²⁰⁹) and in Period 3 (Project 2023²¹⁰). While outside the reporting period, a review of FRAMES and all NSW RFA regional wood flow models was completed by Dr Cris Brack of the Australian National University in 2016²¹¹.

²⁰⁷ Forests NSW 2011a, *Yield Forecasts – Southern Regional Forest Agreement, South Coast sub-region*, accessed 15 November 2016
www.forestrycorporation.com.au/__data/assets/pdf_file/0008/439415/Yield-Forecasts-Southern-Regional-Forest-Agreement-South-Coast-sub-region.pdf

²⁰⁸ Forests NSW 2012b, *Yield Forecasts – Southern Regional Forest Agreement, Tumut sub-region*, accessed 15 November 2016,
www.forestrycorporation.com.au/__data/assets/pdf_file/0006/439413/Yield-Forecasts-Southern-Regional-Forest-Agreement-Tumut-sub-region.pdf

²⁰⁹ Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017
www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

²¹⁰ DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017
www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

²¹¹ Brack C 2017, *FRAMES Review*, accessed 26 April 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0011/701849/frames-review.pdf

Long-term timber supply strategy

<p>Milestone Att 11, 7 [Southern]</p>	<p>Consistent with the commitments in this Agreement NSW agrees to provide 20 year wood supply agreements to operators utilising high quality large sawlogs. NSW agrees to prepare these agreements to take effect from 1 January 2001 for the South Coast Sub Region and as early as possible but no later than 1 January 2002, for the Tumut Sub Region.</p>
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This ongoing milestone was achieved in part during Period 1, Period 2 and Period 3.

In 1999, the NSW Government signed WSAs committing 11,960 m³ p.a. for a period of 20 years from the South Coast sub-region. In 2004, a further 42,700 m³ p.a. was committed to 31 December 2020.

In 2004, the NSW Government signed WSAs committing 11,300 m³ p.a. to 31 December 2020 from the Tumut sub-region. A further 8,100 m³ p.a. was committed in 2015 for a period of 5 years.

<p>Att 11, 28 [Southern]</p>	<p>The 'ratio model' has been developed in consultation with industry and the NSW Minister for Forestry will make an assessment of the qualitative and quantitative criteria. Final determinations for extensions to Wood Supply Agreements will be made by the Minister prior to 31 December 2001.</p>
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This commitment was achieved outside the proposed timeline during Period 1.

Long-term WSAs issued to south coast sawmillers for HQL sawlogs contained clauses which required holders to perform at a minimum level of value-adding in order to receive additional years of log supply prescribed under the WSAs. In 1999, the NSW Minister for Forestry oversaw the development of a value adding ratio to be used to assess each WSA holder's value added performance. The development and administration of the value adding ratio was documented in the report *Assessment of Value Adding by NSW Timber Hardwood Processors*, prepared by Dr David James of Ecoservices Pty Ltd and released in 2001²¹². All companies were assessed and subsequently granted the prescribed extensions. Some additional conditions were applied for three companies in the Southern RFA region, requiring them to submit a business plan to the Minister setting out the company's intended policies, practices and procedures that would lead to an increase in its value adding performance, particularly in regard to the processing and marketing of its high quality sawlogs. The WSAs were completed in November 2003.

<p>Milestone Att 12, 19 [North East]</p>	<p>The Parties agree that the following long-term hardwood sawlog supply supplementation strategy will be implemented to allow the supply of more timber and raise the long term Sustainable Yield of hardwood sawlogs from public forests in northern New South Wales:</p>
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²¹² James D 2001, *Assessment of Value Adding by NSW Timber Hardwood Processors*, report prepared by Ecoservices Pty Ltd.

	<p>Subject to availability of suitable land, New South Wales will spend the allocated \$18 million between 1999 and 2004 to purchase Private Land and/or timber rights to provide approximately 180,000 m³ of high quality large sawlogs and Large Veneer Logs for the Upper North East and Lower North East regions within the term of this Agreement</p> <p>Subject to the availability of suitable land, New South Wales will spend the allocated \$30 million by 2004 to establish at least 10,000 hectares of hardwood Plantations across both Upper and Lower North East Regions to supplement supplies of high quality large sawlogs and Large Veneer Logs from public forests. This initiative is expected to produce approximately 125,000 m³ p.a. for 10 years commencing in approximately 40 years time.</p>
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This milestone was achieved in part during Period 1 and reported in the first five-yearly review report. This milestone has been split into two commitments for reporting purposes in Period 2 and Period 3:

1. the PPTSP, which provided for the purchase of private forested land and/or timber volume rights to secure additional native forest resources, was achieved outside the proposed timeline during Period 3
2. the hardwood plantation supplementation program, which provided for the purchase of land to establish new hardwood plantations, was achieved in part during Period 2.

Further information on the achievement of each commitment under the long-term hardwood sawlog supply supplementation strategy milestone, are provided in the following subsections.

Private Property Timber Supplementation Program

The PPTSP, based on the two components of private land purchases and timber purchase agreements, met the 180,000 m³ of log volume expected from the program. These are further reported in Appendix K. The PPTSP was funded by the Australian Government and the balance of the funds were expended during Period 2 and Period 3. This milestone has been achieved outside the proposed timeline.

In Period 2 and Period 3, the PPTSP was largely delivered through agreements with private property owners to harvest wood under PNF PVPs. The average annual HQL harvest under these arrangements was 3,600 m³ in UNE and LNE. Further details regarding supplementation can be found in Appendix K.

Other supplementation occurs with land acquisition or land swaps with agencies (e.g. highway upgrades on the North Coast).

The most significant land acquisition occurred in Period 1 when 11 properties were purchased and dedicated as state forest covering more than 13,000 hectares and 141,000 m³ of HQL (first five-yearly report). In Period 2 and Period 3, the PPTSP has largely occurred through timber purchase agreements with private property owners to source high quality logs. During Period 2 and Period 3, 36,000 m³ of high quality logs were harvested. The timber purchase agreement component of the PPTSP was estimated to have acquired 47,000 m³ of high quality timber in the period 2003 to June 2014. This, in conjunction with volumes sourced from property purchases, has met the target outcome of 180,000 m³.

Hardwood plantation supplementation program

The hardwood plantation supplementation program successfully established 9,660 hectares of hardwood plantation areas from NSW Government allocated funding of \$27 million, as shown in Table 4. Once mature, the entire North East RFA region plantation resource is expected to produce 75,000 m³ p.a. for a period of 50 years. This milestone has been achieved in part.

Table 4: Hardwood plantation area successfully established and funding allocations under the long-term hardwood sawlog supply supplementation strategy

Year planted	Plantation area established (ha)	Financial year	NSW Government funding allocation
2000	4,455	1999–2000	\$6 million
2001	2,760	2000–01	\$6 million
2002	509	2001–02	\$6 million
2003	738	2002–03	\$6 million
2004	1,198	2003–04	\$2.968 million
TOTAL	9,660		\$26.968 million

Source: FCNSW

Area of plantation established

For this milestone, the NSW Government allocated a total of nearly \$27 million over five years, which funded the purchase of 10,607 hectares of land on which 9,660 hectares of hardwood plantations were successfully established. The other 947 hectares of land was unable to be included in the plantation area successfully established due to issues such as pests, disease, drought and other factors.

Further details on the hardwood plantations are provided in Appendix C and Table 53.

Expected production

This milestone includes an expectation of potential yields of 125,000 m³ p.a. over a 10-year period, 40 years into the future. The NSW Government is unable to confirm that this expectation has been met as the modelling technique has been changed. In 2012, through Project 2023²¹³, the NSW Government modelled the entire North East RFA wood resources (i.e. including both plantation and state forests) as one integrated source, as part of achieving the broader objective for the North Coast to transition to a long-term sustainable wood supply strategy.

FCNSW has adopted this approach to modelling the entire plantation and native forest estates in the North East RFA region as one integrated resource.

Consequently, the plantations established through this milestone are not treated or modelled by FCNSW as a stand-alone resource to be harvested at a high rate for a short period as envisaged in the milestone.

FCNSW's approach to modelling and managing the resource aims to flatten the peaks and troughs in plantation production that would otherwise occur. This will enable both a more reliable mix of log products and species mix provided to customers, as well as allow for a more consistent re-establishment program to maintain a hardwood plantation estate.

This approach allows for maximising the value of the plantation estate and delivering the greatest supplementation effect to the native forest resource in line with a long-term sustained yield objective. The smoothed wood supply profile is illustrated in Figure 1.

FCNSW has modelled its entire plantation resource of 34,988 hectares in the North East RFA region, which includes the 9,660 hectares funded through this milestone.

This modelling shows that, once mature, the plantations can produce 75,000 m³ p.a. of high quality log products over a 50-year period to augment native forest log yields. This represents about one third of the total sustained yield and significantly supplements the native forest resource for the North East RFA region.

²¹³ DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017
www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

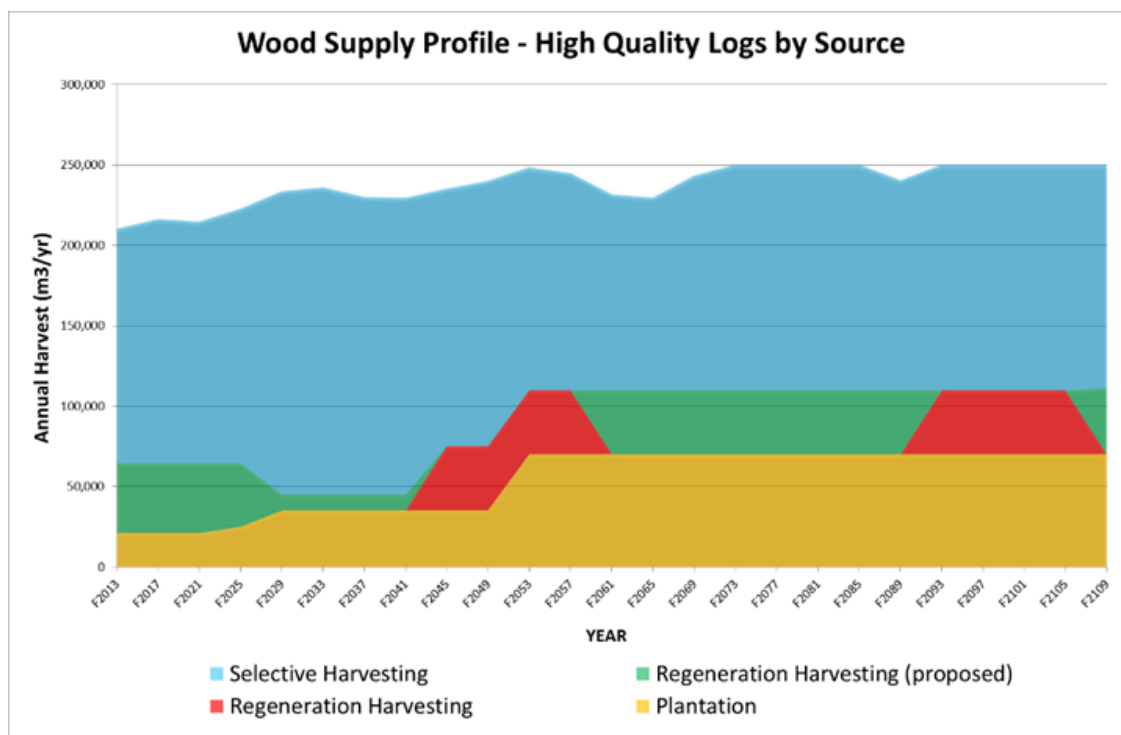


Figure 1: Available timber volume over time in the North East RFA region differentiated by source

Source: FCNSW 2017a ²¹⁴

3.6 Private lands

Attachment 12 of the Eden RFA and Attachment 2 of the North East and Southern RFAs describe the Parties’ support for private land conservation and indicate the forest ecosystems on private land by priorities that would complement the CAR reserve system on public lands through voluntary conservation measures.

<p>Att 12, 8 [Eden]</p>	<p>NSW will establish a Regional Vegetation Committee for the Eden region and provide it with funding to provide for the conservation of Forest Ecosystems that are rare or non-existent on Public Lands. Short-term employment positions are expected to be available over two years.</p>
<p>Att 2, 8 [North East] Att 2, 8 [Southern]</p>	<p>NSW will establish Regional Vegetation Committees in the Upper North East and Lower North East regions [S – Southern region] and provide them with funding to provide for the conservation of Forest Ecosystems that are rare or non-existent on Public Lands.</p>

This commitment was achieved in part during Period 1. The commitment is no longer applicable during Period 2 and Period 3.

Regional vegetation committees (RVCs) were established under the NVC Act. RVCs were formed for native vegetation regions throughout NSW and were based on individual or aggregated local government areas and did not align with NSW RFA regions. In 2003, the NVC Act was repealed and RVCs disbanded. The content of the new legislation for native vegetation and private land conservation is provided earlier in the report under clause 54[NE].

²¹⁴ FCNSW 2017a, *North Coast Resource Assessment – 2015*, Forestry Corporation of NSW, accessed 18 May 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0005/716126/north-coast-resource-assessment-summary.pdf

Conservation on private lands is a voluntary undertaking that is often between the private landowner and the relevant organisation or agency seeking conservation outcomes in a native vegetation region. OEH compiles priorities of poorly represented ecosystems on private lands which it seeks to incorporate into the conservation estate by transfer from other public lands, voluntary sale or bequests and donations.

Over Period 2 and Period 3, there has been a Conservation Partners Program²¹⁵ which supported and supports landholders in voluntarily protecting and managing native vegetation, wildlife habitat, geological features, historic heritage and Aboriginal cultural heritage on their properties.

3.7 Employment initiatives

Att 9, 2 [Eden]	The creation of 33,000 hectares of National Parks additions in the Eden region, including the addition of 7,760 hectares to the Brogo Wilderness and the declaration of the new 15,950 hectares Yowrie Wilderness is a key outcome. The need is recognised for additional NSW National Parks and Wildlife Service staff to be employed in the management of the additional reserve areas, including four Aboriginal staff to specifically manage areas of significance to the Aboriginal community. Fourteen positions including four Aboriginal staff are expected to be employed in cultural heritage and joint management initiatives, supported by \$1.2 million per annum over five years funded by the New South Wales Government.
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This commitment was achieved during Period 1.

In 2000–01, NPWS appointed four Aboriginal staff in the Eden region as a result of funding provided for the management of additions to the reserve systems. These positions included a trainee field officer, two Aboriginal sites officers (one male and one female) and one project officer to manage handback of Biamanga and Gulaga national parks. In addition, a cadet trainee field officer later became a ranger during Period 1, bringing the Aboriginal staff employed in cultural heritage and joint management initiatives in the Eden region to five by 2005–06.

Additional NPWS employment areas in the Eden region included the *Discovery* Ranger program where two field officer training positions for young Aboriginal persons and one ranger training position for an Aboriginal person were appointed.

In the 2005–06 FA/IFAO Annual Report²¹⁶, the Department of Environment and Conservation (DEC) reported that: ‘A total of 38 new permanent positions [in the Eden region] have been established since the south-east forest reform program began in 1994. This includes the 14 jobs required for managing the additions to DEC estate referred to in the forest agreement.’

²¹⁵ OEH 2016b, *Partnerships with landholders*, accessed 10 November 2016, www.environment.nsw.gov.au/cpp/ConservationPartners.htm

²¹⁶ DECC 2009, *NSW Forest Agreements and integrated Forestry Operations Approvals Implementation Report: Upper North East, Lower North East, Eden, Southern*, accessed 14 September 2017 www.epa.nsw.gov.au/resources/forestagreements/implementationreport20052006.pdf

<p>Att 11, 62 [NE]</p>	<p>Aboriginal Cultural Heritage Officers</p> <p>Four Aboriginal cultural heritage officers are to be employed equally between State Forests and National Parks and Wildlife Service, in the Upper North East and Lower North East Regions. These officers will give greater protection to cultural heritage and foster a close working partnership between the Aboriginal community and the Government.</p> <p>Foremost in the tasks of the cultural heritage officers will be the surveying, care and maintenance of significant sites, permanent recording of their locations and consultation over protection mechanisms for these sites with management agencies. This initiative will encourage increased participation of the local Aboriginal community in forest management decisions.</p> <p>The initiative also includes a number of traineeships to assist Aboriginal trainees gain land management skills. It is anticipated that this training should provide skills, which will enhance continued employment and promotional opportunities in the management of forested land.</p> <p>Funding Commitment: \$520,000 per annum over 5 years</p> <p>Predicted employment benefit: 10 positions in total; 4 Aboriginal Cultural Heritage officers in total equally distributed between agencies and RFA regions, 6 traineeships over both Upper and Lower North East.</p>
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This commitment was achieved during Period 1.

During Period 1, SFNSW recruited two Aboriginal cultural heritage officers to give greater protection to cultural heritage and foster a closer working partnership between the Aboriginal community and government agencies, implemented an Aboriginal employment program (employing 12 Aboriginal people) and initiated an Aboriginal traineeship program, appointing four trainees in 1999–2000. The traineeships were offered to assist Aboriginal people to gain land management skills.

During Period 1, NPWS appointed two permanent cultural heritage officers located in Coffs Harbour and Port Stephens. The cultural heritage officers worked with staff and the local Aboriginal communities to foster better partnerships in the management of Aboriginal cultural heritage. NPWS developed a consultation toolkit to assist more effective engagement with Aboriginal communities in park management.

Other activities included:

- 1999–2000: SFNSW, NPWS and Aboriginal communities consulted to improve Aboriginal involvement in forest management and recognition of the forests' cultural and heritage values.
- 1999–2000: NPWS and the Department of Land and Water Conservation jointly provided \$100,000 for two Aboriginal positions to undertake an assessment of cultural heritage values in catchments of the northern rivers region. This work assisted the vegetation management committees within the northern rivers region to develop regional vegetation management plans.
- 1999–2000: NPWS employed a further 13 Aboriginal staff on tasks associated with the Forest Agreements for the UNE and LNE sub-regions.
- 2001–02: SFNSW provided two traineeships for trainees involved in tertiary studies.

- 2000–01: SFNSW strategy for Aboriginal involvement in forest management was incorporated into the draft regional ESFM plans for the UNE and LNE.
- 2001–02: SFNSW assisted the Darkinjung Community Development Employment program by training Aboriginal participants in Aboriginal site identification and recording, and chainsaw use.
- 2002–03: NPWS identified and created a new Aboriginal position to develop consultation strategies for NPWS with Aboriginal communities in its Northern Directorate, for the purpose of building effective relationships with local communities.
- 2002–03: SFNSW appointed an Aboriginal liaison officer to participate in the working group overseeing the development of the Australian Government’s National Indigenous Forestry Strategy, which investigated new opportunities for Aboriginal employment and ways to create better access to jobs in each region.
- 2005–06: DEC supported the Arakwal cultural centre and undertook surveys of cultural heritage in both the UNE and LNE areas. These initiatives helped to increase community awareness and understanding of cultural heritage on the conservation estate. From these initiatives the Aboriginal community made recommendations and provided valuable input into the planning and development of facilities, interpretation/ education and also the development of increased awareness in the broader community of the cultural context of park areas.
- 2005–06: NPWS created seven permanent Aboriginal positions, comprising two field officers, two clerical officers, two rangers and one senior field officer, and one additional existing position was identified as an Aboriginal position.

FCNSW has continued to offer the traineeship program past the five-year commitment. Although outside the reporting period, in 2015–16 FCNSW engaged two Aboriginal trainees to complete a Certificate II in Forest Growing and Management²¹⁷. FCNSW also supported a school-based traineeship program on the south coast with one student progressing through the program in 2015–16.

Att 11, 41 [Southern]	<p>Employment in Aboriginal Heritage and Conservation Management</p> <p>The NPWS will fund the employment of 91 positions for conservation and Aboriginal heritage management of the new Southern reserves. Four of these positions are identified as Aboriginal Cultural Heritage Officers.</p>
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This commitment was achieved in Period 1.

In 2002–03, NPWS funded the 91 positions identified for conservation and Aboriginal heritage management in the Southern region, including four Aboriginal cultural heritage officers²¹⁸.

Other activities included:

- 2002–03: NPWS established two field officer positions, employed Aboriginal contractors where available and participated in the NPWS Aboriginal Cadet Ranger program.
- 2003–04: NPWS prepared a Regional Cultural Heritage Strategy 2003–2008. The strategy identified steps in the Aboriginal community consultation process and

²¹⁷ FCNSW 2016g, *2015–16 Annual Report*, accessed 14 September 2017
www.forestrycorporation.com.au/about/pubs/corporate/annual-report/2015-16

²¹⁸ DECC 2007, *NSW Forest Agreements and integrated Forestry Operations Approvals Implementation Report: Upper North East, Lower North East, Eden, Southern*, accessed 14 September 2017
www.epa.nsw.gov.au/resources/forestagreements/implementationreport20022003.pdf

identification of long-term conservation management works. The NPWS Far South Coast Region continued the program associated with the handback of Biamanga/Gulaga national parks, providing for a greater participatory role for Aboriginal communities in a landscape of high cultural importance.

- 2004–05: A permanent full-time indigenous community and liaison officer was employed with contributory funding from the Elsa Dixon Program. One cadet Aboriginal trainee ranger was employed, three Aboriginal field officers and one ranger (Highlands Area) were also employed in the region, and an Aboriginal Heritage Conservation Officer was stationed in the South Coast Area.

<p>Att 11, 42-44 [Southern]</p>	<p>Aboriginal Cultural Heritage Program</p> <p>42 This project will fund assessment of Aboriginal cultural heritage on State forest in the Southern RFA region. Two cultural heritage officers employed by State Forests will foster a close working partnership between the Aboriginal community and the NSW Government's forestry program.</p> <p>43 The cultural heritage officers' tasks will centre on identifying, assessing significance, and giving greater protection of sites. They will consult on protection mechanisms for these sites with Aboriginal communities and management agencies.</p> <p>44 This project will also encourage increased participation of the local Aboriginal community in forest management decisions.</p> <p>Funding level: \$150,000 per annum for 5 years</p> <p>Funding source: NSW Consolidated Fund</p> <p>Employment impact: 2 positions for 5 years</p>
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This commitment was achieved in part in Period 1.

SFNSW employed one cultural heritage officer in a permanent capacity, and one Aboriginal field worker in a temporary capacity. During 2002–03 and 2003–04, SFNSW engaged Aboriginal representatives in the process of locating cultural heritage sites and assisting the identification of appropriate measures to protect sites. SFNSW signed contracts with a number of groups to assist with the investigation and management of cultural heritage.

Other activities included:

- 2002–03: SFNSW employed Aboriginal people to improve environmental conditions within flora reserves, such as by the removal of pine wildings (*Pinus* spp.) and rehabilitation of corroboree frog (*Pseudophryne corroboree*) habitat. These short projects gave participants useful vocational experience and skills.
- In 2004–05, FNSW in cooperation with the Tumut/ Brungle Local Aboriginal Land Council (LALC) and the local Tumut Community Development Employment Project organised the construction of an outdoor natural amphitheatre in the Tumut sub-region. This venue was to be used by Aboriginal communities and the general Tumut community to promote cultural events in a natural setting.

4 Recommendations from the first five-yearly independent review

For the first five-yearly review of the NSW RFAs, the Parties appointed Mr Scott Spencer of Queensland as the Independent Assessor to review the *Draft Report on Progress with Implementation of the New South Wales Regional Forest Agreements (RFAs)* and the 32 public submissions received as part of the review.

In November 2009, the Independent Assessor provided his report²¹⁹, which included 18 recommendations for the Australian and NSW governments to consider in the ongoing implementation of the NSW RFAs.

On 15 March 2010, the Independent Assessor's report was tabled in the Australian Parliament.

The NSW and Australian governments produced a Joint Government Response to the Independent Assessor's report²²⁰, which was tabled in the House of Representatives of the Australian Parliament on 30 October 2014.

This section provides an overview of progress against the recommendations from the independent review of the first five-yearly implementation report under the NSW RFAs.

Good progress has been achieved in implementing the recommendations of the 2009 review, acknowledging the delay by the Parties in finalising the Joint Government Response report.

Of the 18 recommendations for continued implementation of the NSW RFAs arising from the 2009 independent review, the Parties have indicated that:

- 11 have been completed or fully implemented
- 2 have been partly implemented
- 5 are underway through ongoing actions that have been implemented since 2014.

A summary of progress implementing these recommendations is provided in Table 5.

Table 5: Status of response to recommendations from the Period 1 independent review

Recommendation	Action	Status
Rec. 1	Parties improve the notification process in future reviews by directly advising key stakeholders of the review processes.	Underway
Rec. 2	With submitters' approval, Parties refer the submissions to this review to the NSW Review, the C'wth and Executive Management of the NSW forest agencies.	Fully implemented
Rec. 3	Parties to expeditiously initiate a further review process to meet the agreed RFAs second review time requirements.	Underway
Rec. 4	Parties to the RFA consider: a) The resource requirements of undertakings under the RFAs to determine the likelihood of within agreed timelines, and/or	Fully implemented

²¹⁹ Spencer S 2009, *Final Report on Progress with Implementation of NSW Regional Forest Agreements: Report of Independent Assessor*, accessed 9 November 2016, www.agriculture.gov.au/forestry/policies/rfa/publications/annual-reports/nsw

²²⁰ NSW and Australian Governments 2014b, *Joint Australian and New South Wales Government Response to the Final Report on Progress with Implementation of the NSW Regional Forest Agreements: Report of the Independent Assessor*, accessed 9 November 2016 www.agriculture.gov.au/SiteCollectionDocuments/rfa/publications/annual-reports/nsw/jointresponse-nswrfa.pdf

NSW Regional Forest Agreements Implementation Report 2004–2014

Recommendation	Action	Status
	b) The potential need to reprioritise any milestones.	
Rec. 5	In future five yearly reviews, Parties consider including more commentary for Milestones in the “Underway” and “Concluded” categories.	Fully implemented
Rec. 6	Parties continue to ensure their public data release and publication strategies align with modern practice.	Fully implemented
Rec. 7	NSW continues to prioritise completion and publication of management plans for various dedicated areas.	Underway
Rec. 8	In future reviews, Parties should provide more information about threatened species recovery plans.	Fully implemented
Rec. 9	NSW should give high priority to finalisation of its Park Management Program and report on it as part of the second 5 yearly RFAs Review.	Underway
Rec. 10	NSW should continue to prioritise audit and compliance activities by agencies involved in RFAs and that auditing be scrutinised as part of the NSW Review.	Fully implemented
Rec. 11	NSW should continue to give high priority to the release of the NSW FMS covering public and private land.	Underway
Rec. 12	NSW should initiate immediate action to deliver the regional ESFM performance reports.	Fully implemented
Rec. 13	NSW should give the highest priority to the continuous improvement system for FRAMES and development of the inventory plot measurement systems.	Partly implemented
Rec. 14	NSW should ensure that its FRAMES and associated supply models undergo 5 yearly expert independent assessment.	Fully implemented
Rec. 15	The Parties should: a) Satisfy themselves that the requirements of Milestone 51 cannot be cost effectively or safely delivered. b) If so, develop an alternative arrangement using information already produced by Forests NSW. c) Keep this matter under continuous review.	Partly implemented
Rec. 16	NSW Government should take early action to complete the various review of sustainable yield calculations and make the review publically available when completed. A description of sustainable yield calculation methodologies to be published.	Fully implemented
Rec. 17	Parties consider whether there are more systematic, cost effective approaches to collect threatened species data or in its absence, whether it would be valid to release appropriately qualified comparative data developed from existing sources.	Fully implemented
Rec. 18	NSW should explore accessing data on soil and water quality from all relevant government agencies, with a view to developing a more systematic and comprehensive approach to monitoring of these attributes in forest areas.	Fully implemented

Recommendation 1

That for future reviews the Parties consider supplementing the notification process by directly advising key community, conservation and industry groups of the review and the various processes involved.

2014 Joint Government Response

Both Parties agree that it is important, in terms of public consultation on the five yearly reviews, to have considered input from key environmental (conservation), community, and industry groups into the five yearly review processes for the RFAs. To assist in this process for the first five yearly review, public notices (**Annex A**) detailing access to the *Report on Progress* and seeking public comments were placed in State-wide and local newspapers as well as on both governments' agency websites. The documentation for the first five yearly review was also made available on Commonwealth and NSW Government websites.

The Parties agree to supplement the current public notification process by writing to key community, conservation and industry groups advising them of the review process.

Status

The implementation of this recommendation is underway and will be fully implemented on the publication of this implementation report.

The Parties have developed a stakeholder list of key and secondary stakeholders reflecting those organisations and individuals most likely to have a genuine and current interest in the five-yearly review of NSW RFAs. They are comprised of environmental, industry, local and state government, social and community groups or representatives.

Upon the release of this implementation report, these stakeholders will be notified about the implementation report and the public consultation period, and will be provided with a printed copy or the web address for accessing this report.

Recommendation 2

With the approval of the submitters, the Parties refer the submissions to this review to:

- the NSW Review
- the Commonwealth Government, to be taken into account during development of its response of the Independent Review of the EPBC Act (EPBC Review 2008)
- Executive Management of the NSW forest agencies.

2014 Joint Government Response

Both Parties support the inclusion of the submissions provided to this first five yearly review being referred to the relevant reviews outside of the RFA review process.

In accordance with requirements in the then FNPE Act, the NSW Government completed a review of the NSW FAs and IFOAs in 2010. The issues raised within the public submissions and the Independent Assessors' report of the RFA review were considered as a part of this State review. Information on this review can be found at www.epa.nsw.gov.au/forestagreements/reviews.htm.

The submissions from the first five yearly review were also referred to the executive management of NSW forest agencies i.e. Forests NSW and the OEH.

The issues raised within the public submissions and the Independent Assessors' report were considered in the development of the Australian Government response to the 'Report of the independent review of the EPBC Act' – www.environment.gov.au/epbc/review/index.html.

Status

This recommendation has been fully implemented by the Parties through actions indicated in the 2014 Joint Government Response.

Recommendation 3

The Parties consider initiating a further review process as soon as possible to meet the agreed RFAs second review time requirements and;

- a. these reviews focus on progress with milestones due to commence in the second 5 years of the RFAs, actions underway from the first 5 years, and
- b. indicators that are considered critical to the success of the RFAs in areas such as reserve management, species protection (including pest animal and weed management), management planning and wood supply estimates.

2014 Joint Government Response

The Parties support the intent of this recommendation in terms of further five yearly reviews of the three RFAs.

Both Parties fully appreciate the need to undertake further five yearly reviews of the three NSW RFAs to maintain transparency of and public confidence in the management of public forests within the State.

The commencement of further five yearly reviews will require some consideration of timeframes by the Parties to enable implementation of actions arising from this Joint Australian and New South Wales Government Response to the Independent Assessor's 18 recommendations from the first five yearly review.

Nonetheless both Parties will commit to commencing further five yearly reviews of the three NSW RFAs as a matter of priority commencing in 2014.

Both Parties also agree that the focus of further five yearly reviews will be on key milestones and sustainability indicators, noting that the Parties will endeavour to provide sufficient information so that all relevant matters are considered and reported on.

Status

The implementation of this recommendation is underway.

The Parties acknowledge that there have been delays in finalising the first five-yearly review and the initiation of the second and third five-yearly reviews.

The Parties intend to expedite the combined second and third five-yearly reviews during 2017–18.

The Parties have reviewed the five-yearly review report section of each NSW RFA and have agreed to report not only on outstanding and ongoing milestones but also on all of the commitments or obligations in the clauses and attachments of the three NSW RFAs.

The Parties have assessed the sustainability indicators used in NSW to be essential to demonstrate ESFM and for the achievement of the crucial outcomes through the implementation of the NSW RFAs.

Recommendation 4

That the Parties to the RFA consider:

- a. The resource requirements of on-going and yet to commence undertakings under the three RFAs to determine whether implementation is likely within agreed timelines, and/or
- b. Whether reprioritisation of any milestones is necessary to ensure delivery of initiatives which are essential to the implementation of the RFAs.

2014 Joint Government Response

Both Parties are committed to the implementation of all relevant milestones of the three NSW RFAs and will continue to consider the adequacy of resourcing requirements to achieve ongoing and outstanding milestones.

Both Parties are committed to working collaboratively to identify key ongoing and outstanding milestones and determining whether timeframes for their delivery need to be re-considered.

Reprioritisation of timelines around the delivery of some milestones may be required, in the light of NSW government priorities; any decision about the likelihood of reprioritisation of timelines will be outlined in further five yearly reviews.

Status

This recommendation has been fully implemented.

There are no undertakings in the NSW RFAs that have not been completed or commenced.

The Parties have worked to address milestones and commitments/obligations within available resources. The majority of milestones and commitments/obligations have been achieved or achieved in part (refer to Table 49 in Appendix A).

The Parties have not reprioritised any of the milestones in the NSW RFAs, with the one exception being the timing of the second five-yearly review, which was delayed.

Over the life of the NSW RFAs, some of the milestones, commitments and obligations have been designated by the Parties as not applicable (as provisions in the clauses have not been required) or no longer applicable (due to changes in government policies or having been overtaken by events subsequent to the Parties' agreement on the milestones, commitments and obligations).

The Parties will continue to work collaboratively on the implementation of the milestones, commitments and obligations.

Recommendation 5

In future five yearly reviews the Parties consider further including more commentary for Milestones in the "Underway" and "Concluded" categories to provide an assessment of the adequacy of progress of these milestones.

2014 Joint Government Response

Both Parties support this recommendation in order to provide transparency on the status of progress in relation to the milestones in the three NSW RFAs.

In light of improving the transparency and adequacy of the five yearly review process, where practicable, both Parties will provide further detail in subsequent five yearly reviews on the status of progress against the milestones under the three NSW RFAs.

The NSW Government has already taken this recommendation on board in terms of both the descriptors used for reporting on progress and the commentary for NSW FA milestones in

the NSW FA review conducted in 2010 – refer to Table 2.1 at www.epa.nsw.gov.au/forestagreements/reviews.htm.

Both Parties agree to provide a set of agreed descriptors or categories as referred to by the Independent Assessor backed up by an appropriate explanation on the progress with milestones which will assist stakeholders in evaluating the adequacy of progress toward achieving milestones or provide a timeframe for completion and/or reassessment.

Status

This recommendation has been fully implemented with the descriptors used and the extended comments providing clarification in reporting on progress for the milestones, commitments and obligations at Table 51 of this report, as well as in the response on progress, as appropriate.

Recommendation 6

The Parties continue to ensure their current data release and publication strategies align with modern practice for the release of publicly held information.

2014 Joint Government Response

Both Parties will continue to engage with environmental, community and industry groups and release data and information through electronic and published media. Both Parties are committed to best practice for the release of publicly held information.

The Australian Government has in place a cyclical system of reporting on national indicators for Australia's forests. This includes:

- the 5 yearly Australia's SOFR – www.daff.gov.au/ABARES/forestsaustralia/Pages/SOFR/default.aspx
- the annual Australia's forests at a glance and the Plantation Inventory Up-Dates – www.daff.gov.au/abares/publications_remote_content/publication_topics/forests.

The NSW Government's legislation for making data publicly available is under the *Government Information (Public Access) Act 2009* (GIPA Act). This Act is the New South Wales Government's approach to giving the community greater access to information. The New South Wales' Government has made a commitment to provide access to information held by the Government, unless on balance it is contrary to the public interest to provide that information.

The NSW Government regularly publishes information relevant to NSW forests covered by the three RFAs as a part of annual reporting under the NSW FAs – www.epa.nsw.gov.au/forestagreements/monitoring.

Since 1994, the NSW Government has regularly published broader environmental information such as the three yearly 'Who cares about the Environment' series²²¹.

Status

This recommendation has been fully implemented.

The Parties maintain adherence to the recommendation by timely provision of reports and associated commentary on the lead RFA agency websites.

The GIPA Act's requirements align with best practice for the release of publicly held information.

²²¹ OEH n.d., *Who Cares about the Environment? Who cares reports*, accessed July 2017 www.environment.nsw.gov.au/community/whocares.htm

Of relevance to the NSW RFA regions, the Parties have made publicly available the following:

- The Australian Government published Australia's SOFR 2013 in March 2014 and Australia's SOFR in May 2008; *Australian plantation statistics* in October 2006 and August 2011 and *Australian Plantation statistics update* in 2005, 2007, 2008, 2009, 2010, 2011²²², 2012²²³, and 2013²²⁴, and while outside the reporting period, *Australian plantation statistics 2014 update*²²⁵ in September 2014 and *Australia's forests at a glance 2014*²²⁶ in November 2014.
- The NSW Government publishes annual reports on the NSW FAs, including with respect to ESFM for the regions and compliance with the IFOAs.

To provide enhanced information pertaining to responses to the NSW RFA clauses and attachments, this report has adopted the practice of indicating a weblink in the body text to appropriate websites.

Recommendation 7

The NSW Government continue to give priority to completion and publication of plans of management for various dedicated areas.

2014 Joint Government Response

Both Parties agree that the plans of management for the various areas dedicated under the NPW Act should be finalised and made publicly available. Noting, as previously outlined in the *Report on Progress* that as more parks and reserves are added each year, the preparation of the plan of management for a new park may be given priority over an existing park. Prioritisation for the preparation of management plans occurs on the basis of which parks are believed to have the highest threats to natural and cultural values.

The NSW Government, through the NPWS of the OEH is committed to the completion of plans of management for all reserve tenures²²⁷ dedicated under the NPW Act and has in place a regular monitoring program to ensure this occurs. The OEH website contains all draft and adopted management plans for parks and reserves in NSW - www.environment.nsw.gov.au/parkmanagement/ParkManagementPlans.htm.

²²² ABARES 2011, *Australian Plantation Statistics 2011*, accessed 9 November 2016
http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pe_abares20110831.01_12a.xml

²²³ Gavran M 2012, *Australian plantation statistics 2012 update*, accessed 9 November 2016
http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pe_aplnsd9ablf0022012_11a.xml

²²⁴ ABARES 2013b, *Australian plantation statistics 2013 update*, accessed 9 November 2016
http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pb_aplnsd9abfs0032013_11a.xml

²²⁵ ABARES 2014a, *Australian plantation statistics 2014 update*, accessed 9 November 2016
http://pandora.nla.gov.au/pan/129054/20140922-0000/AustPlantationStats_2014_v.1.0.0.pdf

²²⁶ ABARES 2014b, *Australia's forests at a glance 2014: with data to 2012–13*, accessed 9 November 2016
http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pb_fag14d9abfe20141105_11a.xml

²²⁷ The tenures include national park, nature reserve, state conservation area, Aboriginal area and historic site.

As at June 2012, of the 548 management plans listed by the OEH in the three RFA regions, 75% are finalised²²⁸, that is the plans have been adopted and are being implemented or pending finalisation which indicates that they have been through public exhibition and are awaiting formal approval, 14% are in the drafting process, i.e. draft plan in preparation or on public exhibition, and 11% yet to be commenced.

Although plans of management are yet to be finalised for some parks, the NSW Government, through the NPWS of the OEH has prepared fire, pest and visitation management strategies/plans for all parks and reserves/Regions/Branches (with the exception of very recent park additions). The preparation of these strategies/plans means that the key threats and impacts on the national park system have been considered. The OEH website provides information on these Plans and Strategies at www.environment.nsw.gov.au.

Pests and weeds

www.environment.nsw.gov.au/pestsweeds/pestweedmgmtsw.htm

Full range of other park management plans & policies

www.environment.nsw.gov.au/parkmanagement/ParkAndFireManagementPlansByCategory.htm

www.environment.nsw.gov.au/policies/index.htm

Fire management

www.environment.nsw.gov.au/fire/mngfireinnswnatpks.htm

Status

The implementation of this recommendation is underway – plans of management cover all priority areas, and statements of management intent have been prepared for remaining reserves.

The status of plans of management for the NSW conservation reserve system have been updated from the first five-yearly review report and the report covering the review of the NSW FAs to reflect the current status as provided on the OEH website (www.environment.nsw.gov.au). The relevant information is provided in Appendix E.

As at June 2014, 73% of the 511 reserves in the NSW RFA regions had management plans that had been finalised. A further 9% had a plan that had been on public exhibition. The remaining plans are either in the drafting process or not yet commenced.

Although plans of management are yet to be finalised for some parks, the NSW Government, through the NPWS of OEH has prepared statements of management intent for most reserve tenures without a publicly exhibited plan of management. These statements provide clear information about the values, threats and key management directions for all remaining reserve tenures.

At the park level, fire management strategies are in place across the state. All parks are also covered by regional pest management strategies. Additional conservation plans, visitation plans and cultural heritage plans are also in place for many of the reserves on an 'as needs' basis. The preparation of these strategies/plans means that the key threats and impacts on the national park system have been considered.

²²⁸ The information provided in the Joint Government Response for the number of PMPs finalised may be incorrect. A reassessment of this information for this report indicates that as at June 2012 there were 509 reserves in the NSW RFA regions, of which 65% had PMPs finalised.

Recommendation 8

In future reviews the Parties should provide more information about development of various threatened species recovery plans to allow an assessment of the adequacy of progress in the management of threatened species as it relates to Milestone 23.

2014 Joint Government Response

Both Parties agree to the provision of relevant and current information on the development and implementation of various threatened species and ecological communities' recovery plans and recovery actions.

In 2004, the NSW Government amended the TSC Act to, inter alia, provide a strategic framework for prioritising actions for threatened species recovery and management, and remove mandatory requirements for the preparation of species recovery plans. The amendments formed part of a broader natural resource management (NRM) reform package.

In 2007, the then Department of Environment, Climate Change released the Threatened Species PAS. PAS outline the broad strategies and detailed actions that can be taken to promote the recovery of each listed threatened species, populations and ecological communities. PAS was intended to be a shift away from developing formal recovery plans as the process of developing these was not keeping pace with the growing list of threatened species. PAS actions set out the recovery and threat abatement strategies to be adopted to promote the recovery of threatened species, populations and ecological communities to a position of viability in nature.

The NSW Government, through the OEH has reviewed the performance of the PAS during its first three years of operation (2007-2010)²²⁹.

OEH has designed a new threatened species management program²³⁰. The programs objective will be to:

- Allocate species to one of six management streams based on the management needs of the species concerned, including those listed threatened species in RFA regions²³¹. Details of these management streams are contained in Annex D.
- Establish the relative priorities for implementation of recovery actions based on the benefit for the species, their likelihood of success and their total cost
- In some cases establish performance indicators to enable reporting on and evaluation of the effectiveness of actions
- Secure investment in threatened species recovery
- Raise the profile of threatened species and increase opportunities for the community to participate in threatened species conservation.

For the purposes of this reporting process, all listed threatened species in RFA regions have been allocated into the most appropriate management stream, see Annex E. This list provides an overall indication of the management intentions of OEH in relation to these species. This allocation may be revised over time.

²²⁹ OEH 2014c, *Review of the NSW Threatened Species Priorities Action Statement*, accessed June 2017 www.environment.nsw.gov.au/SavingOurSpecies/120217pasrevrep.htm

²³⁰ OEH 2017a, *Saving our Species program* (webpage), accessed 6 September 2017 www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program

²³¹ Listed threatened species in RFA regions are those contained within Table 1, Attachment 3 of the North East and Southern RFAs and Table 1, Attachment 2 of the Eden RFA.

OEH will continue to develop and implement new recovery plans as required under the TSC Act where the process of developing the plan helps with engaging multiple stakeholders and outlining clear roles and responsibilities of project partners.

OEH will also continue to implement existing recovery plan actions as part of the threatened species program according to the overall priorities established by the new threatened species management program. Listed threatened species in RFA regions therefore will be managed in accordance with the new threatened species management program and in accordance with approved recovery plans.

As at December 2013, there were approximately 107 approved NSW Recovery Plans across the state.

The Australian government will also continue to lead the development of national recovery plans as required under the EPBC Act. This may include RFA species that are endemic to NSW or those RFA species that also occur outside of NSW. In developing these recovery plans the Australian government will, consistent with current arrangements, seek the cooperation and support of NSW government to participate in and contribute to that process.

Based on the 2007 amendments to the EPBC Act which removed the mandatory requirement to have a recovery plan for every listed species or ecological community, a conservation advice is now developed for these at the time of listing. Recovery plans may be developed for some of these species or ecological communities.

The Australian and New South Wales governments will continue to cooperate on the development of recovery plans including the sharing of technical information that may be sought by either party in developing, implementing and reviewing these plans. The Australian government will also work with NSW to ensure that management priorities identified for a listed species under both the PAS and recovery plan systems align in any given RFA region.

Status

This recommendation has been fully implemented.

The Parties continue to promote the protection and management of threatened species and ecological communities through recovery planning and implementation. Joint Commonwealth–state funded work primarily involves the implementation of recovery activities for nationally listed (EPBC Act) species.

The NSW Government will continue to invest in the Priorities Action Statement delivered through the *Saving our Species* program.

While outside the reporting period, in March 2015, the NSW Government committed \$100 million over five years to implement species conservation actions as the priority for threatened species investment.

NSW will provide advice to the Australian Government on priority national recovery plans.

Recommendation 9

The NSW Government should give high priority to finalisation of its Park Management Program and this issue should be specifically reported on as part of the second 5 yearly RFAs Review.

2014 Joint Government Response

Both Parties agree that the NSW Government's PMP covering reserves dedicated under the NPW Act, including those in the CAR reserve system, should continue to be developed and made publicly available, where appropriate.

It should be noted that the PMP is an adaptive management system subject to continual improvement and will never be “finalised” *per se*. Elements of the PMP (such as particular guides/manuals) are being produced and their initial establishment is being reported as it occurs. However, these documents and the PMP in general are continually being reviewed and amended in light of monitoring, evaluation and other ‘feedback’ processes.

As noted in the *Report on Progress*, under Milestone 26, initiatives/documents captured in the PMP include the State of the Parks program; asset maintenance system; park management policy manual; park facilities manual; park operation procedures manual; and fire management manual.

The PMP is a major element of the NPWS of the OEH’s EMS and will be publicly reported on in line with that broader system in accordance with NSW FAs and RFA’s requirements.

Both Parties agree that reports on the implementation of the EMS for the NPWS of the OEH will be considered as an input into the second five yearly review.

Status

The implementation of this recommendation is underway.

The NSW Government has continued to ensure the delivery of the components of the PMP that represent the ongoing implementation of the requirements of an EMS.

Within Period 2 and Period 3, this has included having legislation governing requirements for parks and policies in the park management policy manual progressively delivered onto the OEH public website²³². The State of the Parks program successfully undertook four assessments of all parks within NSW (2005, 2007, 2010, 2013) with public reporting of results through tailored reports, NSW State of the Environment reports and annual reports on the FAs and IFOAs, produced by the EPA. Improvements in the way assets are managed occurred through statewide implementation of an asset management system.

NPWS also manages fire risk within national parks in accordance with the NPWS Fire Management Manual²³³.

Recommendation 10

The NSW Government should continue to give priority to audit and compliance activity by each agency involved in the RFAs and that auditing be closely scrutinised as part of the NSW Review.

2014 Joint Government Response

Both Parties agree that an effective and credible audit and compliance framework is essential for both the implementation of and public confidence in the three NSW RFAs.

The NSW Government, through the EPA and DPI Fisheries NSW, maintains an active and robust compliance and enforcement program for forest management activities including those undertaken in NSW State forests. The NSW Government provides reports on compliance with IFOAs for each of the three RFA regions - www.epa.nsw.gov.au/forestagreements/monitoring.htm.

The NSW FAs and their associated IFOAs, including the enforceable requirements of these arrangements, have recently been reviewed in accordance with the requirements in the NSW Forestry Act²³⁴.

²³² OEH n.d., *Park policies*, accessed June 2017 www.environment.nsw.gov.au/policies/

²³³ OEH NSW National Parks & Wildlife Service 2014, *Fire Management Manual 2015–2016*, accessed June 2017 www.environment.nsw.gov.au/resources/firemanagement/final/150712FireManManual.pdf

²³⁴ EPA 2013b, *2013 Amendments to the Western Integrated Forestry Operations Approvals*, accessed June 2017 www.epa.nsw.gov.au/forestagreements/reviews.htm

The NSW FAs Review details the compliance and audit framework associated with the terms and conditions in the IFOAs. The review has also identified areas where the efficiency and effectiveness of enforcement and compliance can be improved for specified forest operations on State forests through outlining changes to the terms of licence and conditions in the IFOAs for the UNE, LNE, Southern and Eden regions.

Status

This recommendation has been fully implemented.

The EPA undertakes a comprehensive compliance and audit program with regard to native forestry operations on both Crown-timber land and for private native forestry.

The DPI undertakes compliance and enforcement activities in the plantation sector.

Crown-timber land

As indicated in the response, the 2010 NSW FAs review examined the 'compliance and audit framework' and provided details of audits undertaken between 1999–2000 and 2008–09 for each region.

The annual report on the implementation of the NSW FAs provides sections covering the EPA's compliance program including results and FA region summaries, DPI Fisheries auditing as well as FCNSW's internal compliance program.

Further information on audits undertaken under EPA's compliance program will be available as the EPA publishes annual reports on the implementation of the NSW FAs and compliance with IFOAs²³⁵.

In addition, the EPA publishes on its website details on its compliance strategy and priorities and its compliance activities²³⁶.

Private native forestry

Private native forestry (PNF) in NSW is regulated under the NV Act and Native Vegetation Regulation 2013. Under the NV Act, PNF operations may be undertaken only with an approved PNF property vegetation plan and in accordance with the PNF Code.

The EPA undertakes operational inspections, audits and investigations of PNF operations to ensure compliance with the requirements of the PNF Code. During Periods 2 and 3, the EPA undertook education, training and extension activities. The EPA's compliance strategy for PNF²³⁷ (2013–2016) provided a comprehensive and transparent framework for regulating the environmental impacts of forestry operations on private land. The strategy adopted a risk-based approach to compliance to ensure the EPA focused its attention and resources on those issues that pose the greatest risk to the environment or are of major concern to the community.

Plantation forestry

Plantation operations (including establishment, management and harvesting) are regulated under the PR Act and the PR Code. The PR Code sets out certain matters (relating to applications for authorisation under the PR Act, the creation of offences against the PR Code, and the issuing of penalty notices in respect of certain offences) for which Regulations are made under the PR Act.

²³⁵ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

²³⁶ EPA 2016l, *Compliance of forestry operations on public land*, accessed 10 November 2016 www.epa.nsw.gov.au/forestagreements/compliance.htm

²³⁷ EPA 2013c, *Private Native Forestry Compliance Strategy 2013–15*, accessed 9 November 2016 www.epa.nsw.gov.au/resources/pnf/130525pnfcompstrat.pdf

The NSW DOI is responsible for the authorisation, audit and compliance requirements under the PR Code²³⁸. The plantation authorisation process is undertaken by specialist plantation officers. Plantation officers provide support and advice to the industry, both during the authorisation process and at other times. They are accredited to international standards in auditing in order to perform the audit function under the PR Act and Code. During 2012, CSIRO reassessed the NSW plantation forestry code of practice²³⁹ and found it would satisfactorily protect environmental and heritage values. The Australian Government Parliamentary Secretary for Agriculture, Fisheries and Forestry approved the PR Code in May 2013²⁴⁰.

Recommendation 11

The NSW Government should continue to give high priority to the release of the NSW Forest Management System covering public and private land. It should be completed before the next review.

2014 Joint Government Response

Both Parties agree that a high priority should be given to the release of the NSW FMS²⁴¹ covering public and private land.

However, due to recent NSW Government agency realignments, changes to the governance arrangements around certain elements of NSW FMS are occurring.

The NSW Government, through the EPA, will finalise and make publicly available, a document on the NSW FMS in 2014. The document will update the major elements of the NSW FMS including key policy and regulatory instruments.

Status

The implementation of this recommendation is underway and will be fully implemented on the publication of this implementation report.

Appendix B, *Forest Management in NSW*, and Appendix D, *Improvements to the NSW Forest Management System*, of this implementation report provide an up-to-date and comprehensive description of the ways in which the NSW Government manages the forest estate in NSW.

Further, the NSW EPA is responsible for the regulation of native forestry operations on private and public (Crown) land in NSW. The EPA's website provides detailed information on native forestry regulation²⁴².

²³⁸ NSW Department of Industry n.d., *Plantation forestry*, accessed 10 November 2016 www.crownland.nsw.gov.au/forestry/plantation-forestry

²³⁹ Department of Agriculture and Water Resources 2016, *National principles related to wood production in plantations*, accessed June 2017 <http://agriculture.gov.au/forestry/australias-forests/plantation-farm-forestry/principles>

²⁴⁰ Commonwealth of Australia 2013, *Notice of Approval of Plantation Forestry Codes of Practice in New South Wales, Victoria, Western Australia, Tasmania, the Australian Capital Territory and the Northern Territory*, accessed 5 July 2017 www.legislation.gov.au/Details/C2013G00832

²⁴¹ 'Forest Management System' means the NSW FMS as described in the report titled *Assessment of Management Systems and Processes for Achieving Ecologically Sustainable Forest Management in New South Wales: Independent Expert Working Group Report* published by the Commonwealth and NSW Governments in April 1998 and as modified by the FNPE Act. Major elements of the system include FAs, IFOAs, codes of practice, eco-field guides and regional ESFM plans.

²⁴² EPA 2016m, *Native forestry*, accessed 10 November 2016 www.epa.nsw.gov.au/vegetation/nativeforestry.htm

The NSW DOI is responsible for the regulation of plantation forestry on private land. The DOI's website provides information on plantation regulation²⁴³.

While outside the reporting period, FCNSW has provided its FMS for public native forest management in its *Forest management plan for the coastal forests of NSW*²⁴⁴, which aligns with the NSW RFA regions.

Recommendation 12

The NSW Government should initiate immediate action to establish and deliver the regional ESFM performance reports as required under Milestone 41.

2014 Joint Government Response

Both Parties agree that the regional ESFM performance reports, which provide detailed information on the performance of the ESFM Plans for each RFA region, should be publicly available.

The ESFM Plans published in 2005 covering the three RFA regions are available online at www.forestrycorporation.com.au/management/sustainable-forest-management/esfm.

The NSW Government, through Forests NSW, has developed a draft report template for the regional ESFM performance reports that monitors the progress on the objectives of ESFM plans and also reports on the implementation of associated supplementary ESFM plans for the RFA Regions.

The finalisation of the report template and commencement of performance reporting will occur once a revised suite of ESFM indicators are agreed upon as an outcome of the NSW FAs and IFOA review²⁴⁵. This is because the annual ESFM reports will report on performance indicators and it is envisaged by Forests NSW that ESFM performance report indicators will be consistent with the revised suite of ESFM indicators agreed to as a part of this review.

Until this revised suite of ESFM indicators is finalised, New South Wales is continuing to report on the current suite of ESFM criteria and indicators for NSW FA regions. These indicators have been reported on annually since 1999 and are the same as the "Sustainability Indicators" described in the three NSW RFAs. These reports are available at www.epa.nsw.gov.au/forestagreements/monitoring.htm. Forests NSW continue to contribute to this reporting process.

Forests NSW also continues to report, at a state-wide scale, on its sustainability performance across a range of social, environmental, economic and sustainability areas. This reporting was done, up to 2007-08, in the annual 'SEEing Report'. Since 2008-09, this has been delivered as a supplement to the Forests NSW/FCNSW annual report²⁴⁶.

Status

This recommendation has been fully implemented.

²⁴³ NSW Department of Industry n.d., *Plantation forestry*, accessed 10 November 2016 www.crownland.nsw.gov.au/forestry/plantation-forestry

²⁴⁴ FCNSW 2016a, *Forest Management Plan for the Coastal Forests of NSW*, accessed July 2017, www.forestrycorporation.com.au/__data/assets/pdf_file/0011/669008/hardwood-forests-forest-management-plan.pdf

²⁴⁵ DECCW 2010a, *Outcomes from the Review of the NSW Forest Agreements and the Integrated Forestry Operations Approvals Upper North East, Lower North East, Eden and Southern Regions*, accessed 10 November 2016, www.environment.nsw.gov.au/resources/forestagreements/FAIFOARReviewOutcomesReport.pdf

²⁴⁶ FCNSW n.d., *Publications*, accessed July 2017 www.forestrycorporation.com.au/resources/pubs

ESFM commitments are addressed by NSW through:

- The NSW EPA publishes annual reports on the achievement of the commitments in the FAs, including compliance with the IFOAs, and ESFM²⁴⁷.
- FCNSW's annual report, which is tabled in the NSW Parliament, includes a Sustainability Supplement²⁴⁸ in which FCNSW reports on its performance against a suite of sustainability indicators, consistent with reporting commitments under the Montréal Process, the FAs and IFOAs.
- Although outside the reporting period, ESFM plans covering the NSW RFA regions were updated by FCNSW in 2016²⁴⁹ with Forest Management Plans covering the coastal hardwood forests and plantations.

Recommendation 13

The NSW Government should give the highest priority to the continuous improvement system for FRAMES as required under Milestone 48 and development of the inventory plot measurement systems required across the various regions as required under Milestone 49.

2014 Joint Government Response

Both Parties agree that the Forest Resource Assessment and Management Evaluation System (FRAMES) provides the toolkit of applications for long-term wood supply determinations from State forests in the three RFA regions where harvesting is permitted.

The development of FRAMES for the CRA process, undertaken prior to the signing of the three NSW RFAs, was a joint process between the Australian and NSW governments. As a joint investment by the two governments, both remain firmly committed to its implementation and continuous improvement as a mechanism to provide the long-term wood supply determinations within the three NSW RFA regions.

Forests NSW is committed to periodically improve and implement the ongoing FRAMES program to improve estimations of current and future wood supply yields.

The NSW Government, through Forests NSW, is committed to the systematic re-measurement of all FRAMES plots in areas where harvesting has occurred on State forests.

Status

This recommendation has been implemented in part.

The NSW Government gives high priority to maintaining and improving FRAMES and the development of the inventory plot measurement systems required across the various regions.

Until 31 December 2012, the NSW Government delivered this priority through the Forestry Commission (trading as Forests NSW).

On 1 January 2013, FCNSW was established as a State Owned Corporation. Ownership of and responsibility for FRAMES now rests with FCNSW, which continues to develop and improve FRAMES through the continual improvement program established under its predecessors. This investment in wood supply/yield monitoring and modelling is an integral part of the corporation's business in order to maintain its capacity to supply wood products from the native forests it manages.

²⁴⁷ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

²⁴⁸ FCNSW n.d., *Annual Reports*, accessed 16 November 2016 www.forestrycorporation.com.au/resources/pubs/corporate/annual-report

²⁴⁹ FCNSW 2016h, *Forest Management Plans*, accessed 9 November 2016, www.forestrycorporation.com.au/management/sustainable-forest-management/esfm

Similarly, FCNSW is committed to and continues the systematic remeasurement of all inventory measurement plots in state forest areas where harvesting occurs. FCNSW has prioritised the remeasurement of plots in the North East RFA region during 2016 and this work continues in 2017.

Appendix G of this report provides details on some recent measures adopted by FCNSW to improve FRAMES, including the incorporation of spatially explicit approaches such as stratification and LiDAR-based plot imputation. The Eden RFA was incorporated into FRAMES in 2015–16, replacing the REDEN model previously used.

Further information on FRAMES is publicly available on the FCNSW website²⁵⁰.

Recommendation 14

The NSW Government should ensure that its FRAMES and associated supply models undergo regular (5 yearly) expert independent assessment to confirm the efficacy of any improvement and other amendments to the system.

2014 Joint Government Response

Both Parties agree that the FRAMES program would benefit from expert independent assessment to bolster stakeholder groups especially industry and public confidence in the efficacy of the program which delivers wood supply determinations for the three RFA regions.

The NSW Government, through Forests NSW, is currently committed to continuous improvements to FRAMES occurring through periodic enhancements to input models.

Both Parties agree that expert independent assessment of FRAMES will be carried out on an as-needs basis when periodic enhancements or change(s) made to the input models by Forests NSW result in significant variation to wood supply level determinations. The Parties agree that an example of significant variation would be a revision of a sustainable yield forecast for wood supply that is plus or minus ten per cent of estimates prior to the change(s).

Status

This recommendation has been fully implemented.

The NSW Government has given high priority to maintaining and improving FRAMES and to implementing a program of regular, independent assessments. Ownership of and responsibility for FRAMES and associated wood supply forecasts now rests with FCNSW, which has a continual improvement system in place.

Independent reviews were completed in 2009 (Auditor General's Report, Performance Audit, *Sustaining Native Forest Operations*²⁵¹) and in 2012 (through Project 2023²⁵²).

A review of FRAMES and all NSW RFA regional wood flow models was completed by Dr Cris Brack in 2016. An independent review of Eden resource modelling was finalised in December 2016²⁵³.

²⁵⁰ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

²⁵¹ Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017 www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

²⁵² DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017 www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

²⁵³ Brack C 2017, *FRAMES Review*, accessed 26 April 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0011/701849/frames-review.pdf

Appendix G provides an overview of the FRAMES modelling process, including independent reviews that have been undertaken. Further information on FRAMES is publicly available on the FCNSW website²⁵⁴.

Recommendation 15

The Parties should:

- a. Satisfy themselves that the requirements of Milestone 51 to provide annual comparisons of actual and modelled yields cannot be cost effectively or safely delivered in the form originally envisioned in the RFAs and
- b. If so, initiate action to develop an alternative arrangement that allows consideration of actual v modelled performance using the information already produced by Forests NSW. This data should be published annually.
- c. Keep this matter under continuous review to take advantage of refinements in FRAMES that might allow better comparison of actual v modelled performance at a sub regional scale.

2014 Joint Government Response

The three NSW RFAs require the comparison of actual harvested volumes versus harvestable volumes predicted by FRAMES to be compared annually as a means of testing the accuracy of estimates. However, as noted in the *Report on Progress*, there have been some significant technical difficulties in delivering on this requirement meaningfully below the “whole-of-forest estate” level.

In 2011, to meet recommendations made by the NSW Auditor General in a performance report²⁵⁵ and consequently the Independent Assessors recommendation, Forests NSW engaged an independent consultant to provide advice on the best and most practical approach to provide for the monitoring of actual versus predicted harvested volumes.

Based on advice received, Forests NSW has now developed an alternative approach that will allow for consideration of the actual versus predicted harvested volume performance below the “whole-of-forest estate” level. In short, Forests NSW have made developments that integrate spatial harvest event recording and sales databases and have revised FRAMES analysis parameters in an effort to improve the accuracy of the FRAMES volume estimates at a finer scale.

The alternative approach is detailed in a five year FRAMES reconciliation study (between July 2005 and June 2010) for the North East and Southern RFA regions which is available at www.forestrycorporation.com.au/resources/pubs/corporate/auditor-generals-performance-audit-of-native-forest-and-hardwood-plantation-operations.

Planning has also commenced to update resource estimates in the Eden RFA region. This project is expected to be completed by the end of 2015.

Status

This recommendation has been implemented in part.

The NSW Government has given high priority to maintaining and improving FRAMES and to refining estimates through comparisons of actual and modelled yield. Ownership of and responsibility for FRAMES now rests with FCNSW, which has a continual improvement system in place.

²⁵⁴ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

²⁵⁵ Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017 www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

In the 2014 Joint Government Response to this recommendation, part (a) and part (b) were implemented in part (namely Forests NSW received advice on the method to prepare actual and modelled yields, and based on this advice an alternative approach was developed). These actions were undertaken within the Period 2 and Period 3 reporting periods.

The first reconciliation between actual and modelled harvested volumes predicted by FRAMES for the period July 2005 to June 2010 (part (b) of this recommendation) was undertaken by Forests NSW in 2011 and published in 2012²⁵⁶. Preparation of this report highlighted the difficulties of undertaking such a reconciliation when FRAMES does not estimate harvestable volume by grade at a tactical level.

A further FRAMES reconciliation for the period July 2008 to June 2013 (between actual and modelled harvested volumes) was completed in 2013 and published in 2014²⁵⁷. Although outside the reporting period, FCNSW has undertaken a FRAMES reconciliation for the period July 2010 to June 2015, which was finalised in December 2016²⁵⁸.

Although annual reporting on FRAMES reconciliation (actual and modelled harvested volumes) as per part (b) of this recommendation has not occurred, FCNSW has completed reconciliation analysis and reporting every second year. Annual reporting was not able to be completed due to competing priorities (e.g. North Coast 2012 review); however, trends have remained consistent across the two-year reporting intervals during this time. FCNSW intends to undertake annual reconciliation in future as improvements continue to be made to the spatial resolution and reporting of modelled and actual harvest volumes.

In accordance with part (c) of this recommendation, FCNSW has a continual improvement process for FRAMES (Appendix G). FCNSW has a program to address the limitations of FRAMES as a predictive tool at the tactical supply level. Although outside the reporting period, up until 2015, the FRAMES resource assessments were undertaken at a strategic level. With the availability of LiDAR to provide stratification, regression modelling and plot imputation products, the key focus of FRAMES development work from 2015 has been to shift modelling to a tactical level. The intended final outcome is an annualised 15-year tactical wood supply plan, within a strategic wood supply framework, that reports yields and harvesting activity at the compartment or group of compartments scale. A key benefit of this linked approach will be to provide direct feedback to FRAMES for both strategic and tactical modelling processes.

Recommendation 16

The NSW Government should take early action to complete the various reviews of sustainable yield calculations as required under Milestone 53. These reviews should be made available publicly when completed. Publication of a description of sustainable yield calculation methodologies as required by Milestone 54 should occur as soon as possible.

2014 Joint Government Response

Both Parties agree that reviews of sustainable yield, which delivers wood supply yields for the three NSW RFA regions, are essential to the socio-economic outcomes under the NSW RFAs. Accordingly, the NSW Government through Forests NSW, recently completed and published the results of sustainable yield reviews for the Eden and Southern RFA regions. The results

²⁵⁶ Forests NSW 2012a, *Performance Audit Report: FRAMES Reconciliation*, accessed 15 November 2016, www.forestrycorporation.com.au/__data/assets/pdf_file/0005/439412/FRAMES-Reconciliation.pdf

²⁵⁷ FCNSW 2014a, *FRAMES Actual vs Predicted Harvest Reconciliation – 2008/09 to 2012/13*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0006/526893/FRAMES-Reconciliation-2013.pdf

²⁵⁸ FCNSW 2016d, *FRAMES Actual vs Predicted Harvest Reconciliation – F2010/11 to F2014/15*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0005/701852/frames-reconciliation-report-2010-11-2014-15.pdf

of sustainable yield reviews for these RFA regions can be found at www.dpi.nsw.gov.au/forests/management/reporting/audit²⁵⁹.

In the North East, as outlined in the *Report of Progress*, an independent review of sustainable yield was completed for the North East RFA region in 2002 by Professor Vanclay of the Southern Cross University (Vanclay 2002).

In relation to Milestone 54, FRAMES and sustainable yield documentation was produced as part of the NSW Comprehensive Regional Assessments. A list of these documents is provided at Annex F.

As the process of improvement undertaken since the signing of RFA's primarily consists of refinements to the models rather than methodology changes, these documents remain largely relevant in 2014. The independent review of sustainable yield conducted in the North East of NSW by Professor Vanclay documented changes to yield assessment methodology. For other RFA regions, a similar process of documenting significant changes to yield assessment methodology will occur as a part of the independent audits of sustainable yield that are required to be done as a component of the second five yearly review.

Status

This recommendation has been fully implemented.

The NSW Government has given high priority to maintaining and improving FRAMES and to reviewing sustainable yield calculations. Responsibility for FRAMES currently rests with FCNSW, which has a continual improvement system in place.

FCNSW has continued to use, develop and independently review FRAMES for forecasting resource availability and wood flows across RFA regions.

A description of the sustainable yield calculation methodologies has been published in a report on the development and implementation of FRAMES (FCNSW 2016)²⁶⁰. The key role of FRAMES is to inform land-use decision-making processes by modelling the availability of large high quality sawlogs at a strategic level, and to provide an ongoing capability for growth and yield modelling in native forests.

As mentioned above, across 2011 and 2012, Forests NSW prepared and published yield forecasts for hardwood plantations²⁶¹, the Eden RFA²⁶², the Southern RFA (South Coast²⁶³ and Tumut²⁶⁴ sub-regions) and the North East RFA.

²⁵⁹ These documents are now available on the FCNSW website FCNSW n.d., www.forestrycorporation.com.au/resources/pubs/corporate/auditor-generals-performance-audit-of-native-forest-and-hardwood-plantation-operations

²⁶⁰ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

²⁶¹ Forests NSW 2011b, *Performance Audit Report Yield Forecasts – hardwood plantations*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0009/439416/Yield-Forecasts_hardwood-plantations.pdf

²⁶² Forests NSW 2012c, *Performance Audit Report Yield Forecasts – Eden Regional Forest Agreement*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0010/439417/Yield-forecasts-eden-regional-forest-agreement.pdf

²⁶³ Forests NSW 2011a, *Yield Forecasts – Southern Regional Forest Agreement, South Coast sub-region*, Forests NSW, Pennant Hills, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0008/439415/Yield-Forecasts-Southern-Regional-Forest-Agreement-South-Coast-sub-region.pdf

²⁶⁴ Forests NSW 2012b, *Yield Forecasts – Southern Regional Forest Agreement, Tumut sub-region*, accessed 15 November 2016, www.forestrycorporation.com.au/__data/assets/pdf_file/0006/439413/Yield-Forecasts-Southern-Regional-Forest-Agreement-Tumut-sub-region.pdf

In addition, independent reviews were completed in Period 2 (Auditor General's Report, Performance Audit, *Sustaining Native Forest Operations*, Forests NSW, Sydney April 2009²⁶⁵) and Period 3 through Project 2023²⁶⁶.

A review of FRAMES and all NSW RFA regional wood flow models was completed by Dr Cris Brack in 2016²⁶⁷. Appendix G provides an overview of the FRAMES modelling process. Further information on FRAMES is available on the FCNSW website²⁶⁸.

Recommendation 17

That the Parties to the RFAs consider whether more systematic, cost effective approaches could be available to collect data on threatened species over time or in its absence, whether it would be valid to release appropriately qualified comparative data developed from existing sources.

2014 Joint Government Response

Both Parties support the collection of data on threatened species on a systematic basis which provides comparative data over time on condition and trend outcomes as a component of the ESFM criteria and indicators.

The NSW Government, as part of the Review of NSW FAs and IFOAs (NSW Review) (also covered in Recommendation 2), reviewed the ESFM criteria and indicators. The evaluation of the ESFM criteria and indicators was based on practicability, measurability, cost effectiveness and ease of implementation at the regional level.

A recommendation from the NSW review was that a document, *ESFM Criteria and Indicators for the Upper North East, Lower North East, Southern and Eden regions of NSW* will be published which will provide detail on a revised suite of criteria and indicators and to consider potential data sources and investigate the potential to align ESFM monitoring with other monitoring processes.

This document is in preparation by the EPA and will be released as soon as practicable on the EPA website at www.epa.nsw.gov.au.

Status

This recommendation has been fully implemented.

Although outside the reporting period, the document *Ecologically Sustainable Forest Management Criteria and Indicators for the NSW Forest Agreement regions* has been published on the website of the EPA²⁶⁹.

²⁶⁵ Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017
www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

²⁶⁶ DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017
www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

²⁶⁷ Brack C 2017, *FRAMES Review*, accessed 26 April 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0011/701849/frames-review.pdf

²⁶⁸ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017
www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

²⁶⁹ EPA 2016h, *Ecologically Sustainable Forest Management Criteria and Indicators for the NSW Forest Agreement regions*, accessed 9 November 2016
www.epa.nsw.gov.au/resources/forestagreements/revise-ecologically-sustainable-forestry-management-criteria-indicators-160178.pdf

Commencing in Period 3, NSW established a systematic and cost effective program for addressing threatened species management through the *Saving our Species* program²⁷⁰. *Saving our Species* sets out the NSW Government's threatened species management plan and what needs to be done to secure NSW's threatened species in the wild for the next 100 years.

The program has been developed through extensive consultation with experts and applies independent peer reviewed science to species, populations and ecological communities projects; takes a rigorous and transparent approach to prioritising investment in projects that ensure benefit to the maximum number of species; provides targeted conservation projects that set out the actions required to save specific plants and animals on mapped management sites; regularly monitors the effectiveness of projects so they can be improved over time; and 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.

Outcomes monitored and reported on through the program include: total annual investment and the return on the investment; tangible outputs that can be totalled across the program; threats under control or on track to be under control; management sites with populations that are secure or on track to be secure; and species on track to be secure in the wild in NSW for 100 years.

Recommendation 18

The NSW Government should explore accessing data on soil and water quality from all relevant Commonwealth, State and Local government agencies including community NRM volunteer groups, with a view to developing a more systematic and comprehensive approach to monitoring of these attributes in forest areas.

2014 Joint Government Response

Both Parties agree that access to data from relevant Commonwealth, State and Local government agencies including community NRM volunteer groups may be beneficial in the monitoring of the ESFM criteria and indicators adopted by the NSW Government.

The NSW Government, as part of the NSW Review (see Recommendation 2), has reviewed the ESFM criteria and indicators within the context of the NSW FAs and IFOAs.

Consideration of sources outlined above as potential data sources and alignment of existing monitoring processes may occur as an outcome of this review.

As indicated in the response to Recommendation 17, this document is in preparation and will be released as soon as practicable.

Status

This recommendation has been fully implemented.

While outside the reporting period, the NSW Government in 2016 finalised the review of the ESFM criteria and indicators for the NSW Forest Agreement regions. The review report is published on the website of the NSW EPA²⁷¹.

As indicated in the review report 'further work will be done to establish the appropriate data sources and the agencies or organisations responsible for maintaining these data sources. This may mean including other government agencies, non-government organisations and private industry as data contributors in the future'.

²⁷⁰ OEH 2016d, *Saving our Species Program*, accessed 10 November 2016, www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program

²⁷¹ EPA 2016h, *Ecologically Sustainable Forest Management Criteria and Indicators for the NSW Forest Agreement regions*, accessed 9 November 2016 www.epa.nsw.gov.au/resources/forestagreements/revise-ecologically-sustainable-forestry-management-criteria-indicators-160178.pdf

5 Results of monitoring sustainability indicators

Each of the three NSW RFAs requires that the five-yearly review provide an assessment of progress of the Agreements which includes the results of monitoring of sustainability indicators²⁷². The NSW RFAs provide that²⁷³:

- the sustainability indicators referred to in clause 47(E) (48(S) or 49(NE)) are consistent with the Montréal Process Criteria in Attachment 8(E) (or 9NE & S), and take into account the Framework of Regional (Sub-National) Level Criteria and Indicators of Sustainable Forest Management in Australia²⁷⁴ developed by the MIG;
- both Parties agree that the indicators referred to in clause 47(E) (48(S) or 49(NE)) are to be trialled and assessed during the first five-year period to ensure they are practical, measurable, cost-effective and capable of being implemented at the regional level;
- reporting on the indicators referred to in clause 47(E) (48(S) or 49(NE)) will be under the headings of the Montréal Process Criteria as in Attachment 8(E) (or 9NE & S); and
- both Parties agree to further develop, review, and if necessary revise sustainability indicators in time for the first five-yearly review.

The Parties undertake regular reporting on the monitoring of sustainability indicators, outside of the RFA review mechanism. For example, the NSW EPA publishes annual reports on the implementation of the NSW Forest Agreements and integrated forestry operations approvals. In addition, NSW, the Commonwealth and the other states and territories all contribute to the five-yearly publication of the Australia's State of the Forests Report; the next one is scheduled to be published in 2018.

The sustainability indicators used are those developed by the MIG. The MIG has adapted the indicators developed by the Montréal Process Working Group on *Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests*²⁷⁵ to better apply to Australia's unique forest characteristics. The alignment of the 44 indicators adopted for Australia and the international indicators is published in Appendix A of *Australia's State of the Forests Report 2013* (SOFR 2013).

The data drawn upon for this section are generally captured at one of three levels: the NSW RFA regions, the whole of the state, or the national level. The reported level is dependent on data availability, and the level is identified at each indicator.

Criterion 1 Conservation of biological diversity

1.1 Ecosystem diversity

Indicator 1.1.a

Area of forest by forest type and tenure

Rationale

This indicator uses the area for each forest type over time as a broad measure of the extent to which forest ecosystems and their diversity are being maintained. Reporting on forest tenure aids our understanding of how different land management regimes may impact on forest biodiversity.

²⁷² Clauses 40, 41, 42 and 43 of the North East RFA (equivalent to clauses 38, 39, 40 and 41 of the Eden and Southern RFAs)

²⁷³ Clauses 52 in the Southern and Eden RFAs and 53 in the North East RFA

²⁷⁴ ABARES n.d., *Australia's Framework of Criteria and Indicators*, accessed 9 November 2016 www.agriculture.gov.au/abares/forestsaustralia/framework

²⁷⁵ The Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests 1995, *Criteria and indicators for the conservation and sustainable management of temperate and boreal forests*, accessed 9 November 2016 http://www.montrealprocess.org/documents/publications/techreports/1995santiago_e.pdf

There are three broad categories of forest in NSW:

- native forest, dominated by eucalypts and acacia – 22 million hectares (98%)
- industrial plantations²⁷⁶, comprising 0.305 million hectares of softwood plantations (mainly pines), and 0.087 million hectares of hardwood plantations (mainly eucalypts) – 0.392 million hectares
- other forest, which is mostly non-industrial plantations and planted forests of various types – 0.08 million hectares.

Forest area, tenure and forest type data for NSW or the RFA regions are provided in Table 6 to Table 13 inclusive.

Table 6: Area of forest by broad forest category, June 2011

	Native forest		Industrial plantation		Other forest		Total forest		Total land	% of total land area ³
	'000 hectares	% ¹	'000 hectares	% ¹	'000 hectares	% ¹	'000 hectares	% ²	'000 hectares	
NSW	22,281	18	392	19	8	5	22,681	18	80,064	28
Australia	122,581	100	2,017	100	153	100	124,751	100	769,202	16

Source: Australian Bureau of Agricultural and Resource Economics and Sciences, National Forest Inventory.

Table notes:

- (1) % of forest category in Australia;
- (2) % of total forest area in Australia;
- (3) Total forest area as % of total land area.

Table 7: Area of native forest by crown cover class, June 2011

	Woodland forest ¹		Open forest ²		Closed forest ³		Unknown		Total
	'000 hectares	%	'000 hectares	%	'000 hectares	%	'000 hectares	%	'000 hectares
NSW	10,449	47	9,797	44	509	2	1,526	7	22,281
Australia	81,688	67	33,927	28	3,810	3	3,158	3	122,581

Source: Australian Bureau of Agricultural and Resource Economics and Sciences, National Forest Inventory.

Table notes:

- (1) Woodland forest is forest where the tree canopies cover between 20% and up to and including 50% of the land area. Land with trees where the tree canopies cover less than 20% of the land area is not classified in Australia as forest, but categorised as non-forest carrying other woody vegetation.
- (2) Open forest is forest where the tree canopies cover more than 50% and up to and including 80% of the land area.
- (3) Closed forest is forest where the tree canopies cover more than 80% of the land area.

²⁷⁶ ABARES 2016a, *Australian forest and wood products statistics: March and June quarters 2016*, accessed 9 November 2016

www.agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrd/DAFFService/display.php?fid=pb_afwpsd9abfe20161103_11a.xml

Table 8: Forest area by forest type, June 2006 and June 2011

Forest type	Area within NSW ('000 hectares)		Area within Australia ('000 hectares)	
	2006	2011	2006	2011
Acacia	1,333	849	10,365	9,807
Callitris	1,540	1,489	2,597	2,136
Casuarina	1,168	570	2,229	1,288
Eucalypt	21,147	16,337	116,449	91,989
Eucalypt mallee open	53	600	376	813
Eucalypt mallee woodland	157	1,106	8,871	11,313
Eucalypt low closed	–	0.02	44	39
Eucalypt low open	31	84	2,648	2,173
Eucalypt low woodland	258	437	13,423	4,016
Eucalypt medium closed	10	19	254	247
Eucalypt medium open	12,920	4,833	28,145	19,450
Eucalypt medium woodland	4,298	6,840	56,187	48,246
Eucalypt tall closed	–	17	123	141
Eucalypt tall open	3,319	2,346	5,881	4,897
Eucalypt tall woodland	102	54	497	655
Mangrove	5	16	980	913
Melaleuca	48	77	7,556	6,302
Rainforest	495	606	3,280	3,598
Other native forest	473	2,338	3,942	6,547
Total native forest	26,208	22,281	147,397	122,581
Softwood	280	296	1001	1,025
Hardwood	63	93	807	980
Unknown or mixed species ¹	3	3	9	12
Total industrial plantations²	345	392	1,818	2,017
Other forest³	–	8	–	153
Total forest	26,554	22,681	149,215	124,751

Source: ABARES, National Forest Inventory, National Plantation Inventory.

Table notes: Totals may not tally due to rounding.

(1) Plantations of mixed hardwood and softwood species, and plantations where the species type is not reported.

(2) Industrial plantations as reported through the National Plantation Inventory (Gavran 2012).

(3) *Other forest* includes mostly non-industrial plantations and planted forests of various types, including sandalwood, farm forestry, environmental plantings, plantations within the reserve system, and plantations regarded as not commercial. The inability to identify spatially the complete area of industrial plantation means that a small area of *Other forest* cannot be reported with a high level of confidence.

Table 9: Area of native forest by tenure, June 2011

Tenure type	NSW ('000 hectares)	Proportion of NSW native forest area (%)	Australia total ('000 hectares)	Proportion of total native forest area (%)
Leasehold forest	5,745	26	48,533	40
Multiple-use public forest	2,022	9	10,159	8
Nature conservation reserve	5,581	25	21,478	18
Other Crown land	79	0.4	8,146	7
Private land (including Indigenous)	8,852	40	33,394	27
Unresolved tenure	2	0.0	871	1
Total native forest	22,281	100	122,581	100

Source: ABARES, National Forest Inventory, PSMA Australia Ltd.

Table note: Totals may not tally due to rounding.

Table 10: Areas of forest in RFA regions by region, June 2011

RFA region	RFA area ('000 hectares)	Native forest		Plantation forest		Total forest	
		Area ('000 hectares)	Proportion of RFA area (%)	Area ('000 hectares)	Proportion of RFA area (%)	Area ('000 hectares)	Proportion of RFA area (%)
Eden	814	562	69	41	5.0	603	74
Southern	4,512	2,594	57	137	3.0	2,731	61
North East	9,696	6,137	63	127	1.3	6,264	65

Source: ABARES, National Forest Inventory, National Plantation Inventory

Table note: Totals may not tally due to rounding.

Table 11: Areas of forest in RFA regions by forest tenure, June 2011

RFA region	Leasehold Area ('000 hectares)	Multiple-use forest Area ('000 hectares)	Nature conservation reserve Area ('000 hectares)	Other Crown land Area ('000 hectares)	Private Area ('000 hectares)	Unresolved tenure Area ('000 hectares)	Total forest Area ('000 hectares)
Eden	6	213	249	1	134	0	603
Southern	133	477	1,284	3	834	0	2,731
North East	246	1,012	1,987	16	3,003	1	6,264

Source: ABARES, National Forest Inventory, National Plantation Inventory

Table note: Totals may not tally due to rounding.

Table 12: Area of native forest types managed by FCNSW

Forest type categories	Hectares	
	2008–09	2013–14
Alpine ash	17,319	17,733
Blackbutt	112,883	113,035
Messmate	231,975	239,166
Mixed coastal eucalypt	221,278	214,388
Non-eucalypt forest	11,287	10,949
Non-forest	65,567	40,888
Other inland eucalypt	177,538	154,678
Other inland types	–	142
Rainforest	88,964	91,751
River red gum	110,273	35,355
Snow gum	27,372	24,659
Spotted gum	181,742	183,938
Stringybark	182,045	179,244
Sydney blue gum	126,612	126,229
Unclassified	192,075	170,359
White cypress pine	161,167	161,705

Source: FNSW Annual report 2008–09; FCNSW Sustainability Supplement 2013–14

Table 13: Lands managed by FCNSW

Lands managed by FCNSW	Hectares
State forest	2,184,687
Timber reserves ¹	187,194
Private land investment partners ²	44,708
Other ³	13,329
Total Defined Forest Area (2013–14)	2,429,918

Source: FCNSW Sustainability Supplement 2013–14

Table notes: (1) Timber reserve – land temporarily reserved under the Forestry Act for forestry purposes, being a reservation in force immediately before the repeal of the *Forestry Act 1916*; (2) Private land investment partners – small areas of freehold private land managed through joint investment partnerships; (3) Other – lands owned by the FCNSW but not dedicated as State Forest.

Indicator 1.1.b

Area of forest by growth stage

Rationale

This indicator measures the change in area of forest by growth stage to reflect how ecological processes and species associated with those processes change as forests grow. The age and size of trees is important in maintaining forest biodiversity.

Australia's native forests comprise a mixture of regeneration, regrowth, mature, senescent and uneven-aged forest. Nationally, current information on growth stage is available for only 15.4 million hectares of forest, concentrated in south-eastern Australia.

On average, multiple-use public forest has a greater proportion of younger growth stages (regeneration and regrowth) and uneven-aged forest than does forest in nature conservation reserves, which has a greater proportion of senescent forest.

Of the 23 million hectares of forest in Australia assessed for their old-growth status, 5.0 million hectares (22%) is classified as old growth. More than 73% of forest classified as old growth was within formal or informal nature conservation reserves in 2011.

In NSW, of the nearly 9 million hectares of native forest in the RFA regions, around 2.5 million hectares (28% of the total) is old-growth forest. Of this old-growth forest, nearly 1.9 million hectares is on public land, mostly in formal and informal reserves. Around 644,000 hectares is on privately-owned land. This data (published in SOFR 2008) was derived from mapping undertaken for the CRAs, and there have been only minor adjustments made to the area of old-growth forest on private land since. Current and planned work by DOI Forest Science will provide new spatial information on forest growth stages in the North East RFA region.

Indicator 1.1.c

Area of forest in protected area categories

Rationale

This indicator uses the area and proportion of forest ecosystems reserved through formal and informal processes as a measure of the emphasis placed by society on the preservation of representative ecosystems as a strategy to conserve biodiversity.

As at June 2011, NSW has 6.1 million hectares of forest in formal nature conservation reserves, informal nature conservation reserves on public land, and the areas of forest in which values are protected by prescription. The total area protected is 27% of the state's total forest area²⁷⁷.

The area of public land protected in CAR reserves in the RFA regions as at June 2014 is provided in Table 14.

Table 14: Public land in the NSW RFAs contributing to the CAR reserve system as at June 2014

CAR reserve category	Area (hectares)			
	Eden	North East	Southern	TOTAL
Dedicated (formal)	268,000	1,855,000	1,330,000	3,453,000
Informal	5,000	307,000	65,000	377,000
Values protected by prescription ¹	20,000	176,000	51,000	247,000
TOTAL	292,000	2,338,000	1,446,000	4,077,000

Source: OEH and FCNSW.

Table notes: Numbers rounded to nearest thousand and totals may not tally due to rounding.

(1) Values protected by prescription areas are for state forest only.

Private land areas contributing to the CAR reserve system in NSW are recorded for NSW and on forested and non-forested land. Over the reporting period, there have been significant additions of private land. For example, between 2002 and June 2016, the Nature Conservation Trust established 122 private conservation reserves across NSW that offer

²⁷⁷ ABARES 2013a, *Australia's State of the Forest Report 2013*, accessed 9 November 2016 www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2013

legally binding protection through agreements and land covenants to more than 54,000 hectares of native vegetation on private land, which includes forested land.

Table 15 provides a summary of the private land conservation mechanisms in NSW that contribute to the CAR reserve system and, while outside the reporting period, the area protected as at June 2016. These mechanisms are legally binding in perpetuity.

Further to these mechanisms, NSW also has several ways in which conservation on private land is encouraged but that do not contribute to the CAR reserve system (e.g. Wildlife Refuges, Land for Wildlife, and registered property agreements or management contracts that apply for a defined term).

Table 15: Private land conservation mechanisms that contribute to the CAR reserve system in NSW (June 2016)

Conservation mechanism	Number of covenants	Area protected ² (hectares)
Conservation agreements	460	150,000
Registered Property Agreements	234	11,079
BioBanking (includes private and public land)	54	6,869
Indigenous Protected Areas	9	16,000
Management Contracts ¹	3	33,070
Southern Mallee Private Reserves (Land-use Agreements) ¹	28	68,027
Nature Conservation Trust conservation land covenants	122	54,669
TOTAL area protected	910	339,714

Source: NSW or C'wth agencies

Table notes:

(1) Management Contracts and Southern Mallee Private Reserves are not in NSW RFA regions.

(2) The area protected figures are for all of NSW and include both forested and non-forested land.

Indicator 1.1.d

Fragmentation of forest cover

Rationale

This indicator describes the loss of forest cover and the spatial configuration of that loss. Fragmentation can impact on forest dwelling species and gene pools through changes in the connectivity of populations and the loss of species genetic variability.

Clearing rates for native vegetation in NSW have generally been relatively stable over the past 10 years²⁷⁸. Sixty-one per cent of NSW remains covered by native vegetation. Only 9% of NSW has vegetation considered to be in close to natural condition. Condition is variable in the remaining 52% but has deteriorated, largely due to the effects of different land-use and land management regimes.

²⁷⁸ EPA n.d., *Native Vegetation State of the Environment 2015*, accessed July 2017
www.epa.nsw.gov.au/soe/soe2015/13Native-Vegetation.htm

Land clearing is recognised as the main threat to the extent and condition of native vegetation in NSW and is listed as a key threatening process under the TSC Act²⁷⁹. The listing recognises fragmentation as an impact of clearing on biological diversity.

The NSW State of the Environment 2015²⁸⁰, while outside of the reporting period, reported that habitat fragmentation caused by clearing continues to have long-term impacts on native vegetation well after the initial clearing occurs, primarily through dieback, invasions of weeds and feral animals, and loss of native species. NSW is undertaking substantial restoration and revegetation programs at local and regional levels, which are expected to improve vegetation condition, enhance habitat connectivity, reduce fragmentation and, over time, increase the resilience, health and productivity of native vegetation on public and private land.

The OEH Native Vegetation Information Strategy 2014–2018²⁸¹, while outside of the reporting period, is delivering improved baseline maps of extent, type and condition of native vegetation for all of NSW. Mapping of plant community types will become progressively available and is expected to include additional vegetation change metrics such as plant community type extent, level of fragmentation and potential revegetation. Data is currently available for the Central and Western regions of NSW and the statewide information, while outside of the reporting period, is expected to be released in 2018²⁸².

1.2 Species diversity

Indicator 1.2.a

Forest dwelling species for which ecological information is available

Rationale

This indicator reports the level of information available to manage forest dwelling species and tracks changes in this knowledge over time. The amount of habitat, disturbance and life history information available to make management decisions indicates the capacity to assess risk to species and to implement conservation strategies.

²⁷⁹ OEH n.d., *Clearing of native vegetation – key threatening process listing NSW Scientific Committee – final determination*, accessed June 2017

www.environment.nsw.gov.au/determinations/ClearingNativeVegKTPListing.htm

²⁸⁰ EPA n.d., *Native Vegetation State of the Environment 2015*, accessed July 2017

www.epa.nsw.gov.au/soe/soe2015/13Native-Vegetation.htm

²⁸¹ OEH 2014d, *Native Vegetation Information Strategy 2014–2018*, accessed 10 November 2016

www.environment.nsw.gov.au/resources/vegetation/Information%20Strategy/140560-NV-info-strategy.pdf

²⁸² OEH n.d., *State Vegetation Type Map*, accessed June 2017

www.environment.nsw.gov.au/vegetation/state-vegetation-type-map.htm

Table 16: Number of forest dwelling vertebrate species ¹

Taxonomic group ²	NSW		Australia ³	
	2006	2011	2006	2011
Fish	75	73	–	220
Amphibians	74	77	–	200
Reptiles	191	213	–	789
Birds	317	344	–	666
Mammals	103	120	–	336
Total	760	827	n.r.	2,212

Source: National Forest Inventory, Australian Bureau of Agricultural and Resource Economics and Sciences dataset of extant and extinct native vertebrate forest fauna, SOFR 1998, SOFR 2003, SOFR 2008, state and territory agencies.

Table notes: n.r. – not reported

- (1) Forest dwelling species are species that may use forest habitat for all or part of their lifecycles.
(2) Subspecies are included where they are managed by jurisdictions or nationally. Non-native species are not included.
(3) Numbers for Australia are less than the sum of numbers for each jurisdiction because many species occur in more than one jurisdiction. Numbers for Australia also include data from offshore forested islands—such as Torres Strait, Christmas, Lord Howe and Norfolk islands—which may not be reflected in individual state or territory figures.

Table 17: Number of forest dwelling vascular plant species

Reporting date	NSW	Australia
2001	7,448	16,532
2006	7,461	n.r.
2011	7,472	16,836

Source: National Forest Inventory, Australian Bureau of Agricultural and Resource Economics and Sciences dataset of forest flora, SOFR 2003, SOFR 2008, SOFR 2013, state and territory agencies.

Table note: n.r. – not reported

Monitoring and survey of forest dwelling species occurs under the NPWS WildCount monitoring program, which commenced in 2012.

The second year of the broad-scale fauna monitoring program was successfully planned and implemented by NPWS over 2012 and 2013. Remote motion sensitive cameras were deployed at a total of 201 sites across eastern NSW, 197 of which were on the NPWS estate. In 2013, four Voluntary Conservation Agreement properties had WildCount sites established on them; two in the Southern region, one in the LNE sub-region and one in the UNE sub-region. In the 2013 field season, 110 species were recorded by cameras: 43 mammals, 58 birds, 5 reptiles, and 4 amphibians. Data collected permitted occupancy modelling to continue for 16 species to assist in understanding species distribution trends over time. It is expected that future reporting will include information on these species distribution trends as most of these species occur within the FA and IFOA regions.

Across the Southern region, NPWS established 49 WildCount sites in 31 parks (some parks had more than one site located within them). Fifty-four species were recorded including three classified as threatened.

Across the UNE and LNE sub-regions, NPWS established 39 WildCount sites in 32 parks. Thirty-nine species were recorded including six classified as threatened.

Across the Eden region, NPWS established nine WildCount sites in four parks. Sixteen species were recorded including two classified as threatened.

In addition to the primary objective of broad-scale monitoring for widespread and common species, a volunteer program was trialled in 2013 with 20 participants from across NSW. The volunteers assisted WildCount team leaders in the field and at the Hurstville office undertaking various tasks, primarily over the WildCount field season which runs for three months.

NPWS approved a third year of the WildCount survey for implementation in 2014. The 2014 survey built upon the 2012 and 2013 surveys and incorporated opportunities for the public to be involved.

Indicator 1.2.b

The status of forest dwelling species at risk of not maintaining viable breeding populations, as determined by legislation or scientific assessment

Rationale

This indicator measures the conservation status of nationally listed threatened forest dwelling species. Documentation of this information over time allows analysis of changes to species' conservation status indicating the extent to which forest species biodiversity is being maintained.

The Commonwealth's EPBC Act lists a total of 23 forest ecological communities in NSW as threatened.

Table 18: Number of forest ecological communities¹ in NSW listed under the EPBC Act

	Critically endangered	Endangered	Vulnerable	Total
NSW	16	7	0	23
Australia	23	17	1	41

Source: DoEE (2012b)

Table note: (1) Includes ecological communities with forest, woodland and thickets in their name. There are 23 woodland ecological communities (ECs) and 3 thicket ECs which may technically include forest elements. Nationally listed ECs are considered in the Australia-wide context. Therefore, listed ECs can occur in one or more state or territory. Numbers are based on the distribution information in the listing advice for the relevant ECs.

The NSW Government has implemented formal threat abatement plans and PAS to reduce the impacts of key threatening processes on threatened species²⁸³. In addition, the IFOAs and the PNF Code contain measures designed to mitigate the impact of forestry operations on threatened species and threatened ecological communities.

Tables of threatened flora and fauna in NSW are provided in Appendix I.

FCNSW reports threatened species sightings annually (Table 19 and Table 20).

²⁸³ OEH 2017k, *Threat abatement plans*, accessed July 2017

www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/programs-legislation-and-framework/threat-abatement-plans

Table 19: Threatened species sightings (reported and surveyed) by FCNSW

Year ended 30 June	2012	2013	2014
Arboreal mammals	1,100	1,688	914
Bats	225	693	122
Frogs	245	327	678
Ground mammals	54	271	558
Birds	1,391	1,254	996
Raptors	–	42	25
Reptiles	3	2	4
Total	3,018	4,277	3,297
Threatened flora species reported	33	18	24
Number of flora surveys	48	9	40
Threatened fauna species reported	53	50	62
Number of fauna surveys ¹	2,603	2,466	2,022
Number of compartment traverses ¹	845	694	495
Incidental and other surveys	328	342	245

Source: FCNSW Sustainability Supplement 2013–14

Table notes: (1) The number of surveys and compartment traverses is smaller in years when fewer areas are harvested.

Table 20: Individual sightings of threatened species by group and status 2013–14 (monitoring by FCNSW)

Kingdom	Species group	Status ¹				
		Introduced	Protected	Vulnerable	Endangered	Critically endangered
Fauna	Arboreal mammals	0	809	883	31	0
	Bats	0	501	122	0	0
	Frogs	3	2,151	89	562	27
	Ground mammals	55	3,313	400	143	15
	Birds	0	6,527	992	4	0
	Raptors	0	166	25	0	0
	Reptiles	0	43	4	0	0
Flora		60	912	425	814	0

Source: FCNSW Sustainability Supplement 2013–14

Table note: (1) Vulnerable, endangered and critically endangered species are referred to as threatened species under the TSC Act. If these threatened species are sighted, their presence is taken into account in preparing the harvest plan. *Protected* refers to all Australian flora and fauna that are not threatened species. Introduced species include cats, goats, dogs and deer.

Indicator 1.2.c

Representative species from a range of habitats monitored at scales relevant to regional forest management

Rationale

This indicator provides broad habitat, population, and range information for representative forest dwelling flora and fauna. Evidence of changing ranges or densities of forest dwelling species can be used to guide forest management activities so that they are consistent with maintenance of forest biodiversity.

NSW monitors forest dwelling species to meet requirements specified by relevant legislation and/or sustainable forest management policies. The response to Indicator 1.2.a outlines the WildCount program implemented by OEH.

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

For example, sightings of forest dwelling species by FCNSW is provided in Table 19 and Table 20.

The species routinely monitored by FCNSW or DOI in the biodiversity monitoring program are provided in Table 21.

OEH also undertakes various monitoring activities; however, there is no centralised information source for monitoring of forest dwelling species.

OEH maintains a centralised database (BioNet, including the Atlas of NSW Wildlife²⁸⁴) of fauna and flora sightings across NSW. While BioNet data can be interrogated a number of ways, it does not currently have identifiers for forest dwelling species or forest related monitoring programs.

OEH is currently developing a new environmental Monitoring, Assessment and Reporting framework (eMAR). The eMAR framework includes establishing a monitoring program and reporting on biodiversity indicators to support the *Biodiversity Conservation Act 2016* (NSW). It is anticipated that reporting will commence during the next reporting period.

Some examples of forest dwelling species for which monitoring was undertaken in RFA regions by OEH or NPWS during the reporting period are provided in Table 22. Please note this is not a comprehensive or complete list, and does not reflect all monitoring undertaking or monitoring priorities of forest dwelling species by OEH.

The EPA also undertakes monitoring from time to time and two case studies are highlighted below which commenced during the reporting period.

Case study: Koala mapping program

In Period 3, the EPA commenced a major program to examine new approaches to the mapping of koala habitat and occupancy in native forestry areas on public and private land. It comprised three core projects:

- a baseline map of koala occupancy to provide a more accurate picture of where koalas are located across NSW
- a pilot project trialling three different mapping approaches to assess their suitability for managing koalas in a state forest context, and
- a predictive koala habitat model which uses a range of environmental inputs to produce a map of koala habitat on the North Coast of NSW.

²⁸⁴ OEH 2017g, *NSW BioNet*, accessed June 2017 www.bionet.nsw.gov.au

The results of the koala mapping program are being used to inform the development of improved approaches to protecting koalas and their habitat during forestry operations on both public and private land. This could include the development of new koala identification and protection requirements as part of the remake of the coastal IFOAs and the future review of the PNF Code of Practice.

The outputs of the koala mapping program will also feed into the statewide koala habitat map being developed as part of the NSW Government's Koala Strategy²⁸⁵.

Case study: Threatened ecological communities mapping

In Period 3, the EPA commenced a three-year Threatened Ecological Community (TEC) Mapping Project, designed to inform improvements in the recognition, management and regulation of TECs in native forestry areas in NSW.

TEC is the collective term for ecological communities – a naturally occurring group of native plants, animals and other organisms – that are listed as vulnerable, endangered or critically endangered under the TSC Act. TECs are protected under the NPW Act and any harm to TECs is prohibited during all forestry operations.

The project aimed to identify those TECs most likely to be present in harvest areas and impacted by forestry activities, and to develop an agreed interpretation and methodology to identify, classify and map TECs on state forests within a defined study area.

The TEC maps may be viewed online. More information on the project may be found at www.epa.nsw.gov.au/native-forestry/tec-mapping-project.htm.

Table 21: Monitoring of forest dwelling species by FCNSW and/or DOI

Monitoring	Location	Category	Details	Commenced
Hastings River mouse (<i>Pseudomys oralis</i>) ¹	Marengo, Styx River and Doyles River state forests	Ground-living mammals	1,150 traps in 23 locations	April 2015
Aquatic macro-invertebrates ¹	Northern NSW	Invertebrates	Ongoing monitoring at 6 sites	May 2015
Southern brown bandicoot (<i>Isoodon obesulus</i>)	Eden	Ground-living mammals	Remote cameras at 40 sites	2007
Smoky mouse (<i>Pseudomys fumeus</i>)	Eden	Ground-living mammals	Remote cameras and hair-tubes	2008
Giant burrowing frog (<i>Helioporus australicus</i>)	Eden	Amphibians	Tadpole surveys and call recorders	2008
<i>Acacia ruppii</i> , <i>Boronia umbellata</i> , <i>Parsonsia dorrigoensis</i> , <i>Niemeyeria whitei</i> , <i>Tasmannai pururascens</i> , <i>Hibbertia marginata</i> , <i>Grevillea quadricauda</i> , <i>Eucalyptus glaucina</i> , <i>Angophora robur</i> , <i>Macozamia johnsonii</i>	North Coast	Vascular plants	Flora species monitoring	2006
Northern corroboree frog (<i>Pseudophryne pengilleyi</i>)	Tumut area	Amphibians	Monitored via call response	2005

²⁸⁵ OEH 2017j, *Developing a NSW Koala Strategy*, accessed 5 September 2017 www.environment.nsw.gov.au/animals/nsw-koala-strategy.htm

NSW Regional Forest Agreements Implementation Report 2004–2014

Monitoring	Location	Category	Details	Commenced
Golden-tipped bat (<i>Kerivoula papuensis</i>)	Narooma	Arboreal mammals	Radio tracking	2001
Large-footed myotis (<i>Myotis macropus</i>)	Kerewong and Kippara state forests	Ground-living mammals	Annual banding	1998
Yellow-bellied glider (<i>Petaurus australis</i>)	Tumut (or Bago Plateau)	Arboreal mammals	Spotlighting and call playback at 123 sites	1995
Burning study	Eden	Various	Monitoring flora and fauna response to burning	1986
Forest bats	Chichester State Forest	Bats	Annual banding	1999
Significant bat roosts	Mumbulla and Ourimbah state forests	Bats	Annual population counts	1999
Biodiversity in eucalypt plantations	North Coast	Ground-living mammals, arboreal mammals, diurnal and nocturnal birds	Focal tree surveys, trapping	1997

Source: FCNSW and DOI staff.

Table notes: (1) Monitoring commenced outside the reporting period for the combined second and third five-yearly review.

Table 22: Example forest dwelling species monitoring by OEH and NPWS in NSW RFA regions

Monitoring	Location	Category	Details	Commenced
Hastings river mouse (<i>Pseudomys oralis</i>) Spotted-tailed quoll quoll (<i>Dasyurus maculatus</i>)	North-eastern NSW – Gondwana Rainforests of Australia	Ground-living mammals	N/A	2009 ¹
Rufous scrub bird		Non-raptor bird		
Spotted-tailed quoll (<i>Dasyurus maculatus</i>)	Southern Kosciuszko National Park and Merriangaah Nature Reserve	Ground-living mammals	See case study – Attachment A	2005
Southern brown bandicoot (<i>Isodon obesulus</i>)	Ben Boyd National Park and Nadgee Nature Reserve (far south-eastern corner of NSW)	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)	Amphibians	Jointly undertaken by Newcastle, Southern Cross and Griffith universities	2009 ¹
Fire impacts on cool temperate rainforest	North-eastern NSW	Vascular and non-vascular plants, birds, other fauna	NPWS volunteer program ² 130 plots, 30 actively monitored	1930

Source: OEH, NPWS and Rural Fire Service Staff.

Table notes: (1) Monitoring ceased in 2014 when Caring for our Country funding ceased; (2) Coordinated by a staff member of the Rural Fire Service.

Table 23: Level of monitoring of taxonomic groups for which representative species are being monitored, June 2011

	Mammals	Birds	Reptiles	Amphibians	Fish	Invertebrates	Vascular plants	Non-vascular plants
NSW	□	□	△	■	□	△	□	△
Australia ¹	■	□	□	□	□	△	△	△

Source: Australian Government, state and territory agencies (SOFR 2013).

Table notes: (1) Includes non-government mechanisms through Birddata, FrogWatch and ReptileWatch, and fish monitoring.

■ = at least one species of the taxonomic group is being monitored to detect changes in population size at a scale relevant to forest management

□ = more than 10 species are being so monitored

△ = no species in the taxonomic group is being so monitored

1.3 Genetic diversity

Indicator 1.3.a

Forest associated species at risk from isolation and the loss of genetic variation, and conservation efforts for those species

Rationale

This indicator assesses the risks to loss of forest genetic variation and describes the formal measures designed to mitigate this risk. A loss of genetic diversity in species can result in a decreased ability to adapt to future environmental change, and thus a higher risk of extinction.

Australia's Biodiversity Conservation Strategy 2010–2030 is a guiding policy framework for conserving the country's biodiversity, which includes genetic diversity. Formal measures are in place across NSW to address the risk of loss of genetic variation in threatened species. These measures include recovery plans, habitat restoration, wildlife corridors, engineered animal movement mechanisms, seed-collecting programs, and management of habitat and populations under forest management systems.

Nominations for listing as 'threatened' include species with populations that are low in numbers, small in geographic extent or fragmented, and that have low genetic variability, hybridisation and fecundity issues.

The NSW *Saving our Species* program also considers where it is prudent to 'insure' against future extinction by storing a representative sample of the genetic variation of the species in a way that allows for reintroduction if extinction in the wild occurs. Genetic storage can be either storage of preserved genetic material (i.e. seeds) or maintaining the species in live, captive populations²⁸⁶. For example, although outside the NSW RFA regions, the *Saving our Species* program is continuing to work in partnership with surrounding landholders to increase the population and improve the genetic diversity of rock-wallabies at Jenolan Caves²⁸⁷.

²⁸⁶ OEH 2013, *Introducing Saving our Species Program*, accessed 4 September 2017 www.environment.nsw.gov.au/research-and-publications/publications-search/introducing-saving-our-species

²⁸⁷ OEH 2016I, *Savings our Species 2016-2021: More plants and animals to be saved from extinction*, accessed 4 September 2017 www.environment.nsw.gov.au/research-and-publications/publications-search/saving-our-species-2016-2021

In the NSW RFA regions there are several examples of projects aimed at conserving and increasing threatened species populations.

In the Ourimbah State Forest, the NSW Government implemented a habitat protection program for one of Australia's largest colonies of the eastern horseshoe bat (*Rhinolophus megaphyllus*), which was first discovered in the mid-1990s. The program involved modifications to harvesting plans to protect the habitat of the bat. Long-term monitoring since 1996 shows that the species is thriving, with a population at the site fluctuating at around 10,000 individuals²⁸⁸.

Case study: Release of long-nosed potoroos and southern brown bandicoots in Booderee National Park

Populations of long-nosed potoroos (*Potorous tridactylus*) and southern brown bandicoots (*Isodon obesulus*) are being translocated from state forests near Eden to the Booderee National Park near Jervis Bay.

Potoroos (a vulnerable species) and bandicoots (an endangered species) have long been extinct in Booderee, likely as the result of hunting by foxes²⁸⁹. An intensive feral predator control program has been carried out in Booderee since the early 2000s, and fox and cat numbers are now low.

Seasonal monitoring using remote sensing cameras showed southern brown bandicoots were thriving in the state forests near Eden with the aid of a permanent pest animal baiting program. Due to the increased numbers in the bandicoot population, individuals have been translocated to the Booderee National Park to re-establish a resident population²⁹⁰.

The project plans to introduce at least 36 potoroos and 30 bandicoots.

This project is a partnership between Parks Australia, FCNSW, the NSW NPWS, the Australian National University and the Southern Ark team from Department of Environment, Land, Water and Planning (Victoria), with veterinary assistance from Taronga Zoo.

Progress of the project to date includes:

- The first group of 23 potoroos was released in Booderee in October 2014, with a further 12 animals released in October 2015.
- Thirteen southern brown bandicoots were reintroduced in May 2016, after being absent from the park for almost 100 years.
- Researchers from the National Environmental Science Programme's Threatened Species Recovery Hub have been involved in the reintroductions and are coordinating tracking and monitoring of the released animals.
- Bandicoots tracked for a month following translocation all appeared to show normal behaviour, including nest building, and they rapidly selected heath as their preferred habitat.
- Ongoing monitoring continues to detect both potoroos and bandicoots, including some with pouch young, persisting at the release sites. The release of these species into Booderee National Park has been made possible by the park's intensive fox control program.

²⁸⁸ FCNSW n.d., *Ecology*, accessed 15 November 2016
www.forestrycorporation.com.au/about/contact-us

²⁸⁹ Department of Environment 2017, *Booderee potoroos and bandicoots*, accessed 1 September 2017 www.environment.gov.au/biodiversity/threatened/publications/factsheet-booderee-potoroos-and-bandicoos

²⁹⁰ FCNSW 2014c, *Southern brown bandicoot continues to thrive in Eden State forests*, accessed June 2017 www.forestrycorporation.com.au/about/releases/southern-brown-bandicoos

Indicator 1.3.b

Native forest and plantations of indigenous timber species which have genetic resource conservation mechanisms in place

Rationale

This indicator uses the coverage and implementation of formal genetic resource conservation mechanisms as a measure of the degree to which timber species' genetic resources are managed and conserved.

The state and Australian governments, research organisations, seed banks, arboreta and the private forestry sector all contribute to the conservation and sustainable management of forest genetic resources. Australia is a partner in the Millennium Seed Bank Project run by the United Kingdom's Royal Botanic Gardens.

The Australian PlantBank was built in 2013 and is a science and research facility of the NSW Royal Botanic Gardens and Domain Trust. The PlantBank is located at the Australian Botanic Garden Mount Annan and is the largest native seed bank in Australia and one of the largest in the world. The goal of PlantBank is to collect, store and study viable seeds or live tissue specimens of all plant species in Australia. PlantBank now stores more than 50% of NSW's threatened flora seeds, 5,300 Australian species and a total of 10,400 individual seed packets²⁹¹.

Codes of forest practice in NSW require harvested native forest to be regenerated with a species mix that approximates the natural mix of canopy trees present before harvest, while allowing for species that will regenerate naturally. Seed to be sown is usually collected either from the stand to be harvested or from the nearest similar ecological zone. Management plans also include specifications for selection of seed trees of good form and health. In practice, where natural seed fall may be problematic due to seasonal variation, FCNSW marks and protects dominant mature trees of exceptional form prior to timber harvesting. This practice enables ongoing dispersal of nominally higher quality genetic progeny post-harvest.

The IFOAs made under the Forestry Act apply to ongoing forest management operations including activities whose purpose is to promote regeneration (including burning, sowing of seeds, application of fertiliser and planting of trees) following the carrying out of forestry operations.

Breeding strategies and genetic resource management plans for industrial plantations aim to avoid gene flow that could damage the overall genetic resource. Strategies include careful selection of species and provenances; manipulation of flowering times and flower abundance; and silvicultural practices.

The Wollemi Pine (*Wollemia nobilis*) Recovery Plan²⁹² contains a series of actions to ensure the species' long-term viability within the Wollemi National Park. At the time of writing the recovery plan in 2007, there were fewer than 100 adult plants and about 200–300 juvenile/seedlings within the Wollemi National Park. The Wollemi pine has been planted all around the world since its discovery in 1994; for instance there are over 80 individuals growing in the National Arboretum, Canberra²⁹³ as well as a clonal collection of the wild Wollemi pine colony at the Australian Botanic Garden, Mount Annan.

²⁹¹ Royal Botanic Gardens & Domain Trust n.d., *The Australian Plantbank*, accessed 7 September 2017 www.plantbank.org.au/

²⁹² OEH n.d., *Wollemi Pine Recovery Plan*, accessed June 2017 www.environment.gov.au/system/files/resources/245df899-5818-44c1-a1f0-76fb70bb9fc6/files/wollemia-nobilis.pdf

²⁹³ ABC News 24 July 2014, *Rare and precious ancient Wollemi pine trees flourishing at the National Arboretum*, accessed June 2017 www.abc.net.au/news/2015-07-23/precious-wollemi-pine-plantation-flourishing-in-canberra/6642194

Criterion 2 Maintenance of productive capacity of forest ecosystems

Indicator 2.1.a

Native forest available for wood production, area harvested, and growing stock of merchantable and non-merchantable tree species

Rationale

This indicator reports the capacity of forests to sustainably produce wood to meet society's needs into the future. The area of native forest available for wood production, the nature of the growing stock, and the area harvested over time provide means to demonstrate the sustainability of forest management.

The NSW RFAs include regulatory frameworks designed to ensure that environmental attributes and the productive capacity of the forest are maintained. Sawlog volumes permitted for harvest are set according to a calculated annual sustainable yield, which requires data on the net area of forest available for harvest, forest type and age class, standing wood volume, terrain, accessibility, and growth and yield. Estimates of sustainable yield also take into account restrictions on harvesting within the area available for harvest that may be imposed by codes of forest practice, and by other rules and regulatory frameworks established to ensure the protection and maintenance of biodiversity and soil and water resources.

Yield modelling addresses the potential impact of disturbance events through the application of an uncertainty factor. While fires, cyclones, pests and diseases have occasionally damaged some native forests, their frequency and scale of damage has been much less than that of fires in the southern states or from cyclones in the northern states. Estimates of growth rates and current volumes of standing timber in native forests already reflect these events as they are relatively small and dispersed and are accounted for through a program of repeated plot measurements. Selection-type silviculture, growth habits and climate also provide greater protection to younger trees.

Climate change may impact on forest growth and vigour in the longer term, but FCNSW does not expect it to impact significantly on supply in the immediate future, as timber supplies for the next 20 years are from existing, stocked forests. FCNSW has identified that the best way to assess the impact of climate change on growth models used in FRAMES is to maintain its long-term growth monitoring system that incorporates PGPs. This system incorporates growth measurements that extend over 40 years for individual trees in many forests. The FRAMES Review (Brack 2017) highlighted that long periods between measurements of PGPs may reduce the potential to determine the effects of climate change, drought or other large-scale environmental change. Brack's recommendations are being factored into an internal review currently being undertaken by FCNSW; the current focus is on remeasurement of PGPs²⁹⁴ and getting better spatial resolution of the current resource extent using remote sensing. Further opportunities to investigate changes in environmental variables and their impact on growth models may be considered in future reporting periods.

If a catastrophic event were to occur, resource models would be rerun to account for the major changes and this information would be used to renegotiate wood supply agreements.

Notwithstanding the above, FCNSW includes a safety margin in all FRAMES models to try to account for unforeseen events. The margins are 10% for native forest pre-1994 plantation models and 15% for post-1994 plantation models on the North Coast. The safety margin is applied to the yield tables prior to the development of wood flow forecasts. It aims to provide assurance that sufficient volume will be available to meet supply commitments.

²⁹⁴ The current status of the FCNSW inventory plot measurement program is detailed in the response to North East RFA commitment Att 12, 22, 5th.

Harvesting levels can fluctuate over time for operational reasons, with occasional overcuts in some years balanced by prescribed undercuts in others, in compliance with state regulations.

To maintain the productive capacity of native forests within RFA regions, management includes the regeneration of a new forest stand following harvesting. Data are collected routinely on the area of harvested forest that is regenerated successfully in an allocated time period. Remedial treatments are applied, if required, to ensure adequate regeneration.

In 2013–14, the net harvestable area of public native forest in NSW for which wood harvesting was allowed was 1,233,439 hectares²⁹⁵, or 16% of the public native forest area in the state. The forest area harvested from multiple-use public native forest in NSW during 2013–14 was 23,807 hectares²⁹⁶ or 2%. Table 24 provides the harvestable area and area harvested for each year of the reporting periods (i.e. Periods 2 and 3).

Table 24: Harvestable areas and area harvested over time in NSW public native forests

Financial year	Harvestable area (ha) ¹	Area harvested (ha) ²
2013–14	1,233,439	23,807
2012–13	1,230,224	31,221 ³
2011–12	1,228,391	16,610
2010–11	1,278,585	23,652
2009–10	1,380,132	31,134
2008–09	993,225	29,452
2007–08	1,100,948	39,953
2006–07	1,008,150	45,945 ³
2005–06	965,571	43,709 ³
2004–05	1,155,496	42,923 ³

Source data: FCNSW sustainability supplements.

Table notes:

- (1) Comprised of forest management zones – 3b (Special prescriptions – available for harvest), 4 (General) and 8 (Land for further assessment)
- (2) Comprised of – alternate coupe (modified shelterwood system); commercial regrowth thinning; group selection; single tree selection and in some instances, non-commercial thinning
- (3) Includes cypress pine and river red gum harvesting in western region (not within NSW RFA regions).

Indicator 2.1.b

Age class and growing stock of plantations

Rationale

This indicator uses the area, age class and growing stock of native and exotic species plantations to assess the volume of timber that Australia's plantation forests can supply now and into the future.

²⁹⁵ FCNSW 2014b, *Sustainability Supplement 2013–14*, NSW Government, Sydney, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/544120/forestry-corporation-of-nsw-sustainability-supplement-2013-14.pdf

²⁹⁶ FCNSW 2014b, *Sustainability Supplement 2013–14*, NSW Government, Sydney, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/544120/forestry-corporation-of-nsw-sustainability-supplement-2013-14.pdf

The plantation area in NSW in 2013–14 was 390,000 hectares, of which 296,700 hectares were softwood, 90,600 hectares hardwood and 2,700 hectares of other species²⁹⁷.

Softwood plantings are mainly radiata pine, with some southern pines. Hardwood plantings mainly comprise blackbutt, Dunn's white gum, flooded gum, shining gum and spotted gum. A list of common and scientific names for plantation species is provided in Table 25.

ABARES provides a snapshot of the age classes for the plantations in NSW by National Plantation Inventory (NPI) region in *Australian plantation statistics 2011*²⁹⁸. A further report was published in 2016²⁹⁹, outside the reporting period, and between these two reports both Period 2 and Period 3 are covered by the NPI regions, which have different boundaries to the NSW RFA regions.

Also, ABARES provides a snapshot of the projected standing log volumes by NPI region in *Australia's plantation log supply 2010–2054*³⁰⁰.

Table 25: Glossary of common and scientific names for plantation species in NSW

Common name	Scientific name
Radiata pine	<i>Pinus radiata</i>
Southern pines	<i>Pinus caribaea</i> , <i>Pinus elliottii</i>
Blackbutt	<i>Eucalyptus pilularis</i>
Dunn's white gum	<i>Eucalyptus dunnii</i>
Flooded gum	<i>Eucalyptus grandis</i>
Shining gum	<i>Eucalyptus nitens</i>
Spotted gum	<i>Corymbia maculata</i>

Indicator 2.1.c

Annual removal of wood products compared to the volume determined to be sustainable for native forests, and the future yields for plantations

Rationale

This indicator measures the harvest levels of wood products in relation to future yields. The capacity to implement strategies to deal with changing demand for forest products based on future yields from both native and plantation forests is an integral part of sustainable forest management.

²⁹⁷ Gavran M 2015, *Australian Plantation Statistics 2015 update*, ABARES, accessed 9 November 2016

http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pb_aplnsd9abfs20150513_11a.xml

²⁹⁸ Gavran M & Parsons M 2011, *Australian plantation statistics 2011*, ABARES, accessed 9 November 2016

http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pe_abares20110831.01_12a.xml

²⁹⁹ ABARES 2016b, *Australian plantation statistics 2016*, ABARES, accessed 9 November 2016

http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pb_aplnsd9abfe20160816.xml

³⁰⁰ Gavran M, Frakes I, Davey S & Mahendrarajah S 2012, *Australia's plantation log supply 2010–2054* ABARES, accessed 9 November 2016

http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pe_afplsd9abfe00120120515_11a.xml

Harvest volumes in public native forests are set according to forecast sustainable yield and are influenced by market conditions. Hardwood log production from native forests in NSW in 2013–14 totalled 877,000 m³³⁰¹, which includes sawlogs and pulplogs. This harvested volume is the lowest since NSW RFAs commenced and is a consequence of a variety of factors including lower demand for some products in some regions; revised estimates of forest area, inventory and growth and yield due to improved information; and the impacts of occasional, intense broad-scale wildfires.

Harvest volumes in NSW RFA regions are reported in IFOA annual reports.

Table 26 provides the volumes of log products harvested by FCNSW across NSW for the period July 2004 to June 2014.

Detailed information on harvest volumes by RFA region, comparing harvest volumes with sustainable yield estimates, and RFA and WSA commitment volumes for the July 2004 to June 2014 reporting period are provided in Appendix K. The appendix also provides commentary on variations in commitment and harvest volumes over time.

Indicator 2.1.d

Annual removal of non-wood forest products compared to the level determined to be sustainable

Rationale

This indicator is used to assess the sustainability of the harvest of non-wood forest products. These products can represent a significant asset base supporting the livelihoods of remote communities.

Table 35 (see Indicator 6.1.b) provides selected examples of non-wood forest products reported in FCNSW annual reports.

In NSW, the NPW Act protects all native fauna (mammals, birds, reptiles and amphibians) and flora both inside the RFA regions and in other parts of the state. A licence is required to take protected fauna or flora. Regulation of non-native fauna is under the control of the *Non-Indigenous Animals Act 1987* (NSW). The TSC Act and the EPA Act also have provisions relevant to the harvesting of non-wood forest products.

Kangaroos (common wallaroo or euro, *Macropus robustus*; eastern grey kangaroo, *M. giganteus*; red kangaroo, *M. rufus*; and western grey kangaroo, *M. fuliginosus*) are harvested commercially for meat and skins in NSW.

Apiary products are another important animal non-wood forest product. NSW has a significant beekeeping industry, and hives are placed in forest ecosystems based on the annual availability of flowering tree and understorey resources. The dependency of the beekeeping industry on forest resources is estimated at 70–90% in south-eastern Australia. NSW regulates apiarists through issuing permits and licences for apiary sites and hives. In 2007, NSW had 3,195 beekeepers, with 265,474 hives. A substantial percentage of hives are in multiple-use public forest.

Forests provide many products and services other than timber that is processed in sawmills. FCNSW monitors the supply and sale of specific products from state forests to help understand the extent to which forests remain an important multiple-use resource, supplying products sought by the community.

³⁰¹ ABARES 2016c, *Australian forest and wood products statistics September and December quarters 2015*, accessed 9 November 2016

http://agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pb_afwpsd9abfe20160526_11a.xml

Table 26: Harvest volumes by FCNSW for NSW¹

Year ended 30 June	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Sawlogs and veneer logs (m³)										
Native forest hardwood sawlogs	638,855	664,778	566,706	608,961	556,244	524,931	430,347	507,347	474,980	470,540
Hardwood plantation sawlogs	73,933	64,364	105,510	121,452	114,382	109,136	94,394	59,241	70,345	53,758
Cypress pine sawlogs	93,876	70,974	57,578	50,245	55,175	58,785	51,915	45,006	51,624	51,636
Native forest hardwood veneer logs	9,462	10,118	8,777	6,679	7,513	8,856	5,842	10,037	12,523	11,288
Hardwood plantation veneer logs	3,061	3,191	7,073	10,510	9,196	6,251	5,403	3,409	3,517	2,631
Poles, piles and girders (m³)										
Native forest hardwood	23,246	25,984	27,387	25,154	28,136	30,015	32,058	38,089	35,108	27,252
Hardwood plantation	8,636	11,535	11,768	14,286	10,116	6,971	10,896	11,876	10,832	3,976
Pulpwood (tonnes)										
Native forest hardwood pulpwood	467,810	504,259	551,955	531,089	427,871	488,353	524,911	505,907	362,754	258,744
Plantation hardwood pulpwood	32,057	39,433	64,431	75,067	83,777	83,553	68,009	37,684	22,039	529
Fencing/landscape/sleepers (m³)										
Native forests and plantation hardwood	54,203	30,833	50,419	25,116	7,798	11,777	27,536	96,441	93,352	103,704
Totals										
Total excluding pulpwood (m ³)	905,272	881,777	835,218	862,403	788,560	756,722	658,391	771,446	752,281	724,785
Total pulpwood (tonnes)	499,867	543,692	616,386	606,156	511,648	571,906	592,920	543,591	384,793	259,273

Source: FCNSW annual reports or Sustainability Supplements 2005 to 2015

Table note: (1) Figures include harvest volumes outside the NSW RFA regions

Indicator 2.1.e

The area of native forest harvested and the proportion of that effectively regenerated, and the area of plantation harvested and the proportion of that effectively re-established

Rationale

This indicator is used to assess the success of the re-establishment of forests after harvesting. Re-establishment is critical to the maintenance of the productive capacity of the forest.

Effective regeneration of native forest after wood harvesting is a fundamental component of sustainable forest management, since regeneration determines the long-term productivity, growth, dynamics and composition of forest stands. Managers of multiple-use public forests are required by codes of forest practice, silvicultural manuals or guidelines, and other regulatory instruments to measure the effective regeneration (for example by stocking, density and species composition) of areas harvested for wood production, and to report the results publicly.

The IFOAs require FCNSW to prepare an annual plan of burning operations in relation to proposed burning for the purposes of bushfire hazard reduction or regeneration. They also require FCNSW to carry out scientific trials to assess the impacts on the environment of burning for the purposes of bushfire hazard reduction or regeneration.

In addition, the IFOAs also require FCNSW to assess the extent and nature of regeneration following the cessation of logging operations on a regular and periodic basis.

In NSW RFA regions, effective regeneration in multiple-use public native forests for the period 2004–05 to 2013–14 was generally above 70% (see Table 27). Successful regeneration is considered to have occurred when 65% or more of plots in a harvest area are stocked, of which there was only one year in the reporting period where this target was not met. In the three years when regeneration rates were below 70%, the impact of drought was a significant factor in the regeneration of some of these forests (successful regeneration requires adequate soil moisture for seedling establishment). Wildfires also affected regeneration on harvested areas in some of these forests.

Table 27: Area and proportion of harvested multiple-use public native forest effectively regenerated in NSW RFA regions 2004–05 to 2013–14

Year	Total area harvested (hectares) ¹	Area harvested where regeneration was a targeted outcome (hectares) ²	Proportion of harvested area effectively regenerated (%) ³
2004-05	21,986	3,878	83
2005-06	19,095	4,881	74
2006-07	21,407	3,709	63
2007-08	22,477	5,375	94
2008-09	14,613	3,616	81
2009-10	16,603	3,845	95
2010-11	14,067	5,382	92
2011-12	23,080	7,837	77
2012-13	17,120	5,812	69
2013-14	15,052	6,268	67

Source: FCNSW and sustainability supplements.

Table notes: N/A = data not available.

(1) Total area harvested includes thinning, light, medium and heavy STS, alternate coupe and AGS silviculture;

(2) Area harvested where regeneration was a targeted outcome include heavy STS, alternate coupe and AGS silviculture only;

(3) Proportion of harvested area effectively regenerated with commercial species, based on sampled areas of forests of types that require post-harvest regeneration assessments and of forests harvested with silvicultural systems that require post-harvest regeneration assessments. Additional silvicultural treatment is undertaken when regeneration standards are not met, and the outcome of such treatment is not included in these data.

Thinning and light-medium STS harvesting areas are generally not surveyed by FCNSW for regeneration, as there is sufficient tree retention so that regeneration is not a primary objective from harvesting. Regeneration oriented harvesting activity is a combination of alternate coupe harvesting in Eden RFA region and AGS or heavy STS in the other RFA regions.

Over the reporting period, FCNSW regeneration survey methodology and sample intensity varied, but was largely based on implementing a large number (50) of small fixed area plots (2.26 m radius) in sampled compartments. FCNSW deliberately conducted surveys in areas with known regeneration difficulties and also to address forest certification requirements under the Australian Forestry Standard (AFS) to maintain the productive capacity of the forest estate. Surveys were typically conducted between 3-5 years after harvesting depending on forest type. The regeneration results reported for a given year reflect regeneration from harvesting conducted in earlier years.

Table 28 provides the proportion of successfully established plantations in NSW, including areas of new plantation establishment and plantation re-establishment, over the period 2004 to 2013.

Table 28: Public softwood and hardwood plantation planting in NSW, 2004–2013

Age class	Planted area (hectares) ¹		Proportion successfully established (%)	
	Softwood plantation	Hardwood plantation	Softwood plantation	Hardwood plantation
2004	6,764	1,164	93	100
2005	6,547	267	94	100
2006	7,260	889	37	n.r.
2007	6,037	462	74	n.r.
2008	9,874	945	74	n.r.
2009	10,581	1,979	71	13
2010	9,942	1,104	78	91
2011	8,969	592	88	70
2012	7,813	470	77	95
2013	7,138	404	82	88

Source: Forests NSW (2004, 2005, 2006, 2012a), State Forests of NSW (2001, 2002, 2003), FCNSW Sustainability Supplement to the Annual Report 2013–14 (2014)

Table notes: n.r. = not reported

(1) Planted area includes both new plantation establishment and plantation re-establishment.

Establishment is measured one year after planting; the rate applies to the planted area in the previous year. Successful establishment is attained where 80% of softwood seedlings and 90% of hardwood seedlings survive. Follow-up replanting occurs as required to fully stock the planted site. In the case of the low 2009 hardwood establishment rate, much of the plantation estate was just below the 90% guideline threshold and only required a low level of supplementary planting to adequately stock the planted area. Data to 2006 are regional compilations; data after 2006 are revised corporate data.

Criterion 3 Maintenance of ecosystem health and vitality

Indicator 3.1.a

Scale and impact of agents and processes affecting forest health and vitality

Rationale

This indicator identifies the scale and impact on forest health of a variety of processes and agents, both natural and human-induced. Through the regular collection of this information, significant changes to the health and vitality of forest ecosystems can be monitored and measured.

Damage to forest ecosystems from most native insect pests and pathogens over the reporting period has usually been of low severity but sometimes widespread in extent. Most of the observed damage to forests was caused by exotic pests and pathogens. Occasional outbreaks and epidemics occurred over the reporting period, with the resultant damage adversely affecting commercial values, particularly in plantations.

Spotted gum canker became a health issue for *Corymbia* species in native forests of NSW. Spring needle cast remained one of the major problems affecting the radiata pine plantation estate, while *Dothistroma* needle blight affected radiata pine plantations in NSW.

Phytophthora cinnamomi and a number of other *Phytophthora* species remained a threat to a wide range of plant species, predominantly in regions with an annual rainfall of more than 600 millimetres. Spread of the pathogen is controlled with soil and water hygiene protocols, monitoring of quarries for *Phytophthora*, intensive monitoring to designate disease-risk areas, and the use of management zones to protect threatened flora.

Myrtle rust (*Puccinia psidii*) has entered, established and spread in NSW. The rust spores are predominantly disseminated by wind, and the pathogen has a wide host range within the Myrtaceae family.

Bell miner associated dieback (BMAD) occurs across public and private land and in both state forests and national parks. Bell miner birds (*Manoria melanophrys*) aggressively exclude other birds which would otherwise feed on leaf-eating *Cardiaspina* psyllid insects. This allows *Cardiaspina* psyllid numbers to increase and repeatedly defoliate and ultimately kill trees. This results in a loss of threatened species habitat and commercial timber resources. There is no scientific consensus on BMAD's root causes or the most appropriate ways to treat it. The lack of low intensity fire in the landscape appears to help create the conditions that allows BMAD to spread.

In 2001, the NSW Government established the BMAD Working Group to promote research into the causes of dieback, support the implementation of control measures and assist in coordinating control programs. The BMAD Working Group's members include NSW Government agencies, community groups, landholders, FCNSW and others³⁰².

Monterey pine aphid (*Essigella californica*) was widespread and caused significant damage in most *P. radiata* plantation areas in NSW. Mid-rotation to preharvest plantations were the most severely affected, and plantations in the Murray Valley and Central Tablelands were the most severely impacted. The area affected by the aphids decreased over the reporting period. NSW uses a biological control program to manage Monterey pine aphid, with the parasitoid wasp *Diaeretus essigellae* being released into plantations over the past couple of years.

Native and introduced vertebrate animals can damage native forests and plantation, for example, by browsing vegetation, by ring-barking saplings and trees, and by undermining, excavating and chewing root systems. These activities can contribute to soil erosion, and increase competition for food and habitat. Introduced animals can also kill native fauna, and can act as vectors for pathogens.

³⁰² Bell Miner Associated Dieback Working Group n.d., *Home*, accessed 17 August 2017 www.bmad.com.au/index.html

Indicator 3.1.b

Area of forest burnt by planned and unplanned fire

Rationale

This indicator is used to provide an understanding of the impact of fire on forests through the reporting of planned and unplanned fire. Fire is an important part of many forest ecosystems in Australia and may have either a positive or negative impact on forest health and vitality.

Fire is an important forest management tool in Australia. Planned fire is used in fire-adapted forest types for forest regeneration, to promote growth after harvest, to maintain forest health and ecological processes, and to reduce fuel loads and by this means increase the ability to manage any subsequent bushfire.

Table 29 shows the extent of fire for the 2004–05 to 2010–11 period derived from aerial reconnaissance, and on-ground and operational data collated and supplied by state agencies. Fires were allocated as planned and unplanned using information provided by the state agencies. Over the period, over 1.2 million hectares of forest was burnt in NSW.

Table 29: Forest areas burnt in NSW by planned and unplanned fire, 2004–05 to 2010–11

Year	Area burnt ('000 hectares)							Total 2004–11
	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	
Planned	70	56	61	81	84	128	93	573
Unplanned	24	44	352	51	23	160	2	656
Total	94	100	413	132	107	288	95	1,229

Source: Forests NSW, DECC, NPWS

Criterion 4 Conservation and maintenance of soil and water resources

Indicator 4.1.a

Area of forest land managed primarily for protective functions

Rationale

The area of forest land where priority is given to protecting soil and hydrological functions provides an indication of the emphasis being placed by society on the conservation of these values. This indicator includes areas managed to protect soil and water by excluding incompatible activities.

A total of 29.8 million hectares of Australia's public forest (24% of the total forest area, almost entirely native forest) is managed primarily for protective functions including protection of soil and water values. In NSW, the area managed for protective functions comprises all public nature conservation reserves; catchments managed specifically for water supply; and those parts of multiple-use public forests in which wood harvesting and road construction are not permitted.

Forested catchments are highly valued as sources of drinking water because forest vegetation, soil and litter serve as natural filters, and the quality of water flowing from such catchments is therefore usually very high. In NSW, approximately 178,000 hectares of forest are managed specifically for water supply in closed catchments from which human disturbance activities are excluded. Another 77,000 hectares of forest in closed water catchments are available for wood harvesting, subject to scientifically based mitigation measures to protect soil and water values.

An IFOA is required for any forestry operation on state forests or other Crown-timber lands covered by a NSW Forest Agreement. IFOAs include an Environment Protection Licence (EPL) issued by the NSW EPA, which FCNSW can choose to turn on or off. The NSW Government also implements a PNF Code of Practice that sets minimum operating standards for harvesting on private lands (NSW EPA 2013c).

The EPL requires FCNSW to assess NSW state forests soil erosion and water pollution hazards prior to the commencement of wood harvesting. The principle of environmental care requires that soil, water catchment, cultural and landscape values are protected by careful planning, location, construction and maintenance of roads and tracks, and regulation of their use.

Table 30 and Table 31 provide information on the area of land protected and investment in harvest compliance and surveys.

Table 30: Soil and water management – area of land protected, 2005–2014

Year ended 30 June	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Fully protected (hectares)	231,334	196,049	182,619	183,752	183,752	177,635	178,366	178,356	180,200	180,200
Partly protected (hectares)	95,162	53,587	62,839	60,295	76,709	75,191	79,846	83,256	83,224	83,224
Total protected (hectares)	326,496	249,636	245,458	244,047	260,461	252,826	258,212	261,612	263,424	263,424

Source: Forests NSW, FCNSW

Table 31: FCNSW, Hardwood Forests Division, expenditure on harvest-related planning and compliance, area harvested, and penalty infringement notices, 2005–2014

Year ended 30 June	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Harvesting supervision and environmental compliance (\$'000)	6,157	6,009	6,219	5,164	5,561	5,454	5,184	5,750	6,580	7,358
Harvest planning and pre-harvest surveys (\$'000)	n.r.	n.r.	n.r.	n.r.	3,997	4,755	5,022	5,729	5,471	5,275
Area harvested										
Hardwood and cypress forests (hectares)	35,823	39,032	40,592	48,025	25,501	36,395	28,738	28,054	31,221	23,807
Softwood plantation harvested (hectares)	6,737	6,800	7,270	8,355	7,605	7,690	8,037	7,298	8,379	8,223
Total area harvested (hectares)	42,561	45,832	47,862	56,380	33,106	44,085	36,775	35,352	39,600	32,030
Proportion of total estate (%)	1.6	1.9	2.1	2.4	1.4	1.8	1.7	1.5	1.6	1.3
Soil and water related compliance										
Penalty Infringement Notices	1	4	2	2	0	0	0	5	3	0

Source: FNSW, FCNSW; Table note: n.r. = not reported

Indicator 4.1.b

Management of the risk of soil erosion in forests

Rationale

This indicator assesses the extent to which the risk of soil erosion has been explicitly identified and addressed in forest management. The avoidance of soil erosion reflects the extent to which associated values, including soil fertility and water quality, are protected.

FCNSW has a comprehensive soil assessment program for forestry operations, consisting of four modules: inherent soil erosion and water pollution assessment, mass movement assessment, dispersibility assessment, and seasonality. FCNSW is required to apply all four assessment modules during a pre-operational planning phase, which precedes commencement of any forestry activities.

Legally binding instruments are in place in NSW that establish a regulatory framework that requires that the maintenance of soil values is analysed according to five categories. In NSW, the significantly lower risk of erosion assessed for nature conservation reserves means that prescriptions in that tenure are not as stringent as in multiple-use public forests.

The POEO Act prohibits the pollution of waters in NSW. The IFOAs contain EPLs which have best management practices to prevent the pollution of waters. FCNSW has the ability to turn the EPLs on or off. Where FCNSW chooses to turn on the EPL, forestry operations must meet the best management practice requirements contained in the EPL. The EPL requires FCNSW to undertake comprehensive soil assessments which identify the hazard category (risk of soil erosion and water pollution) and determine the level of protection required at each site to conserve soil and water values (Table 32).

Table 32: Area of multiple-use public forest where disturbance activities were planned, proportion assessed for risk of soil erosion, and assessed category, 2010–11

Disturbance activity	Metric	NSW
Native forest harvesting and silviculture	Area (hectares)	27,484
	Proportion assessed for risk of soil erosion (%)	100
	Assessed category ¹	Category 1 (That the soil erosion risk assessment system comprehensively takes account of rainfall intensity, slope, soil erodibility and management practices that could contribute to soil disturbance.)
Plantation operations	Area (hectares)	14,068
	Proportion assessed for risk of soil erosion (%)	100
	Assessed category ¹	Category 1
Road construction and maintenance	Area (hectares)	n.r.
	Proportion assessed for risk of soil erosion (%)	n.a.
	Assessed category ¹	n.a.

Disturbance activity	Metric	NSW
Fire management	Area (hectares)	36,936
	Proportion assessed for risk of soil erosion (%)	100
	Assessed category ¹	Category 1

Source: Various NSW agencies, SOFR 2013.

Table notes: n.a. = not applicable; n.r. = not reported

(1) Assessed category rating refers to a four-tier category system in SOFR 2013, Table 4.5, ranging from Category 1 to Category 4, which assesses the level of planning processes.

Indicator 4.1.c

Management of the risks to soil physical properties in forests

Rationale

This indicator measures the extent to which the risk to soil physical properties in forests has been explicitly identified and addressed. The protection of soil physical properties, including minimising soil compaction and redistribution, affects soil integrity and, as a consequence, many associated values.

NSW has legally binding instruments in place relating to soil physical properties. Operational-level requirements or guidance to manage impacts on soil physical properties are described in various legally and non-legally binding instruments, particularly codes of practice, at state or territory and regional levels. The general principles of the IFOA for NSW are that the extraction of logs is to be carried out in a manner and by methods that do not result in significant soil disturbance. Consequently, any potential damage is mitigated. In addition, damage caused by the operation, including damage to soil physical properties, is to be repaired. Aspects that are covered in codes of forest practice include assessment and management of soil compaction, mitigating soil movement, creation and management of filter strips or buffers, and consideration of appropriate machinery to protect soil physical properties.

Harvesting activities by FCNSW in multiple-use public forests in NSW require a comprehensive soil assessment procedure, designed to minimise soil erosion and protect soil physical properties. These assessments must meet the requirements of environment protection licences issued by OEH.

Indicator 4.1.d

Management of the risks to water quantity from forests

Rationale

This indicator measures the extent to which the risk to water quantity has been explicitly identified and addressed in forest management. Water quantity is important for ecosystem health and water supply for human use.

The IFOAs require forestry operations to be dispersed in space and time. FCNSW makes available the planned distribution of harvesting operations for each year in the *Native Forest 12 Month Plan of Operations*³⁰³.

The IFOAs specify that the approvals apply only to logging activities conducted under certain silvicultural practices. Silvicultural provisions allowed under the current IFOAs include AGS,

³⁰³ FCNSW 2016i, *Native Forest 12 Month Plan of Operations*, accessed 7 September 2017 www.forestrycorporation.com.au/management/harvest-plans/schedule-of-operations

STS, thinning and alternate coupe logging. Some silvicultural practices, such as AGS, are limited by the extent of permissible harvesting and temporal and spatial return times. While these return times may impact water retention and runoff rates, the UNE, LNE, Southern and Eden IFOAs do not include provisions which specifically address water quantity.

The NSW Government has decided to replace the UNE, LNE, Southern and Eden IFOAs with a revised single coastal IFOA.

FCNSW has been conducting catchment-scale research on the impacts of forest management activities on water quantity for more than 30 years in a number of locations. This includes studies in the Red Hill plantation catchment near Tumut and the Canobolas plantation catchment near Orange³⁰⁴, as well as modelling work in the south-east native forests near Eden³⁰⁵. Models have been developed to assess the impacts of operations in plantations and native forests.

Long-term hydrological studies in three types of mixed-species eucalypt forest in NSW found an increase in water yield after harvesting, dependent on the proportion of the catchment area harvested. The increase persisted for at least three years, after which water yield returned to pre-harvest levels, before progressively declining in regenerating forest in some catchments by up to 20% of the pre-harvest yield; this reduction was generally temporary and was related to changes in forest species composition, basal area and stocking rates. The water yield reductions observed in studies in other states on ash eucalypt forests do not typically occur in mixed-species eucalypt forests in NSW³⁰⁶.

Indicator 4.1.e

Management of the risks to water quality in forests

Rationale

This indicator measures the extent to which the risk to water quality has been explicitly identified and addressed in forest management. Water quality is important for forest ecosystem health and water supply for human use.

The *Forestry Act 2012* (NSW) provides that the Minister for the Environment and the Minister for Forestry and Lands may jointly grant an IFOA for forestry operations in public multiple-use native forests. The operations must comply with the conditions set out in the IFOA. The IFOAs may also include licences issued under the POEO Act, the TSC Act and the FM Act. The Forestry Act provides that an IFOA may set out the terms of these licences. The licences may include terms aimed at managing risks to water quality. The POEO Act provides that FCNSW may elect to turn on or turn off the EPL issued under the POEO Act.

The IFOAs and their EPLs identify and address risks to water quality in NSW state forests. The EPLs contain conditions for the protection of soil and water, including best management practice conditions for road and track drainage, drainage feature crossing design, construction and upgrade requirements, and the creation and management of riparian protection.

³⁰⁴ Webb AA 2009, 'Streamflow response to *Pinus* plantation harvesting: Canobolas State forest, southeastern Australia', *Hydrological Processes*, 23: 1679-89, accessed 2 November 2017 <http://dx.doi.org/10.1002/hyp.7301>

³⁰⁵ Webb AA 2012, 'Can timber and water resources be sustainably co-developed in south-eastern New South Wales, Australia?' *Environment, Development and Sustainability*, 14: 233-52, accessed 2 November 2017 <http://dx.doi.org/10.1007/s10668-011-9319-3>

³⁰⁶ Webb AA, Kathuria A and Turner L 2012a, Longer-term changes in streamflow following logging and mixed species eucalypt forest regeneration: the Karuah experiment, *Journal of Hydrology* 464–465:412–422, accessed 2 November 2017 <http://dx.doi.org/10.1016/j.jhydrol.2012.07.034>

The EPA monitors FCNSW's compliance with the IFOAs through its active statewide audit and enforcement program³⁰⁷. The EPA:

- reports annually on compliance
- aims to identify good and poor forestry practices during regular proactive audit work
- conducts investigations when non-compliances are identified, and
- responds to concerns raised by the community, some of which result in investigations.

FCNSW audits all forestry operations in multiple-use forests through a four-tier system, along with a monitoring and review exercise. These audits assess both the implementation of systems and the application of specifications or prescriptions, including standards of planning and compliance with regulatory approvals, codes of practice, Australian standards, and statutory requirements such as the *Pesticides Act 1999* (NSW). Compliance and monitoring results are reported. Part of the FCNSW's EMS requires that all operational control documents are periodically reviewed and updated.

In NSW, assessments of the potential risks to water quality are conducted for forest activities and roading operations in multiple-use public native forests and plantations.

FCNSW undertakes a water monitoring program in native forests to assess the impacts of its activities on water quality, principally sediment loads (Webb 2008³⁰⁸, Webb et al 2012b³⁰⁹).

Criterion 5 Maintenance of forest contribution to global carbon cycles

Indicator 5.1.a

Contribution of forest ecosystems and forest industries to the global greenhouse gas balance

Rationale

This indicator assesses the contribution of Australian forests to the global carbon cycle. Forest management can have a significant positive or negative impact on the global carbon cycle.

At the end of 2010, Australia's forests stored approximately 12,841 million tonnes of carbon (megatonnes C). This carbon is stored in living biomass (above ground and below ground), debris and soil. The majority of the carbon in forests (10,613 megatonnes C or 83%) was held in the category 'non-production native forests', which includes all protected forest areas plus areas of extensive inland woodland forests. The remaining carbon was held in production native forests (16%) and plantations (1.3%).

In summary, a loss of 91 megatonnes C in carbon stocks occurred in 2001–05, followed by a small gain of 10 megatonnes C in 2006–10. These changes were the result of the combined effects of wildfire and land clearing.

In 2014, the net emissions from land use, land-use change and forestry in NSW was –10.2 megatonnes carbon dioxide equivalent (CO₂-e), compared to –2.7 megatonnes CO₂-e in

³⁰⁷ EPA 2016l, *Compliance of forestry operations on public land*, accessed 10 November 2016 www.epa.nsw.gov.au/forestagreements/compliance.htm

³⁰⁸ Webb AA 2008, 'Impacts of native forest harvesting on in-channel erosion and sediment yields in unmapped headwater catchments', in: *Sediment Dynamics in Changing Environments*, Schmidt J, Cochrane T, Phillips C, Elliott S, Davies T and Basher L (eds), International Association of Hydrological Sciences publication 325, 567–575.

³⁰⁹ Webb AA, Dragovich D and Jamshidi R 2012b, 'Temporary increases in suspended sediment yields following selective eucalypt forest harvesting', *Forest Ecology and Management* 283:96–105, accessed 2 November 2017 <http://dx.doi.org/10.1016/j.foreco.2012.07.017>

2000³¹⁰. These changes are attributed to forest management, declining rates of land clearing and increased reforestation.

Sustainably managed forests play an important role in mitigating climate change by taking carbon out of the atmosphere and storing it as wood. Forests also produce timber, a natural and renewable resource that itself stores carbon for the life of wood products. Taking into account the energy required to transform raw materials into building products, timber has a smaller carbon footprint than concrete and steel, other popular building materials.

FCNSW was the first forestry organisation in the world authorised to trade carbon credits from forests in a registered greenhouse gas abatement scheme. FCNSW is continuing to investigate carbon balance and new ways to maximise the carbon benefits of forest management. This research includes work to better understand the volume of carbon stored in working forests.

Recent research undertaken by DPI Forest Science group presented case studies for two NSW forests managed for production and showed that native forests could play a significant part in climate change mitigation, when sustainably managed for production of wood and non-wood products including biomass for bioenergy³¹¹.

Table 33 provides FCNSW estimates of the amount of carbon stored in hardwood state forests³¹² in NSW. As at June 2014, FCNSW estimated that over 790 megatonnes (carbon dioxide equivalency – CO₂eq) was stored in hardwood state forests, with a net annual sequestration of 4.2 megatonnes (CO₂eq). A further net annual sequestration of 3.32 megatonnes (CO₂eq) was estimated for softwood plantations.

The CO₂eq sequestration balance takes into account: annual growth in the forests, annual long-term storage in solid wood, cumulative long-term storage in solid wood since reporting began (year ended 30 June 2007), fuel usage in harvest and haulage, energy substitution through timber bio-energy, and fire related emissions.

Table 33: FCNSW calculations of the carbon balance of hardwood state forests as at 30 June 2014

Carbon dioxide equivalency (CO ₂ eq measured in millions of tonnes (megatonnes))		
Forest storage	Total standing volume CO ₂	791.2
Sequestration	Annual CO ₂ eq sequestered forest growth	11.3
	Annual CO ₂ eq harvest storage in solid wood	0.3
	Cumulative long-term CO ₂ storage in solid wood	2.8
Emissions	Annual CO ₂ avoided emissions in waste and firewood	0.1
	Annual CO ₂ eq harvest and haulage emissions	0.0
	Annual CO ₂ fire emissions	3.8
	Annual non CO ₂ fire emissions	0.2
Net CO ₂ eq megatonnes sequestered year ended 30 June 2014		4.2

Source: FCNSW Sustainability Supplement 2013–14

³¹⁰ DoEE 2016b, *State and Territory Greenhouse Gas Inventories 2014 Australia's National Greenhouse Accounts*, accessed June 2017 www.environment.gov.au/system/files/resources/319ea5f4-e3d9-4af1-97eb-2a4ba661713e/files/state-territory-inventories-2014.pdf

³¹¹ Ximenes F, George B, Cowie A, Williams J and Kelly G 2012, Greenhouse gas balance of native forests in New South Wales, Australia, *Forests* 3: 653–683.

³¹² FCNSW 2014b, *Sustainability Supplement 2013–14*, NSW Government, Sydney, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/544120/forestry-corporation-of-nsw-sustainability-supplement-2013-14.pdf

Criterion 6 Maintenance and enhancement of long-term multiple socioeconomic benefits to meet the needs of societies

6.1 Production and consumption

Indicator 6.1.a

Value and volume of wood and wood products

Rationale

This indicator measures the size and economic contribution of the wood products sector to the economy. Analysis of trends in the value and volume of wood and wood products enables socioeconomic benefits derived from the forest industry to be assessed.

These two aspects of wood production are tracked at a national level by ABARES and reported on a state and territory basis. The figures in Table 34 cover both public and private production and value. This provides an overall view of the sector's activity in NSW.

Table 34: Value and volumes of log production in NSW

Year ending 30 June	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Type	\$' million									
Hardwood native	133	142	143	146	128	121	98	109	97	102
Hardwood plantation	9	7	7	12	12	13	20	13	10	7
Softwood	190	193	199	221	212	241	262	251	228	269
Total	332	343	350	379	353	375	380	373	334	378
Type	'000 m³									
Hardwood native	1,846	1,881	1,836	1,706	1,441	1,355	1,080	1,119	914	883
Hardwood plantation	187	137	129	229	228	216	174	108	98	66
Softwood	3,547	3,634	3,827	4,071	3,766	4,324	4,828	4,518	4,397	4,449
Total	5,580	5,652	5,792	6,005	5,435	5,895	6,082	5,745	5,409	5,398

Source: Australian Forests and Wood Products Summary Table (ABARES 2015)³¹³

Indicator 6.1.b

Values, quantities and use of non-wood forest products

Rationale

This indicator measures the quantities, values and usage of non-wood products. It enables socioeconomic benefits to be monitored by ascertaining trends in quantities, values and usage of non-wood products.

A range of at least partly forest dependent non-wood products are produced in NSW (Table 35). These include, but are not limited to, honey, game meat and skin, eucalyptus and tea-tree oil, wildflowers, and native bush foods.

³¹³ ABARES 2015a, *Australian forest and wood products statistics: March and June quarters 2015*, accessed 26 July 2017

www.agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrd/DAFFService/display.php?fid=pb_afwpsd9abfe20151111_11a.xml

Table 35: Selected forest products for NSW (includes low volume wood products and areas outside RFA regions)

Year ended 30 June	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Apiculture (sites)	3,421	3,371	3,363	1,310	2,583	3,804	2,723	2,891	3,705	3,919
Broombush ¹ (tonnes)	1,909	3,611	4,255	4,225	3,338	3,198	2,653	2,332	1,955	2,396
Charcoal (tonnes)	1,939	1,594	1,465	1,417	1,188	1,731	1,647	1,624	1,690	1,763
Telecommunication sites	145	134	135	120	159	171	144	144	131	131
Fencing material (m ³)	n.r.	n.r.	n.a.	n.a.	n.a.	n.a.	845	279	430	153
Firewood – non-commercial (tonnes)	85,607	41,941	42,613	88,271	50,902	27,691	28,475	8,001	3,873	9,053
Gravel/sand/rock (tonnes)	128,072	88,952	88,147	94,665	60,802	84,767	91,166	63,289	70,051	66,232
Grazing (hectares)	607,218	652,699	688,525	645,040	608,193	529,712	393,605	307,468	290,817	288,176
Wood blocks ² (number)	–	3,750	3,750	50	79	500	–	200	350	200

Source: FCNSW SEEing reports, annual reports (Part 1) and sustainability supplement to annual report

Table notes: n.r. = not reported in the source document

n.a. = not available in the source document as fencing material has been included in a log volume category of 'Fencing/landscape/sleepers/firewood' and cannot be separated to individual product level

(1) Broombush is *Melaleuca uncinata* and is for such uses as fencing and garden furniture.

(2) Wood blocks are woodchop blocks used for wood chopping competitions mainly at agricultural shows.

Indicator 6.1.c

Value of forest-based services

Rationale

This indicator measures forest-based services such as ecosystem services, carbon credits, salinity mitigation and ecotourism. Forest-based services provide economic values and contribute to the sustainability of forests by providing significant social and environmental benefits.

Forests in NSW provide a range of services, such as carbon sequestration, soil conservation, watershed protection, ecotourism and biodiversity conservation. Markets exist for few of these services.

In July 2008, the NSW Government introduced the Biodiversity Banking and Offsets Scheme (BioBanking)³¹⁴ to help address the loss of biodiversity values, including threatened species, due to habitat degradation and loss.

BioBanking is a market-based scheme that provides a streamlined biodiversity assessment process for development, a rigorous and credible offsetting scheme as well as an opportunity for rural landowners to generate income by managing land for conservation.

BioBanking enables 'biodiversity credits' to be generated by landowners and developers who commit to enhance and protect biodiversity values on their land through a biobanking agreement. These credits can then be sold, generating funds for the management of the site. Credits can be used to counterbalance (or offset) the impacts on biodiversity values that are likely to occur as a result of development. The credits can also be sold to those seeking to invest in conservation outcomes, including philanthropic organisations and government.

A new Biodiversity Offsets Scheme under the *Biodiversity Conservation Act 2016* (NSW) commenced on 25 August 2017. The Biodiversity Offsets Scheme creates a transparent, consistent and scientifically based approach to biodiversity assessment and offsetting for all types of development that are likely to have a significant impact on biodiversity³¹⁵.

Approximately 8 million visits were made by international and domestic tourists to forest destinations in NSW in both 2009 and 2010 (Table 36).

Table 36: Number of international and domestic visitors to forest nature-based tourism destinations in NSW, 2009 and 2010

Year	2009			2010		
	International ('000)	Domestic ('000)	Total ('000)	International ('000)	Domestic ('000)	Total ('000)
National and state parks	1,327	1,853	3,180	1,379	1,794	3,173
Botanical and public gardens	1,164	766	1,930	1,198	693	1,891
Bushwalking/rainforest	807	1,982	2,789	815	2,136	2,951
Total	3,298	4,601	7,899	3,392	4,623	8,015

Source: Tourism NSW (2009, 2010).

³¹⁴ OEH 2016i, *BioBanking: a market-based scheme*, accessed 10 November 2016
www.environment.nsw.gov.au/biobanking

³¹⁵ OEH 2017h, *Biodiversity Offsets Scheme*, accessed 7 September 2017
www.environment.nsw.gov.au/biodiversity/offsetsscheme.htm

Indicator 6.1.d

Production and consumption and import/export of wood, wood products and non-wood products

Rationale

This indicator measures the consumption of forest-based products in Australia. Consumption trends over time provide a measure of the ability of Australian forest and timber industries, through both domestic production and importation, to meet Australian society's demand for forest-based products and the industries' contribution to the economy.

Apparent consumption in Australia, calculated as domestic production plus imports and minus exports, is changing over the period 2005–06 to 2014–15. Hardwood, particleboard, and newsprint, printing and writing paper consumption has been falling. Softwood, plywood, medium density fibreboard, sanitary, household and packaging and industrial paper consumption has been rising. Total sawn wood and wood-based panel consumption has been rising, while total paper and paperboard consumption has been falling.

Indicator 6.1.e

Degree of recycling of forest products

Rationale

This indicator measures the extent to which recycling or reuse of forest products occurs. As global demand for forest products increase, there is a growing need to meet societal demands for recycling of forest products.

In November 2009, the environment ministers of the Australian, state and territory governments endorsed the National Waste Policy³¹⁶, which aims to reduce the amount of waste that is generated and disposed of by industry and households. The policy includes strategies to increase the recycling of waste products.

Forest and mill residues and waste are generally sold as woodchips. Some residue is also used as fuel in mill boilers for generation of heat and electricity, and for gardening, animal bedding or domestic fuel.

The *NSW Waste Avoidance and Resource Recovery Strategy 2014–2021*³¹⁷ (WARR Strategy) sets objectives and targets for NSW to avoid and reduce waste generation. Areas for priority recycling action cover forest products, including paper/cardboard and timber wastes (from both commercial and industrial, and construction and demolition waste streams). Progress in recycling and diversion across all waste sectors is reported every two years in the WARR Strategy Progress Report. Table 37 provides recent figures for recycling of forest products in NSW.

³¹⁶ DoEE 2010, *National Waste Policy*, accessed June 2017
<http://environment.gov.au/protection/national-waste-policy>

³¹⁷ EPA 2014a, *NSW Waste Avoidance and Resource Recovery Strategy 2014–21*, accessed 19 July 2017 www.epa.nsw.gov.au/resources/wastestrategy/140876-WARR-strategy-14-21.pdf

Table 37: Recycling of forest products in NSW

Products	Amount recycled (tonnes)			
	2008–09	2010–11	2012–13	2014–15
Timber	50,000	60,000	48,000	98,000
Paper and paperboard ¹				
Newsprint	176,500	180,000	140,000	84,000
Printing and writing	100,000	105,000	105,000	98,000
Packaging and industrial	450,000	485,000	510,000	520,000
Paper	120,000	120,000	115,000	100,000
Total for Paper and paperboard	846,500	890,000	870,000	802,000

Source: EPA data collected for two yearly reporting for WARR Strategy

Table note: (1) The total amount of newsprint, paper, and printing and writing paper received for processing over the period 2008–09 to 2014–15 has declined. The total amount of packaging and industrial paper and paperboard received over the period has increased.

6.2 Investment in the forest sector

Indicator 6.2.a

Investment and expenditure in forest management

Rationale

This indicator quantifies investment and expenditure in developing, maintaining, and obtaining goods and services from forests. It provides an indication of the long-term and short-term commitment to forest management, further processing and other forest uses.

The Australian, state and territory governments undertake many activities that, together, constitute forest management. These include management of weeds and pest animals; forest fire management; forest monitoring; inventory; biological surveys; provision of recreational opportunities; and silvicultural, post-harvest and wildlife-management practices. However, the states and territories vary in the way they classify activities that constitute forest management, in the detail they provide on expenditure, and in the methods used for accounting for the valuation and depreciation of assets.

Over seven million hectares of NSW are managed and protected for conservation by NPWS. This network of some 870 reserves includes forest and non-forest ecosystems and covers close to 9% of the state³¹⁸. In 2011–12, the budgeted recurrent expenses to cover the costs of national park management totalled \$277 million³¹⁹.

FCNSW is a State Owned Corporation that manages more than 2 million hectares of native and plantation forests in NSW. It undertakes a range of activities aimed at developing, maintaining, and obtaining goods and services from state forests; these include harvest supervision and assessment of environmental compliance, management of weeds and animal pests, fire management (including hazard reduction burning and wildfire fighting and prevention), and provision of recreational opportunities. Table 38 shows the expenditure, where data is available, by the predecessors of FCNSW and FCNSW on these activities in the period 2004–05 to 2013–14.

Overall, expenditure on reported forest management activities in state forests in NSW was reasonably stable over the period. Expenditure on firefighting declined substantially as a result of a decrease in the proportion of the state forest estate affected by wildfire within the reporting period (from 3.9% in 2006–07 to less than 1% in 2010–11).

³¹⁸ OEH 2015f, *Acquiring land for conservation reserves*, accessed 7 September 2017
www.environment.nsw.gov.au/acquiringland/index.htm

³¹⁹ NSW Government 2012, *Inquiry into management of public land in New South Wales*, accessed 7 September 2017
<https://www.parliament.nsw.gov.au/committees/DBAssets/InquirySubmission/Summary/52361/0332%20NSW%20Government.pdf>

NSW Regional Forest Agreements Implementation Report 2004–2014

Table 38: Expenditure on forest management in NSW state forests

Activity	2004–05 (\$'000)	2005–06 (\$'000)	2006–07 (\$'000)	2007–08 (\$'000)	2008–09 (\$'000)	2009–10 (\$'000)	2010–11 (\$'000)	2011–12 (\$'000)	2012–13 (\$'000)	2013–14 (\$'000)
Harvest management Supervision and environmental compliance – native forests	6,157	6,009	6,219	5,164	5,561	5,454	5,184	5,750	6,580	7,358
Harvest management Harvest planning and pre-harvest surveys	N/A	N/A	N/A	N/A	3,997	4,755	5,022	5,729	5,471	5,275
Other forest management activities Firefighting and fire prevention – wildfire	2,200	1,400	3,050	1,800	1,000	2,400	100	300	1,800	N/A
Other forest management activities Hazard reduction burning	6,700	6,800	8,180	9,800	9,600	8,300	5,700	6,200	8,200	N/A
Other forest management activities Weed management	669	963	779	597	899	1,125	1,019	1,506	1,421	1,014
Other forest management activities Animal pest management	546	688	586	546	585	591	392	872	717	694
Recreation and tourism Recreation and tourism	2,409	1,918	2,721	2,092	2,437	2,547	2,408	2,537	2,538	N/A
Training and employee development Training	1,920	2,920	2,260	2,200	1,800	1,850	2,680	1,890	1,390	N/A

Source: Forests NSW (2009, 2010b, 2011c).

Table notes: N/A = not available

Data are for forests managed by FCNSW only. Expenditure on some activities includes softwood plantations except those in the Central Tablelands. It is possible that the reported expenditure on the various aspects of forest management are not mutually exclusive, so figures cannot be summed.

In 2013–14, FCNSW established or re-established 7,862 hectares of plantation, all of which was softwood. The associated costs for that year were \$13.9 million (Table 39).

Table 39: Area and cost of plantings in state-owned plantations managed by FCNSW

Activity	Age class (calendar year)								
	2006	2007	2008	2009	2010	2011	2012	2013	2014
New plantation established (hectares)	1,350	370	1,596	472	352	206	50	0	0
Re-established plantations (hectares)	6,799	6,129	9,223	12,088	10,694	9,355	8,232	7,862	9,417
Total established (hectares)	8,149	6,499	10,819	12,560	11,046	9,561	8,282	7,862	9,417
Cost (\$' million)	15.8	13.7	20.8	20.9	17.2	14.5	13.9	13.9	16.3

Source for age classes 2006–12: FCNSW (2014b) Sustainability Supplement 2013–14

Source for age classes 2012–14: FCNSW (2015a) Sustainability Supplement 2014–15

Table note: Data not available for 2004 and 2005 age classes.

Indicator 6.2.b

Investment in research, development, extension and use of new and improved technologies

Rationale

This indicator monitors the investment in, and adoption of, new or improved technologies in forest management and in forest-based industries. It also quantifies the level of research and development. Significant investment in research, development and new technologies result in continual improvements to forest management practices.

Australian Bureau of Statistics (ABS) data show that, between 2005–06 and 2008–09, total expenditure on research and development (R&D) reported by businesses in the forest and wood product sector declined from \$164 million to \$137 million (ABS 2011b, ABS 2012). Only partial data on R&D expenditure are available from the ABS for 2009–10 and 2010–11.

From 2005–06 to 2010–11, the ABS reported that business R&D expenditure increased from \$15.6 million to \$33.2 million in the forestry and logging subsector, but decreased from \$76.3 million to \$62.4 million in the wood product manufacturing subsector. Business R&D expenditure in the pulp, paper and converted paper product manufacturing subsector declined from \$71.1 million in 2007–08 to \$53.8 million in 2008–09 (ABS 2011b, ABS 2012).

A separate survey of the forest and forest products sector, using a different definition of the sector from that used by the ABS, showed R&D expenditure of \$106 million in 2007–08. Adjusted for inflation, expenditure on forestry and forest products R&D has declined by 13.4% between 1981–82 and 2007–08.

The NSW Department of Primary Industries Forest Science group provides technical advice, research and development services to FCNSW under a memorandum of understanding. This group has scientific and technical expertise in forest ecology and sustainability, forest health and resource assessment, carbon in forests, wood products and bioenergy, and biometrical services. Information about recent research activities is included in FCNSW's annual reports.

6.3 Recreation and tourism

Indicator 6.3.a

Area of forest available for public recreation/tourism

Rationale

This indicator measures the area of forest available for use by the community for recreation and tourism purposes. This provides an indication of the emphasis placed by society on the management of forest for recreation and tourism.

Appendix C of this implementation report provides details on the contribution of tourism and recreation activities in forested regions in NSW. Table 40 and Table 41 provide indicators of forest areas available for public recreation and tourism in NSW.

Table 40: Area and proportion of forest available for general recreation and tourism on public land for NSW and Australia by tenure class

Tenure	Multiple-use public forest			Nature conservation reserve			Total
	Total area ^a ('000 hectares)	Proportion available for recreation & tourism	Area available for recreation & tourism ('000 hectares)	Total area ^{1,2} ('000 hectares)	Proportion available for recreation & tourism	Area available for recreation & tourism ('000 hectares)	Area available for recreation & tourism ('000 hectares)
NSW	2,022	99% ³	2,002	5,581	88% ⁴	4,911	6,913
Australia	10,159	99%	10,080	21,478	96%	20,709	30,789

Source: SOFR 2013

Table notes:

(1) See Indicator 1.1a.

(2) Does not include reserves on private or leasehold land.

(3) Data from Forests NSW.

(4) Data from Parks and Wildlife Group, NSW Office of Environment and Heritage.

Figures may differ from those reported in state and territory or regional reports on regional Forest Agreements as a result of different forest-type mapping or more recent data.

Totals may not tally due to rounding.

Table 41: State forest managed by FCNSW for recreation and visual aesthetics

Year ended 30 June	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Area zoned primarily for recreation (hectares)	3,147	4,323	4,490	4,749	6,164	6,090	4,741	4,696	4,744	4,799
Area zoned primarily for visual aesthetics (hectares)	n.r.	n.r.	n.r.	n.r.	n.r.	31,109	40,233	39,957	40,187	40,900

Source: Sustainability supplement to annual reports

Table note: n.r. = not reported

Indicator 6.3.b

Range and use of recreation/tourism activities available

Rationale

This indicator assesses the range and number of recreation and tourism facilities provided in forests, their level of use and their contribution to the broader tourism sector. Appropriate and well managed facilities help to optimise visitor satisfaction as well as minimising environmental impacts associated with recreation and tourism.

In 2010–11, the then Forests NSW issued more than 500 special purpose permits for activities in state forests. The greatest number of permits was issued for fossicking. Other activities for which permits were issued included car rallies, adventure races, bike rallies, mountain bike races, club sporting activities, and events such as dance parties and festivals (Table 42).

A list of facilities provided by FCNSW in recreational visitor sites is provided in Table 43.

Table 42: Number of permits issued by Forests NSW for organised recreational activities in NSW state forests

Activity	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Bow hunting/ archery	2	-	2	2	3	2	10	4
Bushwalking	16	14	8	6	5	8	7	4
Car and bike rallies/ events	43	44	49	54	32	40	48	17
Ecotourism/ four-wheel drive tours	33	12	21	5	21	7	14	8
Education/ outdoor education schools	33	27	49	46	27	11	9	7
Fossicking ¹	n.r.	n.r.	44	22	116	152	320	275
Horse, trail and endurance rides	31	23	29	25	24	24	28	9
Mountain bike rallies	31	16	35	46	51	38	42	22
Orienteering/ mountain runs /triathlon	21	14	22	29	22	26	24	9
Training/ exercises	45	43	29	17	35	34	56	17
Other	62	55	125	288	181	126	10	34
Total	317	248	413	540	517	468	568	406

Source: FCNSW SEEing reports, annual reports (Part 1) and sustainability supplements to annual reports

Table notes: Number of permits issued is not reported in annual reports after 2011–12, i.e. 2012–13 and 2013–14.

n.r. – not reported in the source document

(1) The number of fossicking permits has increased over time, partly because permits are now issued to individuals rather than groups; the actual number of participants may not have increased.

Table 43: Facilities provided by FCNSW for more than 130 designated recreational visitor sites

Year ended 30 June	2009	2010	2011	2012	2013	2014
Camping area	74	93	45	49	48	48
Caravan site	29	16	16	19	19	19
Fireplace/BBQ	92	84	61	59	61	56
Picnic area	67	103	65	67	69	64
Rubbish collection	76	48	32	27	30	26
Toilets	60	62	58	60	61	57
Water (not for drinking)	39	87	40	n/r	40	40
Wheelchair accessible toilets	12	11	8	6	7	6

Source: FNSW annual reports; FCNSW sustainability supplements

Table note: No information in this format is available for the year ended 30 June from 2005 to 2008.

6.4 Cultural, social and spiritual needs and values

Indicator 6.4.a

Area of forest to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes

Rationale

This indicator monitors the degree to which land is placed under appropriate tenure classifications or management regimes to protect Indigenous peoples' values in forests. An acceptable level of accountability for the protection of Indigenous peoples' cultural, religious, social and spiritual needs and values is an essential part of forest management.

The laws that protect Aboriginal cultural heritage in NSW are the:

- NPW Act (NSW)
- EPBC Act (C'wth)
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (C'wth).

A land parcel may be subject to more than one type of management (Table 44). To avoid double-counting, land has been classified for this indicator into the highest applicable of the four Indigenous land tenure and management categories; for example, a land parcel that is a declared Indigenous Protected Area but is also subject to a native title determination is reported here as Indigenous owned and managed.

Table 44: Area of land in NSW, including forest land, under Aboriginal ownership and management, Aboriginal management, Aboriginal co-management and other special rights

Management category	Land cover type	NSW Area ('000 hectares)	Australia Area ('000 hectares)
Aboriginal owned and managed	All	434	106,032
	Forest	129	13,542
Aboriginal managed	All	105	29,908
	Forest	28	2,400
Aboriginal co-managed	All	2,920	15,834
	Forest	2,213	5,364
Other special rights	All	730	158,125
	Forest	366	20,622
Total	All	4,189	309,899
	Forest	2,735	41,928

Source: Australian Bureau of Agricultural and Resource Economics and Sciences.

Table note: Totals may not tally due to rounding.

In the year ended 30 June 2014, FCNSW managed 1,370 hectares for Aboriginal cultural heritage and approximately 60,000 hectares of land with recognised native title (FCNSW 2014b).

Indicator 6.4.b

Registered places of non-Indigenous cultural value in forests that are formally managed to protect those values

Rationale

This indicator measures and monitors management regimes for non-Indigenous cultural values, such as historical, research, education, aesthetic, and social heritage values. Maintaining these values is integral to the protection of non-Indigenous people's values associated with forests.

In 1997, COAG agreed that it was more appropriate for heritage listing and protection to be the responsibility of the government agencies that were best placed to deliver agreed outcomes. This recognised that state and territory governments had passed their own legislation to protect sites that they considered to be significant at the state and territory level. To protect sites with national significance, the Australian Government created the National Heritage List and the Commonwealth Heritage List in 2004, through amendments to the EPBC Act. Australian sites registered on the UNESCO World Heritage List are also protected under this Act (see Indicator 1.1c).

Places of heritage significance to the NSW community are recorded on the State Heritage Register in accordance with the *Heritage Act 1977* (NSW).

Table 45: Area of forested land on sites included in the Non-Indigenous Heritage Sites of Australia dataset

Forest type	Area within NSW ('000 hectares)	Area across Australia ('000 hectares)
Acacia	1	34
Callitris	2	22
Casuarina	68	102
Eucalypt	1,936	5,381
Eucalypt mallee open	9	12
Eucalypt mallee woodland	16	365
Eucalypt low closed	0	5
Eucalypt low open	12	136
Eucalypt low woodland	37	210
Eucalypt medium closed	0	20
Eucalypt medium open	1,087	2,394
Eucalypt medium woodland	568	1,707
Eucalypt tall closed	1	10
Eucalypt tall open	205	482
Eucalypt tall woodland	1	40
Mangrove	1	103
Melaleuca	2	168
Other	77	292
Rainforest	139	1,169
Plantation hardwood	0	7
Plantation softwood	0	5
Plantation mixed and unknown	0	1
Total	2,225	7,285

Source: Australian Bureau of Agricultural and Resource Economics and Sciences, National Forest Inventory.

Table note: Totals may not tally due to rounding.

Indicator 6.4.c

The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management

Rationale

This indicator measures the extent to which Indigenous people participate in forest management. Active participation in forest management reflects the relationship between people and the land, and the integration of Indigenous peoples' values with forest management practice, policy and decision-making.

The FCNSW's Aboriginal Partnership Liaison Team works with Aboriginal communities throughout NSW. This group works to conserve the qualities and attributes of places that have spiritual, historic, scientific or social value for past, present or future generations. They liaise with Aboriginal land councils, elders and community members to gain an understanding of their spiritual connection with the land and to ascertain evidence of past Aboriginal activities in the forest.

A partnership has been maintained with the Darkinjung Local Aboriginal Land Council (LALC) since the early 1990s for joint management of the Warre Warren Aboriginal Place in

McPherson State Forest on the central coast of NSW. In recent years, FCNSW provided a large shelter, water tanks and toilet facilities within Warre Warren, providing the basic facilities for cultural teaching and camps focused on training children and young people in their Aboriginal heritage.

Another partnership arrangement has been developed with the Anaiwan Aboriginal Traditional Owners and maintained for over 10 years at Riamukka State Forest near Walcha. The Anaiwan Traditional Owners use a former forestry depot for cultural teaching and camping. This arrangement has been very successful, with the Anaiwan managing the site and FCNSW providing new water tanks, a teaching shelter, new toilets and a ride-on mower.

In 2010–11, a co-management agreement was signed between FCNSW Southern Region and the Ulladulla LALC relating to an area of state forest that contains significant art sites. The agreement opens the way for use of the area in a LALC ecotourism venture.

In 2014, a permit was issued to Keepa Keepa Inc for cultural heritage teaching and camps on Heaton State Forest on the Sugarloaf Range near Newcastle. Keepa Keepa Inc is affiliated with Awabakal LALC. FCNSW assists with improved security at the site, removal of dangerous trees and provision of a teaching shelter, new toilet and water tanks.

Another arrangement exists with Purfleet-Taree LALC where FCNSW delivers and donates several truckloads of salvage timber prior to each winter. Young members of the community cut and split firewood and deliver it to elders for use as home heating. Permits are also provided free of charge for firewood collection for delivery to elders of Karuah LALC.

FCNSW's Southern region also signed an agreement with the Eden LALC on a *Land & Sea Country Plan*. This will see the LALC develop a group of rangers for FCNSW, the National Parks and Wildlife Service, the shire council, Landcare groups, and the Southern Rivers Catchment Management Authority³²⁰. The intention is for these land management agencies to give a number of Aboriginal people full-time work, such as weed clearing along rivers and beaches, hazard reduction burning for FCNSW and NPWS, and other works for Landcare and the council.

In another project, Eden LALC is working with FCNSW and NPWS on developing a walking track, known as the Bundian Way³²¹, that connects the coast at Eden to the high country around Mount Kosciuszko. The track is based on the travel route used by Aboriginal people to connect the high country to the coast for trade; the route also allowed coastal people to travel to the high country to feast on bogong moths (*Agrotis infusa*). It is hoped that this will bring tourists from around the country and the world to walk the track and visit LALC-owned areas along the route, providing tourism work and money to the local Aboriginal and non-Aboriginal people. The route was mapped in 2010–11, and work continues on camping areas, signage and safety management systems.

Indicator 6.4.d

The importance of forests to people

Rationale

This indicator measures the range of attitudinal values that communities and individuals place on their forests. The importance of forests to society is exemplified through the value that people place on biodiversity, clean air and water, social equity or simply the knowledge that Australia's forests exist.

³²⁰ Now the South East Local Land Services.

³²¹ Eden LALC 2012, *Home*, accessed 17 August 2017 www.bundianway.com.au/index.htm

More than 40% of the respondents to an Australia-wide series of surveys³²² agreed with a survey statement that Australia’s native forests were being managed sustainably. The proportion of respondents who agreed that ‘we should not be cutting down any trees for wood products’ decreased between 2009 and 2012, and the proportion of respondents who agreed that ‘we should use more wood because it is more environmentally friendly than alternative materials’ increased.

The level of understanding about the role of forests in carbon storage is high and increasing. In 2012, more than 90% of respondents to the same series of Australia-wide surveys agreed that trees absorb carbon dioxide, and 71% (up from 52% in 2008) agreed that ‘carbon is stored in wood, even after the tree is harvested’.

About 80% of respondents to a survey in south and central rural NSW indicated that they would consider planting trees for carbon sequestration, and nearly 70% indicated that being paid for carbon sequestration would increase the likelihood that they would plant trees for purposes such as reducing land degradation and providing shelter for stock.

6.5 Employment and community needs

Indicator 6.5.a

Direct and indirect employment in the forest sector

Rationale

This indicator measures the level of direct and indirect employment in the forest sector. Employment is an important measure of the contribution of forests to viable communities and the national economy.

In 2015–16, the ABS estimated³²³ that there were 64,300 employees in the forestry and forest products manufacturing industry (forestry sector) in Australia (compared with 70,500 in 2013–14³²⁴). Around one-third of these are in NSW. These jobs are in several subsectors:

- forestry, logging and support services – 9,600
- sawmilling and timber dressing – 7,900
- other wood product manufacturing – 34,000
- pulp, paper and paperboard – 2,000
- converted paper products 7,200
- other pulp, paper and converted paper – 3,500.

The data indicates that forestry, logging and sawmilling accounts for around 17,500 direct employment positions in Australia, or around 27% of the jobs in the forestry and forest products manufacturing industry.

The remaining 73% of forest sector jobs are in various manufacturing subsectors which source their material inputs from within and outside NSW.

³²² ABARES 2013a, *Australia’s State of the Forest Report 2013*, accessed 9 November 2016
www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2013

³²³ ABARES 2017, *Australia’s forests at a glance 2017: with data to 2015–16*, accessed 18 September 2017
www.agriculture.gov.au/abares/forestsaustralia/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pb_fag17d9abfe20170822.xml

³²⁴ ABARES 2015b, *Australia’s forests at a glance 2014: with data to 2013–14*, accessed 27 July 2017
http://www.agriculture.gov.au/abares/publications/display?url=http://143.188.17.20/anrdl/DAFFService/display.php?fid=pb_fag15d9abfe20151028.xml

Direct employment in the forestry and sawmilling subsectors generates indirect employment in other industries. Limited data are available on indirect forest employment because extensive cross-linkages with other sectors of the economy make estimation difficult.

Indicator 6.5.b

Wage rates and injury rates within the forest sector

Rationale

This indicator measures the level of wage and injury rates in the forest sector. A sustainable industry will ensure high levels of workforce health and welfare and wage rates comparable with national averages for other occupations.

The information presented in this section is taken from Australia's State of the Forest Report 2013 (ABARES 2013a).

Nationally, total wages and salaries in the wood and wood product industries have been between \$3.8 billion and \$4.2 billion from 2005–06 to 2010–11. Over the period, the average wage (not adjusted for inflation) has been increasing in the forestry and logging subsector, in wood product manufacturing, and in the pulp, paper and converted paper product subsector.

Average annual wages in the forestry and logging subsector were estimated to be \$34,467 in 2010–11. This is high compared with most other primary sectors, including agriculture and aquaculture, but low compared with the mining sector.

The average annual wage in the wood product manufacturing sector was estimated to be \$48,568 in 2010–11, which is lower than in most other manufacturing industries. In comparison, average annual wages in the pulp, paper and converted paper product subsector were estimated to be \$72,381 in 2010–11.

The number of serious injury claims in both the forestry and logging and the wood and paper product manufacturing subsectors have been declining in recent years. The decline in the forestry and logging subsector in the incidence rate of serious claims is greater than in the wood and paper products manufacturing subsector.

Between 2003–04 and 2009–10, there were 25 compensated fatalities nationally in the forestry and logging subsector and 21 compensated fatalities in the wood and paper product manufacturing subsectors (ABARES 2013a).

Indicator 6.5.c

Resilience of forest dependent communities to changing social and economic conditions

Rationale

This indicator provides a measure of the extent to which forest dependent communities are able to respond and adapt to change successfully. Resilient forest dependent communities will adapt to changing social and economic conditions, ensuring they remain viable into the future.

The information presented in this section is taken from Australia's State of the Forest Report 2013 (ABARES 2013a).

This indicator considers only the dependence of communities on the forest and wood products industries, and not on other forest activities such as tourism or grazing.

A clear measure of the resilience of communities in adapting to change is not available. Information is presented about the characteristics of communities and workers in forest and wood products industries that may affect their capacity to adapt, and that informs our understanding of community resilience.

The proportion of people directly employed in an industry can indicate the level of a community's economic dependence on that industry. Beyond those directly employed in the forest and wood products industries, it is difficult to determine the economic dependence on forests of forest users such as apiarists, graziers, ecotourism operators, training providers and transport contractors, and potentially some personnel involved in forest management. Since these categories are not included in this assessment of forest dependence, forest-related employment is potentially underestimated by the available figures.

Communities are considered to show medium-to-high relative community dependence on forest and wood products industries when employment in the sector is at least 4% of total community employment. In NSW there are seven Statistical Local Areas (SLAs) that satisfy this condition (Table 46).

Table 46: Characteristics of NSW Statistical Local Areas with more than 4% employment dependence on, and more than 20 workers employed in, the forest and wood products industries

Statistical Local Area ¹	Employed in forest and wood products industries				All industries	Adaptive capacity ranking ⁴ 2006
	Number of people 2011	Proportion of workforce 2011 (%)	Change in employment 2001–06 ² (%)	Change in employment 2006–11 ³ (%)	Change in total employment 2006–11 (%)	
Oberon	394	17.45	8.65	-7.73	-0.66	Middle
Bombala	163	15.22	-0.64*	4.49*	-1.47	Lower
Tumut Shire	717	15.22	1.65	-3.24	4.06	Middle
Tumbarumba	185	13.08	2.56*	-7.50	-5.35	Lower
Clarence Valley-Balance	113	5.30	7.19*	-24.16	5.33	Lower
Clarence Valley-Grafton	412	4.81	27.83	-6.58	4.92	Middle
Kyogle	135	4.03	-46.85	14.41	0.72	Lower
Australia ⁵	73,267	0.75	7.2	-14.1	9.7	-

Source: ABS (2011a) *Census of Population and Housing*, ABS, Canberra.

Table notes: SLA = Statistical Local Area

(1) 2001 and 2006 comparative data are based on 2006 SLA boundaries, and 2011 data are based on 2011 SLA boundaries. There are no significant boundary differences for the SLAs listed.

(2) & (3) Percentage change calculated from change in absolute employment numbers between census years. Changes of 10 or fewer individuals are indicated by *.

(4) Adaptive capacity ranking is only currently available from 2006 census data. 'Lower', 'middle' and 'higher' refer to the adaptive capacity index relative to all SLAs with 20 or more forest-sector workers. The adaptive capacity index combines sub-indices for human and social capital, and economic diversity.

(5) Data based on total aggregated SLAs across Australia.

* Indicates changes of 10 or fewer individuals.

The following case study presents discussion on the potential adaptive capacity and contribution of forestry to the Tumut community (from SOFR 2013 (ABARES 2013a)).

Tumut in southern NSW provides a good example of a community that has been able to take advantage of embodied local resources – natural, physical, human and social capital – to attract significant investment in the local forestry sector (Tumut Shire Council 2010).

The expansion of forestry in the region since 1991 has contributed to stable economic growth, and to population stability in towns that otherwise would have been likely to experience population decline³²⁵ (Schirmer et al. 2005).

Tumut is ranked 'middle' in terms of its potential adaptive capacity relative to other forest dependent localities in Australia (Table 46). Tumut's degree of adaptive capacity is a result of moderate levels of human capital and economic diversity, and a slightly lower level of social capital than other forest dependent localities. This indicates that Tumut could be expected to respond reasonably well to 'shocks' affecting the community, and to be able to take advantage of investment opportunities that may derive from other economic, geographic or biophysical factors.

Table 47: Forestry worker characteristics in NSW SLAs with more than 4% employment dependence on, and more than 20 workers employed in, the forest and wood products industries, 2006 and 2011

Characteristics Statistical Local Area ¹	Median age (years)		Workers with non- school qualification ²		Unskilled workers ³		Low-income earners ⁴	
	2011	2006	Proportion 2011 (%)	Change 2006–11 (%)	Proportion 2011 (%)	Change 2006–11 (%)	Proportion 2011 (%)	Change 2006–11 (%)
Oberon	41	39	39.3	5.1	23.4	-0.8	2.5	-0.7
Bombala	41	38	30.1	7.0	28.2	-8.3	1.8	-3.9
Tumut Shire	44	41	47.6	5.2	20.2	-5.0	5.0	-1.9
Tumbarumba	41	37.5	49.7	11.7	22.2	-11.8	1.6	-2.9
Clarence Valley – Balance	45	44	34.5	2.3	38.1	1.8	10.6	1.9
Clarence Valley – Grafton	42	39	30.6	1.3	35.4	0.3	8.3	0.8
Kyogle	45	44	38.5	6.3	43.7	3.9	11.1	5.2
Australia – forest workers ⁵	42	40	48.6	5.4	15.9	-2.1	8.0	-3.3
Australia – all workers ⁶	40	40	58.9	6.0	9.4	-1.0	15.9	-5.0

Source: ABS (2006, 2011a).

Table notes: SLA = Statistical Local Area

(1) Comparative data are based on 2006 SLA boundaries. There are some minor differences with 2011 SLA boundaries, but no significant differences for the SLAs listed.

(2) Workers holding a qualification at the level of certificate, diploma or advanced diploma, bachelor degree, graduate certificate or graduate diploma, or postgraduate degree.

(3) Workers who identified their occupation as 'labourer'.

(4) Workers whose median weekly income was less than \$400.

(5) Whole-of-workforce comparison figures (forest and wood products industries) for all SLAs in Australia.

(6) Whole-of-workforce comparison figures, all industries.

Plantations of radiata pine (*Pinus radiata*) were first established in Tumut Shire in the 1920s, with large-scale processing occurring in the area since the 1950s. In 2000, the consistent quantity and quality of the timber produced in the area (natural capital), the proximity of major road transport infrastructure (Hume Highway) and existing processing infrastructure

³²⁵ Schirmer J, Parsons M, Charalambou C & Gavran M 2005, *Socio-economic Impacts of Plantation Forestry in the South West Slopes Region (NSW)*, Australian Government, Canberra, accessed 9 August 2017

[www.fwpa.com.au/images/resources/PN04.4007%20south%20west%20slopes%20region%20\(NSW\).pdf](http://www.fwpa.com.au/images/resources/PN04.4007%20south%20west%20slopes%20region%20(NSW).pdf)

(physical capital), and the strength of the community and an available skilled workforce (social and human capital) attracted substantial investment by Visy Industries, which selected Tumut from a host of international contenders as the location for its kraft paper mill (Visy 2011).

Wood production and associated manufacturing in Tumut have diversified the declining regional economy, and their combined value currently exceeds \$600 million per year. The forest and wood products industries have underpinned significant employment in Tumut, and directly employed 15.2% of the working population in 2011. Although there was a small drop in forest-sector employment from 2006 to 2011 (741 to 717 employees), there was a 4% rise in total employment across all industries. Flow-on employment has also been generated by, for example, several Tumut-based enterprises that provide engineering and technical services to the Visy paper mill and to forest and wood product industries across NSW. Accredited training courses, delivered via the Tumut campus of TAFE NSW, have been established to service the training needs of a range of plantation-sector employees.

The forest and wood products industries have also contributed to the broader Tumut community by supporting community initiatives. For example, Visy Industries has provided funding for local building improvements, and for tree planting and other environmental projects.

Indicator 6.5.d

Resilience of forest dependent Indigenous communities to changing social and economic conditions

Rationale

This indicator provides a measure of the extent to which forest dependent Indigenous communities are able to respond and adapt to change successfully. Resilient forest dependent Indigenous communities will adapt to changing social and economic conditions, ensuring they prosper into the future.

Section 2.6 of this implementation report includes detail on ways in which the NSW Government promotes Aboriginal heritage by developing guidelines and facilitating ongoing Aboriginal involvement in the management of the national park estate and state forests.

All Aboriginal communities, including those in the areas now covered by the three NSW RFAs, were forest dependent prior to, and for many years after, European settlement. Aboriginal people are the most disadvantaged group in NSW, including in the RFA regions, experiencing shorter lives and higher rates of unemployment, illness, violence, and incarceration than other people in NSW. Aboriginal communities have demonstrated resilience by continuing to live in forested regions and other places that have been subject to enormous changes in social and economic conditions, including land dispossession and forced relocations. Contemporary Aboriginal communities continue to rely on forested landscapes for food, materials, recreation, employment, and economic, spiritual and social wellbeing.

Table 48 provides information on Indigenous communities and the Indigenous workforce employed in the forest and wood products industries in selected NSW regions. This data is used to inform an understanding of resilience, as no single measure for resilience is possible (SOFR 2013). The number of people directly employed in forest and wood products industries is used as an indicator of the economic dependence of Indigenous communities on these industries.

Table 48: Characteristics of Indigenous communities and workers in NSW regions with more than 0.4% of the Aboriginal workforce employed in forest and wood products industries 2011

Indigenous Region ¹	Community characteristics – employment dependence				Characteristics of Indigenous workers in forest & wood products industries				Land tenure	
	Number of Indigenous people employed in forest and wood products industries	Proportion of Indigenous workforce employed in forest and wood products industries (%)	Change in number employed, 2006–11 ² (%)	Indigenous people in population (%)	Median age (years)	Secondary school qualification ³ (%)	Non-school qualification (%)	Unskilled workers (labourers) (%)	Indigenous-owned or managed land ('000 hectares) ⁴	Forest on Indigenous-owned or managed land ('000 hectares) ⁴
South-Eastern NSW	37	1.38	-0.48	3.5	41	11.1	44.7	34.2	28	27
North-Eastern NSW	42	1.13	-0.34	8.8	27	26.7	17.1	43.9	21	14
NSW Central and North Coast	128	0.96	-0.24	3.8	35	31.7	25.6	41.6	28	22

Source: SOFR 2013

Table notes:

- (1) Indigenous Regions are geographical units used by the Australian Bureau of Statistics.
- (2) Difference in percentage employed from 2006 to 2011.
- (3) Secondary school qualification is defined as Year 12 or equivalent as highest year of school completed.
- (4) Includes Indigenous-owned land and Indigenous-managed land as described in Indicators 6.4a and 6.4c. Indigenous co-managed land and land with other special rights have not been included because they are less suitable for the forest and wood products industry, due to restrictions on resource extraction based on tenure type or land ownership.

Criterion 7 Legal, institutional and economic framework for forest conservation and sustainable management

Indicator 7.1.a

Extent to which the legal framework supports the conservation and sustainable management of forests

Rationale

This indicator outlines the support that the legal system gives to the sustainable management of forests. A legal system that ensures transparency and public participation in policy and decision-making processes supports the continuous improvements in sustainable forest management.

Effective legal, institutional and economic frameworks are critical for sustainable forest management. The operating legal system defines and allocates legal and regulatory responsibilities, and provides for public participation and the protection of conservation values.

The Forestry Act commenced on 1 January 2013. It provides for the dedication, management and use of state forests and other Crown-timber land for forestry and other purposes; constitutes FCNSW as a statutory State Owned Corporation and specifies FCNSW's objectives and functions; and repeals the *Forestry Act 1916* (NSW) and the *Timber Marketing Act 1977* (NSW).

The Forestry Act provides that the NSW Minister for the Environment and the NSW Minister for Lands and Forestry may jointly grant an integrated forestry operations approval (IFOA) to FCNSW to conduct forestry operations on Crown-timber land. The IFOA is a single approval which integrates the planning and threatened species management regulatory frameworks. Key components of the IFOAs are the licences issued under the TSC Act, the FM Act and the POEO Act. FCNSW is liable to financial and other penalties for failures to comply with the terms of the IFOAs, including the licences.

Appendix B of this implementation report provides further details on the legal framework applying to forest management in NSW.

Indicator 7.1.b

Extent to which the institutional framework supports the conservation and sustainable management of forests

Rationale

This indicator examines the institutional frameworks that support sustainable forest management. Institutional frameworks provide mechanisms for engagement of the wider community in the process of continuous improvement and sustainable forest management.

Institutions provide mechanisms for policy-making and decision-making, and for the engagement of the wider community in continuous improvement in sustainable management of forests.

Appendix B provides a detailed description of forest management in NSW, including the institutional framework.

OEH manages the national park estate in NSW.

The DPI (Forestry) provides advice on forest industry policy, undertakes forest science research, and is responsible for the development and application of plantations policy and regulation.

The DPI (Fisheries) provides advice on matters related to the FM Act including those related to threatened species licences, which form part of the IFOAs.

The EPA, NSW's principal environmental regulator, implements the environmental regulatory framework for native forestry operations.

FCNSW was established as a State Owned Corporation in January 2013. Its statutory principal functions include carrying out forestry operations, taking forest materials from state forests, selling timber products and establishing and maintaining plantations.

FCNSW has been externally audited to check compliance with the AFS (AS4708—2007) and its revised version the Australian Standard for Sustainable Forest Management (AS4708—2013) as well as its environmental management system (ISO 14001:2004). Three regions and the corporate systems were audited against environmental, social, economic and sustainability criteria (Sustainability Supplement 2013–14 to FCNSW's Annual Report and Business Sustainability Framework).

The NSW Government’s legislation for making data publicly available is under the *Government Information (Public Access) Act 2009* (GIPA Act). This Act is the NSW Government’s approach to giving the community greater access to information. The NSW Government has made a commitment to provide access to information held by the Government, unless on balance it is contrary to the public interest to provide that information.

NSW provides mechanisms for the engagement of the wider community in sustainable forest management through various agency or FCNSW programs, which include public education materials and resources³²⁶, awareness and extension³²⁷, Indigenous participation and awareness³²⁸, and provision of information³²⁹.

FCNSW is an active member of the Australian Forest Education Alliance³³⁰, a network of forestry industry partners from across Australia that runs the ForestLearning education program. Through ForestLearning, FCNSW contributes to the development and provision of curriculum-aligned education resources for teachers using forestry and forest and wood products as a pathway for meeting education outcomes for students. While outside the reporting period, work began in 2014–15 on mapping existing education resources to the Australian Curriculum, developing new resources where required and building a new website to improve teacher access to resources³³¹.

³²⁶ OEH 2017e, *Education resources*, accessed July 2017 www.environment.nsw.gov.au/education-resources

NPWS 2016, *What can NSW National Parks offer schools?*, accessed 16 August 2017

www.nationalparks.nsw.gov.au/education-services/what-national-parks-offers-schools

FCNSW n.d., *Resources and publications*, accessed July 2017 www.forestrycorporation.com.au/our-forests/education

Forest Learning n.d, *Home*, accessed June 2017 <http://forestlearning.edu.au/>

DPI n.d., *School resources*, NSW Department of Primary Industries, accessed 16 August 2017

www.dpi.nsw.gov.au/education-and-training/school-resources

Tocal College n.d., *Private Native Forestry AgGuide – managing the forest on your farm*, accessed 16 August 2017 www.tocal.nsw.edu.au/publications/list/natural-resources-and-environment/pnf-farm-forest

³²⁷ EPA 2014b, *Private native forestry training clips*, NSW Environment Protection Authority, accessed 10 November 2016 www.epa.nsw.gov.au/pnf/trainingvideos.htm

Local Land Services n.d., *Native vegetation*, accessed 16 August 2017 www.lls.nsw.gov.au/land-and-water/native-vegetation

OEH 2017l, *Native vegetation*, accessed October 2017

www.environment.nsw.gov.au/vegetation/index.htm

³²⁸ OEH 2015e, *Connection to Country*, accessed 10 November 2016

www.environment.nsw.gov.au/nswcultureheritage/Biodiversity.htm

OEH 2017f, *Aboriginal cultural heritage reforms*, accessed July 2017

www.environment.nsw.gov.au/achreforms/

OEH 2012, *How the Aboriginal heritage system works*, accessed July 2017

www.environment.nsw.gov.au/resources/cultureheritage/20120401system.pdf

FCNSW 2017b, *Aboriginal Partnerships*, accessed July 2017

www.forestrycorporation.com.au/management/aboriginal-partnerships

FCNSW n.d., *Protecting our ancient treasures*, accessed July 2017,

www.forestrycorporation.com.au/__data/assets/pdf_file/0003/235614/ILF-protecting-our-ancient-treasures.pdf

³²⁹ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016,

www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

³³⁰ Forest Learning n.d, *Home*, accessed June 2017 <http://forestlearning.edu.au/>

³³¹ FCNSW 2015a, *Forestry Corporation NSW Annual Report and Business Sustainability Framework: Sustainability Supplement 2014–15*, accessed 22 June 2017

www.forestrycorporation.com.au/__data/assets/pdf_file/0003/590340/FCNSW0281-SustainabilitySupp_FY15010216.pdf

Indicator 7.1.c

Extent to which the economic framework supports the conservation and sustainable management of forests

Rationale

This indicator examines the extent to which Government policies support the conservation and sustainable management of forests. Government policies on investment, taxation and trade influence the level of investment in forest conservation, forest establishment and timber processing.

Australian and NSW government economic policies on investment, taxation and trade influence investment in forest conservation, and sustainable forest establishment, growing, harvesting and wood processing.

The Australian Government introduced the *Illegal Logging Prohibition Act 2012 (C'wth)* and the *Illegal Logging Prohibition Regulation 2012*. Under this Act, it is a criminal offence to import illegally logged timber and timber products into Australia or to process domestically grown raw logs that have been illegally logged. This prohibition applies to all imported timber and timber products and all domestically grown logs processed in Australia. State specific guidelines were developed to help processors better understand the legal frameworks used in each Australian state to regulate the harvesting of timber³³².

In March 2014, the *Protection of the Environment Operations (General) Regulation* was amended to allow residues, pulpwood logs, heads, offcuts and thinnings from authorised clearing and timber harvesting to be burnt for electricity generation, consistent with other states.

NSW from time to time offers forest related incentives that are targeted to address specific priorities or reform objectives; for example, commencing in Period 2 and ceasing in Period 3, NSW had three industry restructuring packages:

- two occurred outside the RFA regions (relating to cypress pine and river red gum forests)
- one was for all of NSW and was not RFA region specific (relating to a combined industry restructuring, training and accreditation package after the introduction of the PNF Code).

To encourage conservation on private land, NSW introduced BioBanking (the Biodiversity Banking and Offsets Scheme) in 2008, a voluntary, market-based scheme designed to help conserve biodiversity and streamline the biodiversity assessment process for development. The scheme operates across all of NSW and is not restricted to forested areas or RFA regions. Further information on BioBanking is publicly available³³³.

³³² Department of Agriculture and Water Resources n.d., *Illegal logging guidance material and resources State specific guidelines*, accessed June 2017
www.agriculture.gov.au/forestry/policies/illegal-logging/information-resources#state-specific-guidelines

³³³ OEH 2016i, *BioBanking: a market-based scheme*, accessed 10 November 2016
www.environment.nsw.gov.au/biobanking

Indicator 7.1.d

Capacity to measure and monitor changes in the conservation and sustainable management of forests

Rationale

This indicator examines the capacity of forest owners and agencies to measure and monitor changes in the forest and the impact of forest activities. A comprehensive measurement and monitoring programme provides the basis for forest planning to support sustainable management.

A measurement and monitoring program provides the basis for planning to support sustainable forest management in NSW. Relevant and up-to-date information about forest condition is available to forest managers and provides a measure of the capacity to demonstrate sustainable forest management³³⁴.

Reporting on the capacity to measure change provides forest managers with the opportunity to revise and prioritise data collection so that future measurement and monitoring are more relevant and informative.

Section 69H of the Forestry Act provides that the NSW Minister for the Environment is to prepare an annual report on each Forest Agreement, including with respect to ESFM and compliance with any IFOAs. Each report is to be tabled in both Houses of the NSW Parliament.

The five-yearly reviews of the NSW RFAs provide another mechanism for reporting on ESFM.

NSW also contributes to the five-yearly State of the Forests Report.

FCNSW reports annually on social, economic and environmental indicators in the sustainability supplement to its annual report. To support these reporting processes and other obligations, FCNSW operates measurement and monitoring programs covering: inventory plot measurements, soil and water, forest health, biodiversity including threatened species, carbon, and productive capacity (FRAMES modelling to estimate sustainable yield).

The following list provides some examples of measurement, inventory and monitoring programs managed by various agencies that are relevant to the NSW RFA regions:

- NSW Report on Native Vegetation (OEH)
- Mapping Threatened Ecological Communities in State forests (EPA)
- Koala habitat and occupancy mapping program (EPA)
- Private native forestry outcomes monitoring project (EPA)
- Mapping the extent of BMAD (joint project between FCNSW, DOI/DPI, OEH, NPWS)
- Biodiversity monitoring (FCNSW)
- Soil and water monitoring (FCNSW)
- Plantation health (FCNSW)
- Inventory plot measurement (FCNSW)
- Quantifying forest residues (DOI)
- Extent and quality of the private native forestry resource (DOI)
- Mechanical fuel reduction trial to address bushfire impacts (DOI)
- State of the Parks (NPWS)
- Gondwana Rainforests of Australia (various species monitoring from 2009–2014) (OEH)
- Atlas of NSW Wildlife (BioNET) (OEH)
- *Saving our Species* (OEH)

³³⁴ ABARES 2013a, *Australia's State of the Forest Report 2013*, accessed 9 November 2016 www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2013

- Statewide vegetation type monitoring (OEH)
- Statewide Landcover and Trees Study: vegetation change monitoring – woody and non-woody vegetation extent (OEH)
- Environmental monitoring, assessment and reporting framework – in development (OEH)
- NPWS Volunteer Program (Rural Fire Service coordinator): long-term monitoring of fire sensitive rainforests.

Indicator 7.1.e

Capacity to conduct and apply research and development aimed at improving forest management and delivery of forest goods and services

Rationale

This indicator reports on the scientific understanding of Australian forest ecosystem characteristics and functions needed to underpin sustainable forest management. Research, inventory and the development of assessment methodologies provide the basis for sustainable forest management.

A scientific understanding of the characteristics and functions of forest ecosystems underpins their sustainable management in NSW. Research and development provides the basis for biological and wood inventories, forest health surveillance, improvements in operational forest management and silviculture, and the development of methods for assessing sustainable forest management.

The NSW DPI Forest Science group provides technical advice, and research and development services to FCNSW under a memorandum of understanding (MOU). This group has scientific and technical expertise in the core activities of forest ecology and sustainability, forest health and resource assessment, carbon in forests, wood products and bioenergy, and biometrical services. FCNSW invested \$1.8 million in research and development under this MOU during 2013–14, which compared with \$6.9 million reported in 2005–06.

FCNSW has invested significant resources (through the Forest Science group) into demonstrating the technical feasibility of utilising remote sensing technologies, including optical and laser sensors (e.g. LiDAR – light detection and ranging), for forest resource assessment and monitoring. Adoption by forest managers of new remote sensing technology is occurring where it is shown to provide a competitive advantage, reduce risk or improve return on investment. Current attention is focused on the cost-effective deployment and integration of remotely derived spatial products into forest resource information and planning systems. Further information on the application of LiDAR by FCNSW is found in Appendix G.

Appendix A Status of milestones and commitments

The various categories³³⁵ listed under 'status of commitments' in Table 49, Table 50 and Table 51 mean:

Status	Definition
Achieved	Undertaken and completed in Period 1, Period 2 or Period 3
Achieved outside proposed timeline	Achieved in either Period 1, Period 2 or Period 3 but outside the original proposed timeline
Achieved in part	Partially undertaken or modified
Not applicable	Not required in the reporting period
No longer applicable	Overtaken by subsequent events
Not achieved	Not commenced

Table 49: Summary of Parties' progress implementing NSW RFA commitments as at June 2014

Status of commitments	North East RFA	Southern RFA	Eden RFA	TOTAL	%
Achieved	82	78	67	227	60%
Achieved outside proposed timeline	15	22	16	53	14%
Achieved in part	21	22	13	56	15%
Not applicable	6	6	7	19	5%
No longer applicable	6	6	7	19	5%
Not achieved	0	1	1	2	1%
TOTAL	130	135	111	376	100%

Table note: Table 51 includes all the NSW RFAs' commitments, including those listed in clauses 108.1 to 108.11 and 109.1 to 109.2, which replicate the same commitments made elsewhere in the RFAs. For this reason, the tally of the status of the commitments in Table 49 omits the commitments in clauses 108.1 to 108.11 and 109.1 to 109.2, to avoid double counting.

The Parties assessed the three NSW RFAs to identify actionable items, by one or more of the Parties, within the commitments and obligations. As required through a clause in each NSW RFA, the designated milestones within an Attachment to each NSW RFA are also subject to reporting through the five-yearly review. The combination of the actionable items and the designated milestones provided the suite of milestones, commitments and obligations to which the Parties have provided responses in this five-yearly implementation report.

A summary of the breakdown of achievements by the commitments in clauses or those in attachments for each NSW RFA is provided in Table 50. Table 51 is a quick reference tool; for the detailed achievements against each RFA region, please refer to the main body of this report.

³³⁵ Generally, these categories have been used in five-yearly reporting in other RFA states to provide harmonised categorisation. The Parties have agreed that the 'Reviewers Recommendation 5' from the first five-yearly review is now met by these categories and the content of the responses in relevant clauses.

Table 50: Summary of Parties' progress implementing NSW RFA commitments (in clauses or attachments) by RFA region as at June 2014

Status of the commitment	North East RFA				Southern RFA				Eden RFA			
	Clauses	Attachments	Sub total	%	Clauses	Attachments	Sub total	%	Clauses	Attachments	Sub total	%
Achieved	61	21	82	63%	53	25	78	58%	52	15	67	60%
Achieved outside proposed timeline	8	7	15	12%	14	8	22	16%	8	8	16	14%
Achieved in part	13	8	21	16%	13	9	22	16%	9	4	13	12%
Not applicable	6	0	6	5%	6	0	6	4%	7	0	7	6%
No longer applicable	5	1	6	5%	5	1	6	4%	6	1	7	6%
Not achieved	0	0	0	0%	0	1	1	1%	0	1	1	1%
Total	93	37	130	100%	91	44	135	100%	82	29	111	100%

Table note: Table 51 includes all the NSW RFAs' commitments, including those listed in clauses 108.1 to 108.11 and 109.1 to 109.2, which replicate the same commitments made elsewhere in the RFAs. For this reason, the tally of the status of the commitments in Table 50 omits the commitments in clauses 108.1 to 108.11 and 109.1 to 109.2, to avoid double counting.

Table 51: Status of the Parties' progress implementing NSW RFA commitments as at June 2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
6 (All) ³³⁶	Parties to determine the process for extending the agreement for a further period.	Achieved in part	Achieved in part	Achieved in part
8 (All)	This Agreement may only be amended with the written consent of both Parties. Parties will cooperate to address any differences between them regarding the Agreement.	Achieved	Achieved	Achieved
9 (All)	Parties will quickly resolve any disputes between themselves regarding this Agreement.	Achieved	Achieved	Achieved
E – 17 (a)	Parties to develop regional development initiatives to be funded from unspent Commonwealth and State funds committed under the South East Forest Agreement.			Achieved
19 (All)	Neither Party will use legislation to undermine this Agreement.	Achieved	Achieved	Achieved
21 (All)	Parties to manage respective responsibilities with regard to the National Estate.	No longer applicable	No longer applicable	No longer applicable
NE – 26 E – 25 S – 26	The Commonwealth (C'wth) to cooperate with New South Wales (NSW) agencies regarding its endangered species protection obligations in the Upper North East (UNE) and Lower North East (LNE) regions.	Achieved	Achieved	Achieved
NE – 27 E – 26 S – 27	Parties will participate in the further World Heritage (WH) assessment of the relevant Australian themes specified in WH Expert Panel report.	Achieved	Achieved	Achieved
NE – 28 S – 28	WH properties within the RFA regions will be subject to the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act 1999).	Achieved	Achieved	
NE – 29	Parties will develop funding and management arrangements for the WH listed area in the Greater Blue Mountains.	Achieved		
NE – 30 E – 27 S – 29	C'wth to give full consideration to the potential social and economic consequences of WH Nomination of places in RFA regions.	Not applicable	Not applicable	Not applicable
NE – 31 E – 28 S – 30	WH Nomination involving any forest area in the UNE and LNE regions will be from within the CAR Reserve System.	Not applicable	Not applicable	Not applicable

³³⁶ (All) indicates that the action applies to the three NSW RFAs.

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 32 E – 29 S – 31	Prior to a WH Nomination, Parties must agree on management arrangements, funding and develop a management plan that is suitable for accreditation under Section 46 of the EPBC Act 1999.	Not applicable	Not applicable	Not applicable
NE – 33 S – 32	C'wth to use its best endeavours to secure the enactment of legislation which amends the EPBC Act 1999 by 30 June 2000.	Achieved	Achieved	
NE – 34 E – 30	Exports of native forest hardwood woodchips will only be permitted from RFA areas.	Achieved		Achieved
NE – 35 E – 31 S – 33	The <i>Export Control Act 1982</i> (C'wth) will not apply to hardwood Woodchips or Unprocessed Wood sourced from the UNE and LNE regions.	Achieved	Achieved	Achieved
NE – 36 E – 33 S – 34	RFAs and any Integrated Forestry Operations Approvals (IFOAs) for the Eden, UNE, LNE and Southern regions are parts of the NSW Forest Management System (FMS).	Achieved	Achieved outside proposed timeline	Achieved
NE – 37 E – 35 S – 36	NSW to notify the C'wth of any amendment or termination of a forest agreement or amendment, suspension or revocation of any IPOA which applies to the regions.	Achieved in part	Achieved in part	Achieved in part
NE – 39 E and S – 37	Parties to report annually on the achievement of milestones in this Agreement (first five years).	Achieved	Achieved	Achieved
NE – 40 E and S – 38	Parties to conduct five-yearly reviews of the Agreement to provide an assessment of progress of the Agreement against the milestones.	Achieved in part	Achieved in part	Achieved in part
NE – 41 E and S – 39	The review will not involve renegotiation of the Agreement. Minor changes may be made to incorporate the results of the review.	Not applicable	Not applicable	Not applicable
NE – 42 E and S – 40	The Parties to determine the mechanism for the five year review.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 43 E and S – 41	C'wth will table the signed RFA, annual reports of achievement of milestones and the first five yearly review in the C'wth Parliament.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 44 E and S – 42	Parties agree that the key elements for achieving Ecologically Sustainable Forest Management (ESFM) are: (a) a CAR Reserve System (b) internationally competitive forest products industries; and (c) integrated, complementary and strategic FMS capable	Achieved	Achieved	Achieved

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 46 E and S – 44	NSW aims to achieve ESFM on Public and Private Land and to continually review regulatory controls to improve the efficiency of the ESFM regulatory environment.	Achieved	Achieved	Achieved
NE – 47 E and S – 45	In providing for ESFM, NSW will amend its FMS to implement the undertakings of this Agreement.	Achieved	Achieved	Achieved
S – 46	NSW to establish a forest agreement and IFOA covering the Southern region.		Achieved outside proposed timeline	
NE – 48 E – 46 S – 47	NSW undertakes to: (a) Maintain FAs covering both the UNE and LNE regions. [S – (a) Make and maintain for the duration of this Agreement a FA covering the Southern region]	Achieved	Achieved outside proposed timeline	Achieved
	(b) Maintain for the duration of this Agreement an IFOA covering the UNE and LNE regions [E46(g)]	Achieved	Achieved outside proposed timeline	Achieved
	(c) Complete and publish management plans for areas dedicated under the NPW Act (NSW) [E46(b)]	Achieved in part	Achieved in part	Achieved in part
	(d) Complete and publish Regional ESFM Plans for State forests. [E46(c)]	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
	(e) Implement the Forest Management Zoning system for the Eden, Southern, UNE and LNE regions. [E46(d)]	Achieved	Achieved	Achieved
	(f) Manage cultural values in UNE and LNE consistent with guidelines. [E46(e)]	Achieved	Achieved	Achieved
	(g) Implement the review and monitoring processes and develop the strategic and operational requirements of Sustainable Yield systems and processes to enable the review of Sustainable Yield. [E46(f)]	Achieved	Achieved outside proposed timeline	Achieved outside proposed timeline
	(h) Develop and implement environmental management systems.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 49 E – 47 S – 48	NSW to report on the monitoring results of Sustainability Indicators.	Achieved	Achieved	Achieved
NE – 50 E – 48 S – 49	Parties to provide ongoing opportunities for public participation, consultation and reporting.	Achieved	Achieved	Achieved

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 51 E – 49 S – 50	NSW to annually report on compliance of the IFOA applying to the Eden, UNE, LNE and Southern regions and furnish the C'wth with a copy of these reports.	Achieved in part	Achieved in part	Achieved in part
NE – 52 E – 50 S – 51	The C'wth to assist with the continuing improvement in the ESFM of NSW's FMS.	Achieved	Achieved	Achieved
NE – 53 E and S – 52	Parties to monitor and review the sustainability of forest management practices to enhance the current FMS. (a) The Sustainability Indicators referred to in clause 49 (E – clause 47) are consistent with the Montréal Process Criteria	Achieved	Achieved	Achieved
	(b) Both Parties agree that the indicators referred to in clause 49 (E – clause 47) are to be trialed and assessed during the first five year period to ensure they are practical, measurable, cost-effective and capable of being implemented at the regional level	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
	(c) Reporting on the indicators referred to in clause 49 (E – clause 47) will be under the headings of the Montréal Process Criteria as in Attachment 9 (E – Attachment 8);	Achieved	Achieved	Achieved
	(d) Both Parties agree to further develop, review, and if necessary revise Sustainability Indicators in time for the first five-yearly review.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 54 E and S – 53	The Parties reaffirm their commitments made in the National Forest Policy Statement (1992) to the conservation and management of the private forest estate. NSW has provisions under the <i>Native Vegetation Conservation Act 1997</i> (NSW) to regulate native forest clearance on Private Land.	Achieved	Achieved	Achieved
NE – 55 E and S – 54	Parties to encourage private forest owners to ensure that their management operations are consistent with ESFM practices.	Achieved	Achieved	Achieved
NE – 56 E and S – 55	CAR Values on Private Land will be guided by principles in each NSW RFA. CAR values can be managed consistently with the JANIS Reserve Criteria, with the consent of the land owner.	Achieved	Achieved	Achieved
NE – 57 E and S – 56	NSW to produce a Code of Practice for native forest timber harvesting on Private Lands.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 58 S – 57	Complete a Code of Practice for Private Land Plantations.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 59 S – 58	Conservation achievements in the CAR Reserve System will not later be used as a basis for preventing Private Land timber harvesting.	Achieved	Achieved	Achieved
NE – 60 E – 57 S – 59	The protection of rare or threatened flora, fauna and ecological communities will be provided for by a suite of Commonwealth and State legislation, management strategies and the IFOA.	Achieved	Achieved	Achieved
NE – 61 E – 58 S – 60	Where threatened species, ecological communities and threatening processes are listed under both the <i>Threatened Species Conservation Act 1995</i> (NSW) and the <i>Endangered Species Protection Act 1992</i> (C'wth), Recovery Plans or Threat Abatement Plans to be jointly prepared to meet both Acts' requirements.	Achieved	Achieved	Achieved
NE – 62 E – 59 S – 61	The management prescriptions or actions identified in jointly prepared Recovery Plans or Threat Abatement Plans will be implemented with priority.	Achieved	Achieved	Achieved
NE – 63 E – 61 S – 62	Recovery Plans for items under both Acts and extending beyond NSW will be prepared jointly with NSW and other relevant governments. ³³⁷	No longer applicable	No longer applicable	No longer applicable
NE – 64 E – 62 S – 63	Parties to consult on the priorities for listing of threatened species, ecological communities and threatening processes, and the preparation of Recovery Plans.	Achieved	Achieved	Achieved
NE – 65 E – 63 S – 64	The primary function of the CAR Reserve System is to conserve and protect Environmental and Heritage Values.	Achieved	Achieved	Achieved
NE – 66 E – 64 S – 65	The CAR Reserve System of each NSW RFA satisfies the JANIS Reserve Criteria. NSW legislation will primarily administer the CAR Reserve System.	Achieved	Achieved	Achieved
NE – 67 E – 65 S – 66	NSW to manage and conserve the CAR Reserve System in the UNE and LNE regions, excluding C'wth owned or leased land.	Achieved in part	Achieved in part	Achieved in part
NE – 68 S – 67	The C'wth to manage and conserve parts of the CAR Reserve system on C'wth owned or leased lands.	Achieved	Achieved	
NE – 69 S – 68	Enhancements to the CAR Reserve System will not impede State forest land management or delivery of the wood supply.	Achieved	Achieved	

³³⁷ NE63, E61 and S62 were achieved in Period 1 and Period 2 but were not applicable for Period 3.

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 70 S – 69	Where a licence or occupation permit is held over Crown Lands that are to be included in the CAR Reserve System, NSW will: <ul style="list-style-type: none"> consider licensee or permit holder interests; where practicable, ensure suitable transition arrangements; under certain conditions, ensure that practical and legal access remains available. 	Not applicable	Not applicable	
NE – 71 E – 66 S – 70	Changes to the CAR Reserve System will be made public and will not cause a net loss in the representation or protection of CAR Values, excluding potential minor changes to specific CAR Values.	Achieved	Achieved	Achieved
NE – 72 E – 67 S – 71	Protection levels of National Estate Values in a regional context to be maintained, however, minor changes to the protection levels of individual values may occur.	Achieved	Achieved	Achieved
E – 72	The NSW Eden RFA establishes the sustainability strategy for timber supplies.			Achieved
NE – 73 E – 68 S – 72	State forest outside the CAR Reserve System is available for timber harvesting.	Achieved	Achieved	Achieved
E – 73	NSW to supply sawmills in the Eden region a minimum of volume of Quota Sawlogs, Pulpwood and non-quota Sawlogs annually.			Achieved in part
E – 74	Through a competitive process, NSW to regularly offer non-quota specialty Sawlogs and craftwood sourced in the Eden region.			No longer applicable
NE – 74 E – 69 S – 73	Changes to the area of State Forest allowable for harvesting will not lead to net deterioration in the capacity to supply wood to the UNE and LNE Regions as specified in this Agreement.	Achieved	Achieved	Achieved
NE – 75 E – 70 S – 74	(a) This Agreement intends to enhance the development of forest-based industries in the LNE and UNE regions.	Achieved in part	Achieved in part	Achieved in part
	(b) Long-term stability for these industries will be provided for by including long-term timber supply certainty.	Achieved in part	Achieved in part	Achieved in part
	(c) There will be economic opportunities in other forest-based industries.	Achieved	Achieved	Achieved
E – 75	Should timber become available through the Eden RFA harvesting trials, it will be made available to industry subject to conditions.			Not applicable

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 76 E – 71 S – 75	The C'wth will not prevent any use of any wood products sourced from the UNE and LNE regions in accordance with this Agreement.	Achieved	Achieved	Achieved
E – 76	Timber volumes will be reviewed using the processes described in clause 46(f). Additional sustainable timber volumes identified this way may be made available to industry.			Not applicable
S – 76	NSW to supply a minimum volume of High Quality Large Logs from the South Coast Sub and Tumut sub-regions.		Achieved	
S – 77	Volumes in clause 76 will be allocated under 20 year Wood Supply Agreements.		Achieved outside proposed timeline	
NE – 78	NSW to implement the Long-term Timber Supply Strategy and Sustainable Yield Systems and Processes.	Achieved		
S – 79	Volumes in clause 76 from Tumut sub-region will contain specified volumes of Ash mixed hardwood logs. An additional annual volume of Quota Sawlogs will be supplied from Ingebirah State Forest to the Eden RFA Region.		Achieved in part	
S – 80	For the SCSR, pulp grade timber/pulpwood arrangements include 97,000 tonnes per annum.		Achieved	
NE – 79	Under the Sustainable Wood Supply Strategy, NSW agrees to supply 129,000 m ³ per annum for 20 years in the Upper North East Region and 140,000 m ³ p.a. in the Lower North East Region of high quality large sawlogs and Large Veneer Logs. Annually, approximately 20,000 m ³ of high quality large sawlogs and Large Veneer Logs allocated in the Upper North East Region will be sourced from the Lower North East Region over the period of the Agreement.	Achieved in part		
NE – 80	Harvesting of 109,000 m ³ p.a. from the Upper North East Region and 160,000 m ³ p.a. from the Lower North East Region of high quality large sawlogs and Large Veneer Logs will occur to supply Wood Supply Agreement holders. Contracted commitments and other arrangements associated with Wood Supply Agreements allow for the carrying forward of volumes under-cut or over-cut in any one year.	Achieved in part		
NE – 81	Volumes in the Upper North East and Lower North East Regions subject to a FRAMES and wood supply review.	Achieved		

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
S – 81	Minimum quantities of High Quality Small Logs will be supplied annually from the South Coast and Tumut sub-regions.		Achieved in part	
NE – 82	NSW to consider additions of High Quality Large Logs and Large Veneer Logs, having regard to the long-term Sustainable Yield.	Achieved		
S – 82	Supply arrangements for other Forest Products will be in accordance with ongoing market demands.		Achieved	
NE – 83	Any changes in contracted volumes in clause 79 following the review in clause 81 will be incorporated in this Agreement. Wood Supply Agreement holders to be advised of changes.	Achieved in part		
S – 83	Other Forest Products (clause 80–82) will be supplied through the management of forests to meet the volumes in clause 76.		Achieved in part	
NE – 84	Additional to clause 79, NSW to supply specified volumes of High Quality Large Sawlogs to mills in the UNE and LNE Regions.	Achieved		
NE – 85	High Quality Small Sawlogs will be supplied at levels above 1999 contracted volumes. NSW aims to provide a greater proportion of High Quality Small Sawlogs through Wood Supply Agreements.	Achieved in part		
NE – 86	Pulp grade timber arrangements to include specified annual volumes in the UNE and LNE Regions. Existing supply arrangements for other Forest Products (clause 82) will be upheld.	Achieved in part		
NE – 87	Forest Products will be supplied to meet volumes specified in Wood Supply Agreements (refer to clause 79).	Achieved		
NE – 88 E – 77 S – 84	NSW will work to improve the productive capacity of State forests.	Achieved	Achieved	Achieved
S – 85	The Parties agree that the timber volume to be supplied from the South Coast and Tumut sub-regions as provided in clause S-76, is to be on a non-declining even-flow Sustainable Yield basis for the period modelled by FRAMES (being 180 years).		Achieved in part	

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
S – 86	<p>To achieve the non-declining even-flow Sustainable Yield for South Coast sub-region agreed in clause 85[S]:</p> <p>NSW will carry out silviculture (such as thinning), purchase land for timber production and plantation establishment, may purchase timber rights, and, enter into joint ventures for plantations, and carry out other appropriate measures.</p> <p>NSW will expend up to \$5 million on these measures (Attachment 11). In addition, \$1.5 million will be expended on silvicultural thinning to increase timber yields in the relevant period on other areas of State forests.</p> <p>The Parties agree to jointly contribute a further \$2.5 million (drawn in equal shares from C'wth and NSW contributions) from FISAP for a project of regional significance to carry out silvicultural thinning and plantation establishment (but not land purchase) on those other areas of State forests.</p>		Achieved in part	
NE – 89 E - 78 S – 87	Parties to support hardwood timber industry development initiatives via the Forest Industries Structural Adjustment Program.	Achieved	Achieved	Achieved
NE – 90 E – 78 S – 88	<p>This Agreement will promote the following objectives:</p> <p>(a) maximising employment opportunities for workers displaced due to the CAR Reserve System; and [E78(c)]</p> <p>(b) an environmental management system, and MIG criteria and indicator monitoring program developed to specified standard. [E78(d)]</p>	Achieved	Achieved	Achieved
NE – 92 E – 79 S – 90	NSW to develop measures that will ensure the appropriate management of Aboriginal heritage and to facilitate ongoing Aboriginal management involvement of the UNE and LNE regions.	Achieved	Achieved	Achieved
NE – 95 E – 82 S – 93	Forest uses other than timber production will be determined with regard for protection of Environment and Heritage Values.	Achieved	Achieved	Achieved
NE – 97 E – 84 S – 95	Mining Operations are permitted within parts of the CAR Reserve System which are State forest or Crown Reserves in Att.t 1. Conditions apply for Mining Operations in Informal Reserves and the CAR Reserve System.	Achieved	Achieved	Achieved

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 98 E – 85 S – 96	Proposed Mining Operations will be subject to environmental impact assessment under the provisions of the <i>Environment Planning and Assessment Act 1979</i> (NSW). Mining Operations will be subject to other relevant legislation and will be in accordance with a range of conditions.	Achieved	Achieved	Achieved
NE – 99 E – 86 S – 97	NSW to review legislation and policies relevant to the allocation and pricing of hardwood logs from State forests as part of the Competition Principles Agreement.	Achieved	Achieved	Achieved
NE – 100 E – 87 S – 98	NSW to establish a Research Liaison Committee and publish a list of research priorities.	No longer applicable	No longer applicable	No longer applicable
NE – 101 E – 88 S – 99	In developing priorities, the Research Liaison Committee will take account of priorities arising from the Comprehensive Regional Assessment (CRA) for the UNE and LNE regions.	No longer applicable	No longer applicable	No longer applicable
NE – 102 E – 89 S – 100	NSW to prepare a Compendium of NSW Forest Research.	No longer applicable	No longer applicable	No longer applicable
NE – 103 E – 90 S – 101	Parties will consult each other regarding joint research tasks.	Achieved	Achieved	Achieved
NE – 104 E – 91 S – 102	Wherever possible, research reports regarding this Agreement will be made publicly available.	Achieved	Achieved	Achieved
E – 92 NE – 106 S – 104	Parties to manage and provide access to all data, including models, relevant to this Agreement, in accordance with a Data Agreement.	Achieved	Achieved	Achieved
NE – 105 E – 93 S – 103	Parties to lodge archival copies of data.	Achieved	Achieved	Achieved
NE – 108.1 ³³⁸ E – 95.1 S – 106.1	NSW to review legislation and policies relevant to allocation and pricing of hardwood from State forests, as per clauses 99 (NE), 86 (E) and 97 (S).	Achieved	Achieved	Achieved
NE – 108.2 E – 95.2 S – 106.2	NSW to report annually to Parliament on compliance with IFOAs.	Achieved in part	Achieved in part	Achieved in part

³³⁸ Responses to clauses NE108, E95 and S106 replicate responses from other clauses in the RFA documents. The purpose of these clauses (and their multiple parts) was to bring all legally binding obligations into one place for ease of reference.

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 108.3 E – 95.3 S – 106.3	NSW to provide copies to the Commonwealth of annual FA and IFOA compliance reports and notification of termination, suspension or revocation of any FA or IFOA.	Achieved in part	Achieved in part	Achieved in part
NE – 108.4 E – 95.4 S – 106.4	NSW to maintain FA for UNE and LNE.	Achieved	Achieved	Achieved
NE – 108.5 E – 95.8 S – 106.5	NSW to maintain IFOA for UNE and LNE	Achieved	Achieved	Achieved
NE – 108.6 E – 95.5 S – 106.6	NSW to complete and publish Regional ESFM plans for State forests.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 108.7 E – 95.6 S – 106.7	NSW to implement review and monitoring processes and develop strategic and operational requirements of sustainable yield systems and processes using enhanced FRAMES. NSW to develop and implement inventory system for regrowth forests and review calculation of Sustainable Yield.	Achieved	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 108.8 E – 95.9 S – 106.8	NSW to develop and implement environmental management systems.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 108.9 E – 95.7 S – 106.9	NSW to produce a code of practice for timber harvesting of native forests on Private Lands by the first five-yearly review.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
NE – 108.10	NSW to implement the Long-term Timber Supply Strategy	Achieved		
NE – 108.11 S – 106.10	NSW to maintain contracted supply for High Quality Large Sawlogs.	Achieved in part	Achieved in part	
NE – 109.1 ³³⁹ E – 96.1 S – 107.1	The C'wth will not prevent enterprises obtaining, using or exporting the quantities of timber, Woodchips or Unprocessed Wood products sourced from the NE, E and S in accordance with this Agreement	Achieved	Achieved	Achieved
NE – 109.2 E – 96.2 S – 107.2	The C'wth will maintain accreditation of New South Wales' Forest Management System for the NE, E and S as agreed to be amended in this Agreement as set out in clause 52 providing any changes to the system are consistent with the provisions of this Agreement.	Achieved	Achieved	Achieved

³³⁹ Responses to clauses NE109, E96 and S107 replicate responses from other clauses in the RFA documents. The purpose of these clauses (and their multiple parts) was to bring all legally binding obligations into one place for ease of reference.

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
NE – 110 E – 97 S – 108	Refer to the RFAs for the provisions for compensation.	Not applicable	Not applicable	Not applicable
NE – 111 E – 98 S – 109	Entities and workers directly affected by the restructuring of the NSW forest industry due to this Agreement will be assisted through the NSW Forest Industry Structural Adjustment Package.	Achieved	Achieved	Achieved
E – Att 1, 4, 2 nd dot point NE – Att 1 (A), 4, 2 nd dot point NE – Att 1 (B), 4, 2 nd dot point S – Att 1, 4, 2 nd dot point	NSW to prepare Plans of Management for Crown Reserves.	Achieved	Achieved outside proposed timeline	Achieved
NE – Att 1 (A), 5 NE – Att 1 (B), 5 S – Att 1, 5	NSW will finalise boundaries of CAR reserve with the exception of the Forest Management Zoning System.	Achieved	Achieved	
E – Att 1, 9 NE – Att 1 (A), 7 NE – Att 1 (B), 11 S – Att 1, 7	NSW to produce a Regional ESFM Plan that includes Forest Management Zoning within State forests as described in the document Forest Management Zoning in State Forests 1999.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
E – Att 1, 7 NE – Att 1 (A), 8 NE – Att 1 (B), 12 S – Att 1, 8	NSW to establish all Dedicated Reserve and Informal Reserve components of the CAR Reserve System.	Achieved	Achieved	Achieved
NE – Att 1 (B), 8 – 10 [for Singleton Army Training Area] S – Att 1, 10 – 12 [for Beecroft Weapons Range]	C'wth to manage those areas of C'wth owned land identified in the [NE – Singleton Army Training Area; and S – Beecroft Weapons Range] as CAR Informal Reserves and to protect identified CAR values subject to a set of conditions.	Achieved	Achieved	
E – Att 1, 14 NE – Att 1, 14 (A) NE – Att 1, 18 (B) S – Att 1, 18	Management plans for Dedicated Reserve and Informal Reserve elements of the CAR Reserve System will identify the CAR Values and actions being taken to manage and conserve those values.	Achieved	Achieved	Achieved
E – Att 2, 2 & Table 1 NE – Att 3, 2 & Table 1 S – Att 3, 2 & Table 1	New South Wales to develop Recovery Plans for species listed in Table 1.	Achieved in part	Achieved in part	Achieved in part
E – Att 2, 4 NE – Att 3, 4 S – Att 3, 4	NSW will complete the Threat Abatement Plan for the European Red Fox.	Achieved outside proposed timeline	Achieved	Achieved outside proposed timeline
E – Att 3, 8	Both Parties to finalise Statewide Guidelines for the Management of Cultural Heritage Values and Places.			Achieved

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
S – Att 4, 14	NSW will identify and assess outstanding cultural heritage values in areas excluded from CRA assessments.		Achieved	
E – Att 5, 1 (n) NE – Att 6, 1 (n) S – Att 6, 2 (f)	NSW will produce annual reports of progress for meeting targets in regional ESFM plans.	Achieved	Achieved	Achieved
E – Att 5, 1 (o) NE – Att 6, 1 (o) S – Att 6, 1 (n)	An Environmental and Social Values report at a statewide level on the progress and performance of State Forests of NSW is to be produced annually.	Achieved	Achieved	Achieved
E – Att 5, 1 (p) NE – Att 6, 1 (p) S – Att 6, 1 (o)	NSW to publish a State of Parks Report.	Achieved	Achieved	Achieved
E – Att 5, 1 (q) NE – Att 6, 1 (q) S – Att 6, 2 (g)	NSW to report on the ESFM in NSW RFAS and on IFOA compliance.	Achieved	Achieved	Achieved
E – Att 5, 2 (b)	NSW to publish the document ESFM for the Eden RFA Assessment.			Achieved
NE – Att 6, 2 (b) S – Att 6, 2 (b)	Publish Eco-Field Guides for the UNE and LNE regions by 30 June 2000, and by 31 December 2001 for the Southern Region. NSW will publish Eco Field Guides for Southern, UNE and LNE regions.	Achieved	Achieved outside proposed timeline	
E – Att 5, 2 (c) NE – Att 6, 2 (c) S – Att 6, 2 (c)	NSW to document the basis for silvicultural practices and publish the Native Forest Silviculture Manual (SFNSW).	Achieved	Achieved	Achieved
E – Att 5, 2 (d)	NSW to publish results from Yambulla and Tantawangalo Research Catchments			Achieved outside proposed timeline
E – Att 5, 2 (e)	NSW to publish the results from the Eden Burning Study.			Achieved outside proposed timeline
E – Att 5, 2 (f) NE – Att 6, 2 (d) S – Att 6, 2 (d)	NSW to document and publish a description of the NSW FMS covering Public and Private Lands.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
E – Att 5, 2 (g)	NSW to publish a description of the FRAMES system referred to in clause 46(f).			Achieved in part
E – Att 5, 2 (h) NE – Att 6, 2 (e) S – Att 6, 2 (e)	NSW to publish a description of the methods and results of calculating Sustainable Yield on Public Land.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
E – Att 5, 2 (i) NE – Att 6, 2 (f) S – Att 6, 2 (h)	NSW to table in each House of Parliament an annual report on each NSW RFA. The reports will include an ESFM report and the outcomes of compliance with any IFOA for the regions.	Achieved	Achieved	Achieved
E – Att 7, 1 NE – Att 8, 1 (a) S – Att 8, 2 (b)	NSW NPWS will develop an Environmental Management System (EMS) for lands dedicated under the NPW Act 1974.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
E – Att 7, 2 NE – Att 8, 1 (b) S – Att 8, 2 (c)	SFNSW develop a native Forest Management System as an EMS.	Achieved outside proposed timeline	Achieved outside proposed timeline	Achieved outside proposed timeline
E – Att 7, 12 NE – Att 8, 1 (l) S – Att 8, 2 (l)	NSW to incorporate provisions that address bush and other fires within Regional ESFM Plans and management plans for areas dedicated under the NPW Act 1974.	Achieved	Achieved	Achieved
E – Att 7, 13 NE – Att 8, 1 (n) S – Att 8, 2 (n)	NSW to establish a process, including public reporting, for regular compliance audits and reviews Codes of Practice, Eco-Field Guides and Regional Prescriptions.	Achieved	Achieved	Achieved
S – Att 8, 2 (a)	A Regional ESFM Plan, a NSW Southern RFA and an IFOA is to be developed.		Achieved	
NE – Att 8, 1 (m) S – Att 8, 2 (m)	NSW to incorporate integrated feral animal and weed control programs in Regional ESFM Plans and management plans under the NPW Act 1974.	Achieved	Achieved	
NE – Att 8, 1 (o) S – Att 8, 2 (o)	NSW will establish demonstration areas in the Southern, UNE and LNE Regions for illustrating silvicultural practices and the suite of silvicultural regimes practiced.	Achieved	Achieved	
NE – Att 8, 1 (q) S – Att 8, 6, (b)	NSW to develop a model to predict recruitment and maintenance of habitat trees.	Achieved	Achieved	
E – Att 8, 1 (s) S – Att 8, 2 (p)	The Native Forest Silviculture Manual is to be published. A peer review process will form part of the public consultation process.		Achieved	Achieved
NE – Att 12, 21, 2 nd dot point S – 8, 3, 3 rd dot point	Codes of Practice for private Plantations and private native forests to be implemented. NSW to provide marketing and pricing advice.	Achieved in part	Achieved in part	
S – Att 8, 3, 5 th dot point	NSW to ensure that a Code of Practice is developed for plantation activities across all tenures under the <i>Plantations and Reafforestation Act 1999</i> (NSW).		Achieved	
NE – Att 12, 21, 5 th dot point S – Att 8, 4	NSW to undertake an inventory of private forests to determine the basis of yield of wood products.	Achieved in part	Not achieved	

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
S – Att 8, 5	SFNSW will publish all FRAMES CRA reports for the Southern region		Achieved	
NE – Att 12, 22 4 th dot point S – Att 8, 6, (d)	Report the annual production of all timber products.	Achieved	Achieved	
NE – Att 12, 22, 5 th dot point S – Att 8, 6, (e)	Additional FRAMES plot inventory measurements to be undertaken.	Achieved in part	Achieved in part	
NE – Att 12, 22, 6 th dot point S – Att 8, 6, (f)	Annually monitor FRAMES performance through comparison of actual versus predicted volumes.	Achieved in part	Achieved in part	Achieved in part
S – Att 8, 6, (g)	Map, monitor and report on silviculture associated measures and the effect on Sustained Yield.		Achieved	
E – Att 11, 5 NE – Att 12, 24 S – Att 8, 7	NSW will establish and implement an ongoing FRAMES development program.	Achieved in part	Achieved in part	Achieved in part
NE – Att 12, 15, 2 nd dot point S – Att 8, 8, 1 st dot point E – Att 11, 1	NSW to commission an independent review of the enhanced FRAMES system applying to North East/Southern Region. Parties to commission and publish a review the systems and processes, and the review of sustainable yield for the Eden region.	Achieved	Achieved	Not achieved
NE – Att 12, 15, 3 rd dot point S – Att 8, 8, 2 nd dot point	NSW will continually review the timber resource and the annual allowable harvest volume with regard to the Sustainable Yield.	Achieved	Achieved in part	
E – Att 11, 2 NE – Att 12, 23 S – Att 8, 8, 3 rd dot point	NSW to undertake independent audits of Sustainable Yield and the Sustainable Wood Supply Strategy.	Achieved in part	Achieved in part	Achieved in part
S – Att 11, 7	NSW will have long term wood supply contracts in place for South Coast and Tumut.		Achieved in part	
S – Att 11, 28	The 'ratio model' will assess the qualitative and quantitative criteria. Wood Supply Agreements extensions will be determined by the NSW Minister of Forestry.		Achieved outside proposed timeline	
NE – Att 12, 19, 1 st dot point	Private property timber supplementation program Purchase of private land and/or timber rights to provide HQL and Veneer logs from LNE and UNE.	Achieved outside proposed timeline		
NE – Att 12, 19, 2 nd dot point	The hardwood plantation supplementation program Establish plantations across LNE and UNE to supplement supplies of HQL and Veneer logs.	Achieved in part		

NSW Regional Forest Agreements Implementation Report 2004–2014

RFA clause or Attachment reference	Commitment	Status		
		North East RFA	Southern RFA	Eden RFA
E – Att 12, 8 NE – Att 2, 8 S – Att 2, 8	NSW will establish and fund Regional Vegetation Committees for each RFA Region.	No longer applicable	No longer applicable	No longer applicable
E – Att 9, 2	Fourteen NPWS staff to be employed in the management of the additional reserve areas, including four Aboriginal staff to specifically manage areas of significance to the Aboriginal community. Fourteen positions to be employed in cultural heritage and joint management initiatives, supported by \$1.2 million per annum over five years funded by NSW.			Achieved
NE – Att 11, 62	Four Aboriginal cultural heritage officers are to be employed equally between SFNSW and NPWS, in the UNE and LNE Regions. Five year commitment. Predicted employment benefit: 10 positions in total; 4 Aboriginal Cultural Heritage officers in total, equally distributed between agencies and RFA regions, 6 traineeships over both Upper and Lower North East.	Achieved		
S – Att 11, 41	The NPWS will fund the employment of 91 positions for conservation and Aboriginal heritage management of the new Southern reserves. Four of these positions are identified as Aboriginal Cultural Heritage Officers.		Achieved	
S – Att 11, 42–44	Two cultural heritage officers employed by SFNSW will foster a close working partnership between the Aboriginal community and the NSW Government's forestry program. Employed for five years		Achieved in part	

Appendix B Forest management in NSW

The purpose of this appendix is to provide a high level overview of the way in which the NSW Government manages NSW forests. This appendix outlines the legislative framework and the role of bilateral agreements, such as the RFAs.

Introduction

The NSW Government applies a comprehensive approach to forest management. The FMS in NSW includes legislation, regulations, bilateral agreements with the Commonwealth Government, and regulatory instruments subject to NSW law.

International and national policy context

The United Nations Food and Agriculture Organization has defined sustainable forest management as: 'The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems'.

NSW is a signatory to the National Forest Policy Statement (NFPS), which sets out a nationally shared vision for the delivery of sustainable forest management. The NFPS's key objectives are to:

- maintain a permanent forest estate to retain the full suite of forest values over time
- set aside parts of the forest estate in formal reserves to safeguard special environmental and social values according to the principles of comprehensiveness, adequacy and representativeness
- manage forests outside reserves in a manner that contributes to sustainable environmental, social and economic outcomes.

The NFPS defines ESFM as: 'The integration of commercial and non-commercial values of forests so that both material and non-material welfare of society is improved, while ensuring that the values of forests, both as a resource for commercial use and for conservation, are not lost or degraded for current and future generations'.

Legislative framework

Forest management in NSW is subject to both Commonwealth and state laws.

Commonwealth

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's central piece of environmental legislation. Under the EPBC Act, significant impacts to nationally protected matters, including listed threatened species and communities, and heritage places, require approval from the Commonwealth Environment Minister. The EPBC Act also encapsulates the principles of ecologically sustainable development, which are actively promoted under the legislation's objectives.

Unless undertaken in a World Heritage property or Ramsar wetland, forestry operations undertaken in accordance with an RFA do not require environmental approvals under Part 9 of the EPBC Act. The *Export Control Act 1982* (EC Act) establishes a broad framework under which goods for export are regulated. Under the RFAs, unprocessed wood and woodchips can be exported if sourced from native forest, forestry operations in an RFA region or from plantations, which have an approved Code of Practice to satisfactorily protect environmental and heritage values.

New South Wales

In NSW, the national park estate, plantation forests, public native forests and PNF are regulated under different statutes, as outlined in Figure 2. While other statutes may impact upon specific forest management activities (such as workplace health and safety or the control of pests and feral animals), the following discussion focuses on the principal Acts which regulate forest management activities.

The *National Parks and Wildlife Act 1974* regulates forest management within national parks and nature reserves, which constitute the majority of the national park estate.

Both softwood and hardwood plantations are regulated under the *Plantations and Reafforestation Act 1999* (PR Act).

The *Forestry Act 2012* (Forestry Act) establishes FCNSW as a State Owned Corporation and regulates forest management on Crown-timber land, including state forests. Parts 5A and 5B of the Forestry Act, which relate to FAs and IFOAs, are administered by the NSW Minister for the Environment.

PNF in NSW must comply with the requirements of the *Native Vegetation Act 2003* (NV Act) and the PNF Code.

The framework of the principal legislative and other regulatory instruments for forestry management in NSW (as at June 2014)³⁴⁰ is shown schematically in Figure 2.

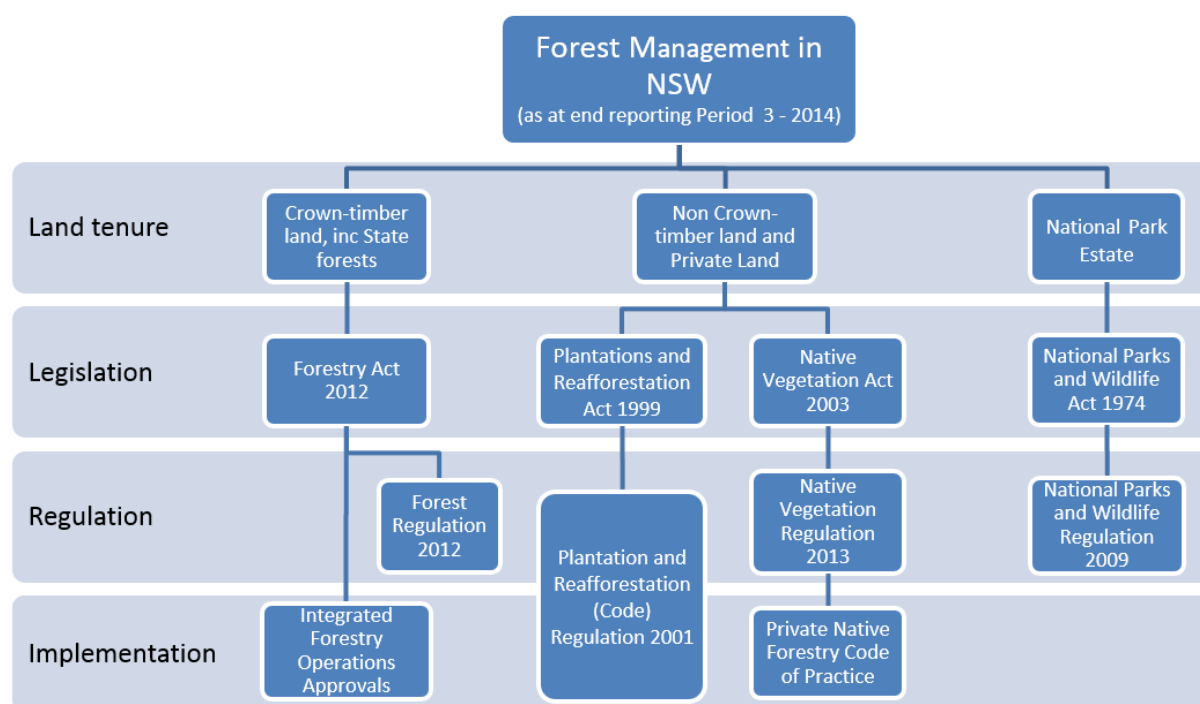


Figure 2: Forest management framework in NSW

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, fostering public appreciation of nature and cultural heritage, and providing for the management of land preserved under the Act.

³⁴⁰ On 25 August 2017, the *Biodiversity Conservation Act 2016* (NSW) came into force and the NV Act, TSC Act and NPW Act were repealed.

The NPW Act includes a number of categories of protected area, which allow different levels of sustainable visitor use. The seven formal reserve categories 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 reserves 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 generally in pristine condition. All wilderness in NSW is declared over existing reserves, although it can be applied to any form of land tenure.

The NPW Act outlines functions of the Chief Executive of the National Parks and Wildlife Service (NPWS) relating to reservation of land and the powers and functions of NPWS. One of the functions of the Chief Executive, under section 7 of the Act, is to consider proposals for the addition of land to the reserve system. In considering any proposals, the Chief Executive is to have regard to criteria including whether the proposal is consistent with the establishment of a comprehensive, adequate and representative reserve system.

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 and Chief Executive on achieving the objects of the Act.

Plantations

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

The PR Act defines a plantation as land on which most of the trees forming the canopy have been planted for timber production or protection of the environment but not for food production³⁴¹.

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 unless the plantation complies with conditions for Exempt Farm Forestry³⁴², where the total area of plantation operations does not exceed 30 hectares and the plantation operations meet requirements under the NV Act and the PR Code.

The purpose of authorisation of plantations under the PR Act is to provide a streamlined and integrated process for obtaining approval to establish plantations, to guarantee harvesting operations and to apply codified environmental standards for plantation.

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.

³⁴¹ NSW *Plantations and Reafforestation Act 1999*, accessed July 2017
<https://legislation.nsw.gov.au/~view/act/1999/97/historical2000-06-29/full> (Section 5)

³⁴² NSW *Plantations and Reafforestation Act 1999*, accessed July 2017
<https://legislation.nsw.gov.au/~view/act/1999/97/historical2000-06-29/full> (Section 6)

The PR Code requires that before an application for authorisation of a plantation is submitted, the proposed plantation is visited by an officer authorised under the PR Act. Authorised officers sit in DPI (Forestry) and during the site inspection consider matters such as:

- soil and water degradation effects
- biodiversity significance
- cultural heritage issues.

If the application is assessed as having a potentially significant effect on threatened species, populations, ecological communities or their habitats, a species impact statement in accordance with the *Threatened Species Conservation Act 1995* (TSC Act) may be required as part of the application process.

Public native forests

The Forestry Act provides that the NSW Minister for Lands and Forestry and the NSW Minister for the Environment may make FAs and may grant IFOAs with respect to particular regions of NSW.

NSW Forest Agreements

A Forest Agreement must contain provisions that promote ESFM, provisions with respect to sustainable timber supply, provisions with respect to community consultation, and native title rights and interests.

There are four NSW FAs, covering the UNE, Lower North East, Southern and Eden regions (Figure 3). The Southern and Eden FA regions cover the same area as for those RFA regions. When combined, the UNE and LNE FA regions cover the same area as the North East RFA region.

The FAs include detailed commitments to be undertaken by a number of NSW agencies. The Forestry Act provides that the FAs are to be reviewed every five years and that there are to be annual reports on the implementation of the FAs and the IFOAs.

The FAs have a twenty-year duration. The Eden, UNE and LNE FAs will expire in March 2019. The FA for the Southern region will expire in May 2022.

The FAs require FCNSW to develop and implement a number of plans and codes, including regional ESFM plans, harvesting plans, codes of practice and strategic planning and sustainable yield calculations.

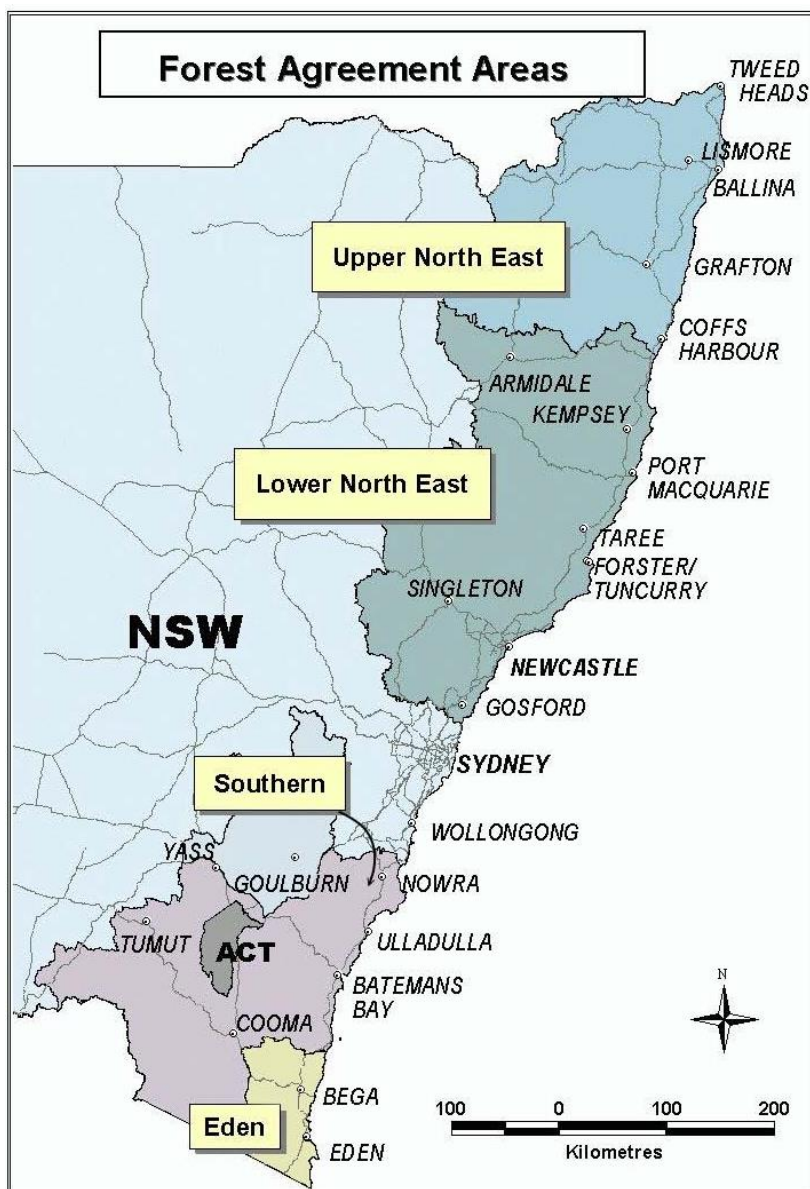


Figure 3: NSW Forest Agreement areas showing UNE, LNE, Southern and Eden

Source: EPA

Integrated forestry operations approvals

The Forestry Act also provides that the NSW Minister for Lands and Forestry and the NSW Minister for the Environment may jointly grant an integrated forestry operations approval (IFOA) for forestry operations on Crown-timber land, including state forests.

An IFOA provides the formal approval for and conditions that apply to anyone undertaking native forest harvesting activities on Crown-timber land, including state forests. It must describe the forestry operations and the terms and conditions of all forestry operations in the area that it covers.

An IFOA integrates the regulatory regimes for environmental planning and assessment, protection of the environment and threatened species conservation. The IFOAs allow FCNSW to conduct forestry operations, as long as they comply with licences issued under each of the *Protection of the Environment Operations Act 1997* (POEO Act), the TSC Act and the *Fisheries Management Act 1994* (FM Act). They also include non-licence conditions which cover operations relating to forestry and logging operations, ongoing forest management, ancillary road construction and other issues.

Like the FAs, the IFOAs have a twenty-year duration. The IFOAs for the Eden, UNE and LNE sub-regions will expire in December 2019. The IFOA for the Southern region expires in May 2022.

In May 2012, the NSW Government announced a remake of the Eden, Southern, LNE and UNE IFOAs into a single coastal IFOA. The objectives of the remake are to:

- reduce the costs associated with implementation and compliance
- improve the clarity and enforceability of the IFOAs, including the conditions of environment protection, threatened species and fisheries licences held by FCNSW
- recognise innovations in best regulatory practice, incorporate advances in technology and deliver a contemporary regulatory framework that is fit for purpose.

The NSW Government requested that the remake deliver these objectives with no erosion of environmental values and no net change to wood supply.

Private native forests

The NV Act provides that forestry operations conducted for the purposes of PNF require an approved PNF PVP. A PNF PVP is a legally binding agreement between a landowner and the EPA.

Forestry operations in a PNF PVP area must be conducted in accordance with the Private Native Forestry Code of Practice (PNF Code) which aims to ensure that PNF operations improve or maintain environmental outcomes. The PNF Code has four parts, with each applying to a particular part of NSW:

- Northern NSW – land north of Sydney
- Southern NSW – land south of Sydney
- River Red Gum Forests
- Cypress and Western Hardwood Forests.

The lands to the north and south of Sydney relate to the four FA regions and three NSW RFA regions.

Regional Forest Agreements

The NSW and Commonwealth governments have signed three RFAs for the Eden, North East and Southern regions of NSW.

The RFAs aim to achieve a balance between conservation of environment and heritage values and certainty of resource access for the forest industry. They confirm the commitment of the two Governments to the goals, objectives and implementation of the NFPS by:

- developing and implementing ESFM
- establishing a comprehensive, adequate and representative (CAR) reserve system
- facilitating the development of an internationally competitive wood production and wood products industry
- promoting the conservation and management of the private forest estate.

In the three NSW RFAs, the two governments agree that ESFM is an objective that requires a long-term commitment to continuous improvement. The RFAs are twenty-year agreements. The Eden RFA will expire in August 2019. The North East RFA will expire in March 2020. The Southern RFA will expire in April 2021.

Under the RFAs, the Commonwealth Government has agreed that forestry operations in NSW will not be subject to the approval requirements under Part 9 of the EPBC Act or the EC Act provided that the forestry operations comply with the terms of the RFA.

The NSW RFAs commit the two governments to measure, monitor and report on forest management in the RFA regions, including the use of internationally accepted criteria and

indicators to assess the sustainability of forest management. They also commit the two governments to review the implementation of the milestones, commitments and obligations in the NSW RFAs every five years.

The NSW RFAs were the outcomes of the comprehensive regional assessment (CRA) process undertaken between 1995 and 2000. The CRA process investigated the values and uses of forests in each RFA region, including biodiversity conservation, wilderness, water catchment protection, tourism, recreation and cultural and heritage values as well as timber harvesting and employment.

The CRAs drew on commissioned studies, technical reports and extensive stakeholder consultation and involved around 50 biology, ecology, economics and sociology projects. They included extensive stakeholder engagement including with local government, unions, industry, regional economic development organisations, conservation groups, Aboriginal Land Councils and members of the community.

The CRA process used the JANIS criteria to identify forest areas that needed protection and areas that could be designated for commercial purposes. The CRA process helped delineate public forests available for wood harvesting from a CAR reserve system where wood harvesting is not permitted.

Comprehensive, adequate and representative (CAR) reserve system

In the NSW RFAs, the two governments agreed that the primary function of the CAR reserve system is to ensure the conservation and protection of environment and heritage values. The CAR reserve system includes:

- dedicated formal reserves such as national parks and nature reserves
- informal reserves in state forests and Crown lands
- values protected by prescription as detailed in the IFOAs³⁴³.

The CAR reserve system and the ecologically sustainable management of state forests provide for the protection of biodiversity, old growth forests and wilderness values.

Agencies involved in forest management in NSW

Several NSW Government agencies are involved in aspects of public and private forest management.

OEH is responsible for managing the national park estate, including the forests which lie within it. It advises the NSW Minister for the Environment and administers programs to protect vulnerable species and communities.

The DPI (Forestry) advises the NSW Minister for Lands and Forestry and the NSW Minister for Primary Industries on forest industry policy, undertakes forest science research, and is responsible for the development and application of plantations policy and regulation.

The DPI (Fisheries) advises the NSW Minister for Primary Industries on matters related to the FM Act including those related to threatened species licences, which form part of the IFOAs.

The EPA is the primary environmental regulator in NSW. It is an independent statutory body, responsible for regulating native forestry operations on both public (Crown) land and private land in NSW. The EPA monitors the operations of FCNSW to ensure that native forest operations on public land are undertaken in accordance with the IFOAs and their licences. It also monitors compliance of private landholders with the requirements of their PNF PVPs.

³⁴³ See, for example, clause 4 of Attachment 1 to the Regional Forest Agreement for Southern NSW between the Commonwealth of Australia and the State of New South Wales, April 2001.

FCNSW is a State Owned Corporation (SOC) established by the Forestry Act. The Forestry Act provides that FCNSW's:

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

FCNSW establishment as a SOC allows forestry operations to be undertaken by an entity that has neither a regulatory role nor responsibility for policy development and implementation. As noted above, the DPI (Forestry) is responsible for forestry industry policy advice.

The Premier may request advice on issues related to forest management from the Independent Pricing and Regulatory Tribunal (IPART) or the Natural Resources Commission (NRC).

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 with regard to NSW Government services. The NSW Government may ask IPART to undertake investigations. IPART also undertakes a range of regulatory and licensing functions.

The NRC is an independent statutory authority. Section 12 of the *Natural Resources Commission Act 2003* (NSW) provides that the NRC is to provide the NSW Government with independent advice on NRM. For example, in 2009, the Premier asked the NRC to recommend sustainable land-use and water requirements in the Riverina red gum and south west cypress forests.

Monitoring and 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 the FAs and for annual reports on each FA, including with respect to ESFM in the region and compliance with any IFOA for the region³⁴⁴.

The PR Act provides that the Minister for Lands and Forestry 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 Department's website.

The RFAs provide for five-yearly reviews of the implementation of the milestones and commitments contained within them.

In addition, the NSW Government participates with the Commonwealth Government and the other state and territory governments in producing Australia's SOFR³⁴⁵ which is produced every five years.

³⁴⁴ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016, www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

³⁴⁵ ABARES 2013a, *Australia's State of the Forest Report 2013*, accessed 9 November 2016 www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2013

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

The *Annual Reports (Statutory Bodies) Act 1984* (NSW) provides that FCNSW must produce and table in the NSW Parliament an annual report on its performance, operations and financial results.

Forest certification

FCNSW's management of state forests is certified to the AS4708—2013³⁴⁶.

The standard is the forest management standard of the Australian Forest Certification Scheme which is recognised by the international Programme for the Endorsement of Forest Certification (PEFC)³⁴⁷, an international not-for-profit, non-governmental organisation dedicated to promoting sustainable forest management through independent third-party certification. One of the PEFC's aims is to prevent unregulated or illegally logged forest timber from entering international markets.

FCNSW EMS, which is certified to ISO 14001:2015 *Environmental management systems – Requirements with guidance for use*, sets the framework for achieving and continually improving its environmental performance.

FCNSW has retained British Standards International (BSI) to undertake regular external surveillance audits of FCNSW's compliance with ISO 14001:2015. These audits are conducted on a nine-month 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 three-yearly recertification audits of FCNSW.

The third party certification bodies, such as BSI, are also 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, through the FCNSW website³⁴⁸.

³⁴⁶ Standards Australia 2013, *Home*, accessed July 2017 www.forestrystandard.org.au/

³⁴⁷ PEFC n.d., *Home*, accessed 9 November 2016 www.pefc.org/

³⁴⁸ FCNSW 2016c, *Sustainable forest management: Certification*, accessed 9 November 2016 www.forestrycorporation.com.au/management/sustainable-forest-management/certification

Appendix C Forest-based industries' contribution to regional and state industries

The wood processing industry

The information in this section is provided in response to clause NE75, E70 and S74, part (a).

The NSW RFAs provided the catalyst for industry processors to invest in timber drying and dressing equipment and infrastructure to successfully make the necessary transition from a substantially lower value green sawn timber-based industry into a higher value-adding sector producing a range of dried and dressed specialist structural, flooring and other appearance products.

To support this transition, and underpinned by the increased certainty from the terms of the NSW RFAs, FCNSW has been able to move to a delivered sales-based business in two of the three NSW RFA regions. This has provided unprecedented increased contractual certainty for harvesting and haulage contracting businesses in the sector, which has enabled them to make considerable investments in higher technology processing equipment and safety management systems necessary to sustain an ongoing and viable business.

More recently the certainty from NSW RFAs has enabled the wood-processing sector to weather a difficult set of post 2008 Global Financial Crisis market and operational circumstances, including increased competition from imported flooring products due to the high Australian dollar. Further, many companies have made significant structural changes in their processing, marketing and distribution activities to support a lower cost, higher value model, including removal of traditional agent-based warehousing and sales processes in the end market.

Plantation development and reforestation

The information in this section is provided in response to clause NE75, E70 and S74, part (b).

Plantation authorisations

The PR Act requires plantations or proposed plantations on public or privately owned land to be authorised before plantation operations (establishment, management and harvesting) can be undertaken (see Appendix B, subsection *Plantations*, for further details).

Table 52 provides the area of all plantations authorised in the NSW RFA regions over the reporting period, showing just under 50,000 hectares of softwood and 63,000 hectares of hardwood established.

In 2012–13, there was a small area of plantation authorisations that were cancelled in the Eden and Southern RFA regions, totalling 266 hectares of softwood and 123 hectares of hardwood. When a plantation authorisation is cancelled, plantation operations (including establishment, management and harvesting) must cease.

Over the reporting period, significant areas of plantation were established in the North East RFA region under managed investment schemes (MIS). Since the collapse of those schemes around 2009, plantation development on new land has largely ceased. Further information on the forestry MIS can be found in the report from the Senate inquiry released in March 2016, *Agribusiness managed investment schemes: Bitter Harvest*⁶⁴⁹. Although

³⁴⁹ Commonwealth of Australia 2016, *Report Agribusiness managed investment schemes Bitter harvest*, accessed 16 November 2016
www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/MIS/Report

outside the reporting period, in 2014–15 there was a significant area of plantation authorisations cancelled in the North East RFA region as a result of the MIS collapse, totalling 2,600 hectares of softwood and 27,100 hectares of hardwood.

The majority of these plantations where the authorisation was cancelled were cleared and the timber was burnt on site (poorly growing *Eucalyptus dunnii*). The properties were subsequently converted to agriculture (e.g. grazing). There were a few plantations harvested before cancellation, with wood chip or small logs being sold. Some of the cancelled authorisations were attached to land that had never been planted.

Table 52: Area of new plantations authorised in NSW RFA regions

RFA region	Eden		Southern		North East		Total for NSW RFA regions	
	Softwood (ha)	Hardwood (ha)	Softwood (ha)	Hardwood (ha)	Softwood (ha)	Hardwood (ha)	Softwood (ha)	Hardwood (ha)
2003–04	576	78	2,882	36	788	1,989	4,246	2,103
2004–05	536	205	10,445	208	29	8,361	11,010	8,774
2005–06	333	527	13,626	11	548	10,092	14,507	10,630
2006–07	1,649	-	7,229	251	-	11,798	8,878	12,049
2007–08	148	116	7,272	230	-	16,299	7,420	16,645
2008–09	601	-	50	21	2,009	11,242	2,660	11,263
2009–10	-	-	110	21	429	200	539	221
2010–11	-	-	140	-	170	196	310	196
2011–12	-	-	-	-	-	705	-	705
2012–13	20	-	-	-	28	137	48	137
2013–14	-	2	319	-	-	128	319	130
TOTAL	3,863	928	42,073	778	4,001	61,147	49,937	62,853

Source: Plantation Assessment Unit, NSW Department of Industry, 10 February 2017; figures include FCNSW and privately owned plantations

Hardwood plantation program

In the period from 1994–2005, there was significant investment by the NSW Government through FCNSW in hardwood plantation establishment on the North Coast (North East RFA region) on both purchased land as state forest and in joint ventures with private land-owners.

The post-1994 plantation estate managed by FCNSW in the North East RFA region was 28,452 hectares as at June 2014. The predominant species were blackbutt, Dunn's white gum and spotted gum. The establishment program peaked in the 1997–2001 period. The large proportion of area established to Dunns white gum and spotted gum was a result of cheaper land prices in areas suited to these species. Whilst two-thirds of the area established was on previously cleared agricultural land acquired and dedicated as state forest or on second rotation establishment in existing state forest plantations, the balance was planted on private land under either an annuity or crop share (joint venture) arrangement. Government funding for new plantation establishment ceased in 2004 and the FCNSW program slowed to primarily second rotation establishment. Table 53 provides the areas of plantation by species established from 1994 until 2013.

Table 54 provides an overview of the plantation areas by NSW RFA region during Periods 1, 2 and 3. The decline in area from 2001 to 2005 is partly due to the 2001 data including areas that were not planted and the 2005 plantation layer was missing some plantations that may have been within the plantation estate but were fallow land.

Table 53: Area of plantation development and reforestation in the North East region by FCNSW

Year planted	Blackbutt	Dunn's white gum	Spotted gum	Flooded gum	Gympie messmate	Other	Total
Pre-1994	65	0	0	0	0	2	67
1994	38	28	0	102	3	5	176
1995	85	44	0	56	0	0	185
1996	436	469	371	142	53	184	1,656
1997	1,043	1,151	881	291	45	43	3,455
1998	1,225	915	2,491	658	241	44	5,575
1999	532	851	164	426	106	121	2,199
North East RFA commenced in March 2000							
2000	793	1,860	616	791	252	143	4,455
2001	422	1,163	809	255	45	67	2,760
2002	86	121	143	30	118	12	509
2003	145	155	299	53	82	3	738
2004	173	507	460	0	37	21	1,198
2005	77	129	0	0	49	3	258
2006	242	131	65	63	51	50	601
2007	162	35	6	0	21	0	224
2008	515	68	0	2	42	1	628
2009	878	0	0	0	199	10	1,087
2010	500	109	37	756	189	217	1,809
2011	569	0	0	30	341	0	940
2012	394	0	0	29	272	0	695
2013	769	44	0	31	75	2	921

Source for data from pre-1994 to 2010 age class: Forests NSW (2011b) Performance Audit Report Yield Forecasts – Hardwood Plantations³⁵⁰

Source for data from 2011 to 2013 age class: FCNSW GIS data (supplied 28 April 2017).

Table 54: FCNSW plantations by RFA region (2001, 2005, 2011)

RFA region	Plantation type			Grand total
	Hardwood	Softwood	Other/ Unknown	
2001 plantations by RFA region				
Eden	1,181	36,703	2	37,885
Lower North East	20,187	11,077	52	31,316
Southern	4	126,089	0	126,092
Upper North East	22,701	12,939		35,640
Grand total	44,072	186,807	54	230,933

³⁵⁰ Forests NSW 2011b, *Performance Audit Report Yield Forecasts – hardwood plantations*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0009/439416/Yield-Forecasts_hardwood-plantations.pdf

RFA region	Plantation type			Grand total
	Hardwood	Softwood	Other/ Unknown	
2005 plantations by RFA region				
RFA region	Plantation type			Grand total
	Hardwood	Softwood	Other/ Unknown	
Eden	206	35,538	1	35,745
Lower North East	7,768	10,077	5	17,849
Southern	8	117,664	1	117,673
Upper North East	29,116	14,350	981	44,447
Grand total	37,098	177,629	987	215,715
2011 plantations by RFA region				
RFA region	Plantation type			Grand total
	Hardwood	Softwood	Other/ Unknown	
Eden	1,832	37,780	40	39,652
Lower North East	27,114	11,416	1,064	39,595
Southern	16	133,107	36	133,159
Upper North East	57,429	15,191	1,509	74,129
Grand total	86,392	197,494	2,650	286,535

Source: National Plantation Inventory Database, ABARES 2016

Table note: Totals may not tally due to rounding.

Extractive industries

The information in this section is provided in response to clause NE75, E70 and S74, part (c(ii)).

Mining legislation takes precedence over the Forestry Act; however, significant mining exploration and activities do occur on state forests. For mining and exploration activities FCNSW receives a licence fee to cover the cost of managing permits and licences and any land lost to production. Royalties from mining are paid to the NSW Government via the Department of Mineral Resources.

Gravel and hard rock production are important and valuable industries that occur on state forests. FCNSW maintains quarries to support its roading and harvesting activities, and material may be sold from these quarries to local government councils and other users to support local and state significant developments, including the Pacific Highway upgrade. In addition, extractive permits for private companies do exist on state forest and these operations generate around \$300,000 p.a. (across the state) in revenue to FCNSW.

Mineral exploration and mining, and petroleum exploration and production can occur in state conservation areas, which is the only reserve category of the seven under the NPW Act where these activities are permitted. This reserve category was created to cover areas of NSW where both conservation values and mineral/energy values occur together. Many exploration and mining activities that occur within state conservation areas are existing uses from previous tenure categories; the activities were occurring before the land was reserved under the NPW Act. NSW has received a small number of proposals for mineral exploration in SCAs, which have been assessed and approved. NSW has not received proposals for new mining.

Tourism and recreation

The information in this section is provided in response to clause NE75, E70 and S74, part (c(i)).

Significant economic opportunities in tourism and recreation are being captured in both the national park estate and in state forests in the NSW RFA regions.

National park estate

The NSW national park estate delivers nature-based experiences and recreational opportunities which add to the appeal and visitor amenity of a destination.

The vast majority of land reserved under the NPW Act provides for a wide range of tourism and recreation experiences, including bushwalking, four-wheel driving, mountain biking, horse riding, visitor centres, holiday accommodation, and leased hotels, restaurants, marinas and retail precincts.

The types of activities possible are determined by the category of the reserved land. For example, whereas a regional park will allow many recreational activities, including dog walking, a nature reserve will generally be more restrictive with regard to the activities allowed.

The national parks system plays a crucial role in attracting national and international visitors. In 2014, there were more than 39 million visits to NSW³⁵¹ national parks, the highest level recorded, and nature-based visitors spent an estimated \$14.6 billion³⁵² in NSW.

Across the national parks estate, tourism and recreation infrastructure varies significantly from basic walking trails to full visitor experience centres and suspended walkways.

OEH maintains strong partnerships with regional tourism authorities, local businesses and the community. These partnerships influence tourism and recreation opportunities and usage. The level of tourism and recreation visits and the infrastructure in any particular site is strongly influenced by a variety of other factors including location, the park's natural and heritage values, its history, and national and international recognition.

The National Parks and Wildlife Service has won numerous awards including the following for national parks in the North East NSW RFA region during Period 3:

- Dorrigo National Park (NP), Ecotourism category, Bronze Award, 2011
- Cape Byron State Conservation Area (SCA), Tourist Attractions, Gold Award, 2012
- Green Gully Track, Oxley Wild Rivers NP, New Tourism Development, Bronze Award, 2012
- Byron Bay Cottages, Cape Byron SCA, Unique Accommodation, Silver Award, 2013
- Arakwal Dolphin Dreaming, Cape Byron SCA, Indigenous Tourism, Bronze Award, 2013
- Dorrigo NP, Ecotourism, Bronze Award, 2014
- Cape Byron SCA, Tourist Attraction, Silver Award, 2014
- Arakwal Dolphin Dreaming, Cape Byron SCA, Indigenous Tourism, Silver Award, 2014.

State forests

FCNSW's tourism and recreation objectives are to:

- provide for safe and enjoyable use by the community of the forest-based recreational services of FCNSW
- establish FCNSW as a recognised manager of, and destination choice for, nature-based visitor recreation and tourism activities in NSW.

³⁵¹ Including those national parks located outside the regions covered by the RFAs.

³⁵² This figure includes package expenditure by overseas visitors.

During Period 2 and Period 3, the NSW Government provided FCNSW with an annual funding allocation (of \$9.57 million) for community service activities, including recreation and tourism activities, unrelated to timber supply.

State forests offer a wide variety of tourism and recreation opportunities including trail biking, mountain biking, four-wheel driving, horse riding, bushwalking, abseiling, hang-gliding and dog walking. A significant component of the tourism and recreation opportunities in state forests are the free camping and picnic areas. Table 55 shows estimated numbers of visitors to selected tourism facilities in selected state forests in the NSW RFA regions.

FCNSW has established a number of community partnerships to facilitate opportunities for people to connect with the forest environment. An example is the Friends of Strickland, a volunteer group of mainly local residents who care for and protect the Strickland State Forest (LNE sub-region) in cooperation with FCNSW. Strickland State Forest – a ‘community’ forest, protected for its flora, fauna and cultural heritage values – is in the Hunter/Central Coast Hall of Fame as an award-winning ecotourism destination.

Table 55: Estimated visitor numbers to selected tourism facilities in selected state forests

State forest	Visitor area/s	Survey date	Estimated annual visitation	Visitors' annual spend (\$ million)
Orara East	Sealy and Korora lookouts	2014–15	134,900	12.1
Burrawan	Old Bottlebutt	2014–15	8,100	0.3
Ourimbah	Treetop Adventure Park & Central Coast MTB park	May 2014	80,000	10
Strickland	Banksia picnic area	May 2014	15,000	1.5
Yadboro	Yadboro camping area	Mar 2014	5,000	0.8
Olney and Heaton	Watagan Mountains picnic, camping & lookouts	Apr 2014	615,000	36
Bodalla	Bodalla Forest Park	Mar 2014	8,000	1.0
Chichester	Telegherry River picnic & camping sites	May 2013	51,000	3.8
Chichester	Allyn River picnic & camping sites	Mar–Apr 2013	44,000	2.3
Kerewong	Swans Crossing picnic & camping area	Jun 2013	17,000	0.7
Coopernook	Coopernook Forest Park (caravan, campervans)	Jun 2012	3,800	0.4

The NSW Government's tourism and recreation efforts in state forests have received numerous NSW and regional tourism awards, particularly in Period 3 (Table 56).

Table 56: Regional and NSW tourism awards for NSW state forest destinations, 2011–2015

Year	Awards	Medal	Category	FCNSW product	Other information
2015	NSW Tourism Awards	Highly Commended	Destination Marketing	Visit NSW State Forests	
		Bronze	Tourist Attraction	Sealy Lookout	
		Bronze	Specialised Tourism Services	State Forests of the Coffs Coast	
	North Coast Tourism Awards for Business Excellence	Gold	Destination Marketing	Visit NSW State Forests	Hall of Fame status
		Gold	Tourist Attraction	Sealy Lookout	
		Gold	Specialised Tourism Services	State Forests of the Coffs Coast	
2014	NSW Tourism Awards	Gold	New Tourism Development	Old Bottlebutt, Burrawan SF	Finalist, Australian Tourism Award
		Silver	Destination Marketing	Visit NSW State Forests – Experience a Forest Playground	
		Silver	Ecotourism	Strickland State Forest	
	North Coast Tourism Awards for Business Excellence	Gold	New Tourism Development	Old Bottlebutt, Burrawan SF	
		Gold	Destination Marketing	Visit NSW State Forests – Experience a Forest Playground	
		Gold	Specialised Tourism Services	State Forests of the Coffs Coast	
	Hunter & Central Coast Tourism Awards	Gold	Adventure Tourism	State Forests of the Watagan Mountains	
		Hall of Fame	Ecotourism	Strickland State Forest	Hall of Fame formal induction
2013	NSW Tourism Awards	Silver	Adventure Tourism	State Forests of the Watagan Mountains	Hall of Fame status
		Silver	Ecotourism	Strickland State Forest	
	North Coast Tourism Awards for Business Excellence	Gold	Destination Marketing	Visit NSW State Forests – Experience a Forest Playground	
		Bronze	Tourist Attractions	Sealy Lookout – Forest Sky Pier, Orara East SF	
	Hunter & Central Coast Tourism Awards	Gold	Adventure Tourism	State Forests of the Watagan Mountains	
		Gold	Ecotourism	Strickland State Forest	Hall of Fame status
2012	North Coast Tourism Awards for Business Excellence	Gold	New Tourism Development	Forest Sky Pier at Sealy Lookout, Orara East SF	
	Hunter & Central Coast Tourism Awards	Gold	Adventure Tourism	State Forests of the Watagan Mountains	
		Gold	Ecotourism	Strickland State Forest	
2011	Hunter & Central Coast Tourism Awards	Gold	Ecotourism	Strickland State Forest	

Appendix D Improvements to the NSW Forest Management System

Introduction

The three NSW RFAs stipulate that FCNSW must have a Native Forest Management System (FMS) and OEH must have an Environmental Management System (EMS), which set out how they will manage their respective public land estates in a manner consistent with the requirements of those RFAs.

These requirements are expressed in:

- North East RFA: clauses 47, 48(h), 52, 53, 109.2 and Attachment 8
- Eden RFA: clauses 45, 46(h), 50, 96.2 and Attachment 7
- Southern RFA: clauses 45, 47(h), 51, 106.8 and Attachment 8.

The purpose of this appendix is to provide an outline of how FCNSW FMS and OEH EMS have evolved since they were first developed in Period 1, in line with reforms to the regulatory framework, improvements in data and technology, and stakeholder feedback.

OEH Environmental Management System

The NSW OEH has adopted an EMS to ensure a consistent approach to the many measures it implements to minimise environmental impacts of managing the national park estate.

The EMS is comprised of the Park Management Framework (PMF) and the Park Management Program (PMP) as well as management elements such as guidelines and legislation. The PMF and the PMP are complementary; together, they form an EMS that is consistent with the Australian Standard for Environmental Management Systems (during the reporting period this was ISO 14001:2004 and more recently ISO 14001:2015)³⁵³.

The PMF provides a holistic and strategic approach to OEH's environmental policy, plans and actions. In developing the PMF, OEH used the ISO 14001: 2004 Self Assessment Checklist³⁵⁴ and adapted the International Union for Conservation of Nature's Management Effectiveness Framework.

This model supports continual improvement in the management of NSW's reserve system. The PMF ensures that all key elements required in a management cycle are considered.

The PMF is delivered by the PMP, which coordinates the major park management programs. In 2009, the independent assessor auditing the implementation of the NSW RFAs recommended that the NSW Government formalise its PMP as an EMS – this is further dealt with in the responses to Recommendation 9 in Section 4.

Table 57 shows how the elements of OEH's EMS align with those in the Australian Standard[®] for an EMS.

³⁵³ 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 9 August 2017 <https://infostore.saiglobal.com/en-au/Standards/AS-NZS-ISO-14001-2004-393320/>

³⁵⁴ NCS International 2006, EMS – E008, *ISO 14001: 2004 Self Assessment Checklist*, Issue 2, February 2006.

Table 57: Alignment of OEH’s EMS with the Australian EMS Standard (ISO 14001:2004)

Australian EMS Standard Framework	Parks Management Framework (PMF)	Snapshot of the Parks Environmental Management System (EMS)	Parks Management Program (PMP)
General Requirements	Management Objectives	Legislation NPWS Strategic Plan – goals and strategies	
Environmental Policy	Park Policy	Park Management Policy Manual	
Planning	Planning	Region and Section operational plans Plans of management Environmental impact assessment / Review of environmental factors TSC Act recovery plans, PAS, TAP Fire and Incident Management Section (Fire Management Strategies)	
Implementation & Operation	Operations	NSW Terrestrial Reserve System OEH and Parks organisational structure and systems Parks manuals, guidelines and procedures	
Checking Management Review	Monitoring & Evaluation	Parks survey, monitoring, evaluation and research program	

FCNSW Forest Management System

FCNSW maintains an FMS certified to ISO’s *Environmental management systems* (ISO14001:2015) and the Australian Standard for Sustainable Forest Management (AS4708—2013). The FMS is founded on the principle of continual improvement. A series of key processes (Figure 4) are followed to ensure that this occurs, including:

- Develop plans at strategic, tactical and operational levels to ensure that risks are identified and managed.
- Apply control measures to operational activities that interact with the environment to minimise any potential negative impacts.
- Monitor corporate activity from day to day operational supervision and compliance monitoring, through to internal system audits, external regulatory and certification audits under AS4708 and ISO14001.
- Ensure non-conformance incidents are captured and reported in a centralised system, management reviews are conducted to determine the root cause and corrective actions are applied to mitigate or prevent the non-conformance from occurring again.
- Inform the management review processes through reporting of audits and non-conformance incidents and stakeholder feedback which ensures that controls, applied to activities, are reviewed and that additional or targeted actions can be taken to address any shortcomings identified.

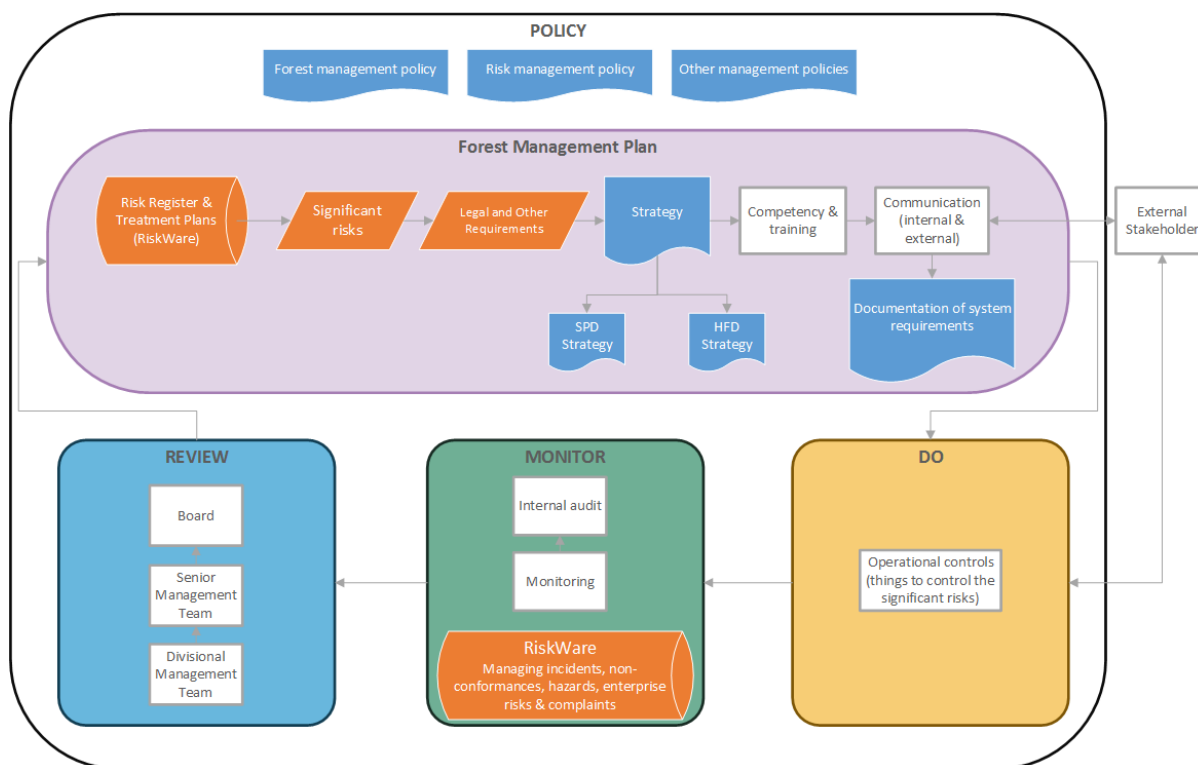


Figure 4: Major elements of the FCNSW Forest Management System

Development of a risk management framework

In 2013, 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, 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 guidelines³⁵⁵, 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 and, although outside the reporting period, it has been in use since 2015–16.

Developing greater consistency and efficiency of forest management systems

As part of the continual improvement process, FCNSW has developed and refined many aspects of the FMS. Improvements to elements of the system arise from monitoring and review processes and 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

³⁵⁵ Generally, the risk management guidelines are not publicly available as they are internal working documents. Further information can be found at forestrycorporation.com.au.

compliance monitoring system are a series of key performance indicators (KPIs) that are used to drive improvements in wood harvesting contractors and the non-conformance/incident reporting system.

The system monitors and audits aspects implemented through forest activities that have been identified through risk assessment as having 'significant' risks (wood harvesting, roadworks, 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, manages complaints and improvement suggestions. This system comprises the following elements:

- Operational Compliance Monitoring – focuses 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 reports and general documentation that describes how FCNSW meets its regulatory obligations.
- Quality Assurance Assessments (QAA) – are 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 assessments. 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 focused 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 this 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. The 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 the 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 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.

Risk register update

The risk register is an important component of any EMS and describes the interactions between the business/entity and its operating environment and the potential for undesirable outcomes. Since FCNSW established its FMS, it has maintained a series of risk registers that were regionally based in addition to corporate registers related to safety, environment,

financial, legal and reputational risks. In 2013–14, a project was initiated to create a consolidated risk register for the whole of the organisation to allow oversight and standardisation of risk management. In 2014, the process of consolidating risk registers was completed; however, further work is to be undertaken in the next reporting period 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 areas 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 plans³⁵⁶ 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 (like 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 crossings
- forms to capture records related to implementation of operational plans that meet regulatory requirements
- procedures for plan amendments, stakeholder notification and consultation and communication with forest neighbours and other interested parties
- 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 licensing, compliance and reporting obligations
- documentation and approval processes for forestry activities in exclusion zones.

The manual has been subject to review and update on an ongoing basis to remove duplication and to cater for improvements in interpretation and understanding of IFOA requirements. In 2014, as part of the process of continual improvement, FCNSW commenced the development of Standard Operating Procedures (SOPs) (internal FCNSW documents) for wood harvesting, that combine the latest best practice methodologies with interpretation of licensing 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 plans easier to interpret and implement. Further work is intended to be undertaken in the next reporting period to develop SOPs for other aspects of FCNSW's management activities such as road construction and maintenance.

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

³⁵⁶ FCNSW 2015b, *Harvest Plans*, accessed 10 November 2016, www.forestrycorporation.com.au/management/sustainable-forest-management/harvest-plans

- occupational health and 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. Equally, FCNSW routinely conducts 'wildlife schools' to train staff in the identification of flora and fauna required for implementation of the IFOAs. Firefighting training is conducted internally and through accredited external providers to ensure FCNSW staff are capable and effective in meeting the incident response requirements associated with bushfires.

In 2011, a large program of IFOA awareness training was conducted across the Hardwood Forests Division. This training was aimed at the practitioners working on roading and wood harvesting activity and targeted specific requirements of the various licences associated with the IFOAs 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 IFOAs. The content of the training was influenced by the 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.

Incidental risk management, incident management and training in elements of the FMS like Riskware also occur as and when required.

ESFM plans, public reporting and participation

ESFM plans

The ESFM plans form the backbone for delivery of ESFM outcomes on state forests. Commencing in 2004, FCNSW developed ESFM plans and, between 2005 and 2008, separate plans were published for the FA regions of Upper and Lower North East, Southern Region – South Coast, Southern Region – Tumut and Eden. Each plan covers the management requirements of the Forestry Act, the native forests estate and the hardwood plantations established prior to 1994, within the state forests and associated state forested lands within each FA area.

The Montréal Process criteria and indicators (C&Is) are the international measure by which progress toward meeting ESFM is assessed. The components of FCNSW's ESFM plans reflect these criteria and address:

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

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

Stakeholder engagement on ESFM

Each ESFM plan underwent a period of public consultation prior to being finalised and the plans are subject to a periodic review process where further consultation is undertaken. The review of the ESFM plans commenced in 2014 and is scheduled to be completed in 2017, which is outside the reporting period.

The NSW regulatory framework for native forestry provides the public with opportunities to participate in the development of the regulatory instruments which apply to the native forestry industry.

Section 69F of the Forestry Act provides that the Ministers who are parties to a Forest Agreement are required to ensure that the public is given an opportunity to participate in connection with any amendment or revocation of the Forest Agreement.

Section 69G(4) of the Forestry Act provides that the Ministers are to ensure that the public is given an opportunity to participate in the five-yearly reviews of the Forest Agreements by inviting representations on the terms of reference for the reviews, inviting representations in connection with any proposed changes to Forest Agreements and IFOAs, and considering any such representations before deciding on the outcome of the review and any changes to the agreements or IFOAs.

A review of the coastal IFOAs commenced in 2013. Representatives from the EPA, DPI (Fisheries) and FCNSW met with conservation and industry stakeholders to discuss the key issues and challenges to be addressed in the IFOA review. Subsequently, a discussion paper outlining the proposed amendments was released in February 2014 for public comment and community information sessions were held across coastal NSW and Sydney. As a result of these sessions, a report was developed in April 2014 that outlines stakeholders' understanding of proposed amendments, summarises the feedback provided and encourages further written comments over the course of the current review³⁵⁷. This IFOA review continues into the next reporting period.

At an operational level, FCNSW provides several channels through which individuals or stakeholder groups can make contact or provide feedback. Since the commencement of the IFOAs, it has been a regulatory requirement to make copies of operational harvesting plans available to the public in all regional offices. In many areas specific stakeholder groups have requested copies of harvesting plans once approved and FCNSW provides them at no cost in electronic format. Since 2012, FCNSW has made available on its website all the current approved wood harvesting and operational roadwork plans. Furthermore, as part of the operational planning process, FCNSW routinely provides written notification to forest neighbours and consults with local communities, interest groups and school bus companies to ensure that the impact of forest management 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 such as visiting forests, permits for 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 (Immediate Reception) that is forwarded directly to the relevant FCNSW officer. 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 advertises the number on the back

³⁵⁷ EPA 2016c, *Coastal IFOA remake*, accessed 9 November 2016, www.epa.nsw.gov.au/forestagreements/coastlIFOAs.htm

of all log trucks, each of which has a unique identifying number. The FCNSW website has a 'contact us' link³⁵⁸ and maintains an email account specifically for public enquiries³⁵⁹.

Public reporting

FCNSW produces a corporate annual report which is tabled in the NSW Parliament. In addition, FCNSW publicly reports³⁶⁰ its performance against a suite of sustainability indicators consistent with reporting commitments under the Montréal Process C&Is, the FAs and IFOAs. FCNSW also provides information on annual sustainability indicators within its annual report³⁶¹.

Development of 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 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 like 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 plan 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 that 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 contain 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 undertake wood harvesting.

Mapping application

During 2012, FCNSW commenced investigation of a map application (referred to as the FCMapApp) for use on mobile electronic devices like smart phones and tablets. The aim was to develop an app that would complement operational planning processes and allow

³⁵⁸ FCNSW n.d., *Contact Us*, accessed 15 November 2016
www.forestrycorporation.com.au/about/contact-us

³⁵⁹ info@fcnsw.com.au [For complaints – www.forestrycorporation.com.au/about/contact-us/complaints]

³⁶⁰ EPA 2016e, *Crown forestry: Annual Progress Reports*, accessed 9 November 2016,
www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports

³⁶¹ FCNSW n.d., *Annual Reports*, accessed 16 November 2016
www.forestrycorporation.com.au/resources/pubs/corporate/annual-report

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 became 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 like 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, allows 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 collating and accessing flora and fauna data held in hard copy and various databases which was 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, database searching and GIS mapping functionality, was delivered to staff across NSW. While outside the reporting period, 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. Significant time cost savings and a reduction in transcription errors have been observed since the introduction of the system.

Forest research

Improved information derived from research drives the adaptive management and continuous improvement process that is critical to ESFM. The majority of forest research in NSW is carried out by the NSW DOI forest research group, through a service level agreement with FCNSW. These projects are reported through the publication of FCNSW's annual report³⁶². Some of the key activities during the reporting period 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

³⁶² FCNSW 2015c, *Forestry Corporation Annual Report 2014–15*, accessed 10 November 2016, www.forestrycorporation.com.au/resources/pubs/corporate/annual-report/forestry-corporation-annual-report-2014-15

- 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 sub-region) was produced and presented at the 2001 Australian Wildlife Management Society Conference³⁶³. A paper presenting the findings has been made publicly available³⁶⁴.

The model identified the proportion of trees that were assessed as hollow in a large-scale inventory based on tree species and diameter class. Future tree lists were produced from the FRAMES model based on a range of proposed silvicultural scenarios, including no-harvesting for exclusion zones. The species and diameter based hollow-bearing tree ratios from the original inventory were applied to future tree lists to predict the future availability of hollow-bearing trees. Plots were allocated to forest type and growth stage strata and the proportion of harvested and unharvested areas were identified for each strata. The results indicated that the combination of STS 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.

Development of silviculture practices

The delivery of balanced forest management outcomes, that enables a long-term wood supply and preservation of ecological and other values, has been the underlying objective of FCNSW silvicultural practices over the life of the RFAs. This objective of forest management along with the physiological characteristics of eucalypts and the regulatory environment have shaped the way silvicultural practices have been applied over the period 2004–2014.

Eucalypts are a profoundly shade and competition intolerant group of tree species and this has a significant influence on the types of silvicultural treatments that are likely to be effective. The very intolerant species such as blackbutt (*Eucalyptus pilularis*), flooded gum (*E. grandis*) and alpine ash (*E. delegatensis*) tend to be faster growing, are less tolerant of fire and regenerate mainly from seed. The light demanding nature of these species means that more intensive harvesting and removal of overstorey is beneficial to the establishment and development of regeneration. The less intolerant species generally have persistent lignotubers (a woody swelling at the base of the tree that stores starch and can enable trees to regenerate following disturbances such as fire), coppice readily (the ability to develop a

³⁶³ Williams J 2003, *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, p.18, www.awms.org.au/assets/docs/Proceedings/awms01proceedings_dubbo.pdf

³⁶⁴ FCNSW 2017c, *Hollow-bearing trees on the Mid North Coast of NSW – Abundance and spatial distribution now, and a model for the future*, accessed 18 May 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0010/716581/paper-hollow-bearing-trees-on-the-mid-north-coast.pdf

new stem from the stump of a tree that has been killed by fire or cut down), and are more tolerant of fire. These species often readily regenerate from lignotuber or coppice and will tolerate retention of a higher proportion of overstorey trees.

The IFOAs include non-licence conditions relating to silvicultural practices in different regions and establish limits on the allowable area and timing of certain silvicultural techniques. An important component of these requirements was the application of AGS in the UNE and LNE IFOA areas. This is the deliberate creation of ‘canopy openings’ or ‘gaps’, which are constrained to a maximum size of 0.25 hectares across not more than 22.5% of the harvestable area of a planning unit with successive operations separated by a minimum of five and average of seven years over four cutting cycles (similar rules applied on the south coast, but larger gaps were permissible). The aim of an AGS treatment is to regenerate essentially mature forests in a ‘patchwork’ fashion creating a series of smaller disturbance events and thereby mitigate perceived environmental impacts associated with intensive harvesting of larger areas.

During the planning phase, the IFOA requirements are used to determine a ‘budget’ for AGS canopy openings which defines the allowable number of gaps for a given planning unit. The harvest plan then prescribes the ‘gap budget’ and implementation in the field is determined on a site specific basis by the supervising officer. While there was a defined limit for AGS gaps, application of the technique in the field is highly constrained by topography and the forest structure so the allowable cut was rarely achieved in practice. The variable nature of native forests means that a uniform structure that facilitates even spatial arrangement of canopy openings is unlikely. In a case study at Queens Lake State Forest (LNE sub-region) near Wauchope, a budget of 343 gaps was determined with less than 250 ultimately created. Consequently, the cutting cycle of four harvest events could not be achieved and this was typical of most operations with two AGS treatments and a follow-up STS treatment for even the most common practice.

From a practical perspective, the implementation of AGS was found to be time and resource intensive. Every canopy opening had to be walked and tree marked on all sides through often dense understorey. Due to the site specific topographic and forest structure variability, it was not possible to pre-determine gap locations, so each gap had to be assessed and planned in the field, which added considerably to the time involved in management of harvesting operations. Other negative outcomes include:

- increased costs due to the relatively low yield per hectare arising from harvesting less than 22.5% of the net harvest area
- lower yield to each log dump resulted in higher production costs per cubic metre and inefficiencies for haulage
- road maintenance costs increase as roads that might otherwise be opened, utilised and closed have to be reopened 2–3 times at each subsequent harvest event
- subsequent harvest events inevitably result in damage to regenerating sites
- fire protection is more difficult and post-harvest burning is complicated by the mosaic of harvested gaps and unharvested country.

Regeneration surveys conducted in the early years following AGS treatments also started to show some concerning trends due to variable results. The findings of over 400 surveys on the LNE sub-region revealed that:

- regeneration resulting from AGS is more successful in dry blackbutt forest types
- rapid weed colonisation of moist blackbutt forest type occurs post-harvest, resulting in low success of natural regeneration
- regeneration in gaps established on lower slopes was less successful which was particularly evident in steep terrain
- species composition of regeneration is inconsistent with original stand
- weeds, as ground cover, were noticeably thicker in burnt stands

- two mature seed trees (greater than 50 cm diameter at breast height over bark) are required on the edge of gaps for effective seed throw
- less than 50% of gaps regenerate naturally. Follow-up mechanical disturbance and planting is often required. Planting is not always successful due to rapid weed colonisation
- blackbutt establishment is more successful on mechanically disturbed sites rather than burnt sites
- second and third gaps have established better than the first gaps due to better side light conditions.

One of the clear findings was that in tall forests with a mesic mid stratum there was insufficient 'side light' to enable intolerant eucalypts like blackbutt to establish. Competition and rapid recolonization of the gap with mesic understorey species was inhibiting regeneration, reducing the overall stocking of seedlings and favouring occupation by more tolerant species like red mahogany (*Eucalyptus resinifera*), grey gum (*E. propinqua*/*E. punctata*) and tallowwood (*E. microcorys*).

During the period 2004–2012, approximately 12,000 hectares was treated with AGS with the majority of this between 2004 and 2008 (Figure 5). No AGS has been applied since 2012 with a shift toward the application of variable intensity STS from 2007.

The EPA has expressed concerns that regeneration harvesting, as practised on the mid-north coast since 2007, is inconsistent with the intent of the current IFOAs; however, the definition of STS within the IFOA is highly interpretable. Although outside the reporting period for this implementation report, this issue is currently the subject of consideration by the NSW Government as part of the IFOA remake process.

STS has a number of advantages over AGS:

- intensity of the operation can vary depending on the stand structure and silvicultural objective
- when a heavy STS (regeneration harvest) operation is applied, adequate regeneration is achieved in most productive forest types
- heavy STS creates good ground disturbance and side light conditions which favours establishment and development of productive timber species like blackbutt
- higher log yield per hectare is achieved in heavy STS as opposed to AGS, resulting in fewer hectares being planned, marked, harvested and supervised
- as there is a longer return time / fewer harvest cycles, roading costs are lower as roads are bedded down post-harvest
- heavy STS operations generally attract a lower harvesting difficulty class under harvesting contracts attracting lower harvest rates
- post-harvest burning activities are efficient and effective to implement and longer-term fire protection is simpler.

In the Southern RFA region, a similar trend occurred with a shift from AGS to STS though the reasons were more as a result of market and practical considerations regarding forest types than due to the effectiveness of AGS as a silvicultural tool. Noting that the allowable gap size in the Southern RFA region was larger than the North East RFA region, and there are some differences in the nature of the forests types, the regeneration results from AGS in the Southern RFA region were found to be largely successful. However, in 2011–12, managers in the Southern RFA region were exploring options to improve the efficiency of their AGS operations. Trials had been conducted using random, 'grid' and 'site by site' location of gaps in an effort to develop efficiency of application. The ultimate instigator for change was a downturn in the ability to sell export pulpwood. To maximise the chances of successful establishment of seedlings in a gap, all the competing overstorey trees must be removed. With a limited pulpwood market, the decision was made to switch to STS on the back of successful implementation in the North East RFA region. Consequently, STS has

been wholly adopted in favour of AGS due to its effectiveness and in order to reduce the number of harvest events and cost associated with recovery of the same volume of wood.

While the advantages of STS over AGS were clear on the more productive sites where intensive STS is applied, there can be some downsides with the lighter forms of STS. As described, the nature of eucalypts generally demands more intensive silviculture to regenerate. Application of light STS can be effectively applied in the drier forest types, but care is needed to avoid reducing the growing stock and over time eroding the long-term supply capability. Since the 1970s, light STS has been widely applied and many stands now require a heavier ‘final cut’ to regenerate the site and enable the development of productive forests for future wood supply.

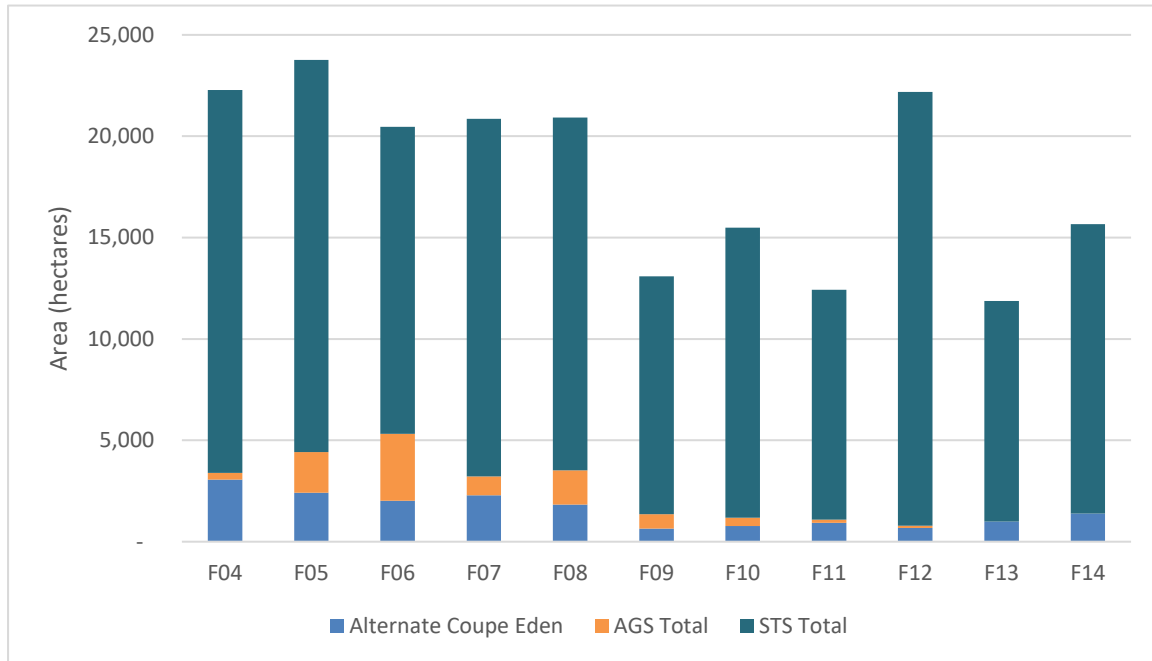


Figure 5: FCNSW annual area harvested by silviculture type

Appendix E Status of management plans – NSW conservation reserve system

Table 58 to Table 60 (provided by NSW RFA regions) list conservation reserve system areas that are covered by the NPW Act. Where adopted management plans are not in place, the reserve areas are managed in accordance with the requirements of the NPW Act through draft management plans or a statement of management intent. A substantial number of statements of management intent were published in June 2014.

Table 58: Status of conservation reserve system management plans – Eden RFA

Name	Status for first five-yearly review	Status for second & third five-yearly reviews
Bell Bird Creek Nature Reserve	Draft plan publicly exhibited	Plan adopted
Ben Boyd National Park	Plan adopted	Plan adopted
Bermagabee Nature Reserve	Plan adopted	Plan adopted
Biamanga National Park	Plan in preparation	Draft plan publicly exhibited
Bondi Gulf Nature Reserve	Plan adopted	Plan adopted
Bournda National Park	Plan adopted	Plan adopted
Bournda Nature Reserve	Plan adopted	Plan adopted
Coolumbooka Nature Reserve	Draft plan publicly exhibited	Plan adopted
Dangelong Nature Reserve	Draft plan publicly exhibited	Plan adopted
Davidson Whaling Station Historic Site	Plan adopted	Plan adopted
Eagles Claw Nature Reserve	Plan adopted	Plan adopted
Egan Peaks Nature Reserve	Plan adopted	Plan adopted
Mimosa Rocks National Park	Plan adopted	Plan adopted
Mount Imlay National Park	Plan adopted	Plan adopted
Nadgee Nature Reserve	Plan adopted	Plan adopted
South East Forest National Park	Plan adopted	Plan adopted
Wadbilliga National Park ¹ (Eden and Southern)	Draft plan publicly exhibited	Plan adopted
Yurammie State Conservation Area	Plan in preparation	Plan in preparation

Table note: (1) Some reserves are located in more than one RFA region. These reserves are counted as being part of the region in which the largest part of the reserve is located. Some reserves are included as they fall within the broader RFA region.

Table 59: Status of conservation reserve system management plans – North East RFA

Name	North East RFA sub-region ¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Aberbaldie Nature Reserve	Lower	No plan ²	Plan adopted
Andrew Johnston Big Scrub Nature Reserve	Upper	Plan adopted	Plan adopted
Appletree Aboriginal Area	Lower	No plan	Plan in preparation
Arakoon State Conservation Area (formerly Arakoon National Park)	Lower	Plan adopted	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Arakwal National Park	Upper	No plan ²	Plan adopted
Avondale State Conservation Area	Lower	No plan ²	Plan adopted
Awabakal Nature Reserve	Lower	No plan	Statement of management intent
Baalijin Nature Reserve	Lower	Plan in preparation	Statement of management intent
Back River Nature Reserve	Lower	Plan in preparation	Plan adopted
Bago Bluff National Park	Lower	Plan adopted	Plan adopted
Bagul Waajaarr Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Bald Rock National Park	Upper	Plan adopted	Plan adopted
Ballina Nature Reserve	Upper	Plan adopted	Plan adopted
Bandahngan Aboriginal Area	Upper	Reserve gazetted after first five-yearly review period	No plan
Bandicoot Island Nature Reserve	Lower	Plan in preparation	Draft plan publicly exhibited
Banyabba Nature Reserve	Upper	Draft plan publicly exhibited	Draft plan publicly exhibited
Banyabba State Conservation Area	Upper	No plan ²	Draft plan publicly exhibited
Barakee National Park	Lower	Plan in preparation	Statement of management intent
Barakee State Conservation Area	Lower	No plan ²	Statement of management intent
Barool National Park	Upper	Plan adopted	Plan adopted
Barrington Tops National Park	Lower	Draft plan publicly exhibited	Plan adopted
Barrington Tops State Conservation Area	Lower	No plan ²	Plan adopted
Basket Swamp National Park	Upper	Plan adopted	Plan adopted
Belford National Park	Lower	No plan ²	Plan adopted
Bellinger River National Park	Lower	Plan adopted	Plan adopted
Ben Halls Gap National Park	Lower	Plan adopted	Plan adopted
Berrico Nature Reserve	Lower	No plan	Statement of management intent
Billinudgel Nature Reserve	Upper	Plan adopted	Plan adopted
Bindarri National Park	Upper and Lower	Draft plan publicly exhibited	Plan adopted
Bindarri State Conservation Area	Upper	No plan ²	Statement of management intent
Biriwal Bulga National Park	Lower	Plan adopted	Plan adopted
Black Bulga State Conservation Area	Lower	No plan ²	Statement of management intent
Blue Gum Hills Regional Park	Lower	Reserve gazetted after first five-yearly review period	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Bluff River Nature Reserve	Upper	Plan in preparation	Plan adopted
Boatharbour Nature Reserve	Upper	Plan adopted	Plan adopted
Bolivia Hill Nature Reserve	Upper	Plan in preparation	Plan adopted
Bollanolla Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Bongil Bongil National Park	Upper and Lower	Plan adopted	Plan adopted
Boonanghi Nature Reserve	Lower	Plan adopted	Plan adopted
Boonanghi State Conservation Area	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Boonoo Boonoo National Park	Upper	Plan adopted	Plan adopted
Boorganna Nature Reserve	Lower	Plan adopted	Plan adopted
Booroolong Nature Reserve	Lower	Plan adopted	Plan adopted
Booti Booti National Park	Lower	Plan adopted	Plan adopted
Border Ranges National Park	Upper	Plan adopted	Plan adopted
Bouddi National Park	Lower	Plan adopted	Plan adopted
Bowraville Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Bretti Nature Reserve	Lower	No plan	Statement of management intent
Bridal Veil Falls Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Brimbin Nature Reserve	Lower	Plan adopted	Plan adopted
Brisbane Water National Park	Lower	Plan adopted	Plan adopted
Broadwater National Park	Upper	Plan adopted	Plan adopted
Broken Head Nature Reserve	Upper	Plan adopted	Plan adopted
Brunswick Heads Nature Reserve	Upper	Plan adopted	Plan adopted
Brushy Hill Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Plan in preparation
Bugan Nature Reserve	Lower	Plan in preparation	Statement of management intent
Bulahdelah State Conservation Area	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Bull Island Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Bundjalung National Park	Upper	Plan adopted	Plan adopted
Bungabee Nature Reserve	Upper	Plan adopted	Plan adopted
Bungawalbin National Park	Upper	Plan in preparation	Plan adopted
Bungawalbin Nature Reserve	Upper	Plan in preparation	Plan adopted
Burning Mountain Nature Reserve	Lower	Plan adopted	Plan adopted
Burnt-Down Scrub Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Butterleaf National Park	Upper	Plan in preparation	Plan adopted
Byrnes Scrub Nature Reserve	Upper	Plan adopted	Plan adopted
Camels Hump Nature Reserve	Lower	No plan	Statement of management intent
Camerons Gorge Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Cape Byron State Conservation Area	Upper	Plan adopted	Plan adopted
Capoompeta National Park	Upper	Plan adopted	Plan adopted
Captains Creek Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Carrai National Park	Lower	Draft plan publicly exhibited	Plan adopted
Cascade National Park	Lower and Upper	Draft plan publicly exhibited	Plan adopted
Cathedral Rock National Park	Upper and Lower	Plan adopted	Plan adopted
Cedar Brush Nature Reserve	Lower	Plan adopted	Plan adopted
Chaelundi National Park	Upper	Draft plan publicly exhibited	Plan adopted
Chambigne Nature Reserve	Upper	Plan adopted	Plan adopted
Chapmans Peak Nature Reserve	Upper	Draft plan publicly exhibited	Draft plan publicly exhibited
Clarence Estuary Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Clybucca Historic Site	Lower	Plan adopted	Plan adopted
Cockle Bay Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Columbey National Park	Lower	No plan	Plan adopted
Coocumbac Island Nature Reserve	Lower	Plan adopted	Plan adopted
Coolongolook Nature Reserve	Lower	No plan	Draft plan publicly exhibited
Cooperabung Creek Nature Reserve	Lower	Plan adopted	Plan adopted
Coorabakh National Park	Lower	Plan adopted	Plan adopted
Coramba Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Corrie Island Nature Reserve	Lower	No plan	Statement of management intent
Cottan-Bimbang National Park	Lower	Plan in preparation	Plan in preparation
Couchy Creek Nature Reserve	Upper	No plan	Draft plan publicly exhibited
Coxcomb Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Crowdy Bay National Park	Lower	Plan adopted	Plan adopted
Cudgen Nature Reserve	Upper	Plan adopted	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Cumbebin Swamp Nature Reserve	Upper	Plan in preparation	Plan adopted
Cunnawarra National Park	Lower	Plan adopted	Plan adopted
Darawank Nature Reserve	Lower	No plan	Plan in preparation
Davis Scrub Nature Reserve	Upper	Plan adopted	Plan adopted
Deer Vale Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Demon Nature Reserve	Upper	Plan adopted	Plan adopted
Dharug National Park	Lower	Plan adopted	Plan adopted
Doctors Nose Mountain Nature Reserve	Upper	No plan	Plan adopted
Donnybrook Nature Reserve	Upper	No plan ²	Statement of management intent
Dooragan National Park	Lower	Plan adopted	Plan adopted
Dorrigo National Park	Lower and Upper	Plan adopted	Plan adopted
Dubay Nurahm Aboriginal Area	Upper	Reserve gazetted after first five-yearly review period	Plan adopted
Dunggir National Park	Lower	Plan adopted	Plan adopted
Durands Island Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Draft plan publicly exhibited
Duroby Nature Reserve	Upper	Reserve gazetted after first five-yearly review period	Plan adopted
Duval Nature Reserve	Lower	Plan adopted	Plan adopted
Everlasting Swamp State Conservation Area	Upper	Reserve gazetted after first five-yearly review period	Statement of management intent
Fifes Knob Nature Reserve	Lower	Plan adopted	Plan adopted
Finchley Aboriginal Area	Lower	Draft plan publicly exhibited	Plan adopted
Fishermans Bend Nature Reserve	Lower	Plan adopted	Plan adopted
Fladbury State Conservation Area	Upper	Reserve gazetted after first five-yearly review period	Plan adopted
Flaggy Creek Nature Reserve	Upper	Plan adopted	Plan adopted
Flat Island Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Draft plan publicly exhibited
Fortis Creek National Park	Upper	Draft plan publicly exhibited	Draft plan publicly exhibited
Gads Sugarloaf Nature Reserve	Lower	Plan adopted	Plan adopted
Gaagal Wanggaan (South Beach) National Park	Lower	Reserve gazetted after first five-yearly review period	Plan in preparation
Ganay Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Garby Nature Reserve	Upper	Reserve gazetted after first five-yearly review period	Plan in preparation
Georges Creek Nature Reserve	Lower	Plan adopted	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Ghin-Doo-Ee National Park	Lower	No plan	Statement of management intent
Gibraltar Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Gibraltar Range National Park	Upper	Plan adopted	Plan adopted
Gir-um-bit National Park	Lower	No plan	Statement of management intent
Gir-um-bit State Conservation Area	Lower	No plan	Statement of management intent
Glenrock State Conservation Area	Lower	Plan adopted	Plan adopted
Goolawah National Park	Lower	Reserve gazetted after first five-yearly review period	Plan in preparation
Goolawah Regional Park	Lower	Reserve gazetted after first five-yearly review period	Plan in preparation
Goonengerry National Park	Upper	Plan adopted	Plan adopted
Goonook Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Goulburn River National Park	Lower	Plan adopted	Plan adopted
Gurrang State Conservation Area	Upper	No plan ²	Draft plan publicly exhibited
Gumbaynggirr National Park	Lower	No plan	Statement of management intent
Gumbaynggirr State Conservation Area	Lower	No plan ²	Statement of management intent
Guy Fawkes River National Park	Upper	Draft plan publicly exhibited	Plan adopted
Guy Fawkes River Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Guy Fawkes River State Conservation Area	Upper	No plan ²	Plan adopted
Hat Head National Park	Lower	Plan adopted	Plan adopted
Hattons Bluff Nature Reserve	Upper	No plan	Plan in preparation
Hayters Hill Nature Reserve	Upper	Plan adopted	Plan adopted
Hogarth Range Nature Reserve	Upper	Plan adopted	Plan adopted
Hortons Creek Nature Reserve	Upper	Plan adopted	Plan adopted
Howe Aboriginal Area	Lower	No plan	No plan
Hunter Wetlands National Park (formerly Hunter Estuary National Park)	Lower	Plan adopted	Plan adopted
Iluka Nature Reserve	Upper	Plan adopted	Plan adopted
Imbota Nature Reserve	Lower	Plan adopted	Plan adopted
Indwarra National Park	Upper	Plan adopted	Plan adopted
Inner Pocket Nature Reserve	Upper	No plan	Plan in preparation

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Innes Ruins Historic Site	Lower	Plan adopted ²	Plan adopted
Jaaningga Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Jackywalbin State Conservation Area	Upper	No plan ²	Plan adopted
Jagun Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Jasper Nature Reserve	Lower	Plan adopted	Plan adopted
Jilliby State Conservation Area	Lower	Reserve gazetted after first five-yearly review period	Plan adopted
Jinangong Nature Reserve	Upper	Reserve gazetted after first five-yearly review period	Draft plan publicly exhibited
Jobs Mountain Nature Reserve	Lower	No plan	Plan in preparation
Jubullum Flat Camp Aboriginal Area	Upper	Reserve gazetted after first five-yearly review period	Plan adopted
Junuy Juluum National Park	Lower	Draft plan publicly exhibited	Plan adopted
Juugawaarri Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Karuah National Park	Lower	Plan in preparation	Draft plan publicly exhibited
Karuah Nature Reserve	Lower	Plan in preparation	Draft plan publicly exhibited
Karuah State Conservation Area	Lower	No plan ²	Draft plan publicly exhibited
Kattang Nature Reserve	Lower	Plan adopted	Plan adopted
Khappinghat Nature Reserve	Lower	Plan in preparation	Draft plan publicly exhibited
Khatambuhl Nature Reserve	Lower	Plan in preparation	Plan in preparation
Killabakh Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Killarney Nature Reserve	Lower	Plan adopted	Plan adopted
Koorebang Nature Reserve	Lower	Plan adopted	Plan adopted
Kooyong State Conservation Area	Upper	No plan ²	Draft plan publicly exhibited
Koreelah National Park	Upper	Plan in preparation	Plan in preparation
Kororo Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Koukandowie Nature Reserve	Upper	Plan adopted	Plan adopted
Kumbatine National Park	Lower	Draft plan publicly exhibited	Plan adopted
Kumbatine State Conservation Area	Lower	No plan ²	Plan adopted
Ku-ring-gai Chase National Park	Lower	Plan adopted	Plan adopted
Lake Innes Nature Reserve	Lower	Plan adopted	Plan adopted
Lake Innes State Conservation Area	Lower	No plan ²	Statement of management intent
Lake Macquarie State Conservation Area	Lower	Plan adopted	Plan adopted
Lansdowne Nature Reserve	Lower	No plan	Plan in preparation

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Lawrence Road State Conservation Area	Upper	No plan ²	Draft plan publicly exhibited
Lennox Head Aboriginal Area	Upper	Plan adopted	Plan adopted
Limeburners Creek National Park (formerly Limeburners Creek Nature Reserve)	Lower	Plan adopted	Plan adopted
Limpinwood Nature Reserve	Upper	Plan adopted	Plan adopted
Lion Island Nature Reserve	Lower	Plan adopted	Plan adopted
Little Llangothlin Nature Reserve	Upper	Plan adopted	Plan adopted
Little Pimlico Island Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Macquarie Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Mallanganee National Park	Upper	Plan adopted	Plan adopted
Mann River Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Manobalai Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Maria National Park	Lower	Plan adopted	Plan adopted
Marshalls Creek Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Maryland National Park	Upper	Plan adopted	Plan adopted
Mebbin National Park	Upper	Plan adopted	Plan adopted
Medowie Nature Reserve	Lower	No plan	Draft plan publicly exhibited
Medowie State Conservation Area	Lower	No plan ²	Draft plan publicly exhibited
Mernot Nature Reserve	Lower	No plan	Statement of management intent
Middle Brother National Park	Lower	Plan adopted	Plan adopted
Mills Island Nature Reserve	Lower	Plan in preparation	Draft plan publicly exhibited
Minimbah Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Moffats Swamp Nature Reserve	Lower	No plan	Statement of management intent
Monkerai Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Monkeycot Nature Reserve	Lower	No plan	Statement of management intent
Mooball National Park	Upper	Draft plan publicly exhibited	Plan adopted
Moonee Beach Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Mooney Mooney Aboriginal Area	Lower	No plan	No plan
Moore Park Nature Reserve	Upper	No plan	Draft plan publicly exhibited
Mororo Creek Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Mother Of Ducks Lagoon Nature Reserve	Upper	Plan in preparation	Plan in preparation
Mount Clunie National Park	Upper	Plan in preparation	Plan in preparation
Mount Hyland Nature Reserve	Upper	No plan ²	Plan adopted
Mount Hyland State Conservation Area	Upper	Draft plan publicly exhibited	Plan adopted
Mount Jerusalem National Park	Upper	Plan adopted	Plan adopted
Mount Mackenzie Nature Reserve	Upper	Plan in preparation	Plan adopted
Mount Neville Nature Reserve	Upper	Draft plan publicly exhibited	Draft plan publicly exhibited
Mount Nothofagus National Park	Upper	Plan in preparation	Plan in preparation
Mount Nullum Nature Reserve	Upper	No plan	Plan in preparation
Mount Pikapene National Park	Upper	Draft plan publicly exhibited	Draft plan publicly exhibited
Mount Pikapene State Conservation Area	Upper	Reserve gazetted after first five-yearly review period	Draft plan publicly exhibited
Mount Royal National Park	Lower	Draft plan publicly exhibited	Plan adopted
Mount Seaview Nature Reserve	Lower	Plan adopted	Plan adopted
Mount Yarrowyck Nature Reserve	Lower	Plan in preparation	Plan in preparation
Mucklewee Mountain Nature Reserve	Upper	Plan adopted	Plan adopted
Muldiva Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Mummel Gulf National Park	Lower	Plan in preparation	Plan adopted
Mummel Gulf State Conservation Area	Lower	No plan ²	Plan adopted
Munmorah State Conservation Area	Lower	Plan adopted	Plan adopted
Munro Island Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Muttonbird Island Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Myall Lakes National Park	Lower	Plan adopted	Plan adopted
Nambucca Aboriginal Area	Lower	No plan	No plan
New England National Park	Lower and Upper	Plan adopted	Plan adopted
Ngambaa Nature Reserve	Lower	Plan adopted	Plan adopted
Ngulin Nature Reserve	Lower	Plan in preparation	Plan adopted
Nightcap National Park	Upper	Plan adopted	Plan adopted
North Obelisk Nature Reserve ¹	Upper	No plan	Statement of management intent

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Nowendoc National Park	Lower	Plan in preparation	Plan adopted
Numinbah Nature Reserve	Upper	Plan adopted	Plan adopted
Nunguu Mirral Aboriginal Area	Lower	No plan	No plan
Nymboi-Binderay National Park	Upper and Lower	Plan in preparation	Draft plan publicly exhibited
Nymboi-Binderay State Conservation Area	Lower	No plan ²	Draft plan publicly exhibited
Nymboida National Park	Upper	Plan adopted	Plan adopted
Nymboida State Conservation Area	Upper	Plan adopted ²	Plan adopted
One Tree Island Nature Reserve	Lower	No plan ²	Statement of management intent
Oxley Wild Rivers National Park	Lower	Plan adopted	Plan adopted
Oxley Wild Rivers State Conservation Area	Lower	Plan adopted ²	Plan adopted
Palm Grove Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Plan in preparation
Pambalong Nature Reserve	Lower	Plan adopted	Plan adopted
Parr State Conservation Area	Lower	Draft plan publicly exhibited	Plan adopted
Pee Dee Nature Reserve	Lower	Plan adopted	Plan adopted
Pelican Island Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Popran National Park	Lower	Plan adopted	Plan adopted
Pulbah Island Nature Reserve	Lower	Plan adopted	Plan adopted
Queens Lake Nature Reserve	Lower	Plan in preparation	Plan in preparation
Queens Lake State Conservation Area	Lower	No plan ²	Plan in preparation
Ramornie National Park	Upper	Plan in preparation	Plan adopted
Rawdon Creek Nature Reserve	Lower	Plan adopted	Plan adopted
Regatta Island Nature Reserve	Lower	Draft plan publicly exhibited	Draft plan publicly exhibited
Richmond Range National Park	Upper	Plan adopted	Plan adopted
Richmond River Nature Reserve	Upper	Plan adopted	Plan adopted
Rileys Island Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Roto House Historic Site	Lower	Reserve gazetted after first five-yearly review period	Plan adopted
Saltwater National Park	Lower	No plan ²	Draft plan publicly exhibited
Saratoga Island Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Scone Mountain National Park	Lower	Reserve gazetted after first five-yearly review period	Plan in preparation
Sea Acres National Park (formerly Sea Acres Nature Reserve)	Lower	Plan adopted	Plan adopted
Seaham Swamp Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Serpentine Nature Reserve	Lower	Draft plan publicly exhibited	Plan in preparation
Sherwood Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Single National Park	Upper	Plan in preparation	Plan adopted
Skillion Nature Reserve	Lower	Plan adopted	Plan adopted
Smiths Lake Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Snapper Island Nature Reserve	Lower	No plan	Statement of management intent
Snows Gully Nature Reserve	Upper	Plan adopted	Plan adopted
Spectacle Island Nature Reserve	Lower	Plan adopted	Plan adopted
Stonewoman Aboriginal Area	Upper	No plan	No plan
Stony Batter Creek Nature Reserve	Lower	Plan adopted	Plan adopted
Stotts Island Nature Reserve	Upper	Plan adopted	Plan adopted
Sugarloaf State Conservation Area	Lower	No plan	Plan in preparation
Susan Island Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Tabbimoble Swamp Nature Reserve	Upper	Plan in preparation	Draft plan publicly exhibited
Talawahl Nature Reserve	Lower	Plan in preparation	Plan in preparation
Talawahl State Conservation Area	Lower	No plan ²	Plan in preparation
Tallawudjah Nature Reserve	Upper	Plan adopted	Plan adopted
Tapin Tops National Park	Lower	Plan adopted	Plan adopted
The Basin Nature Reserve	Upper	Plan adopted	Plan adopted
The Castles Nature Reserve	Lower	Plan adopted	Plan adopted
The Cells State Conservation Area	Lower	No plan ²	Plan in preparation
The Glen Nature Reserve	Lower	Plan in preparation	Plan in preparation
Tilligerry National Park	Lower	No plan	Statement of management intent
Tilligerry Nature Reserve	Lower	No plan	Statement of management intent
Tilligerry State Conservation Area	Lower	No plan	Statement of management intent
Timbarra National Park	Upper	No plan ²	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Tingira Heights Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Ti-Tree Lake Aboriginal Area	Upper	Reserve gazetted after first five-yearly review period	Plan in preparation
Tomalla Nature Reserve	Lower	Plan in preparation	Plan adopted
Tomaree National Park	Lower	Plan adopted	Plan adopted
Toooloom National Park	Upper	Plan adopted	Plan adopted
Toonumbar National Park	Upper	Plan adopted	Plan adopted
Toonumbar State Conservation Area	Upper	No plan ²	Statement of management intent
Torrington State Conservation Area	Upper	Plan adopted	Plan adopted
Towarri National Park	Lower	Plan adopted	Plan adopted
Towibakh Nature Reserve	Lower	No plan	Plan in preparation
Tuckean Nature Reserve	Upper	Plan adopted	Plan adopted
Tucki Tucki Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Tuggerah Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Tuggerah State Conservation Area	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Tuggolo Creek Nature Reserve	Lower	Plan in preparation	Plan adopted
Tweed Estuary Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Tweed Heads Historic Site	Upper	Plan adopted	Plan adopted
Tyagarah Nature Reserve	Upper	Plan adopted	Plan adopted
Ukerebagh Nature Reserve	Upper	Plan adopted	Plan adopted
Ulidarra National Park	Upper	Plan in preparation	Plan adopted
Uralba Nature Reserve	Upper	Plan adopted	Plan adopted
Valla Nature Reserve	Lower	Draft plan publicly exhibited	Plan adopted
Victoria Park Nature Reserve	Upper	Plan adopted	Plan adopted
Wallamba Nature Reserve	Lower	Plan in preparation	Plan in preparation
Wallarrah National Park	Lower	No plan ²	Statement of management intent
Wallaroo National Park	Lower	Plan in preparation	Draft plan publicly exhibited
Wallingat National Park	Lower	Draft plan publicly exhibited	Plan adopted
Wallis Island Nature Reserve	Lower	No plan	Draft plan publicly exhibited
Wamberal Lagoon Nature Reserve	Lower	Plan adopted	Plan adopted
Wambina Nature Reserve	Lower	Plan adopted	Plan adopted
Warra National Park	Upper	Plan adopted	Plan adopted
Warragai Creek Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Washpool National Park	Upper	Plan adopted	Plan adopted
Washpool State Conservation Area	Upper	Plan adopted ²	Plan adopted
Watagans National Park	Lower	Draft plan publicly exhibited	Plan adopted
Weelah Nature Reserve	Lower	Plan adopted	Plan adopted
Werakata National Park	Lower	No plan	Plan in preparation
Werakata State Conservation Area	Lower	No plan	Plan in preparation
Werrikimbe National Park	Lower	Plan adopted	Plan adopted
Werrikimbe State Conservation Area	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Whian Whian State Conservation Area	Upper	No plan ²	Plan adopted
Willi Willi Caves Nature Reserve	Lower	Plan adopted	Plan adopted
Willi Willi National Park	Lower	Draft plan publicly exhibited	Plan adopted
Wilson Nature Reserve	Upper	Plan adopted	Plan adopted
Wingen Maid Nature Reserve	Lower	Plan adopted	Plan adopted
Wingham Brush Nature Reserve	Lower	Plan adopted	Plan adopted
Woko National Park	Lower	No plan	Statement of management intent
Wollemi National Park	Lower	Plan adopted	Plan adopted
Wollumbin National Park (formerly Mount Warning National Park)	Upper	Plan adopted	Plan adopted
Wombat Creek State Conservation Area	Upper	No plan ²	Draft plan publicly exhibited
Woodford Island Nature Reserve	Upper	Draft plan publicly exhibited	Plan adopted
Woolooma National Park	Lower	Reserve gazetted after first five-yearly review period	Statement of management intent
Wooyung Nature Reserve	Upper	Plan adopted	Plan adopted
Woregore Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Plan in preparation
Worimi National Park	Lower	Reserve gazetted after first five-yearly review period	Draft plan publicly exhibited
Worimi Nature Reserve	Lower	Reserve gazetted after first five-yearly review period	Draft plan publicly exhibited
Worimi State Conservation Area	Lower	Reserve gazetted after first five-yearly review period	Draft plan publicly exhibited
Wyrabalong National Park	Lower	Plan adopted	Plan adopted
Yabbra National Park	Upper	Draft plan publicly exhibited	Plan in preparation
Yaegl Nature Reserve	Upper	No plan ²	Plan adopted
Yahoo Island Nature Reserve	Lower	Plan in preparation	Draft plan publicly exhibited

NSW Regional Forest Agreements Implementation Report 2004–2014

Name	North East RFA sub-region ¹	Status for first five-yearly review	Status for second & third five-yearly reviews
Yarravel Nature Reserve	Lower	Plan adopted	Plan adopted
Yarriabini National Park	Lower	No plan ²	Plan in preparation
Yarringly Nature Reserve	Upper	No plan ²	Plan adopted
Yarringly State Conservation Area	Upper	No plan ²	Plan adopted
Yengo National Park	Lower	Draft plan publicly exhibited	Plan adopted
Yessabah Nature Reserve	Lower	Plan adopted	Plan adopted
Yina Nature Reserve	Lower	Plan adopted	Plan adopted
Yuraygir National Park	Upper	Plan adopted	Plan adopted
Yuraygir State Conservation Area	Upper	Plan adopted ²	Plan adopted

Table notes: (1) Some reserves are located in more than one RFA region. These reserves are counted as being part of the region in which the largest part of the reserve is located. Some reserves are included as they fall within the broader RFA region. (2) Recent gazettal (not reported in first five-yearly review).

Table 60: Status of conservation reserve system management plans – Southern RFA

Name ¹	REVISED status for first five-yearly review (based on when PMP was finalised)	Status for second & third five-yearly reviews
Araluen Nature Reserve	Draft plan publicly exhibited	Plan adopted
Badja Swamps Nature Reserve	Draft plan publicly exhibited	Plan adopted
Bamarang Nature Reserve	Plan in preparation	Statement of management intent
Bangadilly National Park	Draft plan publicly exhibited	Plan adopted
Barnunj State Conservation Area	Draft plan publicly exhibited	Plan adopted
Barren Grounds Nature Reserve	Plan adopted	Plan adopted
Barrengarry Nature Reserve	Draft plan publicly exhibited	Plan adopted
Bees Nest Nature Reserve	Draft plan publicly exhibited	Plan adopted
Benambra National Park	Plan adopted	Plan adopted
Berlang State Conservation Area	No plan	Plan in preparation
Bimberamala National Park	Plan adopted	Plan adopted
Bimberi Nature Reserve	Plan adopted	Plan adopted
Binjura Nature Reserve	Plan in preparation	Plan adopted
Black Andrew Nature Reserve	Plan adopted	Plan adopted
Bobundara Nature Reserve	Draft plan publicly exhibited	Plan adopted
Bogandyera Nature Reserve	Plan adopted	Plan adopted
Bomaderry Creek Regional Park	No plan ²	Draft plan publicly exhibited
Brindabella National Park	Draft plan publicly exhibited	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name¹	REVISED status for first five-yearly review (based on when PMP was finalised)	Status for second & third five-yearly reviews
Brindabella State Conservation Area	Draft plan publicly exhibited	Plan adopted
Broulee Island Nature Reserve	Draft plan publicly exhibited	Plan adopted
Brundee Swamp Nature Reserve	Draft plan publicly exhibited	Plan adopted
Budawang National Park	Plan adopted	Plan adopted
Budderoo National Park	Plan adopted	Plan adopted
Bugong National Park	Plan in preparation	Draft plan publicly exhibited
Bungonia State Conservation Area	Plan adopted	Plan adopted
Burnt School Nature Reserve	Plan adopted	Plan adopted
Burra Creek Nature Reserve	Draft plan publicly exhibited	Plan adopted
Burrinjuck Nature Reserve	Draft plan publicly exhibited	Plan adopted
Cambewarra Range Nature Reserve	Draft plan publicly exhibited	Plan adopted
Clarkes Hill Nature Reserve	Plan adopted	Plan adopted
Clyde River National Park	Plan in preparation	Plan adopted
Colymea State Conservation Area	Plan in preparation	Statement of management intent
Comerong Island Nature Reserve	Plan adopted	Plan adopted
Conjola National Park	Draft plan publicly exhibited	Plan adopted
Coornartha Nature Reserve	Draft plan publicly exhibited	Plan adopted
Corramy Regional Park (formerly Corramy State Conservation Area)	Draft plan publicly exhibited	Plan adopted
Courabyra Nature Reserve	Plan adopted	Plan adopted
Cullendulla Creek Nature Reserve	Plan adopted	Plan adopted
Cullunghutti Aboriginal Area	Reserve gazetted after first five-yearly review period	No plan
Cuumbeun Nature Reserve	Plan adopted	Plan adopted
Deua National Park	Draft plan publicly exhibited	Plan adopted
Downfall Nature Reserve	Plan adopted	Plan adopted
Ellerslie Nature Reserve	Draft plan publicly exhibited	Plan adopted
Eurobodalla National Park	Plan adopted	Plan adopted
Frogs Hole State Conservation Area	No plan	Plan in preparation
Good Good Nature Reserve	Draft plan publicly exhibited	Plan adopted
Goorooyaroo Nature Reserve	No plan	Plan adopted
Gourock National Park	Draft plan publicly exhibited	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name¹	REVISED status for first five-yearly review (based on when PMP was finalised)	Status for second & third five-yearly reviews
Gulaga National Park (Southern and Eden regions) ¹	Plan in preparation	Plan adopted
Hattons Corner Nature Reserve	Plan adopted	Plan adopted
Illawong Nature Reserve	Draft plan publicly exhibited	Plan adopted
Ironmungy Nature Reserve	Draft plan publicly exhibited	Plan adopted
Jerralong Nature Reserve	Draft plan publicly exhibited	Plan adopted
Jerrawangala National Park	Draft plan publicly exhibited	Plan adopted
Jervis Bay National Park	Draft plan publicly exhibited	Plan adopted
Jingellic Nature Reserve	Plan adopted	Plan adopted
Joadja Nature Reserve	Plan in preparation	Plan adopted
Kangaroo River Nature Reserve	Draft plan publicly exhibited	Plan adopted
Kooraban National Park	Draft plan publicly exhibited	Plan adopted
Kosciuszko National Park	Plan adopted	Plan adopted
Kuma Nature Reserve	Draft plan publicly exhibited ²	Plan adopted
Kybeyan Nature Reserve	Draft plan publicly exhibited	Plan adopted
Kybeyan State Conservation Area (Southern and Eden regions) ¹	Draft plan publicly exhibited	Plan adopted
Livingstone National Park	Draft plan publicly exhibited	Plan adopted
Livingstone State Conservation Area	Draft plan publicly exhibited	Plan adopted
Macanally State Conservation Area	Draft plan publicly exhibited	Plan adopted
Macquarie Pass National Park	Plan adopted	Plan adopted
Macquarie Pass State Conservation Area	No plan	Statement of management intent
Majors Creek State Conservation Area	No plan	Plan in preparation
Meringo Nature Reserve	Draft plan publicly exhibited	Plan adopted
Meroo National Park	Draft plan publicly exhibited	Plan adopted
Merriangaah Nature Reserve	Draft plan publicly exhibited	Plan adopted
Minjary National Park	Plan adopted	Plan adopted
Monga National Park	Draft plan publicly exhibited	Plan adopted
Monga State Conservation Area	No plan	Plan in preparation
Morton National Park	Plan adopted	Plan adopted
Morton State Conservation Area	Plan in preparation	Plan in preparation
Mount Clifford Nature Reserve	Draft plan publicly exhibited	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name¹	REVISED status for first five-yearly review (based on when PMP was finalised)	Status for second & third five-yearly reviews
Mount Dowling Nature Reserve	Plan adopted	Plan adopted
Mudjarn Nature Reserve	Draft plan publicly exhibited	Plan adopted
Mullengandra Nature Reserve	Draft plan publicly exhibited	Plan adopted
Mullengandra State Conservation Area	No plan	Plan adopted
Murramarang Aboriginal Area	Plan adopted	Plan adopted
Murramarang National Park	Plan adopted	Plan adopted
Myalla Nature Reserve	Draft plan publicly exhibited	Plan adopted
Nadgigomar Nature Reserve	No plan ²	Plan adopted
Narrawallee Creek Nature Reserve	Plan adopted	Plan adopted
Nest Hill Nature Reserve	Plan adopted	Plan adopted
Ngadang Nature Reserve	Draft plan publicly exhibited	Plan adopted
Nimmo Nature Reserve	Draft plan publicly exhibited	Plan adopted
Numeralla Nature Reserve	Draft plan publicly exhibited	Plan adopted
Oak Creek Nature Reserve	Draft plan publicly exhibited	Plan adopted
Parma Creek Nature Reserve	Draft plan publicly exhibited	Plan adopted
Paupong Nature Reserve	Draft plan publicly exhibited	Plan adopted
Queanbeyan Nature Reserve	Plan adopted	Plan adopted
Quidong Nature Reserve	Draft plan publicly exhibited	Plan adopted
Robertson Nature Reserve	Plan adopted	Plan adopted
Rodway Nature Reserve	Draft plan publicly exhibited	Plan adopted
Saltwater Swamp Nature Reserve	Draft plan publicly exhibited	Plan adopted
Scabby Range Nature Reserve	Draft plan publicly exhibited	Plan adopted
Scott Nature Reserve	Draft plan publicly exhibited	Plan adopted
Seven Mile Beach National Park	Plan adopted	Plan adopted
Stony Creek Nature Reserve	Plan adopted	Plan adopted
Strike-a-Light Nature Reserve	Plan adopted	Plan adopted
Tallaganda National Park	Draft plan publicly exhibited	Plan adopted
Tallaganda State Conservation Area	Draft plan publicly exhibited	Plan adopted
Tapitallee Nature Reserve	No plan	Draft plan publicly exhibited
Tinderry Nature Reserve	Plan adopted	Plan adopted
Triplarina Nature Reserve	Plan in preparation	Statement of management intent
Tumblong State Conservation Area	Draft plan publicly exhibited	Plan adopted

NSW Regional Forest Agreements Implementation Report 2004–2014

Name¹	REVISED status for first five-yearly review (based on when PMP was finalised)	Status for second & third five-yearly reviews
Turallo Nature Reserve	No plan ²	Plan adopted
Undoo Nature Reserve	Draft plan publicly exhibited	Plan adopted
Wadjan Nature Reserve (Southern and Eden regions) ¹	Draft plan publicly exhibited	Plan adopted
Wanna Wanna Nature Reserve	Plan adopted	Plan adopted
Wee Jasper Nature Reserve	Draft plan publicly exhibited	Plan adopted
Wereboldera State Conservation Area	Draft plan publicly exhibited	Plan adopted
Wogamia Nature Reserve	Plan in preparation	Statement of management intent
Wollondilly River Nature Reserve	No plan ²	Plan adopted
Woollamia Nature Reserve	Draft plan publicly exhibited	Plan adopted
Woomargama National Park	Draft plan publicly exhibited	Plan adopted
Woomargama State Conservation Area	No plan	Plan adopted
Worrigee Nature Reserve	Plan in preparation	Statement of management intent
Wullwee Nature Reserve	Draft plan publicly exhibited	Plan adopted
Yanununbeyan National Park	Plan adopted	Plan adopted
Yanununbeyan Nature Reserve	Plan adopted	Plan adopted
Yanununbeyan State Conservation Area	Plan adopted	Plan adopted
Yaouk Nature Reserve	Draft plan publicly exhibited	Plan adopted
Yattheyattah Nature Reserve	Plan adopted	Plan adopted

Table notes: (1) Some reserves are located in more than one RFA region. These reserves are counted as being part of the region in which the largest part of the reserve is located. Some reserves are included as they fall within the broader RFA region. (2) Recent gazettal (not reported in first five-yearly review).

Appendix F Forest management zoning

All areas within state forests are allocated to a specific forest management zone (FMZ). Forest management zoning is a land classification system which sets out, in map format, the way FCNSW intends to manage forest areas across all state forests. The FMZ system is based on nationally agreed reserve criteria. The FMZ system provides a robust, clear and auditable planning system for public forest management under FCNSW responsibility. The characteristics of each FMZ, and the activities that are not permitted, permitted with standard conditions or permitted with special conditions have been described and are publicly available³⁶⁵. Areas of FMZ by category generally have few changes year to year. The most significant adjustments have been associated with a revision of unassessed areas in the North East regions in FY0910 and FY1011 which saw those large areas allocated to more appropriate zones.

Table 61: Forest management zones for Eden

Eden region	F0405	F0506	F0607	F0708	F0809	FY0910	FY1011	FY1112	FY1213	FY1314	Proportion at F14 (%)
	Hectares										
Total	205,545	205,544	206,086	207,013	206,950	207,170	207,169	207,164	207,113	207,110	
Formal reserve (FMZ 1)	7,897	7,888	8,422	7,960	8,491	8,491	8,491	8,493	8,465	8,465	4
Informal reserve – special management (FMZ 2)	3,106	3,112	3,123	3,629	3,656	3,656	3,656	3,656	3,656	3,656	2
Informal reserve – harvest exclusion (FMZ 3a)	6,382	6,381	6,415	6,976	6,499	6,497	6,497	6,490	6,490	6,490	3
Special prescription (FMZ 3b)	12,871	12,866	12,943	12,783	12,888	12,888	12,888	13,020	13,037	13,037	6
General management native forest (FMZ 4)	131,879	131,913	132,645	133,408	134,037	134,038	134,037	133,878	133,868	133,861	65
FCNSW hardwood planted estate (FMZ 5)	-	-	269	359	359	553	553	553	536	435	0
FCNSW softwood planted estate (FMZ 6)	42,308	42,413	41,320	40,604	40,593	40,702	40,702	40,727	40,714	40,822	20
Non forestry use (FMZ 7)	151	150	151	322	346	346	346	347	347	345	0
Land for further assessment (FMZ 8)	951	821	798	973	80	0	0	0	0	0	0

³⁶⁵ State Forests of NSW 1999, *Managing our forests sustainably: Forest management zoning in NSW State Forests*, accessed 9 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0003/438402/managing-our-forests-sustainably-forest-mgt-zoning-in-nsw-state-forests.pdf

NSW Regional Forest Agreements Implementation Report 2004–2014

Table 62: Forest management zones for South Coast sub-region

South Coast sub-region	F0405	F0506	F0607	F0708	F0809	FY0910	FY1011	FY1112	FY1213	FY1314	Proportion at F14 (%)
	Hectares										
Total	222,535	212,795	212,470	212,635	212,646	212,819	212,819	212,810	212,635	212,634	
Formal reserve (FMZ 1)	522	522	522	522	522	522	522	522	522	522	0
Informal reserve – special management (FMZ 2)	17,484	16,312	16,260	16,292	16,292	16,317	16,317	16,295	16,294	16,294	8
Informal reserve – harvest exclusion (FMZ 3a)	19,694	16,252	16,184	16,215	16,225	16,249	16,249	16,269	16,252	16,252	8
Special prescription (FMZ 3b)	5,716	5,733	5,613	5,724	5,725	5,800	5,800	5,794	5,734	5,734	3
General management native forest (FMZ 4)	172,497	167,157	163,429	167,001	167,022	167,072	167,072	167,053	166,960	166,960	79
FCNSW hardwood planted estate (FMZ 5)	0	0	40	40	40	40	40	40	40	40	0
FCNSW softwood planted estate (FMZ 6)	5,800	5,985	9,368	5,977	5,982	5,983	5,983	6,001	6,113	6,113	3
Non forestry use (FMZ 7)	822	834	925	835	835	836	836	836	720	718	0
Land for further assessment (FMZ 8)	0	0	129	29	3	0	0	0	0	0	0

Table 63: Forest management zones for Tumut sub-region

Tumut sub-region	F0405	F0506	F0607	F0708	F0809	FY0910	FY1011	FY1112	FY1213	FY1314	Proportion at F14 (%)
	Hectares										
Total	211,265	212,873	174,989	207,755	207,738	210,299	209,187	209,217	209,745	209,619	
Formal reserve (FMZ 1)	8,923	8,923	2,525	8,926	8,924	8,924	8,784	8,784	8,923	8,919	4
Informal reserve – special management (FMZ 2)	17,940	9,768	5,702	9,722	9,723	10,027	10,027	10,089	10,089	10,089	5
Informal reserve – harvest exclusion (FMZ 3a)	7,089	13,634	6,611	13,584	13,571	13,406	13,406	13,404	13,402	13,097	6
Special prescription (FMZ 3b)	13,648	17,871	2,062	16,355	16,350	17,042	17,097	16,983	16,959	16,217	8
General management native forest (FMZ 4)	53,880	54,342	53,846	53,799	53,799	54,096	53,905	53,954	54,145	54,134	26

NSW Regional Forest Agreements Implementation Report 2004–2014

Tumut sub-region	F0405	F0506	F0607	F0708	F0809	FY0910	FY1011	FY1112	FY1213	FY1314	Proportion at F14 (%)
	Hectares										
FCNSW hardwood planted estate (FMZ 5)	0	6	6	6	6	6	6	6	6	6	0
FCNSW softwood planted estate (FMZ 6)	104,994	105,283	101,792	102,771	102,812	104,311	103,503	103,526	103,734	104,661	50
Non forestry use (FMZ 7)	2,418	2,597	2,441	2,478	2,462	2,486	2,459	2,471	2,486	2,496	1
Land for further assessment (FMZ 8)	2,373	449	4	114	90	0	0	0	0	0	0

Table 64: Forest management zones for Lower North East

Lower North East sub-region	F0405	F0506	F0607	F0708	F0809	FY0910	FY1011	FY1112	FY1213	FY1314	Proportion at F14 (%)
	Hectares										
Total	495,827	491,999	493,696	492,178	492,132	486,665	485,788	497,559	497,868	495,979	
Formal reserve (FMZ 1)	3,999	3,977	5,138	6,575	6,575	6,577	6,577	6,578	6,543	6,550	1
Informal reserve – special management (FMZ 2)	79,680	79,453	77,967	75,746	75,746	75,281	75,525	83,722	79,985	80,259	16
Informal reserve – harvest exclusion (FMZ 3a)	77,333	76,093	72,473	72,004	71,977	72,624	72,520	74,691	77,615	77,600	16
Special prescription (FMZ 3b)	6,128	6,076	6,105	6,058	6,039	6,099	6,124	6,126	6,094	6,843	1
General management native forest (FMZ 4)	228,203	226,767	224,762	224,865	224,684	224,884	225,219	286,761	284,579	286,194	58
FCNSW hardwood planted estate (FMZ 5)	16,149	16,212	19,773	19,736	19,727	12,485	13,868	21,515	24,700	22,415	5
FCNSW softwood planted estate (FMZ 6)	17,521	17,521	18,358	18,304	18,304	18,283	18,275	17,088	17,269	15,011	3
Non forestry use (FMZ 7)	1,124	1,093	1,006	1,001	1,000	993	990	1,079	1,082	1,070	0
Land for further assessment (FMZ 8)	65,691	64,808	68,114	67,889	68,081	62,579	59,830	0	0	36	0
Unzoned	–	–	–	–	–	6,860	6,860	–	–	–	0

Table 65: Forest management zones for Upper North East

Upper North East sub-region	F0405	F0506	F0607	F0708	F0809	FY0910	FY1011	FY1112	FY1213	FY1314	Proportion at F14 (%)
	Hectares										
Total	470,867	470,449	439,139	434,108	434,108	420,599	420,321	440,296	440,685	431,953	
Formal reserve (FMZ 1)	2,202	2,205	2,209	2,209	2,209	2,208	2,208	2,222	2,216	2,216	1
Informal reserve – special management (FMZ 2)	52,080	52,105	53,208	52,513	52,513	51,859	51,860	62,670	57,155	56,917	13
Informal reserve – harvest exclusion (FMZ 3a)	90,019	90,062	88,064	84,169	84,169	83,369	83,369	84,341	89,631	89,483	21
Special prescription (FMZ 3b)	2,027	2,041	2,046	2,045	2,045	1,947	1,947	1,937	1,931	2,275	1
General management native forest (FMZ 4)	198,968	199,066	200,037	199,995	199,995	199,157	199,156	233,535	233,176	233,155	54
FCNSW hardwood planted estate (FMZ 5)	57,790	57,237	20,056	19,954	19,954	18,889	19,094	31,327	31,956	30,054	7
FCNSW softwood planted estate (FMZ 6)	22,219	22,224	16,878	16,795	16,795	16,787	16,443	22,167	22,536	15,406	4
Non forestry use (FMZ 7)	1,799	1,819	2,027	1,959	1,959	1,936	1,935	2,096	2,083	2,024	0
Land for further assessment (FMZ 8)	43,762	43,690	54,614	54,468	54,468	44,445	44,308	0	0	424	0
Unzoned	–	–	–	–	–	2	2	–	–	–	0

Appendix G Forest Resource and Management Evaluation System (FRAMES)

This appendix contains a summary report on the development and implementation of FRAMES to 30 June 2016.

While this is outside the reporting period, it covers the two five-year periods as well as the first five-year period, to provide a complete overview of FRAMES.

Note: References to FCNSW in this document may also apply to previous entities (Forests NSW and State Forests of NSW) which existed prior to corporatisation on 1 January 2013.

The full FRAMES report is available on the FCNSW website³⁶⁶.

What is FRAMES?

FCNSW's FRAMES strategic planning system for native forests was developed within the framework of the CRA process, leading to RFAs. FCNSW commenced the development of FRAMES in 1997 following the Interim Forest Assessment³⁶⁷. During the period of time that the CRA process was being undertaken, FRAMES development was under continual review by the FRAMES Technical Committee of the Resource and Conservation Assessment Council.

The key purposes of FRAMES were to:

- model the availability of large high quality (HQ) sawlogs at a strategic level to evaluate multiple land allocation options between production forests and conservation reserves
- provide an ongoing capability for growth and yield modelling in the production native forests.

This contributed to negotiations for the 2000 North East RFA for the UNE and LNE CRA regions (essentially, the area covered by the former North East and Central regions), as well as for the 2001 Southern RFA region (excluding Eden Management Area and RFA region). It was also used for the NSW Western and Riverina Forest Agreements.

All of the North East and Southern RFA regions are predominantly multi-aged native forest areas. Initial modelling of the Eden RFA region multi-aged native forest resource utilised FRAMES inventory processes. A separate REDEN modelling system was also used for the Eden RFA region, where the forest and management system is more akin to even-aged management.

As a basis for the ongoing assessment and planning of log supply by quality class³⁶⁸ for the bulk of the production native forests in NSW, FRAMES has undergone a process of continual improvement since it was developed. These improvements have arisen out of various internal and external reviews, as well as technological advances and the availability of new resource management information.

FRAMES has been focused on estimating log supply by quality class at a strategic level. The output from the model is the anticipated wood volume by quality class and indicative species

³⁶⁶ FCNSW 2016b, *Forest Resource and Management Evaluation System (FRAMES)*, accessed July 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0016/702007/frames-development-and-implementation.pdf

³⁶⁷ Parliament of NSW 1999, *Forests in NSW: An Update*, Briefing paper No 2/99, accessed 9 November 2016 www.parliament.nsw.gov.au/researchpapers/Pages/forests-in-nsw-an-update.aspx

³⁶⁸ Quality class is a general descriptor that relates to the value of the product (high quality = high value). Within the descriptor, there are size specifications for High Quality and Low Quality large and small logs.

mixes, presented in multi-year (typically five-year) planning periods over a 100-year modelling horizon, for sub-regional geographic zones. While the output from FRAMES specifies log availability, this is without explicit linkage to economic parameters of harvesting and without any real degree of spatial accuracy. Tactical level allocation (one to five years) and detailed annual plans of operations have occurred at the regional level, with only limited interaction with FRAMES strategic level analyses. The limitations of this disconnect have been recognised and recent technological advances have improved the scope for much tighter integration between strategic and tactical planning. This will significantly improve the utility of FRAMES for detailed wood supply planning.

The main components of FRAMES and associated information flows are shown in Figure 6.

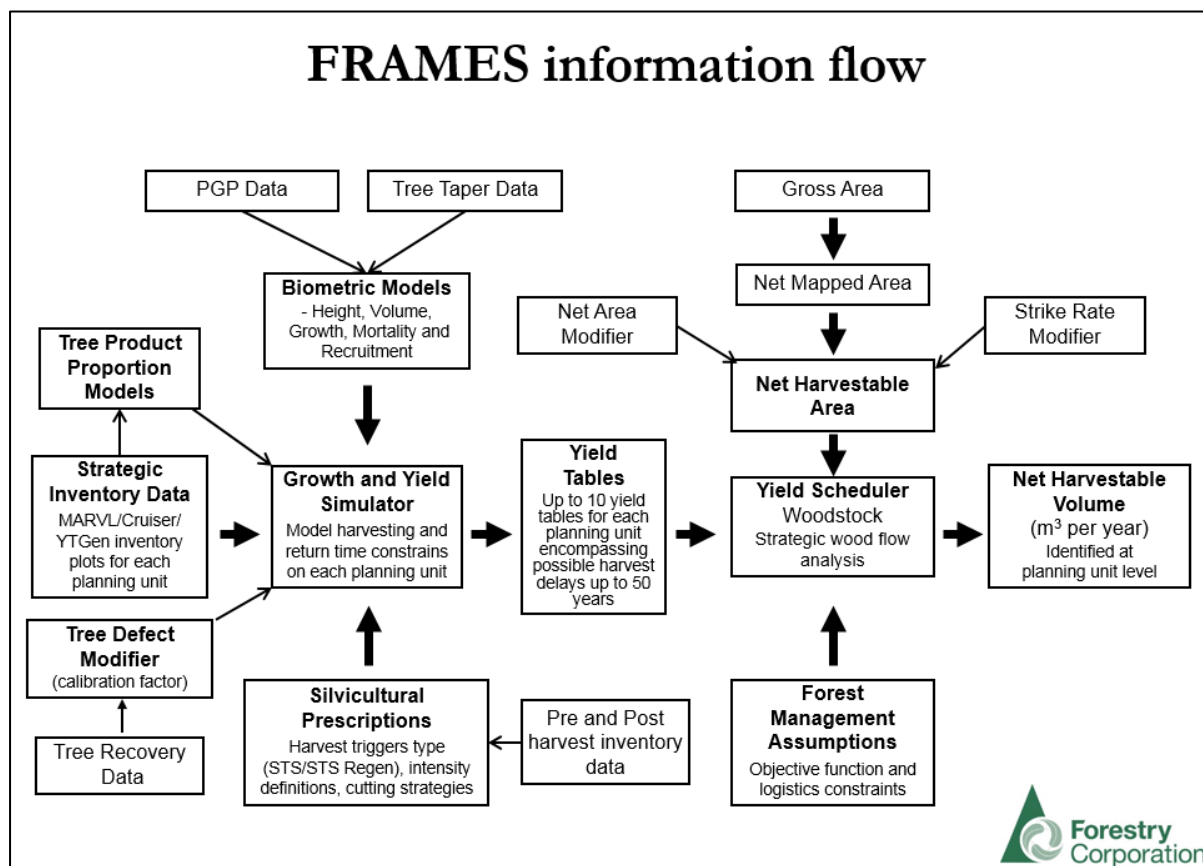


Figure 6: FRAMES structure – information flow

The key components of FRAMES are:

- a Geographic Information System (GIS) is used for calculation of net harvestable area, for spatial data for modelling and planning, for forest stratification and for visualising forest management and operations across the estate
- inventory data, comprising both strategic inventory plots (more than 3,700 plots across the state providing a snapshot assessment of current forest condition) and more than 900 PGPs that are specifically measured for tree growth modelling
- a Growth and Yield Simulator models tree growth, potential availability by quality class over time, what might be harvested at any point in time and how the stand responds to harvesting in terms of future growth. The Growth and Yield Simulator incorporates a range of biometric functions and models, silvicultural systems and factors to account for internal defect and other harvesting losses. The simulator produces per hectare estimates of harvestable volume at nominated points in time under specified FMSs for designated forest strata

- a Yield Scheduler (Remsoft® Woodstock) applies the per hectare data from the simulator to the net harvestable area from the GIS to produce estimates of harvestable volume by quality class. It seeks to optimise the combination of harvestable volume, location and species groups to achieve the specified objective of maximising sustainable, even-flow wood supply, while meeting defined constraints.

Independent reviews of FRAMES

To ensure the veracity, reliability and fitness for purpose of FRAMES, external independent reviews have been conducted by:

- Dr Brian Turner 1998³⁶⁹
- Dr Jerry Vanclay 2002³⁷⁰
- Dr Cris Brack 2009 (river red gum)³⁷¹ [not within a NSW RFA region]
- NSW Auditor General's Performance Audit titled *Sustaining Native Forest Operations* 2009³⁷²
- FRAMES review for Boral 2010³⁷³
- URS North Coast Resources Review 2012 (Project 2023³⁷⁴)
- Dr Cris Brack 2016 (cypress)³⁷⁵ [not within a NSW RFA region]
- Dr Cris Brack 2016 (NSW RFA regions)³⁷⁶.

These reviews all found that the FRAMES model design, structure and operation provided a solid and reliable basis for strategic yield prediction.

³⁶⁹ Turner B 1998, *Review of FRAMES data for the Upper North East and Lower North East RFA Regions of NSW*, report prepared for State Forests NSW and Bureau of Resource Sciences.

³⁷⁰ Vanclay JK 2002, *Review of Projected Timber Yields for the NSW North Coast*, Southern Cross University, accessed 5 April 2017 www.researchgate.net/publication/266440664_Review_of_Projected_Timber_Yields_for_the_NSW_North_Coast

³⁷¹ Brack C September 2009, Peer review of FRAMES (unreleased report) as input to Riverina Red Gums Forests Assessment, undertaken by the Natural Resources Commission on behalf of the NSW Government.

³⁷² Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017 www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

³⁷³ Boral Review May 2010, 'Internal review undertaken for FCNSW: based on discussions and options analyses conducted in conjunction with Boral', Internal presentation only – commercial in confidence.

³⁷⁴ DPI 2014, *Project 2023 – North Coast Resources Review*, accessed July 2017 www.crownland.nsw.gov.au/__data/assets/pdf_file/0013/520042/north-coast-timber-supply-summary-north-coast-forestry-resources-review.pdf

³⁷⁵ Brack C 2016, *Independent Review of Cypress Sawlog Resources on NSW Crown Timber Lands*, accessed 26 April 2017 www.crownland.nsw.gov.au/__data/assets/pdf_file/0011/720398/ANUE-Cypress-Sawlog-Review.pdf

³⁷⁶ Brack C 2017, *FRAMES Review*, accessed 26 April 2017 www.forestrycorporation.com.au/__data/assets/pdf_file/0011/701849/frames-review.pdf

Past limitations of FRAMES

A number of key limitations of FRAMES were identified during initial development and early use in the late 1990s and early 2000s. These included:

- Reliance on the use of aerial photo interpretation (API) to map ground level information (streams, roads, topography, boundary locations) produced significant on-ground errors and made accurate harvestable area calculation from those GIS layers problematic.
- API derived forest structure definitions are subject to on-ground errors. This impacts the process of reconciling modelled growth and yield volumes with actual harvested volumes at strategic and tactical levels.
- Gathering forest stand condition data (structure, height, density and crown condition) using API is very time-consuming and expensive.
- There was no systematic approach for mapping areas actually harvested. This affects the ability to reconcile differences between FRAMES predictions and actual harvesting events.
- Measurement of inventory plots fell behind schedule, for both remeasurement of existing plots and establishment of new plots.
- Inventory plot measurement systems and technology were becoming dated and inflexible, limiting modelling options, which in turn reduced accuracy of log grade prediction.
- Net Harvest Area Modifier (NHAM) and Strike Rate Modifier (SRM) components of FRAMES required updating to reflect more recent harvesting conditions, systems and regulations.
- FRAMES, as developed, was suitable only as a strategic modelling tool and had limited relevance at a tactical level.
- No systematic process was in place to reconcile FRAMES predictions for harvestable volume and actual harvested volume.

Continual FRAMES improvement

In an effort to overcome the identified limitations of FRAMES, FCNSW undertakes a continual improvement program of FRAMES. Some recent developments include:

- increasing use of air-borne LiDAR technology to derive an accurate digital terrain model (DTM). This is used to derive accurate slope, slope classes, stream locations, stream buffers, old road and track locations and similar terrain attributes
- accurate GeoNet^{377 378 379} modelling of stream location using LiDAR improves delineation of stream buffers resulting in an improved definition of net harvestable area
- increased application of mobile technology enables FCNSW to more accurately record and map the extent of harvesting. While outside the reporting period, in 2016 FCNSW commenced the roll-out of the internally developed *FCMapRT* application to native forest harvesting contractors. Tracking information from this app will result in more accurate harvest area mapping than traditional manual post-harvest mapping techniques

³⁷⁷ Passalacqua P, Do Trung T, Foufloula-Georgiou E, Sapiro G & Dietrich W 2010a, A geometric framework for channel network extraction from lidar: Nonlinear diffusion and geodesic paths, *Journal of Geophysical Research* 115: F01002

³⁷⁸ Passalacqua P, Tarolli P & Foufloula-Georgiou E 2010b, Testing space-scale methodologies for automatic geomorphic feature extraction from lidar in a complex mountainous landscape, *Water Resources Research* 46(11): W11535

³⁷⁹ Passalacqua P, Belmont P & Foufloula-Georgiou E 2012, Automatic geomorphic feature extraction from lidar in flat and engineered landscapes, *Water Resources Research* 48(3): W03528

- development of a spatially accurate LiDAR-derived stratification provides more precise estimates of harvestable volume by yield association at the compartment or harvest unit level
- updated inventory that improves current and future harvestable volume estimates and more accurately models current silvicultural systems
- LiDAR plot imputation assessments in FRAMES are being developed to provide more spatially explicit information to support tactical and operational planning. With the use of LiDAR, it is now possible to identify stand structure and locate high, medium and low volume stands. This will assist with planning which areas of the native forest resource should be harvested and when
- enhanced spatial analysis tools and a comprehensive database to more accurately identify areas available for harvesting
- updated modifiers (NHAM and SRM) that improve the conversion of theoretically available volume into saleable volume
- improved scheduling of harvesting activities to account for economic factors and wood supply requirements and constraints.

Overall, incorporating spatially explicit approaches such as stratification and eventually LiDAR-based plot imputation, will bridge the current gap between strategic level forecasts and tactical planning. This will provide many benefits, most notably adding value to operational planning and adding a new dimension of feedback to model performance.

The challenge for FCNSW is to cope with the increased amount and complexity of resource information, the increased body of analysis that is required in processing the models, and completing, contrasting and comparing the outcomes with traditional strategic models that underpin current planning.

Current status of FRAMES

The FRAMES resource models in place across the FCNSW estate as at 30 June 2014 were:

- North Coast 2015 resource review report incorporating Project 2023 modelling from 2012 for the North East RFA region
- South Coast 2012 covering the South Coast sub-region of the Southern RFA region
- Tumbarumba 2012 covering the Tumut sub-region of the Southern RFA region
- Eden RFA region 2012 (REDEN only).

While outside the reporting period, the South Coast sub-region's logging history will be updated to 2016 and the Eden RFA region modelling will be incorporated into FRAMES. This will mean that a consistent FRAMES approach will be applied across the entire FCNSW native forest wood resource.

FRAMES reconciliation

The Auditor General's Performance Audit *Sustaining Native Forest Operations: Forests NSW* of April 2009³⁸⁰ included an action item (Recommendation 5), requiring (the then) Forests NSW to 'compare harvest results against its yield estimates over five year periods as a means of testing the accuracy of estimates' and 'report the results annually starting June 2010'.

The first report addressing this requirement and covering the reconciliation of actual harvested volumes versus harvestable volumes predicted by FRAMES for the period July

³⁸⁰ Auditor-General New South Wales 2009, *Performance Audit Sustaining Native Forest Operations Forests NSW*, accessed June 2017
www.audit.nsw.gov.au/ArticleDocuments/141/185_Sustaining_Native_Forest.pdf.aspx?Embed=Y

2005 to June 2010 for the North East and Southern RFA regions was published in 2012³⁸¹. Preparation of this report highlighted the difficulties of undertaking such a reconciliation when FRAMES does not estimate harvestable volume by quality class at the tactical level.

An updated FRAMES reconciliation was completed for the same regions in 2013³⁸². While outside the reporting period, a 2015 FRAMES reconciliation for these regions was completed in 2016 and published in 2017³⁸³.

Accurate delineation of harvested areas is essential for both reconciliation and to ensure that strategic and tactical projections are based on an accurate representation of available area. As mentioned previously, FCNSW is currently improving the mapping of harvest extent using LiDAR and GPS tracking data. This will, in turn, lead to improvements in FRAMES reconciliation processes.

³⁸¹ Forests NSW 2012a, *Performance Audit Report: FRAMES Reconciliation*, accessed 15 November 2016, www.forestrycorporation.com.au/__data/assets/pdf_file/0005/439412/FRAMES-Reconciliation.pdf

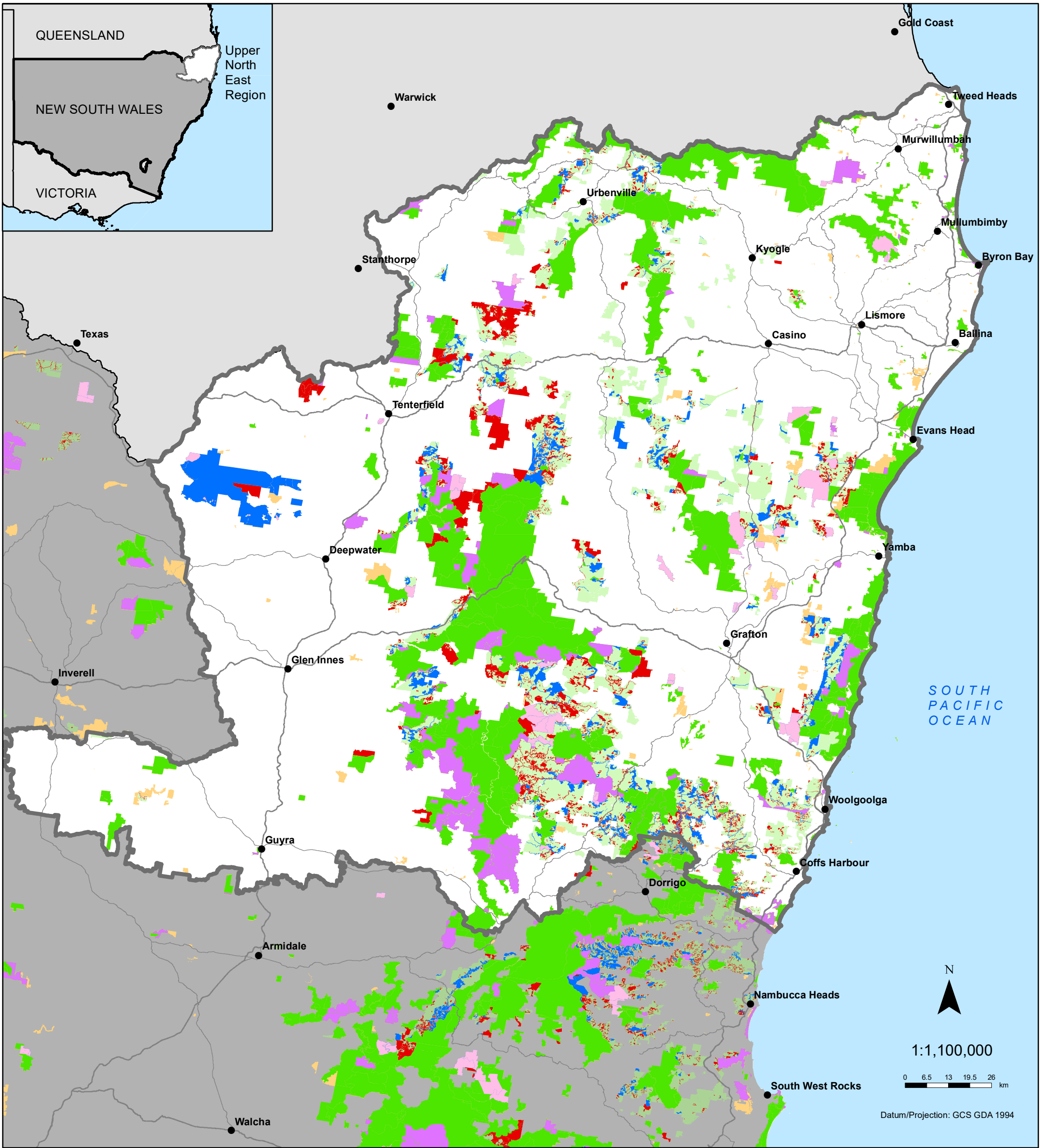
³⁸² FCNSW 2014a, *FRAMES Actual vs Predicted Harvest Reconciliation – 2008/09 to 2012/13*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0006/526893/FRAMES-Reconciliation-2013.pdf

³⁸³ FCNSW 2016d, *FRAMES Actual vs Predicted Harvest Reconciliation – F2010/11 to F2014/15*, accessed 15 November 2016 www.forestrycorporation.com.au/__data/assets/pdf_file/0005/701852/frames-reconciliation-report-2010-11-2014-15.pdf

Appendix H Additions to the CAR reserve system

Building on maps of the CAR reserve system included with each NSW RFA and being current as at the signing of each NSW RFA, the Parties have made available maps of the CAR reserve system within the Joint Government Response report of November 2009 and updated those maps to coincide with the end of the third five-year period for this implementation report.

The provision of this time series of maps tracks the continual growth of the CAR reserve system in the NSW RFA regions following the signing of each RFA between 1999 and 2001.

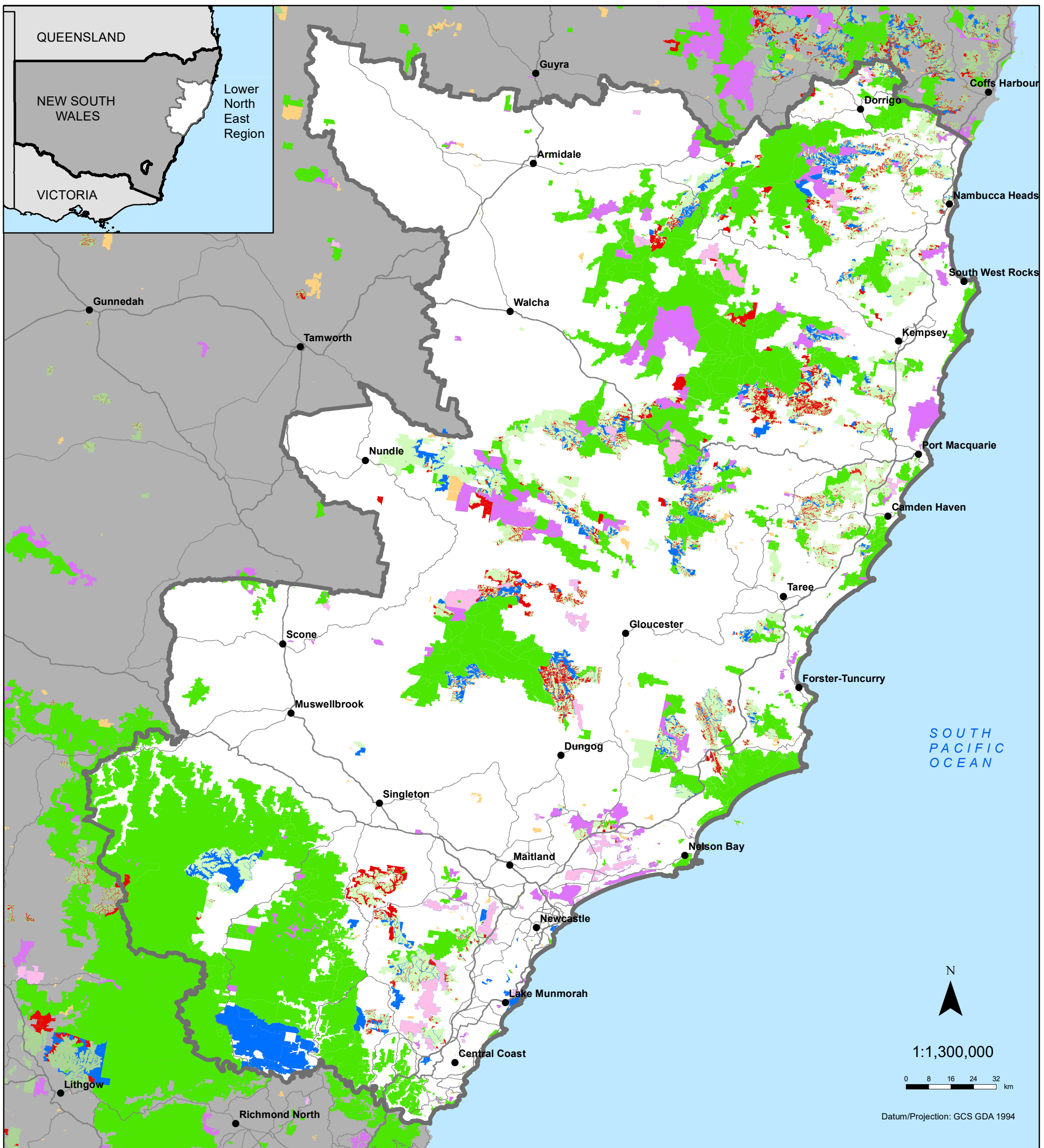


**NORTH EAST NSW REGIONAL FOREST AGREEMENT
UPPER NORTH EAST REGION**

**Comprehensive, Adequate and Representative (CAR)
reserve system as at 30 June 2014**

Note: 'Additions' can also represent a change in tenure from State forest to the national parks system.

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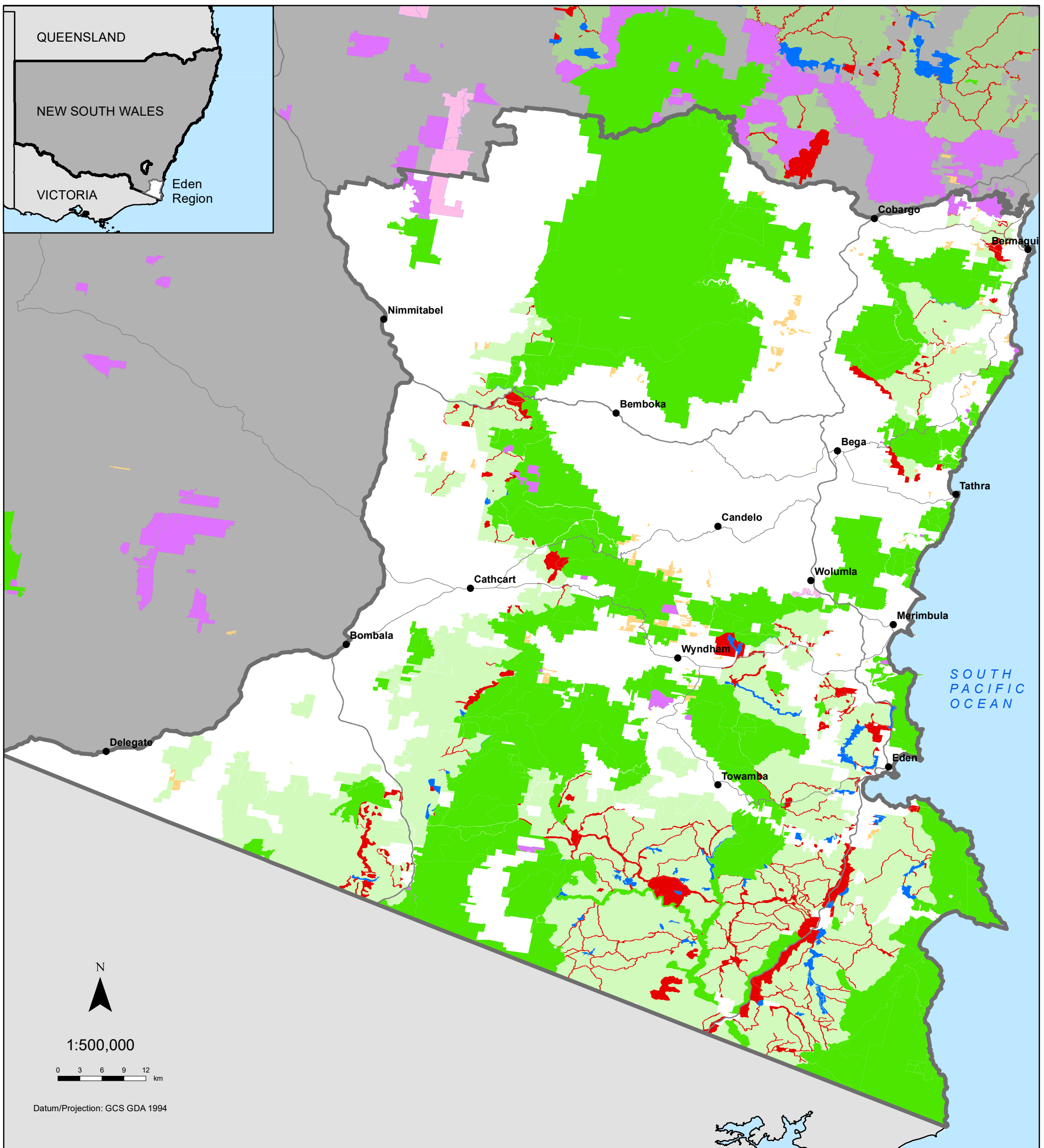
NORTH EAST NSW REGIONAL FOREST AGREEMENT LOWER NORTH EAST REGION

Comprehensive, Adequate and Representative (CAR) reserve system as at 30 June 2014

Note: 'Additions' can also represent a change in tenure from State forest to the national parks system. Some areas of Commonwealth land (not depicted) also contribute to the informal reserve system.

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- Dedicated reserves additions (post-RFA)
- Informal reserves additions (post-RFA)
- Dedicated reserves
- Informal reserves
- Reserved by prescription
- Other State forest
- Private land conservation areas
- Towns
- Major roads



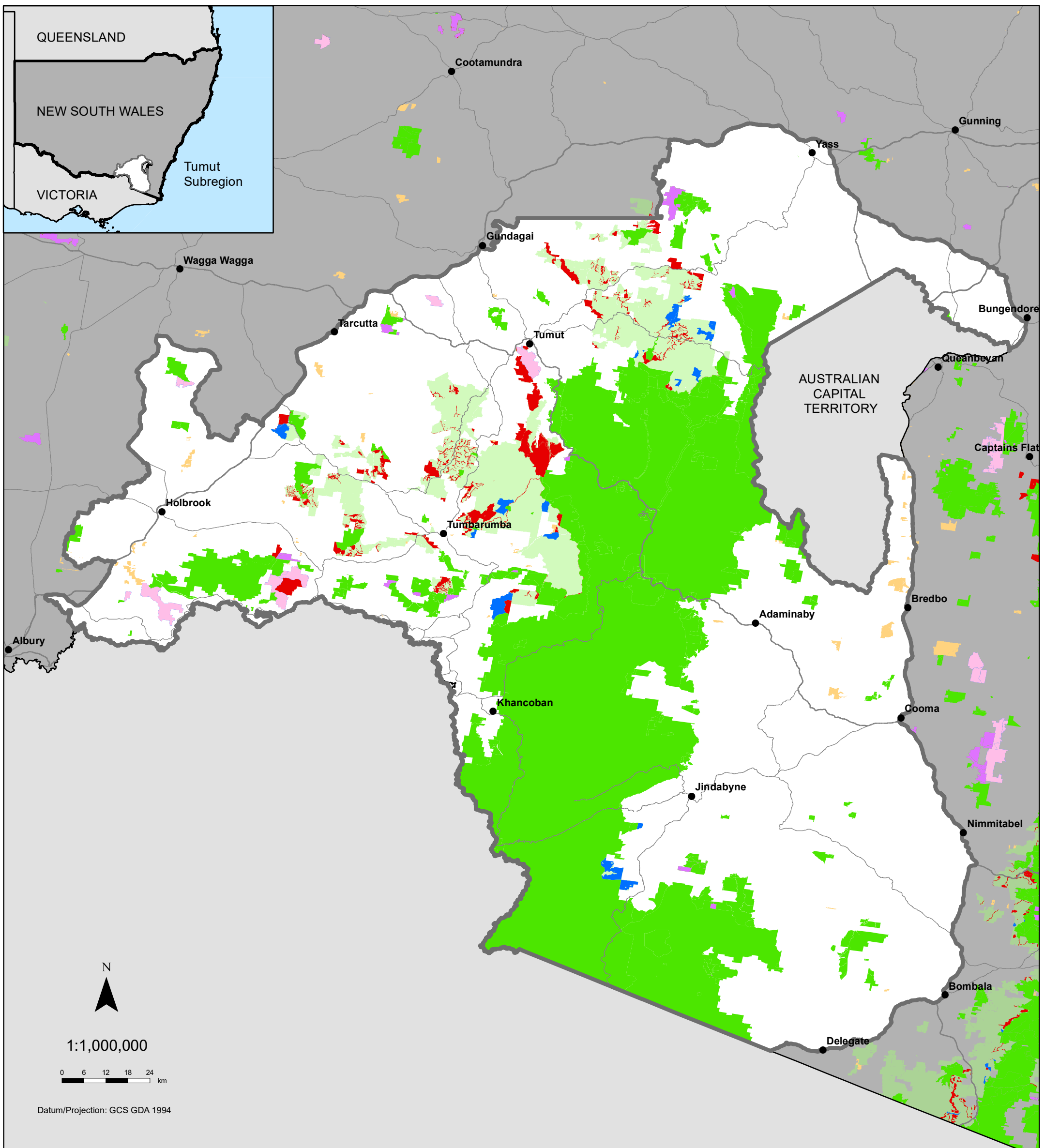
EDEN NSW REGIONAL FOREST AGREEMENT

Comprehensive, Adequate and Representative (CAR) reserve system as at 30 June 2014

Note: 'Additions' can also represent a change in tenure from State forest to the national parks system.

- Dedicated reserves additions (post-RFA)
- Informal reserves additions (post-RFA)
- Dedicated reserves
- Informal reserves
- Reserved by prescription
- Other State forest
- Private land conservation areas
- Towns
- Major roads

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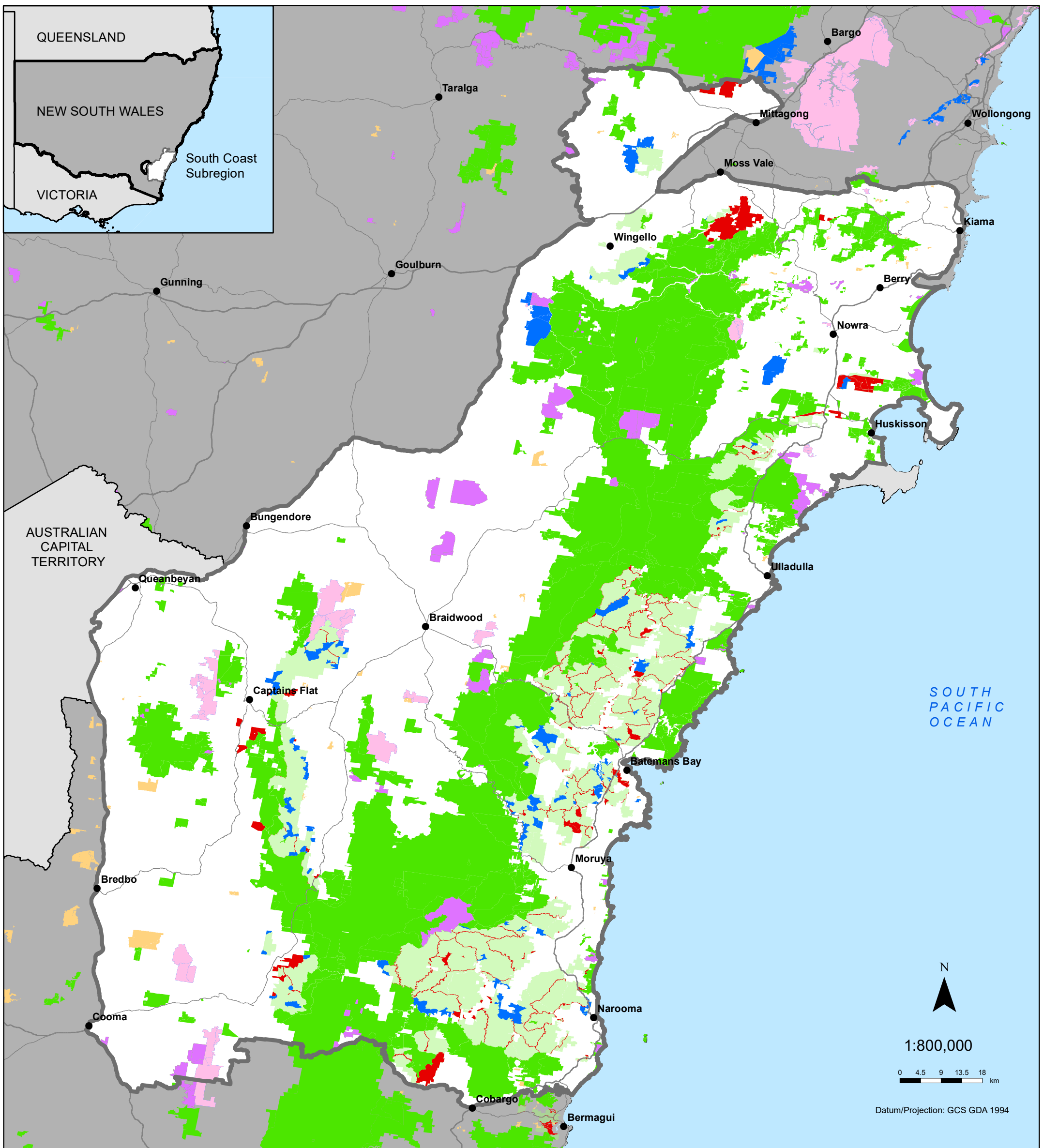
**SOUTHERN NSW REGIONAL FOREST AGREEMENT
TUMUT SUBREGION**

**Comprehensive, Adequate and Representative (CAR)
reserve system as at 30 June 2014**

Note: 'Additions' can also represent a change in tenure from State forest to the national parks system.

- Dedicated reserves additions (post-RFA)
- Informal reserves additions (post-RFA)
- Dedicated reserves
- Informal reserves
- Reserved by prescription
- Other State forest
- Private land conservation areas
- Towns
- Major roads

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**SOUTHERN NSW REGIONAL FOREST AGREEMENT
SOUTH COAST SUBREGION**

**Comprehensive, Adequate and Representative (CAR)
reserve system as at 30 June 2014**

Note: 'Additions' can also represent a change in tenure from State forest to the national parks system. Some areas of Commonwealth land (not depicted) also contribute to the informal reserve system.

- Dedicated reserves additions (post-RFA)
- Informal reserves additions (post-RFA)
- Dedicated reserves
- Informal reserves
- Reserved by prescription
- Other State forest
- Private land conservation areas
- Towns
- Major roads

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Appendix I Threatened flora and fauna

Each NSW RFA includes a list of forest dependent fauna and flora:

- Table 1, Attachment 2, Eden RFA – 12 fauna species; 14 flora species
- Table 1, Attachment 3, North East RFA – 29 fauna species; 127 flora species
- Table 1, Attachment 3, Southern RFA – 47 fauna species; 74 flora species.

These tables provided the conservation listing or status under both NSW and Australian legislation and indicated any recovery plan for each species.

In clauses 62E, 64NE and 63S, the Parties committed to ‘consult on the priorities for listing threatened species, ecological communities and threatening processes, and the preparation of Recovery Plans, recognising that priorities can change in the light of new information. Currently agreed priorities and commitments for the next five years are outlined’ in Attachment 2 (E)/3 (NE, S).

In accordance with these commitments, this implementation report for Period 2 and Period 3 lists the threatened flora (Table 66) and fauna (Table 67) across the three NSW RFA regions. Species mentioned in these tables have been sighted in the NSW RFA regions as recorded in The Atlas of NSW Wildlife³⁸⁴.

Table 66 and Table 67 provide a consistent suite of threatened species to inform monitoring over the life of the NSW RFAs. They include the status of recovery plans or conservation advices and the management stream adopted under the NSW *Saving our Species* program. Some of these recovery plans or conservation advices have been approved outside the reporting period but have been included in these tables for completeness of information as at time of publishing.

The Parties recognise that the approach adopted in the Period 1 implementation report was different.

³⁸⁴ OEH 2017g, *NSW BioNet*, accessed June 2017 www.bionet.nsw.gov.au

Table 66: Threatened species list – flora

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Acacia baueri</i> subsp. <i>baueri</i>	Tiny wattle	NE	NL	NL	V	NL	N/A	
<i>Acacia bynoeana</i>	Bynoe wattle	NE, S	V	E	V	V	Data deficient	National recovery plan required.
<i>Acacia constablei</i>	Constables or Narrabarba wattle	E	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Acacia courtii</i>	Northern brother wattle	NE	NL	V	V	V	Site-managed	National recovery plan adopted 28 July 2010
<i>Acacia flocktoniae</i>	Flockton wattle	S	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Acacia georgensis</i>	Dr. George's or Bega wattle	E	V	V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Acacia macnuttiana</i>	McNutt's wattle	NE	E	V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Acacia phasmoides</i>	Phantom wattle	S	V	V	V	V	Site-managed	National recovery plan adopted 21 April 2011.
<i>Acacia pubifolia</i>	Velvet wattle	NE	E	E	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Acacia pycnostachya</i>	Bolivia wattle	NE	NL	V	V	V	Data deficient	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Acacia ruppii</i>	Rupp's wattle	NE	E	E	E	E	Keep Watch	National recovery plan adopted 28 July 2010.
<i>Acronychia littoralis</i>	Scented acronychia	NE	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Allocasuarina defungens</i>	Dwarf heath casuarina	NE	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Allocasuarina simulans</i>	Nabiac casuarina	NE	NL	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Almaleea cambagei</i>	Torrington pea	NE	E	E	V	V	Data deficient	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Ammobium craspedioides</i>	Yass daisy	S	V	V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Amyema plicatula</i> (syn. <i>Amyema scandens</i>)	(a bushy mistletoe)	NE	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Angophora robur</i>	Sandstone rough-barked apple	NE	NL	V	V	V	Keep Watch	National recovery plan adopted 28 July 2010.
<i>Arthaxon hispidus</i>	Hairy-joint grass	NE	NL	V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Asperula asthenes</i>	Trailing woodruff	NE	NL	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Austromyrtus fragrantissima</i> (syn. <i>Gossia fragrantissima</i>)	Sweet myrtle	NE	E	E	E	E	Site-managed	National recovery plan adopted 16 March 2010.
<i>Baloghia marmorata</i>	Marbled balogia	NE	NL	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Baloskion longipes</i>	Dense cord-rush	S	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Bertya ingramii</i>	Narrow-leaved bertya	NE	E	E	E	E	Data deficient	Recovery plan adopted 28 July 2010.
<i>Boronia deanei</i>	Deane's boronia	S	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Boronia granitica</i>	Granite boronia	NE	E	V	E	E	Keep Watch	National recovery plan approved July 2002 and adopted on 19 February 2004.
<i>Bosistoa transversa</i> (syn. <i>Bosistoa selwynii</i>)	Three-leaved bosistoa	NE		V	V	V	Partnership	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Bothriochloa biloba</i>	Lobed blue-grass	NE	V	N/A	V	Delisted	N/A	
<i>Bulbophyllum globuliforme</i>	Miniature moss-orchid	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Cadellia pentastylis</i>	Ooline	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Caladenia concolor</i>	Crimson spider orchid	S		E	NL	V	Site-managed	National recovery plan adopted 18 August 2004.
<i>Caladenia tessellata</i>	Daddy long-legs	S		E	V	V	Site-managed	National recovery plan adopted 13 August 2010.
<i>Callitris oblonga</i>	Pigmy cypress-pine	NE, S		V	V	V	Site-managed	National recovery plan adopted 28 July 2010.
<i>Clematis fawcetti</i>	Northern or stream clematis	NE	NL	V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Corchorus cunninghamii</i>	Native jute	NE	E	E	E	E	Site-managed	Recovery plan adopted 13 October 2003.
<i>Corokia whiteana</i>	Corokia	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

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			RFA signing ²	Current (2014) ³				
<i>Correa baeuerlenii</i>	Chef's cap	S		V	V	V	Data deficient	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Cryptocarya foetida</i>	Stinking cryptocarya	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Cryptostylis hunteriana</i>	Leafless tongue orchid	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Cynanchum elegans</i>	White-flowered wax plant	NE, S	E	E	E	E	Keep Watch	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Daphnandra</i> sp. C (sp1 Illawarra)	Illawarra socketwood	S		E	E	E	Site-managed	State recovery plan approved January 2005 and recovery plan adopted on 10 June 2005.
<i>Davidsonia jerseyana</i> (syn. <i>Davidsonia pruriens</i> var. <i>jerseyana</i>)	Davidson's plum	NE	E	E	E	E	Site-managed	State recovery plan approved February 2004 and recovery plan adopted on 18 August 2005.
<i>Davidsonia johnsonii</i> (syn. <i>Davidsonia</i> sp. A Mullumbimby-Currimbin Ck)	Smooth Davidson's plum	NE	E	E	E	E	Site-managed	National recovery plan adopted on 10 November 2006.
<i>Desmodium acanthocladum</i>	Thorny pea	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Dichanthium setosum</i>	Bluestem	NE		V	V	V	Data deficient	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Dichelachne parva</i>	(a tufted perennial grass)	NE		N/A	V	NL	N/A	
<i>Digitaria porrecta</i>	Finger panic grass	NE	E	E	E	Delisted	Data deficient	

NSW Regional Forest Agreements Implementation Report 2004–2014

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			RFA signing ²	Current (2014) ³				
<i>Diospyros mabacea</i>	Red-fruited ebony	NE	E	E	E	E	Site-managed	National recovery plan adopted 16 March 2010.
<i>Diploglottis campbellii</i>	Small-leaved tamarind	NE	E	E	E	E	Site-managed	State recovery plan approved December 2004 and national recovery plan adopted on 16 March 2010.
<i>Discaria nitida</i>	Leafy anchor plant	S		V	NL	NL	Site-managed	
<i>Diuris aequalis</i>	Buttercup doubletail	S		E	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Diuris venosa</i>	Veined doubletail	NE		V	V	V	Data deficient	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Elaeocarpus sedentarius</i> (syn sp. Rocky Creek)	Minyon quandong	NE	E	E	E	E	Site-managed	National recovery plan adopted on 19 February 2004.
<i>Elaeocarpus williamsianus</i>	Hairy quandong	NE	E	E	E	E	Site-managed	National recovery plan adopted 16 March 2010.
<i>Endiandra floydii</i>	Crystal Creek walnut	NE	E	E	E	E	Site-managed	National recovery plan adopted on 16 March 2010.
<i>Endiandra hayesii</i>	Rusty rose walnut	NE		V	V	V	Data deficient	State recovery plan approved December 2004 and national recovery plan adopted on 16 March 2010.
<i>Eriocaulon australasicum</i>	Austral pipewort	NE		E	V	E	Partnership	National recovery plan approved 12 March 2010.
<i>Eriostemon ericifolius</i> (now <i>Philothea ericifolia</i>)	(a spreading shrub)	NE	V	NL	V	V	N/A	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Erythranthera pumila</i> (syn <i>Rytidosperma pumilum</i>)	Feldmark grass	NE, S		V	V	V	Site-managed	National recovery plan approved 26 March 2002.

NSW Regional Forest Agreements Implementation Report 2004–2014

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			RFA signing ²	Current (2014) ³				
<i>Eucalyptus aquatica</i>	Broad-leaved sallee	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus caleyi ovenidii</i>	Ovenden's ironbark	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus camfieldii</i>	Camfield's stringybark	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus glaucina</i>	Slaty red gum	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus imlayensis</i>	Imlay mallee	E	E	CE	V	E	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus infera</i>	Durikai mallee	NE		NL	V	V	N/A	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Eucalyptus kartzoffiana</i>	Araluen gum	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus langleyi</i>	Albatross mallee	S		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus mckieana</i>	McKie's stringybark	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus nicholii</i>	Black peppermint	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus pachycalyx</i> subsp. <i>Banyabba</i>	Shiny-barked gum	NE	E	E	E	E	Site-managed	National recovery plan adopted 28 July 2010.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Eucalyptus parramattensis decadens</i>	Earp's gum	NE		V	V	V	Keep Watch	National recovery plan required.
<i>Eucalyptus parvula</i>	Small-leaved gum	E, S	V	E	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus pulverulenta</i>	Silver-leaved gum	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus pumila</i>	Polkolbin mallee	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus recurva</i>	Mongarlowe mallee	S		CE	E	CE	Site-managed	Recovery plan adopted 24 June 2011.
<i>Eucalyptus saxatilis</i>	Suggan buggan mallee	S		E	NL	NL	Site-managed	
<i>Eucalyptus scoparia</i>	Wallangarra white gum	NE		E	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Eucalyptus sturgissiana</i>	Ettrema mallee	S		V	NL	NL	Site-managed	
<i>Eucalyptus tetrapleura</i>	Square-fruited ironbark	NE		V	V	V	Keep Watch	Recovery plan adopted 28 July 2010.
<i>Euphrasia bella</i>	Lamington eyebright	NE		V	V	V	Site-managed	Recovery plan adopted 16 March 2010.
<i>Euphrasia collina</i> subsp. <i>Muelleri</i>	Purple eyebright	NE	E	E	E	E	Data deficient	State recovery plan approved July 2001 and national recovery plan adopted 22 December 2006.
<i>Floydia praealta</i>	Ball nut	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

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			RFA signing ²	Current (2014) ³				
<i>Fontainea australis</i>	Southern fontainea	NE		V	V	V	Keep Watch	National recovery plan adopted 16 March 2010.
<i>Fontainea oraria</i>	Coastal fontainea	NE	E	CE	E	E	Site-managed	National recovery plan adopted 16 March 2010.
<i>Genoplesium plumosum</i>	Tallong midge orchid	S		CE	E	E	Site-managed	State recovery plan approved May 2002 and national recovery plan adopted on 19 February 2004.
<i>Genoplesium rhyoliticum</i>	Rhyolite midge orchid	E	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Genoplesium vernale</i>	East Lynne midge-orchid	S		V	E	V	Keep Watch	National recovery plan adopted 19 February 2004.
<i>Gentiana bredboensis</i>	Bredbo gentian	S		CE	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Gentiana wingecarribeensis</i>	Wingecarribee gentian	S		CE	E	E	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Gentiana wissmannii</i>	New England gentian	NE		V	V	V	Site-managed	National recovery plan adopted 28 July 2010.
<i>Gingidia montana</i>	Mountain angelica	NE	E	E	E	E	Keep Watch	National recovery plan adopted 28 July 2010.
<i>Grevillea beadleana</i>	Beadle's grevillea	NE	E	E	E	E	Keep Watch	National recovery plan adopted 11 April 2005.
<i>Grevillea guthrieana</i>	Guthrie's grevillea	NE	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Grevillea iaspicula</i>	Wee Jasper grevillea	S		CE	E	E	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Grevillea masonii</i>	Mason's grevillea	NE	E	E	E	E	Site-managed	Recovery plan adopted 28 July 2010.
<i>Grevillea mollis</i>	Soft grevillea	NE	E	E	E	E	Site-managed	Recovery plan adopted 28 July 2010.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Grevillea molyneuxii</i>	Tallowa grevillea	S		V	E	E	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Grevillea obtusiflora</i>	Grey grevillea	NE	E	E	E	E	Site-managed	State recovery plan approved September 2001 and national recovery plan adopted on 19 February 2004.
<i>Grevillea rivularis</i>	Carrington Falls grevillea	S		E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Grevillea shiressii</i>	Blue grevillea	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Grevillea wilkinsonii</i>	Tumut grevillea	S		E	E	E	Site-managed	State recovery plan approved July 2001 and national recovery plan adopted on 26 March 2002.
<i>Hakea dohertyi</i> (syn sp. <i>B Kowmung River</i>)	Kowmung hakea	NE	E	E	E	E	Site-managed	Recovery Plan not required. Conservation Advice approved 1 October 2008.
<i>Hakea pulvinifera</i>	Lake Keepit hakea	NE	E	E	E	E	Site-managed	State recovery plan approved April 2000 and national recovery plan adopted 9 March 2001.
<i>Haloragis exalata</i> subsp. <i>exalata</i>	Square raspwort	S		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Haloragis exalata</i> subsp. <i>velutina</i>	Tall velvet sea-berry	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Hicksbeachia pinnatifolia</i>	Red bopple nut	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Homoranthus darwinioides</i>	(a spreading shrub)	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 3 July 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Hydrocharis dubia</i>	Frogbit	NE		NL	V	Delisted	N/A	
<i>Irenepharsus trypherus</i>	Delicate cress	S		E	E	E	Site-managed	State recovery plan approved January 2005 and national recovery plan adopted on 10 June 2005.
<i>Isoglossa eranthemoides</i>	Isoglossa	NE	E	E	E	E	Site-managed	National recovery plan adopted 16 March 2010.
<i>Kennedia retrorsa</i>	Crimson coral pea	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Kunzea cabbagei</i>	Cabbage kunzea	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Kunzea rupestris</i>	Rocky kunzea	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Lasiopetalum longistamineum</i>	(a spreading shrub)	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Leionema ralstonii</i>	Ralston's leionema	E	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Lepidium hyssopifolium</i>	Basalt peppergrass	NE		E	E	E	Site-managed	National recovery plan adopted 13 August 2010.
<i>Leptospermum thompsonii</i>	Monga tea-tree	S		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Leucopogon confertus</i>	Torrington beard-heath	NE	E	E	E	E	Data deficient	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Macadamia tetraphylla</i>	Rough-leaved Queensland nut	NE		V	V	V	Site-managed	National recovery plan adopted 13 November 2009.
<i>Macrozamia occidua</i>	(a small cycad)	NE		NL	V	V	N/A	National recovery plan not required. Conservation advice approved 3 July 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Melaleuca biconvexa</i>	Biconvex paperbark	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Melichrus</i> sp. Newfoundland State Forest (P.Gilmour 7852) (syn. <i>Melichrus hirsutus</i>)	Hairy melichrus	NE	E	E	E	E	Site-managed	National recovery plan adopted 28 July 2010.
<i>Micromyrtus minutiflora</i>	(a slender spreading shrub)	S		E	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Monotaxis macrophylla</i>	Large-leaf monotaxis	S		E	NL	NL	Keep Watch	
<i>Monotoca rotundifolia</i>	Trailing monotoca	E, S	E	E	NL	NL	Data deficient	
<i>Myrsine richmondensis</i>	Ripple-leaf muttonwood	NE	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2015*.
<i>Neoastelia spectabilis</i>	Silver sword lily	NE		V	V	V	Data deficient	National recovery plan adopted 28 July 2010.
<i>Ochrosia moorei</i>	Southern ochrosia	NE	E	E	E	E	Site-managed	National recovery plan adopted 16 March 2010.
<i>Olearia flocktoniae</i>	Dorrigo daisy bush	NE	E	E	E	E	Site-managed	National recovery plan adopted 28 July 2010.
<i>Owenia cepiodora</i>	Bog onion	NE		V	V	V	Site-managed	National recovery plan adopted 16 March 2010.
<i>Parsonsia dorrigoensis</i>	Milky silkpod	NE	V	V	E	E	Keep Watch	National recovery plan adopted 28 July 2010.
<i>Persicaria elatior</i>	Tall knotweed	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Persoonia acerosa</i>	Needle geebung	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Persoonia glaucescens</i>	Mittagong geebung	S		E	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Phaius australis</i>	Lesser swamp-orchid	NE	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Phaius tankervilleae</i>	Swamp lily	NE	E	NL	E	Delisted [^]	N/A	
<i>Phebalium elatius</i> subsp. <i>beckleri</i> (now <i>Leionema elatius</i>)	Tall phebalium	NE		NL	E	NL	N/A	
<i>Phyllota humifusa</i>	Dwarf phyllota	S		V	NL	V	Data deficient	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Pimelea venosa</i>	Bolivia Hill pimelea	NE	E	E	E	E	Data deficient	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Plectranthus nitidus</i>	Nightcap plectranthus	NE	E	E	E	E	Keep Watch	National recovery plan adopted 16 March 2010.
<i>Plinthanthesis rodwayi</i>	Bedawangs wallaby-grass	S		E	V	V	Site-managed	National recovery plan not required. Conservation advice approved 16 December 2008.
<i>Pomaderris brunnea</i>	Rufous pomaderris	NE		V	V	V	Site-managed	National recovery plan adopted 21 April 2011.
<i>Pomaderris cotoneaster</i>	Cotoneaster pomaderris	E, S	E	E	E	E	Site-managed	National recovery plan adopted 13 August 2010.
<i>Pomaderris elachophylla</i>	Lacy pomaderris	E	E	E	NL	NL	Partnership	
<i>Pomaderris gilmourii</i> var. <i>cana</i>	Grey Deua pomaderris	S		V	V	V	Data deficient	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Pomaderris pallida</i>	Pale pomaderris	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Pomaderris parrisiae</i>	Parris' pomaderris	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Pomaderris sericea</i>	Silky or bent pomaderris	S		E	V	V	Data deficient	National recovery plan adopted 12 March 2010.
<i>Prasophyllum affine</i>	Culburra leek orchid	S		E	E	E	Site-managed	National recovery plan adopted 24 July 2012.
<i>Prasophyllum morganii</i>	Cobungra leek orchid	S		V	V	V	N/A	National recovery plan adopted 18 August 2004.
<i>Prasophyllum petilum</i>	Boorowa or Tarengo leek orchid	S		E	E	E	Site-managed	National recovery plan adopted 21 April 2011.
<i>Prasophyllum uroglossum</i>	Wingecarribee leaf orchid	S		CE	E	NL [^]	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Prostanthera askania</i>	Tranquility mint-bush	NE	E	E	E	E	Site-managed	State recovery plan approved January 2006 and national recovery plan adopted on 9 May 2007.
<i>Prostanthera cineolifera</i>	Singleton mint-bush	NE		V	V	V	Data deficient	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Prostanthera densa</i>	Villous mint-bush	NE, S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Prostanthera</i> sp. <i>Somersby</i> (syn. <i>P. junonensis</i>)	Somersby mint-bush	NE	E	E	E	E	Site-managed	State recovery plan approved October 2000 and national recovery plan adopted on 14 July 2001.
<i>Pterostylis gibbosa</i>	Pouched greenhood	S		E	E	E	Site-managed	State recovery plan approved September 2002 and national recovery plan adopted on 19 February 2004.
<i>Pterostylis pulchella</i>	Waterfall pretty greenhood	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

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			RFA signing ²	Current (2014) ³				
<i>Pultenaea aristata</i>	Prickly bush-pea	S		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Pultenaea baeurlenii</i>	Budawangs bush-pea	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Pultenaea campbellii</i>	New England bush-pea	NE	V	NL	V	Delisted	N/A	
<i>Pultenaea stuartiana</i> (syn. <i>P. foliolosa</i>)	(a small shrubby pea)	NE	V	NL	V	Delisted	N/A	
<i>Quassia</i> sp. Mooney Creek (now <i>Samadera</i> sp. Mooney Creek)	Moonee quassia	NE	E	E	E	E	Site-managed	National recovery plan adopted 28 July 2010.
<i>Randia moorei</i>	Spiny gardenia	NE	E	E	E	E	Site-managed	National recovery plan adopted 16 March 2010.
<i>Ranunculus anemoneus</i>	Anemone buttercup	S		V	V	V	Keep Watch	State recovery plan approved July 2001 and national recovery plan adopted on 26 March 2002.
<i>Rulingia prostrata</i> (now <i>Commersonia prostrata</i>)	Dwarf kerrawang	S		E	E	E	Site-managed	National recovery plan adopted 12 March 2010.
<i>Rutidosia heterogama</i>	Heath wrinklewort	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Rutidosia leirolepis</i>	Monaro golden daisy	S		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Rutidosia leptorrhynchoides</i>	Button wrinklewort	S		E	E	E	Site-managed	National Recovery Plan adopted 22 March 2013.
<i>Sarcochilus fitzgeraldii</i>	Ravine orchid	NE		V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 1 October 2008.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Sophora fraseri</i>	Brush sophora	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Swainsona recta</i>	Mountain Swainson-pea	S		E	E	E	Site-managed	National recovery plan adopted 19 September 2012.
<i>Symplocos baeuerlenii</i>	Small-leaved hazelwood	NE		V	V	V	Site-managed	National recovery plan adopted 16 March 2010.
<i>Syzygium hodgkinsoniae</i>	Red lillyPilly	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Syzygium moorei</i>	Coolamon rose apple	NE		V	V	V	Landscape species	National recovery plan adopted 16 March 2010.
<i>Syzygium paniculatum</i>	Creek satin ash	NE, S		E	V	V	Site-managed	National recovery plan adopted 24 July 2012.
<i>Tasmania glaucifolia</i>	Fragrant pepperbush	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Tasmania purpurascens</i>	Purple or road-leaved pepperbush	NE		V	V	Delisted	Keep Watch	
<i>Tetradlea glandulosa</i>	Glandular pink-bell	NE		V	V	Delisted	Site-managed	
<i>Tetradlea juncea</i>	Black-eyed Susan	NE		V	V	V	Data deficient	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Thesium australe</i>	Austral toad-flax	NE, S	V	V	V	V	Keep Watch	National recovery plan not required. Conservation advice approved 17 December 2013.
<i>Tinospora tinosporoides</i>	Arrow-head vine	NE		V	V	Delisted	Site-managed	
<i>Triplarina nowraensis</i>	Nowra heath myrtle	S	E	E	E	E	Site-managed	National recovery plan adopted 10 February 2012.
<i>Tylophora woollsii</i>	Cryptic forest twiner	NE	E	E	E	E	Site-managed	National recovery plan adopted 28 July 2010.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Uromyrtus australis</i>	Peach myrtle	NE	E	E	E	E	Site-managed	National recovery plan adopted on 16 March 2010.
<i>Velleia perfoliata</i>	(a perennial herb)	NE		V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 26 March 2008.
<i>Viola cleistogamoides</i>	Hidden violet	E	E	E	NL	NL	Partnership	State recovery plan approved July 2001.
<i>Westringia davidii</i>	David's westringia	E	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 29 April 2014.
<i>Westringia kydrensis</i>	Kydra westringia	S	E	E	E	E	Site-managed	National recovery plan not required. Conservation advice approved 1 October 2008.
<i>Zieria adenophora</i>	Araluen zieria	S	E	CE	E	E	Site-managed	National recovery plan adopted 26 March 2002.
<i>Zieria baeuerlenii</i>	Bomaderry zieria	S	E	E	E	E	Site-managed	National recovery plan adopted 21 April 2011.
<i>Zieria buxijugum</i>	Box range zieria	E	E	CE	E	E	Site-managed	State recovery plan approved April 2002 and national recovery plan adopted on 18 August 2004.
<i>Zieria citriodora</i>	Lemon-scented zieria	S	V	E	V	V	Site-managed	National recovery plan adopted 21 April 2011.
<i>Zieria formosa</i>	Shapely zieria	E	E	CE	E	E	Site-managed	State recovery plan approved April 2002 and national recovery plan adopted on 18 August 2004.
<i>Zieria granulata</i>	Narrow-leaf or Illawarra zieria	S	E	E	E	E	Site-managed	State recovery plan approved January 2005 and national recovery plan adopted on 10 June 2005.
<i>Zieria involucrata</i>	(a tall shrub)	S	V	E	V	V	Site-managed	State recovery plan approved January 2006 and national recovery plan adopted on 9 May 2007.
<i>Zieria lasiocaulis</i>	Willi willi zieria	NE	E	E	E	E	Site-managed	National recovery plan adopted on 18 August 2004.

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Zieria murphyi</i>	Velvet zieria	S	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.
<i>Zieria parrisiae</i>	Parris' zieria	E	E	CE	E	E	Site-managed	State recovery plan approved April 2002 and national recovery plan adopted on 18 August 2004.
<i>Zieria tuberculata</i>	Warty zieria	S	V	V	V	V	Site-managed	National recovery plan not required. Conservation advice approved 3 July 2008.

Table notes:

(1) E – Eden; NE – North East; S – Southern – the regional listing as at the date of signing of each RFA

(2) & (3) This refers to the status under the NSW *Threatened Species Conservation Act 1995* (TSC Act)
CE – critically endangered; E – endangered; V – vulnerable; NL – not listed/removed from list

(4) This refers to the 1998 status under the Commonwealth's former *Endangered Species Protection Act 1992*
E – endangered; V – vulnerable; NL – not listed

(5) This refers to the status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
CE – critically endangered; E – endangered; V – vulnerable; NL – not listed

(6) **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

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

N/A: either delisted or not listed under the TSC Act

^ Delisted 16 September 2015 from EPBC list, which is outside the reporting period

+ Adopted outside of the reporting period; however, it is relevant to the Period 2 and Period 3 reporting

Table 67: Threatened species list – fauna

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Anthochaera phrygia</i>	Regent honeyeater	NE E, S	E	CE	E	CE*	Site-managed Iconic	National recovery plan required [^]
<i>Aprasia parapulchella</i>	Pink-tailed legless lizard	S	V	V	V	V	Landscape	National recovery plan required
<i>Burhinus grallarius</i>	Bush stone-curlew	NE S	E	E	–	NL	Landscape Iconic	State recovery plan approved February 2006
<i>Burramys parvus</i>	Mountain pygmy-possum	S	V	E	E	E	Iconic	State recovery plan approved May 2002 and national recovery plan required [^]
<i>Calyptorhynchus lathamii</i>	Glossy black-cockatoo	S	V	V	–	NL	Site-managed	
<i>Caretta caretta</i>	Loggerhead turtle	NE	–	E	E	V	Landscape	National recovery plan adopted 21 July 2003
<i>Chalinolobus dwyeri</i>	Large-eared pied bat	S	V	V	–	E	Data deficient	National recovery plan adopted 10 February 2012
<i>Chelonia mydas</i>	Green turtle	NE	–	V	V	V	Landscape	National recovery plan adopted 21 July 2003
<i>Cyclopsitta diophthalma coxeni</i>	Double-eyed fig-parrot	NE	E	CE	E	E	Landscape	State recovery plan approved July 2002 and national recovery plan adopted 13 October 2003
<i>Dasyornis brachypterus</i>	Eastern bristlebird	NE, S	E	E	E	E	Site-managed	National recovery plan adopted 30 January 2014
<i>Dasyurus maculatus</i>	Spotted-tailed quoll	E, S	V	V	V	(E)	Landscape	National recovery plan required [^]
<i>Dasyurus viverrinus</i>	Eastern quoll	NE	E	E	–	E*	Data deficient	National recovery plan not required. Conservation advice approved 3 December 2015 [^]
<i>Delma impar</i>	Striped legless lizard	S	V	V	V	V	Landscape	National recovery plan adopted 16 July 2000
<i>Dermochelys coriacea</i>	Leatherback turtle	NE	–	V	V	E	Landscape	National recovery plan adopted 21 July 2003

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Diomedea exulans</i>	Wandering albatross	NE	–	E	V	V	Landscape	National recovery plan adopted 25 May 2011
<i>Emydura macquarii signata</i>	Brisbane River turtle	NE	–	N/A	V	NL	N/A	
<i>Erythrotriorchis radiatus</i>	Red goshawk	NE	E	CE	V	V	Landscape	State recovery plan approved October 2002 and national recovery plan adopted 24 July 2012
<i>Eubalaena australis</i>	Southern right whale	NE	–	V	E	E	Partnership	National recovery plan adopted 26 February 2013
<i>Falsistrellus tasmaniensis</i>	Eastern false pipistrelle	S	V	V	–	NL	Landscape	
<i>Heleioporus australiacus</i>	Giant burrowing frog	E S	V V	V V	– V	V	Landscape	National recovery plan required.
<i>Hoplocephalus bungaroides</i>	Broad-headed snake	NE S	– E	E E	V V	V	Site-managed	National recovery plan required.
<i>Isoodon obesulus obesulus</i>	Southern brown bandicoot	E, S	E	E	–	E	Site-managed	State recovery plan approved November 2006. National recovery plan required.
<i>Kerivoula papuensis</i>	Golden-tipped bat	S	V	V	–	NL	Landscape	
<i>Lathamus discolor</i>	Swift parrot	NE, E S	V E	E	V E	CE*	Landscape	National recovery plan adopted 10 February 2012.
<i>Litoria aurea</i>	Green and golden bell frog	NE S	E	E	V	V	Site-managed Iconic	National recovery plan required.
<i>Litoria booroolongensis</i>	Booroolong frog	NE, S	E	E	–	E	Site-managed	National recovery plan adopted 19 September 2012
<i>Litoria castanea</i>	Yellow-spotted bell frog	NE	E	CE	–	E	Site-managed	State recovery plan approved July 2001 and national recovery plan adopted 19 February 2004
<i>Litoria pipperata</i>	Peppered frog	NE	V	CE	–	V	Data deficient	State recovery plan approved July 2001 and national recovery plan adopted 19 February 2004

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Lophoictinia isura</i>	Square-tailed kite	S	V	V	–	NL	Landscape	
<i>Mastacomys fuscus</i>	Broad-toothed rat	S	V	V	–	V	Site-managed	
<i>Miniopterus schreibersii</i>	Common bent-wing bat	S	V	V	–	E	Landscape	
<i>Mixophyes balbus</i>	Stuttering frog	NE E S	V E V	E	– – –	V	Landscape	Recovery plan adopted 10 February 2012
<i>Mixophyes fleayi</i>	Fleay's barred frog	NE	V	E	–	E	Site-managed	Recovery plan adopted 13 October 2003
<i>Mixophyes iteratus</i>	Giant barred frog	NE	E	E	–	E	Landscape	Recovery plan adopted 13 October 2003
<i>Mormopterus norfolkensis</i>	Eastern freetail-bat	S	V	V	–	NL	Landscape	
<i>Myotis macropus</i> (syn <i>M. adversus</i>)	Southern myotis	S	V	V	–	NL	Landscape	
<i>Neophema pulchella</i>	Torquoise parrot	S	V	V	–	NL	Landscape	
<i>Ninox connivens</i>	Barking owl	S	V	V	–	NL	Landscape	
<i>Ninox strenua</i>	Powerful owl	E, S	V	V	–	NL	Landscape	State recovery plan approved October 2006
<i>Pachycephala olivacea</i>	Olive whistler	S	V	V	–	NL	Landscape	
<i>Pedionomus torquatus</i>	Plains-wanderer	S	E	E	V	CE*	Site-managed	National recovery plan required [^] .
<i>Petalura gigantean</i>	Giant dragonfly	NE	E	E	–	NL	Landscape	
<i>Petaurus australis</i>	Yellow-bellied glider	S	V	V	–	NL	Landscape	State recovery plan approved February 2003
<i>Petaurus norfolcensis</i>	Squirrel glider	S	V	V	–	NL	Landscape	
<i>Petrogale penicillata</i>	Brush-tailed rock-wallaby	NE S	– V	E	V V	V	Iconic	State recovery plan approved March 2008 and national recovery plan (made by Victoria) adopted 10 February 2012
<i>Petroica rodinogaster</i>	Pink robin	S	V	V	–	NL	Landscape	

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Phascogale tapoatafa</i>	Brush-tailed phascogale	S	V	V	–	NL	Landscape	
<i>Phascolarctos cinereus</i>	Koala	E, S	V	V	–	V	Iconic	State recovery plan approved November 2008. National recovery plan required.
<i>Poephila cincta cincta</i>	Southern black-throated finch	NE	E	E	V	E	Partnership	National recovery plan (made by Qld) adopted 8 January 2008
<i>Polytelis swainsonii</i>	Superb parrot	S	V	V	V	V	Landscape	National recovery plan adopted 21 April 2011.
<i>Potorous longipes</i>	Long-footed potoroo	E	E	E	E	E	Partnership	State recovery plan approved May 2002 and national recovery plan (made by Victoria) adopted 9 March 2001
<i>Potorous tridactylus</i>	Long-nosed potoroo	S	V	V	V	V	Site-managed	National recovery plan required.
<i>Pseudomys fumeus</i>	Smoky mouse	E S	E E	CE	– E	E	Site-managed Site-managed	National recovery plan adopted 23 October 2008
<i>Pseudomys oralis</i>	Hastings River mouse	NE	E	E	E	E	Keep Watch	State recovery plan approved April 2005 and national recovery plan adopted 8 January 2008
<i>Pseudophryne australis</i>	Red-crowned toadlet	S	V	V	–	–	Landscape	
<i>Pseudophryne pengilleyi</i>	Northern corroboree frog	S	V	CE	V	CE	Iconic	National recovery plan adopted 19 September 2012
<i>Pterodroma leucoptera leucoptera</i>	Gould's petrel	NE	–	V	E	NL	Site-managed	State recovery plan approved November 2006 and national recovery plan adopted 8 January 2008
<i>Saccolaimus flaviventris</i>	Yellow-bellied sheath-tail-bat	S	V	V	–	NL	Landscape	
<i>Scoteanax ruppellii</i>	Greater broad-nosed bat	S	V	V	–	NL	Landscape	
<i>Sminthopsis leucopus</i>	White-footed dunnart	S	V	V	–	NL	Landscape	

NSW Regional Forest Agreements Implementation Report 2004–2014

Taxon	Common name	RFA region ¹	NSW threat status		ESP or EPBC Act listing – prior to RFA signing ⁴	EPBC Act listing – current (2014) ⁵	Management stream ⁶	Status of recovery plans and conservation advice ⁷
			RFA signing ²	Current (2014) ³				
<i>Sternula albifrons</i>	Little tern	NE	–	E	E	NL	Site-managed	State recovery plan approved October 2003
<i>Thersites mitchellae</i>	Mitchell's rainforest snail	NE	E	E	–	CE	Landscape	State recovery plan approved July 2001 and National recovery plan adopted 19 February 2004
<i>Thinornis rubricollis rubricollis</i>	Hooded plover	S	E	CE	V	V*	Site-managed	National recovery plan not required. Conservation advice approved 6 November 2014
<i>Turnix melanogaster</i>	Black-breasted button-quail	NE	E	CE	V	V	Partnership	National Recovery plan adopted 13 November 2009
<i>Tyto novaehollandiae</i>	Masked owl	E, S	V	V	–	NL	Landscape	State recovery plan approved October 2006
<i>Tyto tenebricosa</i>	Sooty owl	E, S	V	V	–	NL	Landscape	State recovery plan approved October 2006
<i>Varanus rosenbergi</i>	Rosenberg's goanna	S	V	V	–	NL	Landscape	

Table notes:

The fauna species list was to consist of forest dependent fauna but there were certain marine species included in the fauna lists in the NSW RFAs.

(1) E – Eden; NE – North East; S – Southern – the regional listing as at the signing of each RFA

(2) & (3) This refers to the status under the NSW *Threatened Species Conservation Act 1995* (TSC Act)

E – endangered; V – vulnerable; – indicates that species wasn't listed; N/A – was removed from the TSC Act

(4) This refers to 1998 status under the Commonwealth's former *Endangered Species Protection Act 1992* or *Environment Protection and Biodiversity Conservation Act 1999*; E – endangered; V – vulnerable; – indicates that species wasn't listed

(5) CE – critically endangered; E – endangered; V – vulnerable; NL – not listed

(6) **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

N/A: either removed or not listed under the TSC Act

* This is the current listing having been changed by the Commonwealth outside the reporting period.

^ Adopted outside of the reporting period; however, is relevant to the Period 2 and Period 3 reporting.

Appendix J NSW Landscapes in RFA sub-regions

For a description of each NSW Landscape, please refer to Mitchell (2002) *Descriptions for NSW (Mitchell) Landscapes Version 2*, which is publicly available³⁸⁵.

Table 68: NSW Landscapes in the Lower North East RFA sub-region

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Apsley Meta-sediments	64,744	7,784	4,727	79,459	156,713
Barrington Tops Basalt	15,225	3,971	571	27,282	47,049
Barrington Tops Granite	14,067	2,246	941	3,934	21,188
Barrington Tops Meta-sediments	35,247	5,152	4,279	26,707	71,385
Bellinger Channels and Floodplains	140	9	6	4,196	4,351
Belrose Coastal Slopes				3	3
Bilpin Ridges	152	176		609	937
Blaxlands Ridge	1,025	6,876		2,565	10,465
Brooms Head – Kempsey Coastal Ramp	3,998	104	138	25,960	30,199
Brothers Peaks	2,674	17	295	6,425	9,411
Bucketty Ridges	14,090	302	474	7,962	22,827
Bulga Plateau	120	594	606	8,175	9,496
Bundarra Valley				99,786	99,786
Central Hunter Alluvial Plains	4		14	33,406	33,424
Central Hunter Foothills	4,217	2,820	135	298,650	305,823
Colo River Gorges	3,566			25	3,592
Comboyne Plateau	1,010	72	132	10,779	11,994
Dingo Spur Meta-sediments	35,747	3,401	2,631	173,270	215,049
Dorrigo Basalts	754	57	2	16,600	17,414
Ebor Tops Basalt	3,780	166	359	15,686	19,991
Ebor Tops Granite	5,493		118	2,727	8,338
Estuary/Water Added	1,393			10,704	12,097
Glenn Innes – Guyra Basalts				15,054	15,054
Gosford – Cooranbong Coastal Slopes	12,297	9,706	658	91,058	113,718
Goulburn River Channels and Floodplains	335			6,880	7,215
Guyra Lagoons and Swamps				208	208
Guyra Tops Granite	232			7,959	8,191
Hastings Channels and Floodplains				5,817	5,817

³⁸⁵ Mitchell P 2002, *Descriptions for NSW (Mitchell) Landscapes Version 2*, Department of Environment and Climate Change, NSW Government, Sydney, accessed 12 September 2017 www.environment.nsw.gov.au/resources/conservation/landscapesdescriptions.pdf

NSW Regional Forest Agreements Implementation Report 2004–2014

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Hawkesbury – Nepean Channels and Floodplains	327	0		1,923	2,251
Hawkesbury Gorge	13	126		1,692	1,831
Hornsby Plateau	45			33	78
Howes Range	74,303	29,688	13	43,280	147,284
Hunter River Basalts				1,696	1,696
Ingalba Coastal Hills	12,044	559	2,180	139,140	153,923
Inverell Plateau Granites				2,051	2,051
Kurrajong Fault Scarp	9			1	9
Lapstone Slopes	1				1
Lees Pinch Foothills	41,942			67,216	109,158
Liverpool Range Valleys and Foothills	3,200	5		57,709	60,914
Liverpool Tops	380			290	670
Lower Hunter Channels and Floodplains	2,390		1	28,517	30,908
MacDonald Channel and Floodplain	606	169		4,960	5,736
MacDonald Ranges	28,344	559		2,312	31,215
Macleay Escarpment Foothills	256,790	25,047	20,218	323,220	625,275
Mangrove Creek Valley	3,616	1,966	619	17,367	23,568
Manning – Macleay Barriers and Beaches	15,382		2	12,495	27,879
Manning – Macleay Channels and Floodplains	1,235	18	3	38,604	39,860
Manning – Macleay Coastal Alluvial Plain	19,056	1,067	115	124,490	144,728
Manning Great Escarpment Southern Aspect	91,860	21,030	16,623	361,550	491,063
Manning Great Escarpment Western Aspects	3,858		13	61,629	65,500
Mellong Range	43,290	2,562	63	10,195	56,110
Moonbi – Walcha Granites	4,405	5	21	224,520	228,952
Mount Royal Ridges	971	60	73	43,143	44,248
Mount Royal Tops	3,608	592	488	35,673	40,361
Myall – Forster Barrier System	17,275	10	4	13,762	31,050
Myall River Channel and Floodplains	2,816	38	69	8,285	11,209
Newcastle Coastal Ramp	11,192	3,068	552	135,810	150,622
Niangala Plateau and Slopes	10,890	2,001	158	246,030	259,079
Nowendoc – Yarras Serpentine	606	86	56	8,393	9,140
Nundle Hills			1	44,425	44,426
Nymboida Great Escarpment	471	674	208	1,379	2,732

NSW Regional Forest Agreements Implementation Report 2004–2014

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Nymboida Meta-sediments	12,862	1,224	386	11,768	26,240
Peel Channels and Floodplain				4,157	4,157
Port Macquarie Coastal Ramp	12,567	878	595	88,909	102,950
Putty Sands	5,356	211		1,758	7,325
Scone – Gloucester Foothills	4,445	1,817	46	283,630	289,937
Somersby Plateau	3,397	874	213	17,768	22,251
Stroud Mountains	28,433	3,458	4,278	229,110	265,279
Sydney – Newcastle Barriers and Beaches	6,192	7,733		33,269	47,194
Sydney – Newcastle Coastal Alluvial Plains	251	361	8	21,973	22,594
Sydney Basin Basalt Caps	292		105	97	493
Sydney Basin Diatremes	664	147	2	416	1,229
Tamworth – Keepit Slopes and Plains				26,568	26,568
Tia Tops	3,432	152	210	47,069	50,863
Tinebank Granites	33,987	5,375	2,529	8,049	49,939
Upper Goulburn Valleys and Escarpment	11,091			13,303	24,394
Upper Gwydir Channels and Floodplain				10,436	10,436
Upper Hunter Channels and Floodplain	12			45,331	45,343
Upper MacDonald Valleys	40,028			6,529	46,557
Uralla Basalts and Sands	106			58,288	58,394
Valla Granite	203	15	79	2,175	2,472
Watagan Ranges	22,053	14,050	8,835	74,641	119,579
Water	11,059			8,778	19,837
Wauchope Coastal Foothills	6,363	817	1,780	125,380	134,340
Werris Creek Basalt Hills and Valleys	67			6,778	6,845
Wollemi Ranges	146,320	1,275	1,211	4,744	153,550
Yarrowitch Basalt Plateau	1,870	556	1,050	22,801	26,277
Yengo Plateau	52,314	6,311	4	20,236	78,866
Yessabah Karst	59		41	1,999	2,099
No classification	2,859	219		44,252	47,331
Total area (ha)	1,277,516	178,256	78,940	4,263,888	5,798,600

Table 69: NSW Landscapes in the Upper North East RFA sub-region

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Ashford Mole Valleys	82	136		68,516	68,735
Ballina Coastal Ramp	5,867	145	1,052	22,391	29,455
Baryulgil Ultramafics				9,816	9,816
Brooms Head – Kempsey Coastal Ramp	17,042	2,380	394	26,414	46,230
Bundarra Valley	30			19,104	19,134
Byron – Tweed Alluvial Plains	1,894	11		35,372	37,277
Byron – Tweed Coastal Barriers	923			1,794	2,717
Clarence – Manning Basin Margin	6,197	3,778	3,997	98,927	112,899
Clarence – Richmond Alluvial Plains	6,282	5,135	1,608	285,830	298,855
Clarence – Richmond Barriers and Beaches	23,284	22	369	20,471	44,146
Clarence Foothills	35,341	6,085	4,193	319,900	365,519
Dingo Spur Meta-sediments	21,610	1,781	1,543	77,828	102,763
Dorrigo Basalts	180	39	26	5,129	5,374
Dumaresq Channels				2,959	2,959
Ebor Tops Basalt	185			13,331	13,516
Ebor Tops Granite	4,760	14	57	3,863	8,694
Estuary/Water Added	552			16,410	16,962
Flat Top Basalts	141	116	269	1,841	2,367
Glenn Innes – Guyra Basalts	420			174,780	175,200
Grafton – Whiporie Basin	8,751	9,969	2,323	170,070	191,113
Guyra Lagoons and Swamps	180			503	683
Guyra Tops Granite	6,101	526	855	62,909	70,391
Ingalba Coastal Hills			1	596	597
Inverell Basalts				152	152
Inverell Plateau Granites	98,067	39,499	19,189	626,080	782,835
Lamington Volcanic Slopes	64,712	751	704	235,650	301,817
Manning – Macleay Barriers and Beaches	9,855	104	51	2,249	12,259
Manning – Macleay Coastal Alluvial Plain	8,295	398	10	7,841	16,543
Mole Valley	79			14,964	15,043
Moonbi – Walcha Granites	5,729		47	124,640	130,416
Mount Warning Exhumed Slopes	9,043	368		91,566	100,977
Mount Warning Plugs	2,622			5,376	7,998
Nimbin Ridges	8,843	2,434		6,306	17,582
Nymboida Great Escarpment	199,750	23,698	36,368	367,360	627,176
Nymboida Meta-sediments	25,490	8,423	9,247	70,070	113,230

NSW Regional Forest Agreements Implementation Report 2004–2014

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Richmond Range	24,647	4,209	1,268	49,267	79,390
Summervale Range	7,146	6,801	2,271	41,906	58,124
Upper Clarence Channels and Floodplains	5	40		21,157	21,202
Upper Gwydir Channels and Floodplain				1,991	1,991
Water	171			321	492
Woodenbong Syenite Plugs	933	249	296	7,766	9,245
No classification	0			80	80
Total area (ha)	605,209	117,111	86,138	3,113,492	3,921,950

Table 70: NSW Landscapes in the Eden RFA region

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Bega Coastal Alluvium	152			5,433	5,585
Bega Coastal Foothills	22,673	46	1,346	31,098	55,164
Bega Granites	3,071	3	175	101,270	104,519
Bodalla – Nadgee Coastal Sands	10,885	506	2,354	13,177	26,921
Bombala Granite Basin				6,661	6,661
Bombala Meta-sediments	3,554	75	870	64,851	69,350
Byadbo Ranges Granites				1,925	1,925
Coolangubra – Good Good Plateau	99,144	2,039	3,729	128,620	233,532
Estuary/Water Added	234	5	40	2,766	3,045
Kybeyan Montane	1,387				1,387
Kybeyan Range	47,017			434	47,451
Lower Snowy Granites				1	1
Monaro Alluvium				504	504
Monaro Lakes				14	14
Monaro Plains Basalts and Sands	1,018		45	34,920	35,983
Monaro Plains Meta-sediments				1,178	1,178
Mt Dromedary – Mumbula Mountain	5,756		135	1,051	6,942
Mt Imlay Peak	3,207	124	224	1,962	5,517
Nadgee Coastal Range	29,338	1,565	5,780	65,602	102,285
Towamba Channel and Floodplain	207	50	64	3,130	3,450
Towamba Granite	30,644	685	4,568	64,831	100,728
Tuross – Eden Barriers and Beaches	1,231		7	1,060	2,298
No classification	266		0	667	932
Total area (ha)	259,784	5,098	19,337	531,152	815,370

Table 71: NSW Landscapes in the South Coast RFA sub-region

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Bega Coastal Foothills	23,518	3,403	4,124	71,734	102,779
Bega Granites	7,724	11	62	10,520	18,317
Bherwerre Barrier	1,433	170	56	6,601	8,261
Bodalla – Nadgee Coastal Sands	70		23	1,591	1,685
Bomaderry Plains	396			8,960	9,356
Braidwood Granites	8,395	2,171		53,714	64,280
Breadalbane Swamps and Lagoons				392	392
Budawang Range	125,630	1,926	2,466	72,453	202,476
Bulli Coastal Escarpment	2,248	7		7,001	9,256
Bungonia Tableland and Gorge	16,909	3,955		74,367	95,231
Canberra Plains	1,172	308		13,371	14,851
Clyde Channel and Floodplain	379		90	2,690	3,158
Clyde Valley Foothills	10,503	1,259	2,834	39,579	54,175
Coolangubra – Good Good Plateau	25,003	5,448	930	63,725	95,106
Crookwell Basalts and Sands	81			966	1,047
Cullarin Range Fault Block		345		4,693	5,038
Dalton Hills				401	401
Dapto – Wollongong Coastal Slopes				919	919
Estuary/Water Added	863		6	3,772	4,642
Fitzroy Falls Escarpment	8,666		25	6,193	14,884
Fitzroy Falls Plateau	10,794	37	4,135	11,243	26,209
Gourock – Tindery Ranges	11,930	622	138	11,057	23,747
Gourock – Tindery Slopes	22,720	1,917	467	106,120	131,223
Gundry Plains	143	15		61,184	61,341
Jingera Valley	589		242	13,699	14,530
Kangaroo Valley	4,162			7,430	11,592
Kiama Coastal Slopes	848			26,398	27,246
Kioloa Headland	73			1,197	1,270
Kybeyan Range	1,478			1	1,480
Lake George Complex	772			15,344	16,116
Lake Illawarra Alluvial Plains	3			1,642	1,644
Lake Illawarra Barrier				65	65
Milton Basalts and Sands	500			2,077	2,577
Milton Hills	381		5	5,258	5,643
Minuma Range	16,772	765		3,964	21,501
Molonglo Channels and Floodplains	47			2,885	2,932
Molonglo Ranges	17,062	9,821	1,058	105,020	132,962
Monaro Alluvium	6			1,141	1,147
Monaro Lakes				11	11
Monaro Plains Basalts and Sands	185			11,145	11,330
Monaro Plains Granites				47	47
Monaro Plains Meta-sediments				44	44

NSW Regional Forest Agreements Implementation Report 2004–2014

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Moruya Barrier	413		4	3,331	3,747
Moruya Channels and Floodplains	1,644	211	38	8,982	10,874
Moruya Granite Basins	2,237	1,233	912	16,906	21,289
Moruya Valley Foothills	24,384	799	129	22,453	47,765
Moss Vale Highlands	7,869	1,854	107	61,668	71,497
Mt Dromedary – Mumbula Mountain	1,993		17	3,040	5,050
Nattai Plateau	43	494	1,293	21,755	23,585
Nowra – Durras Coastal Slopes	5,732	297	1,336	23,703	31,068
Robertson Basalts	318		49	11,415	11,782
Sassafras – Nerriga Basalts and Gravels	643			2,677	3,320
Seven Mile Barrier	1,481			2,978	4,459
Shoalhaven Alluvial Plain	9,185	696	77	14,055	24,013
Shoalhaven Channels and Floodplain				4,906	4,906
Shoalhaven Gorge	10,638	324		13,399	24,361
Shoalhaven Tertiary Sands	3,940	5		37,572	41,517
Snowball High Valley	3,237		46	26,624	29,907
Sydney Basin Western Escarpment	659		73	5,366	6,098
Towrang Ranges				263	263
Tuross – Eden Barriers and Beaches	454		5	2,231	2,689
Tuross Basalts and Sands	42	41		3,032	3,115
Tuross Channel and Floodplain	13	23	42	3,314	3,392
Upper Murrumbidgee Channels and Floodplains				1,284	1,284
Upper Murrumbidgee Gorge				0	0
Upper Murrumbidgee Valley				6,932	6,932
Wandanadian Coastal Plains	38,948	687	1,110	46,624	87,369
Wandanadian Granite	379			332	711
Water	123			1,161	1,284
Wingecarribee Swamp				465	465
Wollondilly – Bindook Tablelands and Gorges				6,415	6,415
Yalwal – Tallawal Tableland	96,397	2,028	13	24,363	122,800
Yalwal Gorges	14,900	4		6,102	21,006
No classification	1,359	55	4	8,377	9,795
Total area (ha)	548,486	40,929	21,917	1,222,336	1,833,669

Table 72: NSW Landscapes in the Tumut RFA sub-region

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Adelong Granite Ranges	1,667		119	26,946	28,731
Adrah Hills and Ranges	18,700	1,194	4,852	164,480	189,226
Alpine Zone	8,462			32	8,494
Bogong Montane	1,864				1,864
Bogong Sub-alpine	757				757
Bombala Granite Basin	138			11,388	11,526
Bombala Meta-sediments	1,252			14,762	16,014
Boorowa Volcanics	1,511			20,909	22,420
Bringenbrong Ranges	33,684			9,084	42,768
Brokong Plains				53,044	53,044
Burrinjuck Ridges	4			35,790	35,794
Byadbo Ranges Granites	367			16,873	17,240
Byadbo Ranges Meta-sediments	29,829			21,798	51,627
Cabramurra – Kiandra Basalt Caps and Sands	14,562	1,735	473	18,084	34,854
Canberra Plains				2,267	2,267
Carabost Hills and Ranges	1,878	745		53,259	55,882
Chimneys Ridge Montane	27,286	1,329		7,654	36,268
Chimneys Ridge Sub-alpine	17,220	460		69	17,749
Coffin Rock Granite Hills	731	1,137	559	11,508	13,935
Coolangubra – Good Good Plateau				1,302	1,302
Cootamundra – Tumut Serpentinite and Ultramafics	1,484		1,142	6,095	8,720
Cullarin Range Fault Block				6,031	6,031
Dalton Hills	278			34,247	34,525
Dargals Montane	18,676				18,676
Doura Volcanics	51,144	1,690	1,169	131,390	185,393
Estuary/Water Added	644			17,722	18,366
Geehi Gorge	25,981			124	26,105
Gourock – Tindery Slopes				776	776
Gundry Plains				31	31
Jagungal Tops	31,892			339	32,231
Jindabyne Plains	33,792	707		202,950	237,449
Junee Hills and Slopes				648	648
Khancoban Basin	8,980			1,877	10,857
Kings Cross Montane	114,470		30	5,550	120,050
Kings Cross Sub-alpine	817				817
Lake George Complex				2,041	2,041
Lower Snowy Gorge	10,224			1,049	11,273
Lower Snowy Granites	62,633			15,824	78,457
Lower Snowy Ranges Meta- sediments	3,022			10,151	13,173
Main Range Montane	29,333			8,579	37,912

NSW Regional Forest Agreements Implementation Report 2004–2014

NSW Landscape	Dedicated (hectares)	Informal (hectares)	Reserved by prescription (hectares)	Not reserved (hectares)	Total (hectares)
Main Range Sub-alpine	49,008			13,644	62,652
Marilba Range	3,476			17,264	20,740
Minjary Hills and Ranges	24,696	2,543	8,563	75,837	111,639
Molonglo Ranges				1,874	1,874
Monaro Alluvium				5,548	5,548
Monaro Lakes				1,358	1,358
Monaro Plains Basalts and Sands	161			145,980	146,141
Monaro Plains Granites				2,308	2,308
Monaro Plains Meta-sediments	9,779			80,012	89,791
Mt Bundarbo Basalt Caps	425		135	2,952	3,512
Murray Channels and Floodplains	25			20,474	20,499
Murrumbidgee – Tarcutta Channels and Floodplains				14,081	14,081
Namadgi Range Alpine	6,808			487	7,295
Namadgi Range Montane	1,011			53,474	54,485
Namadgi Range Sub-alpine	17,186	163	3	15,891	33,243
Pinbeyan – Ravine Ranges	27,035			1,476	28,511
Springdale Hills				1	1
Table Top Range	420			924	1,344
Tantangara High Plains and Peaks	31,307			2,203	33,510
Tipperary Hills Granites	21,756	5,028	2,080	112,350	141,214
Tooma Granite Ranges	36,821	1,942	6,746	133,970	179,480
Tumut Channels and Floodplain	0	0		10,757	10,757
Upper Murrumbidgee Channels and Floodplains	27			1,971	1,998
Upper Murrumbidgee Gorge	95			5,357	5,452
Upper Murrumbidgee Valley	1,455			24,650	26,105
Varneys Range				18,952	18,952
Water	1,834			4,549	6,382
Wonga Hills and Ranges	4,984	1,387		53,551	59,921
Yarrangobilly – Coleman Karst	3,275			18	3,292
Yass Channels and Floodplain				4,300	4,300
Young Hills and Slopes	9,902	1,111	4,182	81,805	97,001
No classification				327	327
Total area (ha)	804,764	21,172	30,051	1,823,015	2,679,003

Table notes:

Dedicated reserves: comprise national parks and nature reserves under the NPW Act and flora reserves under the Forestry Act.

Informal reserves: comprise state conservation areas and regional parks under the NPW Act and Forest Management Zone 2 areas under the FCNSW forest management zoning system.

Areas reserved by prescription: comprise Forest Management Zone 3 areas under the FCNSW forest management zoning system.

Appendix K Timber production in NSW RFA regions

This appendix contains information on timber³⁸⁶ produced by FCNSW in the regions and sub-regions covered by the NSW RFAs for the financial years 2004–05 to 2013–14 (the second and third five-yearly review periods). The timber volumes were those generated from dedicated state forest, Crown-timbered lands and private property (volume generated from the Private Property Timber Supplementation Program only).

Data in the figures and tables in this appendix has been provided by FCNSW from FCNSW databases.

North East RFA region

The following discussion outlines timber production in both sub-regions of the North East RFA Region: the Upper North East (UNE) and the Lower North East (LNE).

As wood products are harvested and supplied to customers, they may move from one sub-region to another. The volumes are reported by the sub-region in which the customer is located, rather than the location of the forest from which they are derived. FCNSW runs its sustained yield strategy across the two sub-regions combined.

Clause 79 of the RFA for the North East region commits the NSW Government to supply 129,000 m³ p.a. from UNE for 20 years and 140,000 m³ p.a. from LNE of high quality large (HQL) sawlogs and large veneer logs. Annually around 20,000 m³ of HQL sawlogs and large veneer logs supplied in UNE will be sourced from LNE.

Clause 80 provides that harvesting of 109,000 m³ p.a. from UNE and 160,000 m³ p.a. from LNE of HQL sawlogs and large veneer logs will occur to supply wood supply agreement (WSA) holders. Contracted commitments and other arrangements associated with WSAs allow for the carrying forward of volumes under-cut or over-cut in any one year.

Figure 7 shows that the total HQL and HQS harvested in the North East RFA region was below the RFA commitment level each year of the 2004 to 2014 period.

While the North East RFA provides for an annual harvest of 269,000 m³, the North East region WSA commits FCNSW to provide considerably lower volumes.

This variance is due to improvements to FRAMES and sustainable yield calculations that were made after the North East RFA was signed.

In 2004, the then Forests NSW undertook a review of wood resources on the North Coast. This review provided a revised sustained yield volume of 222,000 m³ for the first five years and then 200,000 m³ from Year 6 to Year 20.

In 2012, two incidents resulted in further reductions to timber supply commitments under the WSAs in the North East RFA region. In the first, a customer sold its Walcha–Styx River allocation in the LNE sub-region to the State of NSW, thereby reducing the WSA volume by 23,723 m³. In the second, a NSW Government review of timber supply under the WSAs and subsequent customer negotiations reduced annual allocations of HQ sawlogs from 230,000 m³ to about 179,600 m³ (around two-thirds of the North East RFA's annual commitment of 269,000 m³). This took effect outside the reporting period.

Figure 8 shows that for UNE, actual harvest levels were close to the WSA commitments for both HQL and HQS. Figure 9 shows that for LNE, actual harvest levels for HQL were slightly below WSA levels for each year from 2007, and harvest levels for HQS were around the same as the WSA commitments.

³⁸⁶ The term 'timber' is used in the NSW RFAs and is adopted by FCNSW for reporting purposes. It is essentially the wood volume within various log products, not the sawn timber produced from sawlogs.

Over the 2004 to 2014 period, FCNSW has harvested timber from the following sources: native forests within state forests supplied 85% of high quality timber in the North East RFA region, hardwood plantations within state forests supplied 14%, and private native forestry provided the remaining 1%.

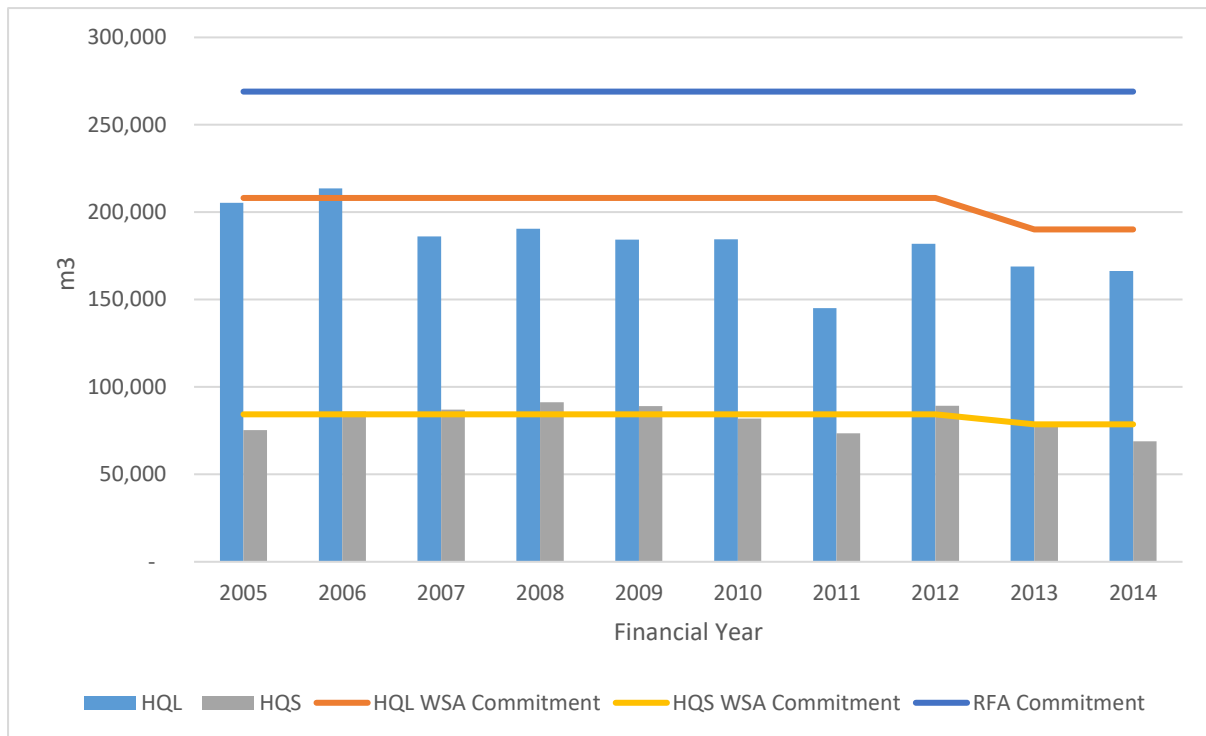


Figure 7: High quality large and high quality small timber production from North East RFA region combined from July 2004 to June 2014

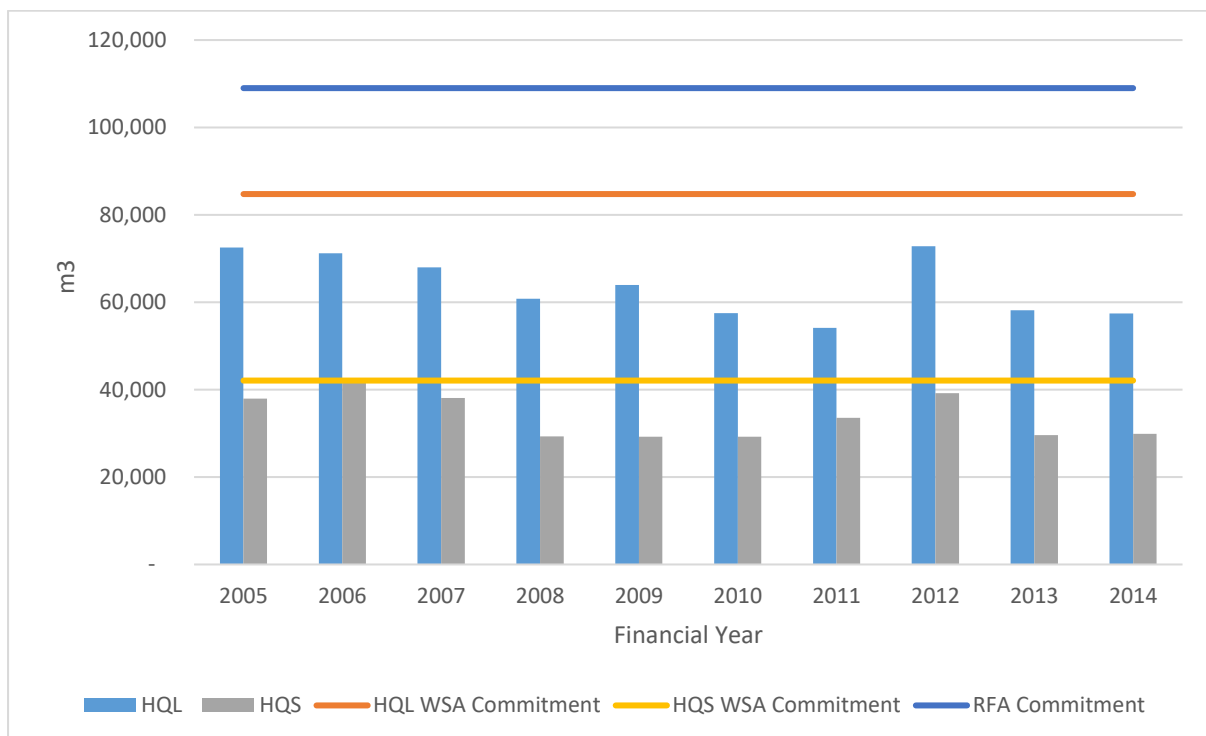


Figure 8: High quality large and high quality small timber production from UNE sub-region from July 2004 to June 2014

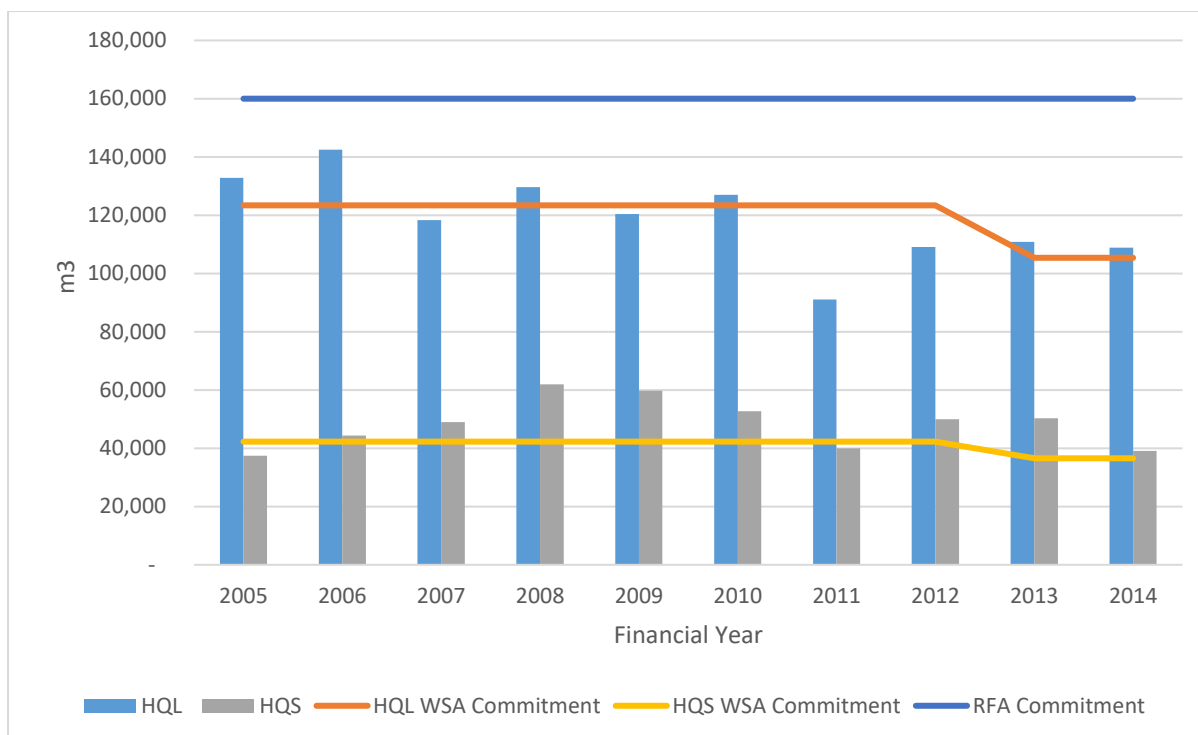


Figure 9: High quality large and high quality small timber production from LNE sub-region from July 2004 to June 2014

Southern RFA region

The Southern region includes two sub-regions: South Coast and Tumut.

Clause 76 of the Southern region RFA commits the NSW Government to supply a minimum of 48,500 m³ p.a. of HQL logs from the South Coast sub-region for 20 years from 1 January 2001.

Figure 10 shows the total HQL and HQS harvested in the South Coast sub-region. For each year in the 2004–05 to 2013–14 period, timber was supplied at the levels specified in the WSAs or at a lower volume by agreement with WSA customers.

Up until 2005, the largest customer on the South Coast undertook stumpage operations to obtain its WSA allocation. In 2006, the customer sold its WSA and three sawmills. At the same time, FCNSW implemented mill door delivered sales (contract harvesting).

On 1 July 2013, the largest south coast customer closed one of its three sawmills and renegotiated a reduction in its HQL WSA allocation. FCNSW subsequently sought spot sales of this unallocated HQL volume to other customers in 2013 and 2014.

For the entire 2004–05 to 2013–14 period, the supply of HQS met or exceeded the commitment level in the WSA.

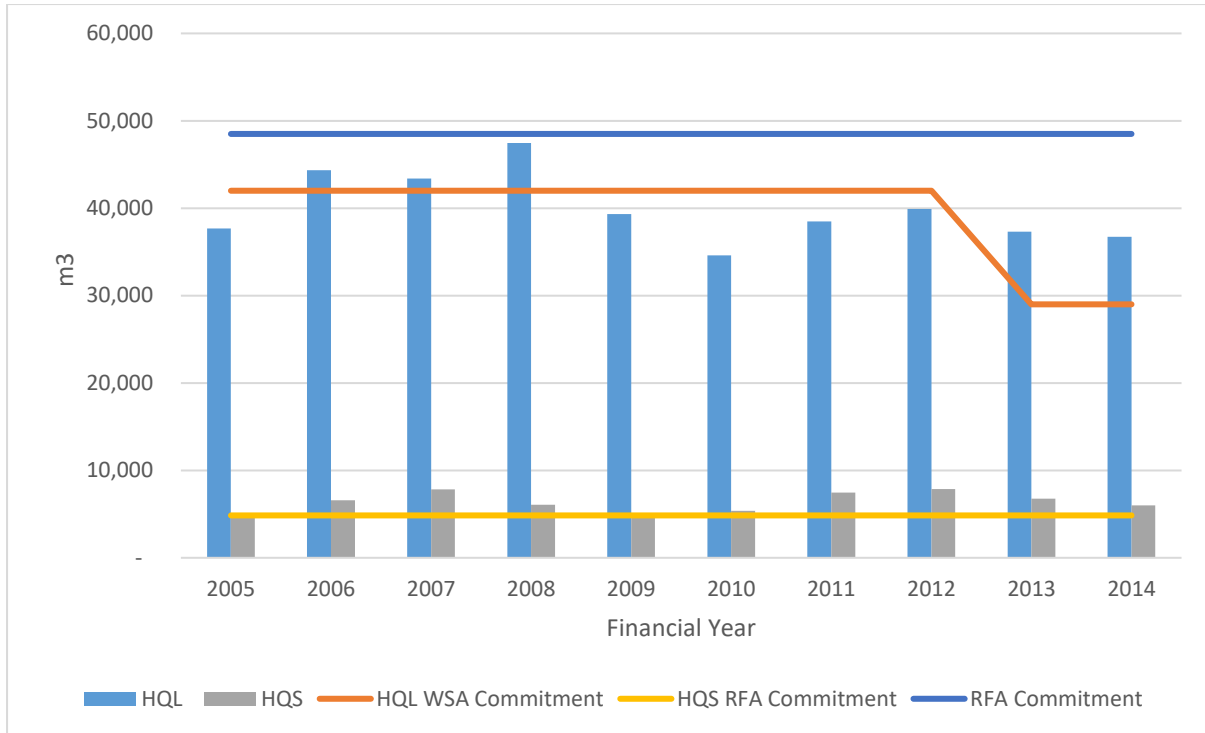


Figure 10: High quality large and high quality small timber production from South Coast sub-region combined from July 2004 to June 2014

Clause 76 of the Southern region RFA commits the NSW Government to supply a minimum of 48,000 m³ p.a. of HQL logs from the Tumut sub-region for 20 years from 1 January 2001.

Figure 11 shows the total HQL and HQS harvested in the Tumut sub-region.

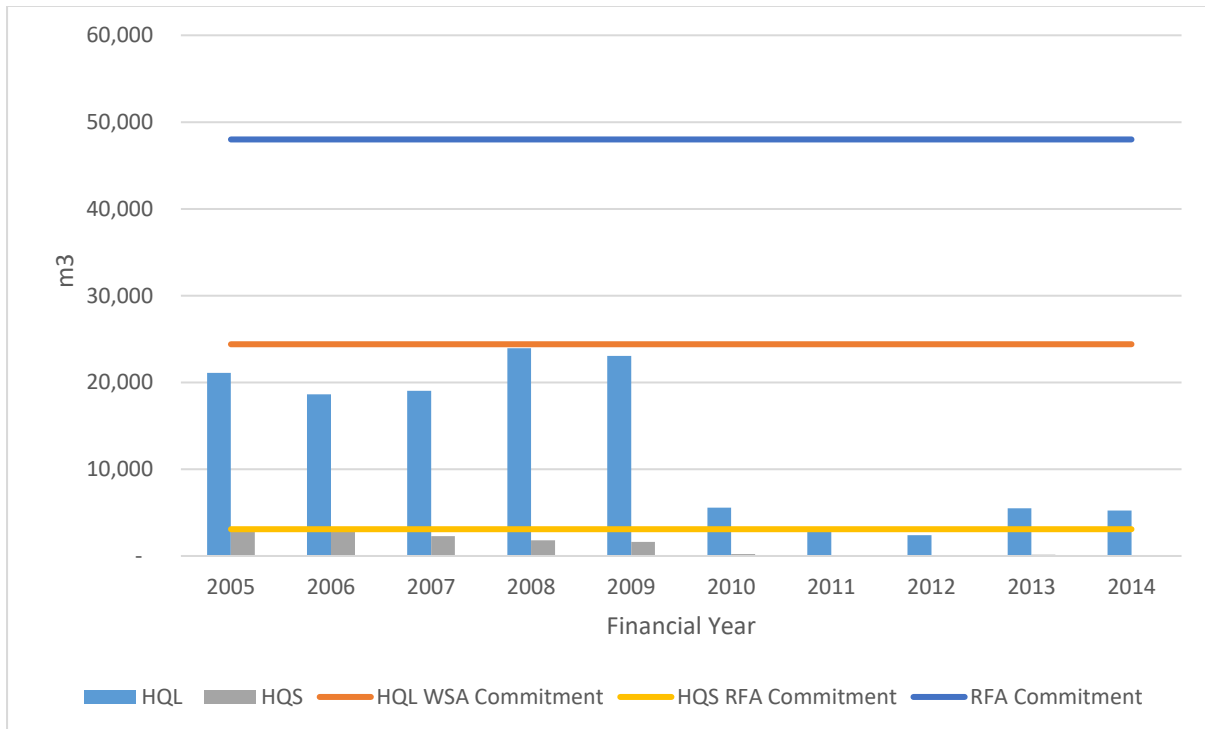


Figure 11: High quality large and high quality small timber production from Tumut sub-region combined from July 2004 to June 2014

The non-declining yield of alpine ash (*Eucalyptus delegatensis*) comprises approximately 20,000 m³ p.a., with the remainder comprising mixed mountain hardwood species, i.e. brown barrel (*E. fastigata*), messmate (*E. obliqua*), manna gum (*E. viminalis*) and mountain gum (*E. dalrympleana*).

From 2005 to 2009, WSAs were largely met at WSA allocation levels, which are significantly lower than the Southern RFA commitment levels. Those allocations were only for alpine ash HQL, as there was little market interest for mixed mountain hardwood HQL and little capacity to process it. During this period, FCNSW did not commit mixed mountain hardwood species due to the limited market for this wood.

In 2010, an endangered population of yellow-bellied gliders on the Bago Plateau was nominated to the NSW Scientific Committee for protection. The nomination area took in most of the alpine ash supply area in the Tumut sub-region. As a result of the nomination, supplies of alpine ash were disrupted. Timber harvesting largely ceased in state forests on the Bago Plateau for three years while the committee considered submissions and negotiations were conducted.

During the same period, closure of the largest WSA customer's sawmill for alpine ash HQL meant there was no HQL market.

In 2013, a Population Management Plan for the yellow-bellied glider was implemented which allowed access for timber harvesting on the Bago Plateau and low volume deliveries recommenced to an alternative WSA customer in northern Victoria in 2013 and 2014.

Eden RFA region

The Eden region RFA commits the NSW Government to provide an annual allocation of 23,000 m³ of HQL. The annual allocation was made available in each year of the period 2004 to 2014.

The WSA has a single HQL customer who conducts stumpage operations as part of integrated harvesting for sawlogs and pulpwood. The WSA and Eden RFA commitments are the same; hence Figure 12 does not show a separate line for the WSA commitment volume.

Under the terms of the WSA, the customer is not required to harvest the entire allocation and, in some years, not all of the allocation was harvested due to inadequate contractor capacity and lower market demand for HQL and residue (pulpwood). The customer has exercised the right provided in the WSA to carry forward accumulated undercuts.

The WSA customer's allocation is augmented by 1,000 m³ of HQL alpine ash from Ingebirah State Forest in the Tumut sub-region of the Southern region. Table 76 indicates that an average of around 600 m³ p.a. was made available under this allocation. Further information is provided in the response to clause 79S.



Figure 12: High quality large and high quality small timber production from Eden region combined from July 2004 to June 2014

Table 73: Timber volumes produced (m³ p.a.) from UNE sub-region by financial year from July 2004 to June 2014

UNE	HQL	HQS	Large sawlog	Small sawlog	Girder	Piles	Poles	Veneer	Salvage	Pulp	Residue	Total
Total	636,522	337,764	554,086	261,511	22,980	4,614	92,882	61,638	697,362	162,823	10,392	1,868,287
2005	72,521	37,934	62,646	29,824	2,676	848	9,697	7,289	84,637	11,324	–	208,941
2006	71,198	41,687	61,388	32,502	2,883	966	11,611	6,695	86,138	18,643	–	220,826
2007	67,949	38,118	60,274	30,111	2,269	776	10,718	4,995	69,595	12,921	–	191,659
2008	60,832	29,277	53,860	24,004	1,828	321	6,338	5,718	77,936	28,963	–	198,968
2009	63,950	29,209	56,064	23,999	3,041	733	6,211	4,890	68,596	37,580	–	201,114
2010	57,496	29,253	49,717	23,263	2,652	103	6,961	5,806	63,981	24,036	–	176,518
2011	54,134	33,546	46,367	23,643	1,811	118	12,631	5,988	70,378	20,649	–	181,584
2012	72,843	39,230	63,530	28,503	2,279	269	13,393	7,042	67,981	8,707	46	191,749
2013	58,152	29,601	50,051	21,723	1,308	351	8,963	7,350	49,665	–	6,222	145,633
2014	57,447	29,909	50,189	23,940	2,234	129	6,359	5,866	58,454	–	4,123	151,294
Period 2 average	67,290	35,245	58,846	28,088	2,539	729	8,915	5,917	77,381	21,886	–	204,302
Period 3 average	60,014	32,308	51,971	24,214	2,057	194	9,661	6,410	62,092	10,678	2,078	169,356

Table note:

Salvage and pulp products are typically sold by weight, i.e. tonnes. The average conversion of m³ to tonnes is 110%. The 697,362 m³ of salvage and 162,823 m³ of pulpwood sold over the period converts to approx. 767,000 tonnes of salvage and 179,000 tonnes of pulpwood.

NSW Regional Forest Agreements Implementation Report 2004–2014

Table 74: Timber volumes produced (m³ p.a.) from LNE sub-region by financial year from July 2004 to June 2014

LNE	HQL	HQS	Large Sawlog	Small Sawlog	Girder	Piles	Poles	Veneer	Salvage	Pulp	Residue	Total
Total	1,190,531	484,537	1,082,717	308,104	14,964	5,847	243,584	79,672	1,610,173	1,214,792	69,318	4,629,170
2005	132,840	37,408	124,964	25,228	1,426	796	17,637	5,089	149,254	109,299	964	434,656
2006	142,463	44,363	132,768	29,704	2,114	761	20,137	6,129	141,609	97,917	1,888	433,029
2007	118,267	48,934	106,034	31,462	1,157	716	22,587	10,543	151,701	121,346	2,989	448,536
2008	129,645	61,987	116,321	41,257	1,597	519	27,571	10,903	188,950	114,409	1,532	503,059
2009	120,429	59,805	107,075	41,609	1,455	967	24,010	11,393	168,272	153,524	3,570	511,876
2010	126,957	52,752	115,420	35,400	1,599	434	23,825	9,169	174,266	158,684	6,879	525,676
2011	91,058	40,026	82,283	23,881	1,795	592	23,856	4,952	171,751	175,088	6,943	491,142
2012	109,122	49,943	99,417	28,460	1,374	249	31,307	5,648	166,154	185,208	14,710	532,528
2013	110,859	50,261	99,231	27,593	1,308	340	32,399	8,127	147,740	85,782	19,494	422,014
2014	108,890	39,057	99,205	23,510	1,137	471	20,254	7,719	150,476	13,534	10,348	326,654
Period 2 average	128,729	50,499	117,433	33,852	1,550	752	22,389	8,811	159,957	119,299	2,189	466,231
Period 3 average	109,377	46,408	99,111	27,769	1,443	417	26,328	7,123	162,078	123,659	11,675	459,603

Table note:

Salvage and pulp products are typically sold by weight i.e. tonnes. The average conversion of m³ to tonnes is 110%. The 1,610,173 m³ of salvage and 1,214,792 m³ of pulpwood sold over the period converts to approx. 1.77 million tonnes of salvage and 1.33 million tonnes of pulpwood.

Table 75: Timber volumes produced (m³ p.a.) from South Coast sub-region by financial year from July 2004 to June 2014

South Coast sub-region	HQL	HQS	Large sawlog	Small sawlog	Girder	Piles	Poles	Veneer	Salvage	Pulp	Residue	Total
Total	399,215	63,474	393,852	60,025	1,434	942	5,133	2,560	282,284	773,289	115,939	1,635,459
2005	37,670	4,605	37,279	4,576	7	150	23	274	40,529	64,049	2,223	149,110
2006	44,366	6,578	43,897	6,408	208	73	241	181	38,864	94,087	3,150	187,110
2007	43,413	7,831	42,730	7,157	264	60	1,014	244	29,892	107,367	3,805	192,533
2008	47,465	6,057	46,604	5,751	169	87	454	569	27,552	91,950	8,794	181,930
2009	39,319	4,940	38,588	4,724	231	141	308	358	25,149	75,377	8,830	153,706
2010	34,593	5,371	34,242	5,039	242	68	488	–	23,805	78,148	11,518	153,550
2011	38,477	7,446	37,954	6,905	120	147	816	181	25,086	93,535	13,333	178,076
2012	39,898	7,884	39,337	7,703	153	126	261	280	22,635	74,012	28,966	173,475
2013	37,297	6,781	36,818	6,130	24	37	996	290	24,786	66,661	20,996	156,737
2014	36,717	5,981	36,403	5,632	16	53	532	183	23,986	28,103	14,324	109,232
Period 2 average	42,447	6,002	41,820	5,723	176	102	408	325	32,397	86,566	5,360	172,878
Period 3 average	37,396	6,692	36,951	6,282	111	86	619	187	24,060	68,092	17,827	154,214

Table note:

Salvage and pulp products are typically sold by weight, i.e. tonnes. The average conversion of m³ to tonnes is 110%.

NSW Regional Forest Agreements Implementation Report 2004–2014

Table 76: Timber volumes produced (m³ p.a.) from Tumut sub-region by financial year from July 2004 to June 2014

Tumut	HQL	HQS	Large sawlog	Large sawlog alpine ash	Large sawlog mixed hardwood	Small sawlog	Poles	Veneer	Salvage	Pulp	Residue	Total
Total	127,431	12,235	127,311	103,118	24,191	12,082	224	96	82,241	111,886	159	333,999
2005	21,097	3,093	21,097	17,437	3,661	3,093	–	–	21,685	21,533	–	67,408
2006	18,642	2,899	18,642	14,247	4,394	2,899	–	–	13,811	15,604	–	50,956
2007	19,031	2,280	19,031	13,135	5,896	2,280	–	–	10,117	18,742	–	50,170
2008	23,949	1,792	23,934	18,853	5,081	1,721	109	–	14,731	23,369	–	63,864
2009	23,072	1,612	23,056	20,147	2,910	1,537	115	–	9,544	20,410	23	54,686
2010	5,585	211	5,585	3,937	1,647	211	–	–	1,014	4,071	–	10,880
2011	2,922	82	2,922	2,497	424	82	–	–	1,740	5,883	18	10,645
2012	2,413	9	2,324	2,324	–	2	–	96	760	646	–	3,829
2013	5,480	153	5,480	5,480	–	153	–	–	754	1,628	–	8,014
2014	5,240	104	5,240	5,061	178	104	–	–	8,085	–	118	13,547
Period 2 average	21,158	2,335	21,152	16,764	4,388	2,306	45	–	13,978	19,932	5	57,417
Period 3 average	4,328	112	4,310	3,860	450	110	–	19	2,471	2,446	27	9,383

Table note:

Salvage and pulp products are typically sold by weight, i.e. tonnes. The average conversion of m³ to tonnes is 110%.

NSW Regional Forest Agreements Implementation Report 2004–2014

Table 77: Timber volumes produced (m³ p.a.) from Eden region by financial year from July 2004 to June 2014

Eden	HQL	HQS	Large sawlog	Small sawlog	Girder	Poles	Veneer	Salvage	Pulp	Residue	Total	Ingebirah SF
Total	212,068	18,070	211,667	18,047	303	12	112	61,836	2,546,759	7,130	2,845,866	6,082
2005	25,023	1,273	25,023	1,273	–	–	–	14,365	296,976	4,131	341,769	
2006	24,806	1,765	24,806	1,765	–	–	–	12,464	310,603	–	349,638	
2007	20,455	2,374	20,455	2,374	–	–	–	8,315	352,916	160	384,221	
2008	23,191	2,608	23,191	2,608	–	–	–	5,842	316,067	–	347,707	
2009	18,755	1,592	18,478	1,573	224	12	62	5,309	221,215	23	246,896	
2010	20,912	1,241	20,788	1,237	79	–	50	3,856	246,705	49	272,764	1,952
2011	19,910	1,326	19,910	1,326	–	–	–	2,246	220,465	132	244,078	1,943
2012	18,598	2,510	18,598	2,510	–	–	–	3,348	194,338	920	219,715	
2013	19,030	1,262	19,030	1,262	–	–	–	3,203	169,839	233	193,568	2,187
2014	21,387	2,118	21,387	2,118	–	–	–	2,888	217,636	1,481	245,511	
Period 2 average	22,446	1,923	22,391	1,919	45	2	12	9,259	299,555	863	334,046	0
Period 3 average	19,968	1,692	19,943	1,691	16	-	10	3,108	209,797	563	235,127	1,217

Table note:

Salvage and pulp products are typically sold by weight, i.e. tonnes. The average conversion of m³ to tonnes is 110%.

Year	NSW department or agency	Actions
2006–07	<p>DECC</p> <p>Forests NSW</p> <p>DNR</p>	<p>As in previous years, PWG continued to take part in specific local project-based research and to support the work of other divisions, agencies and institutions in this area, although it did not have a primary responsibility for research within the then DECC. It is therefore not possible to identify forest-related research that may have been undertaken. Details of research and papers published by DECC staff for the 2006–07 reporting period that may be relevant to the ESFM criteria and indicators can be found by referring to: Section 4.1.3, 'Monitoring soils and native vegetation'; Section 4.2.4, 'Researching and monitoring biodiversity'; Section 4.3.5, 'Managing key pressures on reserves'; Appendix 13, 'DECC Publications'; and Appendix 14, 'Papers published' in DECC's Annual Report 2006–07.</p> <p>Progress in Forests NSW R&D aimed at improving forest management and delivery of forest goods and services can be found in the Science & Research & Forests NSW Research & Development Annual Report 2006–07.</p> <p>DNR Code of Practice for Private Native Forestry</p> <p>A draft Code of Practice for Private Native Forestry was developed by DNR following discussions with various stakeholders. It was proposed that the draft code would be enacted under an amendment to the NV Act and would receive biodiversity certification under the TSC Act. The draft code included provisions for the protection of cultural heritage. The draft code was expected to be on public display in July and August 2006.</p>
2007–08	<p>DECC</p> <p>Forests NSW</p> <p>DNR</p>	<p>As in previous years, PWG continued to take part in specific local project-based research, as well as supporting the work of other divisions, agencies and institutions in this area, but did not have a primary responsibility for research within DECC. It is therefore not possible to identify forest-related research that may be taking place. Details of DECC's involvement during the 2007–08 reporting period with the Monitoring, Evaluation and Reporting (MER) Strategy and specific research projects that may be relevant to the ESFM criteria and indicators can be found by referring to the DECC Annual Report 2007–08.</p> <p>Progress on Forests NSW R&D aimed at improving forest management and delivery of forest goods and services can be found in the Science and Research and Forests NSW Research and Development Annual Report 2007–08.</p> <p>Forests NSW policies, guidelines and codes of practice</p> <p>Forests NSW had a number of policies, codes and guidelines that assist in sustainable forest management. A number of Forests NSW policies, and the most recent Summary of Affairs, can be found on the Forestry Corporation of NSW website³⁹⁰</p> <p>Code of Practice for Private Native Forestry</p> <p>The NSW Government introduced the PNF Code of Practice on 1 August 2007 under the NV Act. The Code of Practice required that private forestry operations improve or maintain environmental outcomes. Previously, forestry on private land was largely unregulated, often resulting in poor silviculture and poor environmental outcomes. The Code established sustainable practices as the new norm for all PNF operations.</p>

³⁹⁰ FCNSW 2016e, *Home*, accessed 15 November 2016 www.forestrycorporation.com.au/

NSW Regional Forest Agreements Implementation Report 2004–2014

Year	NSW department or agency	Actions
2008–09	DECC Forests NSW	As in previous years, PWG continued to take part in specific local project-based research, as well as supporting the work of other divisions, agencies and institutions in this area, but did not have a primary responsibility for research within DECC. It is therefore not possible to identify forest-related research that may be done. Details of DECC's involvement during the 2008–09 reporting period with the MER Strategy and specific research projects that may be relevant to the ESFM criteria and indicators can be found by referring to the DECC Annual Report 2008–09. Progress on Forests NSW R&D aimed at improving forest management and delivery of forest goods and services can be found in the Science and Research and Forests NSW Research and Development Annual Report 2008–09.
2009–10	DECCW Forests NSW	Although not necessarily specific to FA regions, the DECCW Annual Report 2009–10 details research projects that were being done or had DECCW staff involved. DECCW publications and papers are listed in the annual report ³⁹¹ . Forests NSW R&D aimed at improving forest management and delivery of forest goods and services can be found in the Science and Research and Forests NSW Research and Development Annual Report 2009–10. Of particular interest was continuing research into the application of biodiversity monitoring programs and LiDAR (Light Detection And Ranging) to improve mapping and inventory processes.
2010–11	Forests NSW	Forest NSW research focused on resource development and sustainability. Research included threatened species protection, timber, sequestered carbon, bioenergy, enhanced biodiversity and salinity mitigation and is available in the 2010–11 Forest Science Centre Annual Report.
2011–12	Forests NSW	The Forest Science Centre, NSW DPI ³⁹² provided R&D services to Forests NSW under a memorandum of understanding (MOU). There were four main programs: Forest Biosecurity and Resource Assessment; Forest Ecology; New Forests; and Biometric Services. Research was also performed by the Forests NSW Land Management & Forestry Services branch, and Forests NSW was a partner of the Bushfire Cooperative Research Centre (CRC) and supporting partner of the CRC for Forestry.
2012–13	Forests NSW From 1 January 2013: Forestry Corporation of NSW	NSW Department of Primary Industries (NSW DPI) provided research and development services to Forestry Corporation under an MOU. There were four main programs: Forest Biosecurity and Resource Assessment; Forest Ecology; New Forests; and Biometric Services. Research was also performed by the Land Management & Forestry Services Division and it was a partner of the Bushfire Cooperative Research Centre and supporting partner of the Cooperative Research Centre for Forestry. (Source: FCNSW annual report 2012–13, pp.43–44).

³⁹¹ DECCW 2010b, *Department of Environment, Climate Change and Water NSW Annual Report 2009–10*, accessed 10 November 2016

www.environment.nsw.gov.au/resources/whoware/deccwar0910_10900.pdf

³⁹² DOI 2017, *Forestry: science and research*, accessed 2 August 2017

www.crownland.nsw.gov.au/forestry/science-and-research

Year	NSW department or agency	Actions
2013–14	Forestry Corporation of NSW	<p>The NSW DPI Forest Science group provided technical advice, and research and development services to the Forestry Corporation under an MOU. Priority research themes included forest ecology and sustainability, forest health and resource assessment, carbon in forests, wood products and bioenergy, and biometrical services. Forestry Corporation invested \$1.8 million in research and development under this MOU during 2013–14.</p> <p>Forestry Corporation was also a shareholder in the Radiata Pine Breeding Company and Forestry Corporation's Chief Forester held directorship of that company. Through this arrangement, Forestry Corporation had access to the company's radiata pine breeding research and development program.</p> <p>(Source: FCNSW annual report 2013–14, pp.13–14).</p>

Table 79: Chronology of R&D compendium progress

Year		Status
2003–04	Compendium	<p>In progress</p> <p>RACD and DIPNR collated contributions from a range of land management agencies, research organisations and universities on current and published research related to forests. This information was included in a draft compendium of forest research. At the end of 2003–04, refinement of the draft compendium was continuing. Further refinement was also being undertaken on the database specifically set up to manage the large amount of information collected through this process and enable further information to be added on an ongoing basis.</p>
2004–05 2005–06 2006–07	Compendium	<p>In progress</p> <p>The draft compendium of forest research was being compiled.</p>
2007–08 2008–09	Compendium	<p>In progress</p> <p>Forests NSW published an annual report on its forest research activities, which included a compilation of all publications and conference papers, published throughout the year.</p> <p>Forests NSW became a supporting member of the CRC for Forestry. Other forestry research relevant to NSW was provided through national organisations, including the CSIRO, FWPA, and the Joint Venture Agroforestry Program. It is available at: www.crcforestry.com.au.</p>
2009–10	Compendium	Ceased to report

Although prior to the commencement of the RFAs, a compendium of Australian research was prepared in 1994³⁹³ and 1995³⁹⁴. These are mentioned here for historical reasons.

In 2012, the Cooperative Research Centre for Forestry published *Ideas to impact: 21 years of forestry innovation*. The document provides case studies for 13 innovations developed by the CRC for Forestry (or its predecessors) over 21 years of operation and is publicly available³⁹⁵.

³⁹³ Fryer JH, Davey SM & Hoare, JRL 1994, *Forest and wood products compendium of Australian research-in-progress*, Commonwealth Bureau of Resource Sciences, Canberra.

³⁹⁴ Hoare JRL, Davey SM & Wayth SG 1995, *Forest and wood products compendium of Australian research in progress*, Canberra.

³⁹⁵ CRC for Forestry 2012, *Ideas to impact: 21 years of forestry innovation*, accessed 16 November 2016, www.crcforestry.com.au/publications/downloads/CRCForestry-Ideas-to-impact-ONLINE-FINAL.pdf

Appendix M Forest health and biosecurity selected publications list

OEH research documents

- Crowther MS, Lunney D, Lemon J, Stalenberg E, Wheeler R, Madani G, Ross KA and Ellis M 2013, Climate-mediated habitat selection in an arboreal folivore, *Ecography* 37(4): 336–43.
- Crowther MS, McAlpine CA, Lunney D, Shannon I and Bryant JV 2009, Using broad-scale, community survey data to compare species conservation strategies across regions: A case study of the Koala in a set of adjacent 'catchments', *Ecological Management and Restoration* 10 (S1): 88–96.
- Downing AJ, Peacock RJ and Ramsay H 2014, New records and some interesting bryophytes from Antarctic Beech (*Nothofagus moorei*) forests of north east New South Wales, *Telopea* 17: 239–50.
- Hutchings P, Lunney D and Dickman C (eds) 2004, *Threatened Species Legislation: is it just an Act?*, Royal Zoological Society of New South Wales, Mosman, NSW.
- Lunney D (ed.) 2004, *Conservation of Australia's Forest Fauna* (second edition), Royal Zoological Society of NSW, Mosman, NSW.
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- Lunney D 2004, The future of Australia's forest fauna revisited, pp.1059–1070 in *Conservation of Australia's Forest Fauna* (second edition), edited by D Lunney, Royal Zoological Society of New South Wales, Mosman, NSW.
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- Lunney D and Hutchings P (eds) 2012, *Wildlife and Climate Change: Towards robust conservation strategies for Australian fauna*, Royal Zoological Society of Sydney, Mosman, NSW, book and e-publication, www.rzsnsw.metapress.com.
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- Lunney D, Gresser S, O'Neill LE, Matthews A and Rhodes J 2007, The impact of fire and dogs on koalas at Port Stephens, New South Wales, using population viability analysis, *Pacific Conservation Biology* 13: 189–201.
- Lunney D, Gresser SM, Mahon PS and Matthews A 2004, Post-fire survival and reproduction of rehabilitated and unburnt koalas, *Biological Conservation* 120: 567–75.

- Lunney D, Hutchings P and Recher HF (eds) 2013, *Grumpy ecologists: the ecological conscience of a nation*, Royal Zoological Society of Sydney, Mosman, NSW.
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- Lunney D, Predavec M, Miller I, Shannon I, Fisher M, Moon C, Matthews A, Turbill J and Rhodes J R 2016, Interpreting patterns of population change in koalas from long-term datasets in Coffs Harbour on the north coast of New South Wales, *Australian Mammalogy* 38: 29–43.
- Lunney D, Wells A and Miller I 2016, An ecological history of the Koala in Coffs Harbour and its environs, on the mid-north coast of New South Wales, c1861–2000, *Proceedings of the Linnean Society of NSW* 138: 1–48.
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FCNSW (and its previous entities) and DPI Forest Science have produced a range of research publications, which are documented in Table 80 to Table 88 and are publicly available³⁹⁶. Older publications may only be available in hard-copy.

Table 80: NSW DPI research papers

Author	Year	Title	Other
Edwards D	1982	Pencil streak, stain and decay in Eucalyptus and Syncarpia in New South Wales 28 pp.	Research Paper No. 1, Forestry Commission of NSW
Bridges R	1983	Integrated logging and regeneration in the silvertop ash stringybark forests of the Eden Region 27 pp.	Research Paper No. 2, Forestry Commission of NSW
Mackay S, Humphreys F, Clark R, Nicholson D and Lind P	1984	Native tree dieback and mortality on the New England tablelands of NSW 23 pp.	Research Paper No. 3, Forestry Commission of NSW
Binns D	1988	A preliminary list of vascular plant species for far south-eastern NSW 90 pp.	Research Paper No. 4, Forestry Commission of NSW
Horne R and Robinson G	1988	Response increment: the basis for a <i>Pinus radiata</i> stand growth model 17 pp.	Research Paper No. 5, Forestry Commission of NSW
Horne R and Robinson G	1988	Development of basal area thinning prescriptions and predictive yield models for <i>Pinus radiata</i> plantations in NSW 55 pp.	Research Paper No. 6, Forestry Commission of NSW
Johnson I	1989	Performance of radiata pine in the Shelbourne Gene Pool Trials in NSW 55 pp.	Research Paper No. 7, Forestry Commission of NSW
Grant DJ and Weir G	1989	Machine stress grading of alpine ash 10 pp.	Research Paper No. 8, Forestry Commission of NSW
Edwards D	1989	Eden aquatic biota, microflora and microfauna of Yambulla State Forest catchments 25 pp.	Research Paper No. 9, Forestry Commission of NSW
Knott J and Simpson JA	1992	Development & Practical Application of a Soil Database for the Pinus Plantations of the Bathurst Region 85 pp.	Research Paper No. 11, Forestry Commission of NSW
Bonny L	1991	Growth of a <i>Eucalyptus grandis</i> plantation following intensive silvicultural treatments applied in the first six years 19 pp.	Research Paper No. 12, Forestry Commission of NSW
Grant DJ, Mackenzie CE and Nicol C	1991	Structural engineering properties of cypress pine 12 pp.	Research Paper No. 13, Forestry Commission of NSW

³⁹⁶ DOI 2017, *Forestry: science and research*, accessed 2 August 2017
www.crownland.nsw.gov.au/forestry/science-and-research

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Bruskin S	1992	Effects of silvicultural treatments on spotted gum mining timber production 10 pp.	Research paper No. 14, Forestry Commission of NSW
Cheney N, Gould J and Knight I	1992	A Prescribed Burning Guide for Young Regrowth Forests of Silvertop Ash 100pp.	Research Paper No. 16, Forestry Commission of NSW
Turner J, Lambert M and Knott J	1996	Nutrient inputs from rainfall in New South Wales State Forests 49 pp.	Research Paper No. 17, Forestry Commission of NSW
Jurskis V and Grigg A	1996	Flowering and seeding of <i>Eucalyptus fastigata</i> in south eastern New South Wales 37 pp.	Research Paper No. 18, State Forests of NSW
Birk EM	1992	Incidence of stem and branch defects in <i>Pinus radiata</i> D.Don on former pasture sites in southern New South Wales 16 pp.	Research Paper No. 19, Forestry Commission of NSW
Ryan P	1995	Factors Affecting the Establishment & Management of Tree Stands on Rehabilitated Coal Mines in the Hunter Valley, NSW 293 pp.	Research Paper No. 21, State Forests of NSW
Jurskis V, Rowell D and Ridley D	1994	Survey techniques and aspects of the ecology of the Koala near Eden 79 pp.	Research Paper No. 22, State Forests of NSW
Bi H	1994	Volume equations for six Eucalyptus species on the south-east tablelands of New South Wales 14 pp.	Research Paper No. 23, State Forests of NSW
Bi H	1994	South-east regrowth forest growth and yield modelling: design, methods and progress 38 pp.	Research Paper No. 24, State Forests of NSW
Lacey ST, Ryan PJ, Huang J and Weiss DJ	1994	Soil physical property change from forest harvesting in New South Wales 81 pp.	Research Report No. 25, State Forests of NSW
Gardner WD, Simpson JA and Eldridge RH	1994	Wedding Bells State Forest pole test site, Report of the 1991 installation 66 pp.	Research Paper No. 26, State Forests of NSW
Stone C, Spolc D and Urquhart CA	1995	Survey of crown dieback in moist hardwood forests in Central and Northern Regions of New South Wales State Forests (Psyllid/Bell Miner Research Programme) 54 pp.	Research Paper No. 28, State Forests NSW
Turner J, Lauck V, Dawson J and Lambert M	1996	Water quality monitoring strategies for forest management: a case study at Bago State Forest 25 pp.	Research Paper No. 30, State Forests of NSW
Turner J, Lambert M and Dawson J	1996	Water quality monitoring strategies for forest management: a case study in the Towamba Valley Catchment 32 pp.	Research Paper No. 31, State Forests of NSW
Gardner W and Whitlock J	2005	Flame spread in corridors – Project report 124 pp.	Research Paper No. 32, Forests NSW
Harper PB and Lacey ST	1997	A review of findings from the Yambulla Catchments Forest Hydrology Research Project 1977–1990 41 pp.	Research Paper No. 33, State Forests of NSW, Forest Research and Development Division, Sydney 41pp.
Jurskis V and Potter M	1997	Koala surveys, ecology and conservation at Eden 70 pp.	Research Paper No. 34, State Forests of NSW
Simpson J, Stone C and Eldridge R	1997	Eucalypt plantation pests and diseases – crop loss study 47 pp.	Research Paper No. 35, State Forests of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Major E, Cornish P and Whiting J	1998	Red Hill hydrology project establishment report including a preliminary water yield analysis 24 pp.	Research Paper No. 36, State Forests of NSW
Johnson I and Arnold R	2000	<i>Eucalyptus dunnii</i> provenance-family trials in northern New South Wales – age three-year assessment, a State Forests/CSIRO collaborative project 28 pp.	Research Paper No. 37, State Forests of NSW
Walsh P and Lacey S	2003	A survey and assessment of post-harvest erosion within native forests managed by State Forests of New South Wales 46 pp.	Research Paper No. 38, State Forests of NSW
Erskine W	2005	Mass movement hazard assessment associated with harvesting of the 1962 age class of Monterey pine (<i>Pinus radiata</i> D.Don) in Canobolas State Forest New South Wales 62 pp.	Research Paper No. 39, Forests NSW
Bridges R	2005	Effects of logging and burning regimes on forest fuel in dry sclerophyll forests in south-eastern New South Wales, Initial results (1986–1993) from the Eden Burning Study Area 79 pp.	Research Paper No. 40, Forests NSW
Ximenes F, Gardner W and Marchant J	2005	Carbon flow following the harvest of blackbutt trees and their conversation into sawn products 38 pp.	Research Paper No. 41, Forests NSW
Bridges RG	2009	Effects of Logging & Burning Regimes on Overstorey Species of Dry Sclerophyll Forest in South Eastern NSW – Initial Results (1986–2001) from Eden Burning Study Area 38 pp.	Research Paper No. 42, State Forests of NSW

Table 81: NSW DPI – Forest research technical papers

Author	Year	Title	Other
Forestry Commission of NSW	1963	Seminar on Management of Low Site Quality Plantations – Moss Vale March 1963	Technical Paper No. 1, Forestry Commission of NSW
Baur G	1963	Observations on the Growth of Coachwood (<i>Ceratopetalum apetalum</i> D.Don) in a Selection Forest 31 pp.	Technical Paper No. 2, Forestry Commission of NSW
Forestry Commission of NSW	1963	Seminar on Economics of Forestry 63 pp.	Technical paper No. 3, Forestry Commission of NSW
Casimir P	1963	Pre-Emergent Weedicides in Forest Nurseries – Green Hills State Forest No. 657 37 pp.	Technical Paper No. 4, Forestry Commission of NSW
Lindsay A	1967	Forest Types of the NSW Cypress Pine Zone 52 pp.	Technical Paper No. 8, Forestry Commission of NSW
Forestry Commission of NSW	1966	Major Plantation Species of NSW 52 pp.	Technical Paper No. 11, Forestry Commission of NSW
Forestry Commission of NSW	1966	The Effects of Fire on Forest Conditions, Fire Research Meeting, Taree, 23–25 November 1966	Technical Paper No. 13, Forestry Commission of NSW
Truman R	1967	Weed Control Research 1946–1967 182 pp.	Technical Paper No. 14, Forestry Commission of NSW
Hartigan D	1968	Mycorrhizas – An Evaluation Based on Australian Forestry 12 pp. Weed Control Research 1947–1967 182 pp.	Technical Paper No. 16, Forestry Commission of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Truman RA and Turner J	1972	Mineral Deficiency Symptoms in <i>Eucalyptus Pilularis</i> 18 pp.	Technical Paper No. 18, Forestry Commission of NSW
Truman R	1972	The Detection of Mineral Deficiencies in <i>Pinus elliotii</i> , <i>Pinus radiata</i> & <i>Pinus taeda</i> by Visual Means 18 pp.	Technical Paper No. 19, Forestry Commission of NSW
Lacey C	1972	Factors Influencing Occurrence of Cypress Pine Regeneration in NSW 21 pp.	Technical Paper No. 21, Forestry Commission of NSW
Davies N, Watt A and Deacon G	1974	A Financial Analysis of the Eden Hardwood Project 24 pp.	Technical Paper No. 22, Forestry Commission of NSW
Humphreys F and Ironside G	1977	Charcoal from NSW Species of Timber – 2nd Edition 45 pp.	Technical Paper No. 23, Forestry Commission of NSW
Grant D and Anton A	1976	The Effect of Change of Temperature On the Apparent Modulus of Elasticity of Radiata Pine Scantling with Particular Reference to Mechanical Stress Grading	Technical Paper No. 26, Forestry Commission of NSW
Anton A	1978	Mechanical Stress – Grading of Ladder Stiles 14 pp.	Technical Paper No. 27, Forestry Commission of NSW
Hoschke F	1976	Forins Forest Resource Inventory of the State 1971–1972 26 pp.	Technical Paper No. 28, Forestry Commission of NSW
Grant D	1977	Mnemotype Timber Grading Machine Deflection Reading Storage Unit 13 pp.	Technical Paper No. 29, Forestry Commission of NSW
Hoschke F and Squire R	1978	Review of Forins (Forest Resource Inventory System) Interim Report 1976 13 pp.	Technical Paper No. 30, Forestry Commission of NSW
Gerrettson-Cornell L and Gwalter J	1985	A Numerical Key for the Identification of Species of <i>Streptomyces</i> & <i>Streptoverticillium</i> included in the International <i>Streptomyces</i> Project 157 pp.	Technical Paper No. 31, Forestry Commission of NSW
Shields J and Kavanagh R	1985	Wildlife Research & Management in the Forestry Commission of NSW – A Review	Technical Paper No. 32, Forestry Commission of NSW
Lambert MJ and Turner J	1986	Bibliography of References Related to Nutrition & Nutrient Cycling in <i>Pinus radiata</i> 69 pp.	Technical Paper No. 33, Forestry Commission of NSW
Horne R	1986	The Philosophy & Practice of <i>P radiata</i> Plantation Silviculture in NSW 49 pp.	Technical Paper No. 34, Forestry Commission of NSW
Ryan PJ and Holmes GI	1986	Geology of Jenolan, Hampton and Blenheim State Forests 33 pp.	Technical Paper No. 35, Forestry Commission of NSW
Gardner WD and Thomson CR	1989	Flame Spread Properties of Forest Products – Comparison & Validation of Australian & North American Flame Spread Test Methods 36 pp.	Technical Paper No. 36, Forestry Commission of NSW
Ryan PJ and Holmes GI	1986	Geology of Hanging Rock & Nundle State Forests, 26 pp.	Technical Paper No. 37, Forestry Commission of NSW
Webb GA	1987	Larval Hosts Plants of Cerambycidae (Coleoptera) Held in Some Australian Insect Collections, 20 pp.	Technical Paper No. 38, Forestry Commission of NSW
Bonny L	1987	Seed Germination Test Methods Used for Australian Tree Species at Coffs Harbour Research Centre 39 pp.	Technical Paper No. 39, Forestry Commission of NSW
Johnson I	1987	The Management Strategy for Radiata Pine Tree Improvement in NSW – Part 1 History of Improvement Work 1958–1986 & A Review of Genetic Gains 142 pp.	Technical Paper No. 40, Forestry Commission of NSW
Hartley J and Marchant J	1995	Methods of determining the moisture content of wood 53 pp.	Technical Paper No. 41, State Forests of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Cornish P	1988	Streamwater turbidities in Adelong Creek Catchment, Tumut Shire 33 pp.	Technical Paper No. 42, Forestry Commission of NSW
Ksiazek E and Wade J	1989	Regrowth eucalypt for plywood production 16 pp	Technical Paper No. 43, Forestry Commission of NSW
Gardner WD	1989	Wedding Bells State Forest pole test. A review of the original installation 38 pp.	Technical Paper No. 44, Forestry Commission of NSW
Gerrettson-Cornell L	1994	A compendium and classification of the species of the genus <i>Phytophthora</i> de Bary by the canons of the traditional taxonomy 103 pp.	Technical Paper No. 45, State Forests of NSW
Birk EM, Fulton JA and Hotham CP	1989	Description and assessment of stem form in radiata pine 35 pp.	Technical Paper No. 46, Forestry Commission of NSW
Johnson IG	1989	The breeding strategy for radiata pine in New South Wales, Part II – proposed operations 63 pp	Technical Paper No. 47, Forestry Commission of NSW
Ryan PJ, Williams RD and Mackay SM	1990	Tantawangalo research catchments, 1. Soil variability in relation to terrain 22 pp.	Technical Paper No. 48, Forestry Commission of NSW
Cornish PM	1989	The Effects of Radiata Pine Plantation Establishment & Management on Water Yields & Water Quality – A Review 59 pp.	Technical Paper No. 49, Forestry Commission of NSW
Knott J and Turner J	1990	Fertilizer usage in Forestry Commission of NSW exotic conifer plantations 1955–1989 95 pp.	Technical Paper No. 51, Forestry Commission of NSW
Wade J and Ksiazek E	1990	Alpine ash (<i>E. delegatensis</i> R.T. Bak) for plywood production 24 pp.	Technical Paper No. 52, Forestry Commission of NSW
Bruskin S and Horne R	1991	An analysis of growth data from eucalypt stands in the coastal forests of the Eden region 20 pp.	Technical Paper No. 53, Forestry Commission of NSW
Horne R	1994	Thinning schedules for blackbutt regrowth forests 16 pp.	Technical Paper No. 54, State Forests of NSW
Wade J	1991	Peeling and gluing of New South Wales eucalypts 15 pp.	Technical Paper No. 55, Forestry Commission of NSW
Bacon PE, Stone C, Binns DL, Edwards, DE and Leslie DJ	1993	Inception report on development of watering strategies to maintain the Millewa group of river red gum (<i>Eucalyptus camaldulensis</i>) forests 96 pp.	Technical Paper No. 56, Forestry Commission of NSW
Read D	1993	Prescriptions for the identification of habitats of the Hastings River Mouse <i>Pseudomys oralis</i> (Rodentia:Muridae) 9 pp.	Technical Paper No. 58, Forestry Commission of NSW
Turner J	1995	Field methods manual	Technical Paper No. 59, Forestry Commission of NSW
Turner J	1993	Research and ecologically sustainable forest management – a discussion paper 26 pp.	Technical Paper No. 61, State Forests of NSW
Tweedie T and York A	1993	Survey Guidelines for the Hastings River Mouse (<i>Pseudomys oralis</i>) 12 pp.	Technical Paper No. 62, Forestry Commission of NSW
Johnson I and Nikles D	1997	Plan for developing and deploying genetically-improved varieties of blackbutt (<i>Eucalyptus pilularis</i> Smith) in New South Wales 101 pp.	Technical Paper No. 63, State Forests of NSW
Unwin GL and Kriedemann PE	2000	Principles and processes of carbon sequestration by trees 20 pp.	Technical Paper No. 64, State Forests of NSW
George B	2000	Commercial and environmental values of farm forestry in the Murray–Darling Basin irrigation areas, Proceedings of Workshop held at Deniliquin, New South Wales, July 1999 73 pp.	Technical Paper No. 65, State Forests of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Kelly GL (ed.)	1998	Beneficial use of biosolids in forestry and agriculture. Proceedings of workshop held at Research and Development Division, State Forests of New South Wales, 22 June 1998 39 pp.	Technical Paper No. 66, State Forests of NSW
Binns D and Bridges G	2003	Ecological impacts and sustainability of timber harvesting and burning in coastal forests of the Eden area. Establishment and progress of the Eden Burning Study 142 pp.	Technical Paper No. 67, State Forests of NSW
Montagu K, Cowie A, Rawson A, Wilson B and George B	2003	Carbon sequestration predictor for land use change in inland areas of New South Wales – background, user notes, assumptions and preliminary model testing. Version 2.0. 35 pp. + CD (Model).	Technical Paper No. 68, State Forests of NSW
Walsh P, Montagu K, Royal B and Dobson S	2005	Targeting planted forests for dryland salinity control 37 pp.	Technical Paper No. 69, State Forests of NSW
Gerrettson-Cornell L	2005	Note on the actinomycetes of the <i>Streptomyces hygrosopicus</i> -like complex in traditional taxonomy 21 pp.	Technical Paper No. 70, State Forests of NSW
Ximenes F and Gardner W	2005	Production and use of forest products in Australia 30 pp.	Technical Paper No. 71, State Forests of NSW
Barton C and Parekh J	2005	Species demonstration trials in the 500–700 mm rainfall zone of New South Wales – Establishment 38 pp.	Technical Paper No. 72, State Forests of NSW

Table 82: NSW DPI – Technical publication series

Author	Year	Title	Other
State Forests of NSW	1995	Timber for External Uses	Technical Publication No. 6, State Forests of NSW
State Forests of NSW	1995	Forest Products used in NSW of Domestic Construction	Technical Publication No. 1, State Forests of NSW
Bamber RK and Fukazawa K	1987	Sapwood & Heartwood	Technical Publication No. 2, State Forests of NSW
State Forests of NSW	1996	Finishes for Exterior Timber Surfaces	Technical Publication No. 3, State Forests of NSW
State Forests of NSW	1996	Timber in Boatbuilding	Technical Publication No. 5, State Forests of NSW
State Forests of NSW	1995	The Bending of Timber	Technical Publication No. 7, State Forests of NSW
State Forests of NSW	1995	Some Important Factors Often Overlooked in House Construction & the Role of Timber in Better Building	Technical Publication No. 8, State Forests of NSW
Lamond A and Hartley J	1991	Seasoning of Timber	Technical Publication No. 9, State Forests of NSW
State Forests of NSW	1995	Flooring Timbers of NSW	Technical Publication No. 10, State Forests of NSW
State Forests of NSW	1995	Ventilation Under Timber Floors	Technical Publication No. 11, State Forests of NSW
State Forests of NSW	1995	The Finishing & Maintenance of Timber Floors	Technical Publication No. 12, State Forests of NSW
State Forests of NSW	1996	Kiln Drying	Technical Publication No. 20, State Forests of NSW

Table 83: NSW DPI – Forest resources series

Author	Year	Title	Other
Fanning FD and Mills K	1989	Natural resource survey of the southern portion of Rockton Section, Bondi State Forest 166 pp.	Forest Resources Series No. 6, Forestry Commission of NSW
Fanning FD and Rice B	1989	Natural resource survey of the northern portion of Rockton Section, Bondi State Forest 176 pp.	Forest Resources Series No. 7, Forestry Commission of NSW
Fanning FD	1990	A natural resource survey of Rockton Section, Bondi State Forest. III – birds, reptiles and amphibians 51 pp.	Forest Resources Series No. 8, Forestry Commission of NSW
Binns DL and Kavanagh RP	1990	Flora and fauna survey of Nalbaugh State Forest (part) Bombala District, Eden Region, south-eastern NSW 130 pp.	Forest Resources Series No. 9, Forestry Commission of NSW
Binns D and Kavanagh R	1990	Flora and fauna survey. Nullica State Forest (part), Eden District, Eden Region 100 pp.	Forest Resources Series No. 10, Forestry Commission of NSW
Fanning FD and Mills K	1990	Flora and fauna survey of the Myanba Creek catchment, Coolangubra State Forest, Eden Region 302 pp.	Forest Resources Series No. 11, Forestry Commission of NSW
Fanning FD and Fatchen TJ	1990	The Upper Wog Wog River catchment of Coolangubra and Nalbaugh State Forest, (Mines Road Area) New South Wales. A fauna and flora survey 315 pp.	Forest Resources Series No. 12, Forestry Commission of NSW
Fanning FD and Mills K	1991	The Stockyard Creek catchment of Coolangubra State Forest, New South Wales. A fauna and flora survey 263pp.	Forest Resources Series No. 13, Forestry Commission of NSW
Fanning FD and Clark SS	1991	Flora and fauna survey of Jingo Creek catchment, Nullica State Forest, Eden Region 148 pp.	Forest Resources Series No. 14, Forestry Commission of NSW
Shields J, York A and Binns D	1992	Flora and fauna survey, Mt Royal management area, Newcastle region	Forest Resources Series No. 16, Forestry Commission of NSW
Stone C	1991	Insect attack of eucalypt plantations and regrowth forests in New South Wales. A discussion paper 13 pp.	Forest Resources Series No. 17, Forestry Commission of NSW
Binns D and Chapman W	1992	Fauna Survey, Wingham Management Area, Port Macquarie Region	Research Series No. 18, Forestry Commission of NSW
York A	1993	Fauna Survey, Wingham Management Area, Port Macquarie Region – Part 1. Mammals	Research Series No. 19, Forestry Commission of NSW
York A and Shields J	1994	Fauna Survey, Wingham Management Area, Port Macquarie Region – Part 2. Birds	Research Series No. 20, Forestry Commission of NSW
Clancy G	1995	Fauna Survey, Wingham Management Area, Port Macquarie Region – Part 3. Reptiles and Amphibians	Research Series No. 21, Forestry Commission of NSW
Richards G	1996	Fauna Survey, Wingham Management Area, Port Macquarie Region – Part 4. Bats	Research Series No. 22, Forestry Commission of NSW
Binns D	1992	Flora Survey, Glen Innes Management Area, Northern Region	Research Series No. 23, Forestry Commission of NSW
Binns D	1995	Flora Survey Dorrigo Three-Year Environmental Impact Statement Area, Northern Region, NSW 114 pp.	Forest Resources Series No. 25, State Forests of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Kavanagh RP and Stanton MA	1995	Nocturnal birds and non-flying mammals. Dorrigo three-year Environmental Impact Statement Area, Northern Region, New South Wales 38 pp.	Forest Resources Series No. 26, State Forests of New South Wales
Kavanagh RP	1995	Nocturnal forest birds and arboreal marsupials of Coolah Tops, Warung Management Area, Western Region 17 pp.	Forest Resources Series No. 28, State Forests of New South Wales
Binns D	1995	Flora survey, Tenterfield Management Area, Northern Region, New South Wales 114 pp.	Forest Resources Series No. 30, State Forests of NSW
Jurskis V, Shiels R and Binns D	1995	Flora survey, Queanbeyan/Badja Environmental impact Statement Area, Southern Region, New South Wales 73 pp.	Forest Resources Series No. 32, State Forests of NSW
Tweedie T, Bruskin S, Chapman W and Heyward R	1995	Flora survey, Urunga and Coffs Harbour Management Areas, Northern Region, New South Wales 103 pp.	Forest Resources Series No. 33, State Forests of NSW
Binns D	1995	Flora survey, Gloucester and Chichester Management Areas, Central Region, New South Wales 88 pp.	Forest Resources Series No. 34, State Forests of NSW
Binns D	1996	Flora survey, Morisset Forestry District Central Region, New South Wales 95 pp.	Forest Resources Series No. 35, State Forests of NSW
Hatich D	1997	Bago-Maragle Hardwood Management Area, NSW – a case study for monitoring ecologically sustainable management 52 pp.	Forest Resources Series No. 37, State Forests of NSW
Lacey ST	1993	Soil deformation and erosion in forestry. Forestry Commission of NSW, Research Division, Sydney 61pp.	Technical Report 62, Forestry Commission of NSW

Table 84: NSW DPI – Forest & Wood Products Research & Development Corporation (FWPRDC) technical publications

Author	Year	Title
Turner J and Pribble J	1996	Evaluation of Santiago Declaration (Montréal Process) Indicators of Sustainability for Australian commercial forests.
Dignan P, Murphy S, Cherry K and Rab A	1996	Evaluation of Santiago Declaration (Montréal Process) Indicators of Sustainability for Australian commercial forests. A Victorian montane forest as a case study.
Turner J	1996	Evaluation of Santiago Declaration (Montréal Process) Indicators of Sustainability for Australian commercial forests. A New South Wales alpine ash forest as a case study.

Table 85: NSW DPI – Research notes

Author	Year	Title	Other
Floyd A	1958	Field Identification of Seedlings of the Major Tree Species in the Blackbutt and Flooded Gum Areas	Research Note No. 1. Forestry Commission of NSW
Floyd A	1960	Investigations Into Sowing of Flooded Gum (<i>Eucalyptus grandis</i>)	Research Note No. 2. Forestry Commission of NSW
Floyd A	1979	NSW Rainforest Trees Part I – Family: Lauraceae	Research Note No. 3. Forestry Commission of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Baur G	1959	Raising & Planting Flooded Gum	Research Note No. 4. Forestry Commission of NSW
Baur G	1960	Nursery Spacing & Grading of Slash Pine Seedlings	Research Note No. 5. Forestry Commission of NSW
Shepherd K	1961	The Effects of Low Pruning on Increment in Radiata Pine Plantations	Research Note No. 6. Forestry Commission of NSW
Floyd A	1981	NSW Rainforest Trees Part II – Families: Cappariaceae, Escalloniaceae, Pittosporaceae, Cunoniaceae, Davidsoniaceae	Research Note No. 7. Forestry Commission of NSW
Baur G	1962	Forest Vegetation in North-Eastern NSW	Research Note No. 8. Forestry Commission of NSW
Baur G	1962	Silvicultural Practices in Rainforests of Northern NSW	Research Note No. 9. Forestry Commission of NSW
Floyd A	1962	Investigations Into the Natural Regeneration of Blackbutt – <i>E. Pilularis</i>	Research Note No. 10. Forestry Commission of NSW
Moore K	1962	Entomological Research on the Cause of Mortalities of <i>Eucalyptus saligna</i> Smith (Sydney Blue Gum)	Research Note No. 11. Forestry Commission of NSW
Moore K	1962	Insect Attack on Pinus Spp.	Research Note No. 12. Forestry Commission of NSW
Moore K	1963	The Cypress Pine Sawfly Subspecies <i>Zenarge Turneri Turneri</i> Rohwer & <i>Zenarge Turneri Rabus</i> Moore	Research Note No. 13. Forestry Commission of NSW
Forrest W	1964	The Effect of Pretreatment on Germination of Slash Pine Seed	Research Note No. 14. Forestry Commission of NSW
Bamber R and Erskine R	1965	Relationship of Vessel Diameter to Lyctus Susceptibility in some NSW Hardwoods	Research Note No. 15 Forestry Commission of NSW
Forrest W and Richardson R	1965	Chemical Control of Forest Weeds	Research Note No. 16 Forestry Commission of NSW
Baur G	1979	Forest Types in New South Wales. \$5.00	Research Note No. 17 Forestry Commission of NSW
Turner BJ	1966	An Investigation Into the Growth of Irregular Eucalypt Stands in NSW	Research Note No. 18 Forestry Commission of NSW
Van Loon AP	1966	Investigations in Regenerating the Tallowwood – Blue Gum Forest Type	Research Note No. 19 Forestry Commission of NSW
Campbell KG and Hadlington P	1967	The Biology of the Three Species of Phasmatids (Phasmatodea) which occur in Plague Numbers in Forests of Southeastern Australia	Research Note No. 20 Forestry Commission of NSW
Van Loon AP	1967	Some Effects of a Wild Fire on a Southern Pine Plantation	Research Note No. 21 Forestry Commission of NSW
Van Loon AP	1969	Investigations into the Effects of Prescribed Burning of Young, Even-Aged Blackbutt – Establishment & Preliminary Progress Report	Research Note No. 23 Forestry Commission of NSW
Curtin RA	1970	Analysis of Growth in a Mixed Eucalypt Forest	Research Note No. 24 Forestry Commission of NSW
Van Loon AP and Love IA	1973	A Prescribed Burning Experiment in Young Slash Pine – I Site Description & Establishment, II First Progress Report	Research Note No. 25 Forestry Commission of NSW
Lacey CJ	1973	Silvicultural Characteristics of White Cypress Pine	Research Note No. 26 Forestry Commission of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Floyd A	1977	Key to Major Rainforest Trees in NSW	Research Note No. 27 Forestry Commission of NSW
Floyd A	1979	NSW Rainforest Trees Part III – Family: Myrtaceae	Research Note No. 28 Forestry Commission of NSW
Lambert M	1976	Preparation of Plant Material for Estimating a Wide Range of Elements	Research Note No. 29 Forestry Commission of NSW
Floyd A	1979	NSW Rainforest Trees Part IV – Family Rutaceae	Research Note No. 30 Forestry Commission of NSW
Eldridge RH	1976	A Laboratory Evaluation of Nine Materials for use in Ground-Line Maintenance of Transmission Poles Against Termite Attack	Research Note No. 31 Forestry Commission of NSW
Floyd A	1977	NSW Rainforest Trees Part V – Families: Sapindaceae, Akaniaceae	Research Note No. 32 Forestry Commission of NSW
Van Loon AP	1977	Bushland Fuel Quantities in the Blue Mountains Litter & Understorey	Research Note No. 33 Forestry Commission of NSW
Floyd A	1981	NSW Rainforest Trees Part VI – Families: Podocarpaceae, Araucariaceae, Cupressaceae, Fagaceae, Ulmaceae, Urticaceae	Research Note No. 34 Forestry Commission of NSW
Floyd A	1978	NSW Rainforest Trees Part VII – Families: Proteaceae, Santalaceae, Nyctaginaceae, Gyrostemonaceae, Annonaceae, Eupomatiaceae, Monimiaceae	Research Note No. 35 Forestry Commission of NSW
Turner J, Lambert MJ and Edwards DW	1979	A Guide to Identifying Nutritional & Pathologic Disorders of <i>Pinus radiata</i>	Research Note No. 36 Forestry Commission of NSW
Bacon AD	1979	Summary of Nursery Research 1967–1976	Research Note No. 37 Forestry Commission of NSW
Floyd A	1979	NSW Rainforest Trees Part VIII – Families: Mimosaceae, Caesalpiniaceae, Papilionaceae, Simaroubaceae, Burseraceae, Meliaceae	Research Note No. 38 Forestry Commission of NSW
Grant DJ	1979	Effect of Test Span on the Apparent Modulus of Elasticity of Radiata Pine Timber in Scantling Sizes	Research Note No. 39 Forestry Commission of NSW
Forestry Commission of NSW	n.d.	Card Key For the Identification of the Commercial Timbers used in NSW 93pp.	Research Note No. 40 Forestry Commission of NSW
Floyd A	1980	NSW Rainforest Trees Part IX – Families: Euphorbiaceae, Anacardiaceae, Corynocarpaceae, Celastraceae, Siphonodontaceae, Icacinaceae	Research Note No. 41 Forestry Commission of NSW
Recher H, Rohan-Jones W and Smith P	1980	Effects of the Eden Woodchip Industry on Terrestrial Vertebrates with Recommendations for Management	Research Note No. 42, Forestry Commission of NSW
Floyd A	1980	NSW Rainforest Trees Part X – Families: Rhamnaceae, Elaeocarpaceae, Malvaceae, Sterculiaceae, Eucryphiaceae, Flacourtiaceae, Thymelaeaceae	Research Note No. 43 Forestry Commission of NSW
Humphreys FR and Ironside GE	1980	Charcoal from NSW Species of Timber – 3rd Edition	Research Note No. 44 Forestry Commission of NSW
Lambert MJ	1981	Inorganic Constituents in Wood & Bark of NSW Forest Tree Species	Research Note No. 45 Forestry Commission of NSW

NSW Regional Forest Agreements Implementation Report 2004–2014

Author	Year	Title	Other
Gerrettson-Cornell L and Kelly J	1981	Notes on the Actinomycetes of a Forest Soil in NSW – 1 Isolation & Preliminary Characterization	Research Note No. 46 Forestry Commission of NSW
Forestry Commission of NSW	n.d.	Forest Preservation in State Forests in New South 147 pp.	Research Note No. 47 Forestry Commission of NSW
Floyd A	1982	NSW Rainforest Trees Part XI – Families: Araliaceae, Alangiaceae, Epacridaceae, Myrsinaceae, Sapotaceae, Ebenaceae, Symplocaceae, Oleaceae	Research Note No. 48 Forestry Commission of NSW
Floyd A	1983	NSW Rainforest Trees Part XII – Families: Loganiaceae, Apocynaceae, Boraginaceae, Verbenaceae, Solanaceae, Myoporaceae, Rubiaceae, Asteraceae	Research Note No. 49 Forestry Commission of NSW
Floyd A	1984	Index of NSW Rainforest Trees Parts I to XII	Forestry Commission of NSW

Table 86: NSW DPI – Technical publications

Author	Year	Title	Other
State Forests of NSW	1995	Forest products used in New South Wales for domestic construction	Technical Publication No. 1. State Forests of NSW
State Forests of NSW	1996	Finishes for exterior timber surfaces	Technical Publication No. 3. State Forests of NSW
State Forests of NSW	1996	Timber in boatbuilding	Technical Publication No. 5. State Forests of NSW
State Forests of NSW	1995	Timber for external uses	Technical Publication No. 6. State Forests of NSW
State Forests of NSW	1995	Bending of timber	Technical Publication No. 7. State Forests of NSW
State Forests of NSW	1995	Some important factors often overlooked in house construction and timber's role in better building	Technical Publication No. 8. State Forests of NSW
Lamond A & Hartley J	1991	Seasoning of timber (old series)	Technical Publication No. 9. State Forests of NSW
State Forests of NSW	1995	Flooring timbers of New South Wales	Technical Publication No. 10. State Forests of NSW
State Forests of NSW	1995	Ventilation under timber floors	Technical Publication No. 11. State Forests of NSW
State Forests of NSW	1995	The finishing and maintenance of timber floors	Technical Publication No. 12. State Forests of NSW
State Forests of NSW	1996	Timber species, properties and uses (photocopy only available) – Available from FNSW Library only	Technical Publication No. 13. State Forests of NSW
State Forests of NSW	1996	Kiln drying Free	Technical Publication No. 20. State Forests of NSW
Horwood MA & Eldridge RH	2005	Termites in New South Wales. Part 1. Termite biology (see Online publications below)	Technical Publication No. 21. State Forests of NSW
Horwood MA & Eldridge RH	2005	Termites in New South Wales. Part 2. Termite infestations: inspection, detection (see Online publications below)	Technical Publication No. 22. State Forests of NSW

Table 87: NSW DPI – Forest protection manual (leaflets)

Author	Year	Title	Other
Urquhart C	1995	General – Collecting insects for identification	Forest Protection Series No. G1, State Forests of NSW
Eldridge RH, Kent DS and Urquhart CAP	1996	Control – Control of insects on eucalypts	Forest Protection Series No. C1. State Forests of NSW. 3pp. + insert.
Stone C and Urquhart CA	1995	Forest Protection – Psyllids – insect pests of eucalypts	State Forests NSW Research Division Forest Protection Series No. 7, 4pp.
Stone C	1995	Insect damage in young eucalypt plantations – an introduction	State Forests NSW Research Division Forest Protection Series (Eucalypt Plantations) No. E1, 4pp.
Urquhart C	1995	Christmas beetles	Forest Protection Series No. E2, State Forests of NSW
Urquhart C and Stone C	1995	Psyllids in eucalypt plantations	Forest Protection Series No. E3, State Forests of NSW
Kent D	1995	Leafblister sawflies	Forest Protection Series No. E4, State Forests of NSW
Kent D	1995	Eucalypt sawflies	Forest Protection Series No. E5, State Forests of NSW
Waterson D and Urquhart C	1995	Leaf beetles Free	Forest Protection Series No. E6, State Forests of NSW
Waterson D	1995	Gumleaf skeletoniser	Forest Protection Series No. E7, State Forests of NSW
Eldridge RH	1995	Autumn gum moth	Forest Protection Series No. E8. State Forests of NSW. 3pp.
Kent D	1996	Cup moths	Forest Protection Series No. E9, State Forests of NSW
Kent D	1997	Beneficial insects	Forest Protection Series No. E10, State Forests of NSW

Table 88: NSW DPI – Online publications

Author	Year	Title
Lacey S	2000	Studies of Runoff and Soil Erosion Following Native Forest Logging in Northern New South Wales (PDF file 1.24MB) Reports results of research on soil loss rates from snig tracks after logging and the effect of undisturbed forest floor on sediment trapping (Masters thesis).
Smith RGB, Palmer G, Davies M and Muneri A	2003	A method enabling the reconstruction of internal features of logs from sawn lumber: The log end template (PDF file 108KB)
Horwood MA and Eldridge RH	2005	Termites in New South Wales Part 1. Termite biology Part 2. Termite infestations: Inspection, detection and treatment
Horwood MA and Eldridge RH	2005	Technical Publication Number 21 and Number 22 Part 1 covers aspects of termite biology and ecology and explains how to identify the different types of termites. Part 2 gives a detailed, up-to-date description of how to manage termite infestations.

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- ABARES 2013a, *Australia's State of the Forest Report 2013*, Australian Bureau of Agricultural and Resource Economics and Sciences, accessed 9 November 2016
www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2013
- ABARES 2013b, *Australian plantation statistics 2013 update*, Australian Bureau of Agricultural and Resource Economics and Sciences, accessed 9 November 2016
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- ABARES 2014a, *Australian plantation statistics 2014 update*, Australian Bureau of Agricultural and Resource Economics and Sciences, accessed 9 November 2016
http://pandora.nla.gov.au/pan/129054/20140922-0000/AustPlantationStats_2014_v.1.0.0.pdf
- ABARES 2014b, *Australia's forests at a glance 2014: with data to 2012–13*, Australian Bureau of Agricultural and Resource Economics and Sciences, accessed 9 November 2016
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NSW Regional Forest Agreements

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