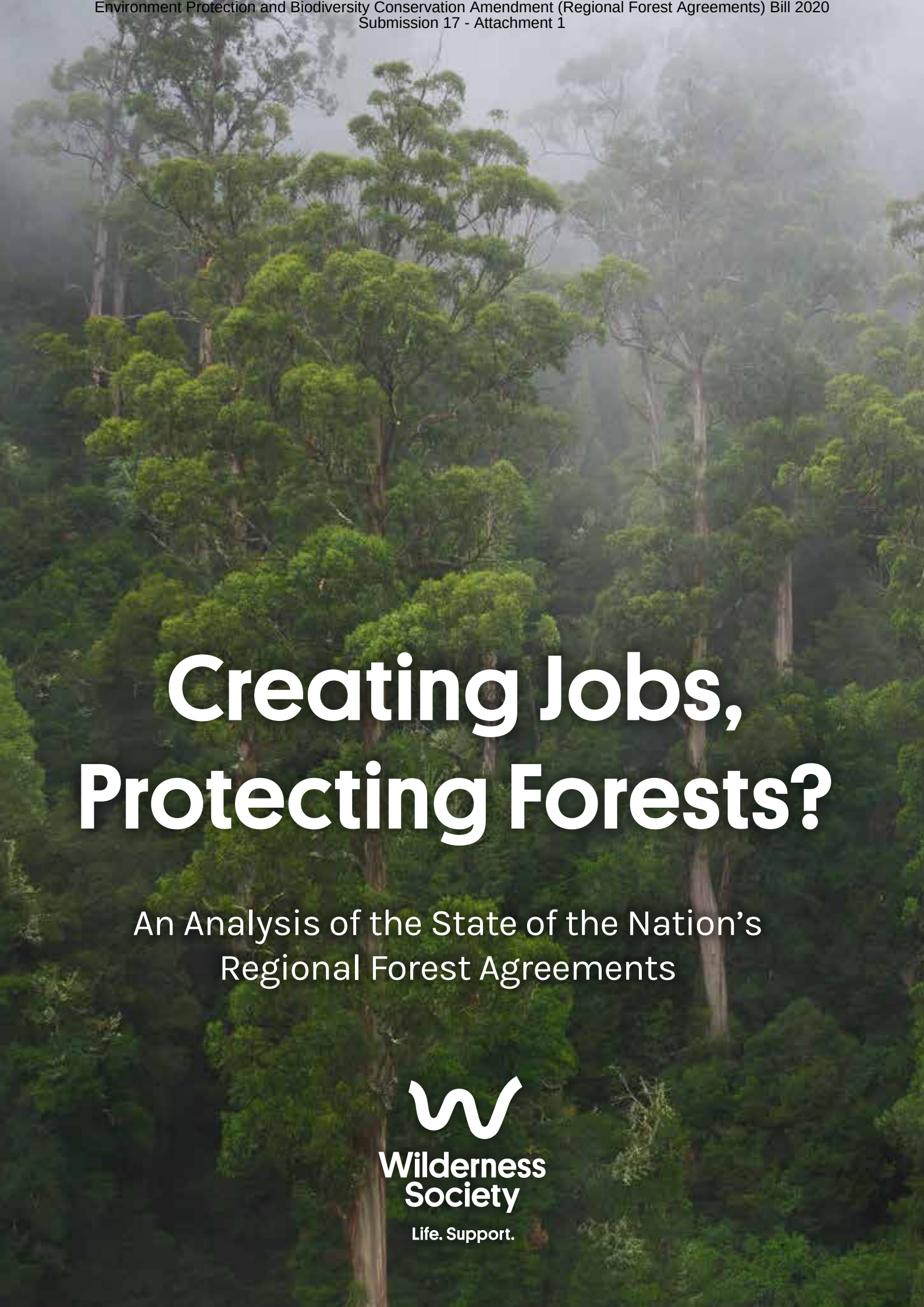

Creating Jobs, Protecting Forests?

An Analysis of the State of the Nation's Regional Forest Agreements

Wilderness Society

Life. Support.

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Wilderness Society
Life. Support.

The Wilderness Society recognises Australia's Aboriginal and Torres Strait Islander communities as the Traditional Owners and custodians of all Country in Australia and pays its respect to Elders past and present. We acknowledge that this land was never ceded. We support efforts to progress recognition of the distinct rights of Indigenous peoples as well as reconciliation, land justice and equality. We welcome actions that better seek to identify, present, protect and conserve Aboriginal cultural heritage, irrespective of where it is located.

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Executive summary

Regional Forest Agreements (RFAs) are 20-year agreements entered into between the Commonwealth and the New South Wales, Victorian, Tasmanian and Western Australian governments between 1997 and 2001. They provide the framework for native forest management in Australia. The RFAs came about in response to bitter conflict over the use and management of public native forests, and were intended to provide for the needs of conservation and industry by establishing a Comprehensive, Adequate and Representative (CAR) Reserve System, sustainably managing areas available for logging outside of reserves and providing secure access to the forest resource for the native forest logging and log processing industry ('native forest logging industry').

This report examines the extent to which the RFAs have achieved their intended outcomes, and their capacity to achieve them in the future. This is particularly relevant in light of the independent review of the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act 1999*) underway at the time of the publishing of this report.

An assessment of key indicators of success of the RFAs' intended outcomes was undertaken, to determine the overall effectiveness of the RFAs in reaching their aims. The assessment has revealed that the RFAs have not been successful in achieving their intended outcomes. While the establishment of the CAR Reserve System made a significant contribution to forest conservation in Australia, it is based on outdated science and standards that have since been superseded. Many forest-dependent threatened species are closer to extinction than 20 years ago, and the native forest logging industry has undergone substantial declines in production and employment since establishment of the RFAs.

The recent catastrophic Australian bushfires and Federal Court ruling that state-owned logging agency VicForests breached the *EPBC Act 1999* in a series of logging coupes raises further serious questions about the operation and effectiveness of the RFAs.

All of the RFAs have recently been renewed, with those in New South Wales and Western Australia until 2039, Tasmania until 2037, and Victoria until 2030. This is despite the absence of comprehensive reviews of their effectiveness and operation over the last 20 years. This report demonstrates the importance of properly reviewing the performance of each of the RFAs in detail, especially considering potential factors that may limit the effectiveness of the RFAs' operation in the future, including climate change, changing market demands (noting especially recent market rejection of non-FSC Full Forest management certified products produced from RFA-logging), loss of social license and competing forest values. It emphasises the need to address the serious shortcomings of the RFAs as part of the *EPBC Act 1999* review.

Key findings

- The CAR Reserve System is based on outdated science and technology. Standards for minimum percentage ecosystem reservation thresholds of 15% have been superseded by Australia's international commitment to preserve a minimum of 17% of ecosystem types. Additionally, many of the accredited CAR reserves ('informal reserves') lack any secure protection.

- More than a quarter of all Federally-listed forest-dependent threatened species that were listed as threatened when the RFAs were signed are closer to extinction than they were 20 years ago.

- Volumes of logs removed from native forests have declined by 63% between 2000 – 2017.

- Five-yearly reviews have been consistently late by three years on average. The first RFA to be signed in 1997 was not reviewed until 2010, 13 years after it was signed.

- Climate change, altered fire regimes, changing consumer demand and competing forest uses threaten the RFAs' capacity to achieve their intended outcomes into the future.

- The 2019/20 Australian bushfires decimated vast areas of state forest within mainland RFA areas. This includes 69% of the Eden RFA area in New South Wales and 83% in the East Gippsland RFA area of Victoria. Despite this, there is no automatic trigger compelling a review of RFAs after such a catastrophic event. A Major Event Review in Victoria is now possible, given the recently re-signed, and amended RFAs in that state. At the time of writing one has not been triggered. There is no such clause in other RFAs and, there are no reviews currently planned for the RFAs in New South Wales, or elsewhere.

- The recent Federal Court ruling that found that state-owned logging agency VicForests breached the code of practice under the Central Highlands RFA and therefore was not exempt under the *EPBC Act 1999*, has profound implications for the RFAs. It throws into doubt the legality of the exemption for all RFAs.

Recommendations

Law reform: The exemption for native forest logging activities under the *EPBC Act 1999* should be removed. Important RFA outcomes and obligations should be legally mandated, such as minimum thresholds for areas to be included in the CAR Reserve System, implementing threatened species recovery actions, and incorporating stakeholder feedback.

Radically overhaul native forest management: All of the RFAs have recently been extended for a decade (Victoria) or more (two decades elsewhere). There is substantial evidence, including set out in this report that RFAs have demonstrably failed to meet their intended outcomes. Given this, governments should implement a framework that *will* achieve intended outcomes. Reform of the *EPBC Act 1999* presents one such opportunity.

Consistency, appropriate monitoring and reporting, and measurable outcomes: The various accredited state frameworks for forest management are vastly different, with different degrees of accountability, transparency and adaptability incorporated into them. Reporting is ad hoc and inconsistent. Indicators of success should be measurable and quantifiable, and comparable from year to year and between states.

Genuine commitments to conservation and secure industries: At present, governments are satisfied that the RFAs 'provide for' the protection of nature and industry security despite clear evidence to the contrary. Appropriate changes need to be made to the RFAs if agreed, measurable and demonstrable outcomes are to be achieved. There should be a full, independent scientific review of the CAR reserve system established as part of the RFAs, threatened species management and the extent to which industry stability can be guaranteed by a RFA,including in light of the 2019/20 bushfires.

Accountability and enforcement: Effective management of the CAR Reserve System and threatened species is built on a foundation of accountability and appropriate enforcement of law, especially in the case of breaches. A credible, enforceable system for reporting, investigating and prosecuting breaches should be incorporated in any RFAs and in legislation, particularly the *EPBC Act 1999* or any future replacement legislation.

Incorporate adaptability throughout: The main mechanism designed to make the RFAs adaptive were the five-yearly reviews. These have been late and often inadequate. A system that genuinely incorporates adaptability needs to be adopted so that rapid, sensible changes can be made in response to stochastic events such as Australia's recent catastrophic bushfires and market changes (both foreseeable and unpredictable).

Up-to-date information: Governments should implement a forest management framework that incorporates and utilises the most up-to-date science, management and technology in all aspects. New Comprehensive Regional Assessments should be undertaken to ensure mapping, ecosystem classification, economic and social needs and biodiversity conservation is properly understood and based on current knowledge and practices.

Transparency and integrity: Forest management should take an evidence-based approach to managing forest for conservation outcomes, and for ensuring justice for workers and stability in the native forest logging industry. Too much flexibility and decision-making power is given to ministers with little understanding of ecology or economics.

List of abbreviations

ABARES - Australian Bureau of Agricultural and Resource Economics and Sciences
ANZECC - Australian and New Zealand Environment and Conservation Council
CAR Reserve System – Comprehensive, Adequate, Representative Reserve System
CRA – Comprehensive Regional Assessment
EPBC Act 1999 – *Environment Protection and Biodiversity Act 1999*
ESD – Ecologically Sustainable Development
ESFM – Ecologically Sustainable Forest Management
FWPA - Forest & Wood Products Australia
IBRA – Interim Biogeographic Regionalisation for Australia
IPCC - Intergovernmental Panel on Climate Change
JANIS - Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-Committee
NFPS – National Forest Policy Statement
NSW – New South Wales
RFA – Regional Forest Agreement

Introduction

The Regional Forest Agreements are 20-year agreements between the Australian Government and state governments that establish the framework for native forest logging and management in Australia. Between 1997 and 2001, ten Regional Forest Agreements (RFAs) were entered into between the Australian Government and state governments of New South Wales (3), Tasmania (1), Victoria (5) and Western Australia (1).[1] The Regional Forest Agreements were intended to balance the competing needs of the timber industry and conservation in native forests by ensuring that forest management delivers an expanded and enhanced conservation reserve system that retains the unique quality and biodiversity of Australia's forests, security and development for industry, and does so in an ecologically sustainable way.[2]

Originally established to provide a long-term solution to enduring conflict between industry and conservationists in the decades preceding the agreements, the RFAs have continued to incite debate about the management and use of Australia's native forests. All of the RFAs have recently been renewed, with those in New South Wales and Western Australia until 2039, Tasmania until 2037, and Victoria until 2030.[3]

Given the long-term nature of the agreements and the amount of change the industry, environment, market and society have undergone in the last two decades, it is crucial to thoroughly examine the intention of the RFAs and the extent to which they have achieved their aims. While it is beyond the scope of this report to analyse each of the ten RFAs to this degree, this report aims to:

1. **Analyse the extent to which the three main outcomes (that reflect the vision and goals of the National Forest Policy Statement) of the Regional Forest Agreements were achieved based on key indicators, and;**
2. **Explore the capacity of the current Regional Forest Agreements framework to meet these outcomes into the future.**

1 (East Gippsland Regional Forest Agreement 1997), (Tasmanian Regional Forest Agreement 1997), (Central Highlands Regional Forest Agreement 1998), (Eden New South Wales Regional Forest Agreement 1999), (Western Australia Regional Forest Agreement 1999), (North East Regional Forest Agreement 1999), (North East NSW Regional Forest Agreement 2000), (West Victoria Regional Forest Agreement 2000), (Gippsland Regional Forest Agreement 2000), (Southern New South Wales Regional Forest Agreement 2001)
2 (Department of Agriculture 2015)
3 (Department of Agriculture, Water and Environment 2020)

1. Background and legal status

In 1992, following decades of conflict between industry, government, conservationists and community over native forest use in Australia, the then Prime Minister Paul Keating introduced the National Forest Policy Statement (NFPS).[4] The NFPS laid out the vision for sustainable forest management based on principles of ecologically sustainable development (ESD) that would increase the total area of Australia's forests and maintain their unique qualities and biodiversity, while utilising the forests and their resources for numerous uses, in an efficient and sustainable manner.[5]

The Statement outlined eleven national goals that integrated commercial and environmental objectives that the Australian Government, state, and territory governments agreed should be pursued in order to achieve the Statement's vision.[6] The first goal listed in the Statement relates to conservation: maintaining a permanent and extensive native forest estate that retains the full suite of forest values for current and future generations.[7] The other goals relate to industry development, coordinated decision-making and management, sustainably managed private native forests, an expanded plantation industry, water supply, tourism, employment, public involvement, forest research and Australia's commitment to fulfilling international agreements on forests and biodiversity.[8]

The Statement was developed in consultation with unions, industry, local government, conservation organisations and the community.[9] The Australian Government and all state and territory governments signed on to the NFPS in 1992 except for Tasmania, which signed on in 1995.[10] The Regional Forest Agreements (RFAs) are the primary mechanism for implementing the NFPS.[11]

The RFAs were established through a four-part process. State governments prepared scoping agreements to determine the size and scale of the state-by-state assessments that would need to be undertaken. Next, a Comprehensive Regional Assessment (CRA) of each proposed RFA region was undertaken, at a cost of AUD$115 million to the Commonwealth.[12,13] The CRAs covered the environmental, social, cultural and economic values in eleven proposed RFA regions (Figure 1).[14]

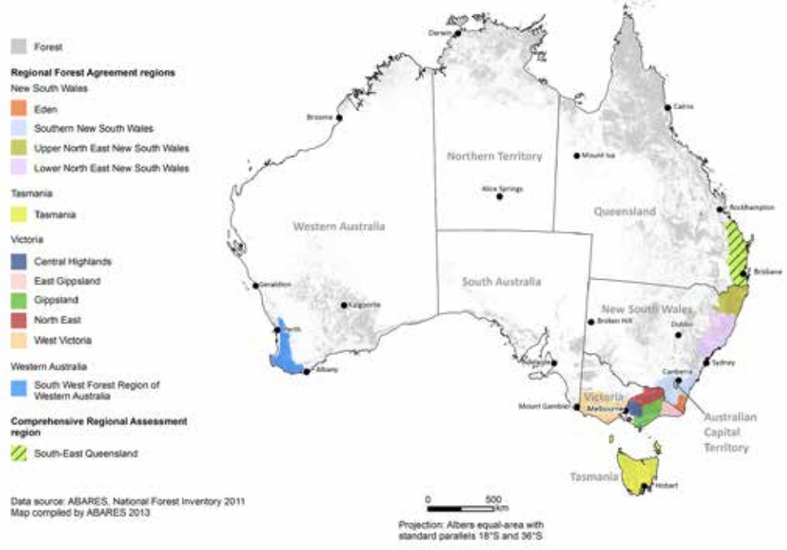


Figure 1: Regional Forest Agreement regions and Comprehensive regional Assessment regions. Source: Montreal Process Implementation Group for Australia and National Forest Inventory Steering Committee 2013.[15]

4 (Musselwhite and Herath 2005)
5 (Commonwealth of Australia 1992)
6 (Commonwealth of Australia 1992)
7 As above.
8 As above.
9 As above.
10 As above.
11 (Davey, Hoare and Rumba 2002)
12 As above.
13 (Commonwealth of Australia, *'Regional Forest Agreement Forest News'* 2000)
14 (Musselwhite and Herath 2005), (Davey, Hoare and Rumba 2002), (McDonald 1999)
15 (Montreal Process Implementation Group for Australia and National Forest Inventory Steering Committee, 2013)

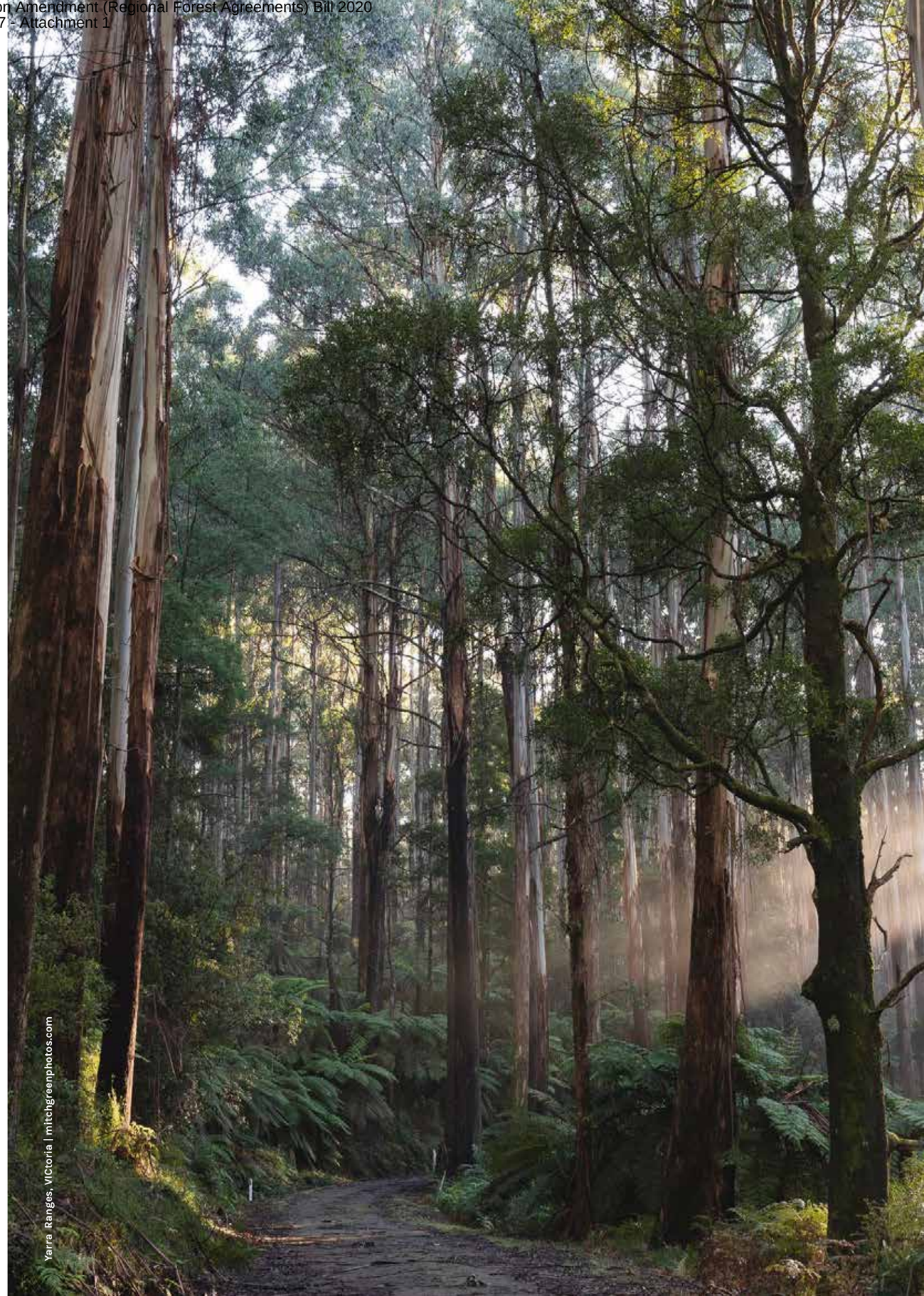
Six million hectares of forests in Tasmania, Victoria, Western Australia and New South Wales were set aside as 'Deferred Forest Areas' and granted provisional protection during this CRA period, until an RFA could be put in place.[16] As the CRA processes were completed, the Commonwealth began negotiating agreements with the Tasmanian, Western Australian, Victorian, New South Wales and Queensland governments, and between 1997 and 2001, ten RFAs were signed. The Queensland State Government did not sign an RFA.[17] While the CRA/RFA process was initiated under Prime Minister Paul Keating the process was concluded and the RFAs signed under Prime Minister John Howard.[18,19]

Above: Prime Minister John Howard and Premier Tony Rundle (right) sign the Tasmanian RFA on November 8, 1997.[20]

By signing the RFAs the Commonwealth amended regulations under the *Export Control Act 1982* so that native hardwood forest woodchips were permitted for export provided they were sourced from an area with a RFA in place.[21] The Commonwealth also accredited the participating state governments' forest management processes and systems (that is, the relevant state legislation, regulations and codes of practice and management, for those activities that are undertaken in accordance with a RFA).[22] This accreditation exempts state-based logging agencies from Commonwealth environmental law.[23] Specifically, the *EPBC Act* 1999 allows forestry operations subject to a RFA to be exempt from seeking environmental approval under Part 3 of the Act.[24] The subsequent *Regional Forest Agreements Act 2002* gave legislative effect to certain provisions of the Commonwealth-State RFAs that had previously not been legally binding.[25]

Each of the RFAs are divided into three parts[26]:

- Part 1 - Interpretation, Definition and General Provisions
- Part 2 – Covers the Functioning of the Agreement, Ecologically Sustainable Forest Management, Threatened Flora and Fauna, CAR Reserve System, Industry Development, Indigenous Heritage, Plantations, Other Forest Uses, Competition Principles, Research and Data Use and Access. Obligations listed in this section are not intended to be legally binding except where they are also found in Part 3.
- Part 3 – Outlines legally enforceable rights and obligations on matters of Forest Management, Compensation, Industry Assistance and Termination.



Yarra Ranges, VICtoria | mitchgreenphotos.com

16 (Musselwhite and Herath 2005), (Department of Agriculture 2015)
17 (Australian Government 2017)
18 (McDonald 1999)
19 (Commonwealth of Australia 1997)
20 (Commonwealth of Australia 1998)
21 (Musselwhite and Herath 2005)
22 (Feehely, Hammond-Deakin and Miller 2013)
23 (s.38 *EPBC Act* 1999)
24 As above.
25 (Feehely, Hammond-Deakin and Miller 2013)
26 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)

2. Success of the RFAs in achieving key outcomes

As discussed above, each of the Regional Forest Agreements aimed to achieve four key outcomes:

1. *identify a Comprehensive, Adequate and Representative [CAR] Reserve System and provide for the conservation of those areas;*
2. *provide for the ecologically sustainable management and use of forests in the Region;*
3. *provide long-term stability of Forests and Forest-based industries; and*
4. *have regard to studies and projects carried out in relation to all of the following matters relevant to the Region –*
   (a) *environmental values, including old-growth, wilderness, endangered species, National Estate Values and World Heritage Values;*
   (b) *indigenous heritage values;*
   (c) *economic values of forested areas and Forest-based industries, including mineral exploration and production;*
   (d) *social values (including community needs); and*
   (e) *principles of ecologically sustainable management.*

These outcomes reflect the main goals and vision of the NFPS. Part 1 of the RFAs reaffirms the Parties' commitment to the NFPS and its goals, objectives and implementation by operating under the principles of Ecologically Sustainable Forest Management (ESFM), creating a CAR reserve system, and fostering the development of an internationally competitive forest-based industry.[27]

The following sections examine the effectiveness of the RFAs in meeting these outcomes.

2.1 Comprehensive, Adequate, Representative Reserve system

RFA outcome: *Identify a Comprehensive, Adequate and Representative Reserve System and provide for the conservation of those areas.*

The establishment of a forest conservation reserve system that is comprehensive, adequate and representative, and that ensures the conservation of biodiversity is a key objective of the National Forest Policy Statement, and the foremost outcome listed in each of the RFAs.[28] The CAR Reserve System consists of areas of forest (both public and private) that are protected under state legislation, areas of forest that are set aside from logging but have no statutory protection ('informal reserves'), and some areas additionally protected under Commonwealth legislation, (e.g. World Heritage areas).[29]

The establishment of the reserve system was underpinned by nationally agreed National Forest Reserve Criteria, colloquially referred to as the JANIS[30] criteria, which describes the principles in full[31]:

1. **Comprehensiveness** - includes the full range of forest communities recognised by an agreed national scientific classification at appropriate hierarchical levels;
2. **Adequacy** - the maintenance of ecological viability and integrity of populations, species and communities;
3. **Representativeness** - those sample areas of the forest that are selected for inclusion in reserves should reasonably reflect the biotic diversity of the communities.

In order for a Reserve System to demonstrate the principles of Comprehensiveness, Adequacy and Representativeness, they had to meet the nationally agreed criteria for the selection and area of forest ecosystems to be reserved[32]:

1. At a minimum, 15% of the pre-1750 (pre-colonisation) distribution of *each* forest ecosystem should be protected in the CAR Reserve System.
2. At least 60% of vulnerable forest ecosystems, defined as ecosystems that have declined in cover by 70% and/or are subject to significant threatening processes, should be reserved.
3. All remaining occurrences (i.e. 100%) of rare and endangered forest ecosystems (ecosystems with a total range of less than 10,000ha, total area of less than 100ha or patches smaller than 100ha) should be reserved or protected by other means as far as is practicable.
4. 60% of examples of ecosystems that are classified as old-growth should be protected, or 100% if the old-growth ecosystem is rare or depleted.
5. Wilderness areas (areas that remain largely unmodified) should have 90% or more of their existing area protected.

The JANIS criteria allowed for some flexibility when allocating areas to the CAR reserve systems where socio-economic impacts were considered to be unacceptable, qualifying that the criteria ought to be viewed as 'guidelines rather than mandatory targets'.[33]

Comprehensive Regional Assessments (CRAs) were undertaken to determine which areas would form the CAR Reserve System. At the time, the CRAs were the most thorough, ambitious and wide-reaching assessments of their kind. Approximately 50 assessments were conducted in each RFA region, covering a wide range of disciplines including zoology, biology, economics and sociology, at a cost of $115 million.[34] They provided an unprecedented level of understanding of the ecological, economic and social value of forests in Australia. At the end of the process, more than 2.9 million hectares of forest had been added to Australia's existing reserve system.[35]

In signing the RFAs, the parties agreed that the primary function of the CAR Reserve System was to 'ensure the [long-term] protection and conservation of environment and heritage values [defined by the JANIS criteria]'.[36] One way to determine the CAR Reserve System's success in achieving this function would be to quantify the percentage of ecosystems that have been protected according to the JANIS criteria thresholds (listed above). However, the suitability of this approach is predicated on the assumption that meeting percentage criterion targets translates to the protection of environment and heritage values on the ground. There are a number of factors that suggest it does not; chiefly the fact that the values the CAR Reserve System was designed to protect are, in fact, not sufficiently protected.

The following section will discuss the factors that have limited the CAR Reserve System's ability to perform the primary function of protection for which it was intended.

2.1.1 Design of the CAR Reserve System

The JANIS criteria were informed by global and national practices and understandings that were developed between 1992-1995.[37] At the time of signing these criteria were considered to meet the best international and national standards, especially as the 15% minimum protection for all ecosystem types exceeded the then globally accepted figure of 10%.[38] However, the criteria - and therefore the reserve system itself - have not been updated to reflect current science and criteria. This means that although science and conservation have advanced since 1992, these improvements are not incorporated into our reserve system, which still relies on more than 25-year-old data and criteria.

27 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
28 (Commonwealth of Australia 1992), (ANZECC 1997)
29 (ANZECC 1997)
30 The JANIS criteria were developed by and named after the Joint Australian-New Zealand Environment and Conservation Council (ANZECC)/Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA) National Forest Policy Statement Implementation Sub-committee.
31 (ANZECC 1997)
32 (ANZECC 1997)
33 As above.
34 $115 million in 2000 would be worth approximately $179 million in 2017, an increase of ~56%. (Reserve Bank of Australia 2017)
35 (Australian Government 2015)
36 [Tasmanian RFA 1997], (East Gippsland RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
37 (Commonwealth of Australia 1999)
38 As above.

For example, the impacts of climate change, altered bushfire regimes, and increased global reservation targets are not reflected in the reserve system. In 1993 Australia signed on to the International Convention on Biological Diversity.[39] In 2010 the Convention on Biological Diversity was updated to incorporate a target to protect 17% of all terrestrial ecosystems by 2020.[40]

Research over the last twenty years demonstrates the importance of protecting contiguous landscapes, particularly in order to prevent the worst effects of stochastic events such as bushfire, drought and disease.[41] The CAR Reserve System was predominantly designed to meet percentage criterion targets and while the importance of landscape connectivity was acknowledged in the JANIS criteria, it was not a core aim.[42] For critically endangered species like the Swift Parrot, connectivity in the landscape is critical to protect important foraging habitats found in forests between reserved areas.[43] In 2009, the Black Saturday Bushfires burnt 45% of the reserve of the then endangered Leadbeater's Possum.[44] The species is now critically endangered.[45] Large, severe fire events like that which occurred on Black Saturday and most recently across Australia in the spring and summer of 2019/20 have the potential to drastically reduce areas of habitat in short periods of time. Isolated or fragmented patches of habitat are much more susceptible to being destroyed by fire. This demonstrates the importance of protecting contiguous landscapes and maintaining continuity within the forest.

By not prioritising the protection of contiguous landscapes, the CAR Reserve System is severely limited in its ability to conserve forest areas due to increased likelihood and negative effects of events like bushfire, disease and drought.

2.1.2 Implementation of the CAR Reserve System

In addition to these limitations in design, the CAR Reserve System was implemented using the technology of the day, which has since been superseded. The Reserve System was designed using an agreed interim national bioregional framework, known as the Interim Biogeographic Regionalisation for Australia (IBRA) which was developed in 1993-94.[46,47] IBRAs originally divided Australia into 80 distinct bioregions that reflected the 'environmental determinants for broad patterns in landscape, ecosystem and species diversity.'[48] These regions determined where CRAs were to be undertaken, and therefore where the CAR Reserve System would be established.[49] In 2000, a review of the IBRA framework was undertaken, which refined the framework to reflect 85 bioregions, and developed 354 subregions.[50] Today there are 89 bioregions (IBRAs) broken into 419 subregions[51] – affording land managers greater detail when planning for and managing ecosystem types. Categorising a diverse array of identified subregions under the banner of one bioregion will severely impact the representativeness of the reserve, because it is likely that important subregions aren't adequately represented. For example, the North East NSW RFA spans three bioregions[52] but as of 2012 these three bioregions have been divided into a total of 52 subregions.[53,54]

The CAR Reserve System stipulated that representativeness would be achieved by accurately representing ecosystems within bioregions; if the reserve system reflected current frameworks, representativeness would be based on selecting the appropriate amount of ecosystems within *subregions*. By using bioregions to achieve representativeness, differences between subregions are not accounted for. This would be like trying to represent Europe at the continent (e.g. bioregion) level, resulting in overlooking unique characteristics at the national (e.g. subregion) level. The nuances between the Italian vs. Swiss alps or wetlands in Finland vs. wetlands in the Netherlands would not be captured at such a broad scale.

Achieving representativeness based on subregion rather than bioregion is part of the Australian Government's plan for the national reserve system. The Australian Government's National Reserve Strategy 2009 – 2030 sets a new target for 'progressive representativeness' in the National Reserve System of protecting 'at least 80 per cent of the number of regional ecosystems in each IBRA subregion' to be achieved by 2025.[55]

The reserve system was mapped at a scale of between 1:100,000 to 1:250,000 as outlined in the National Criteria for the creation of a CAR reserve system.[56] The JANIS criteria noted the need for ecosystems to be identifiable in the field and to be able to have their pre-1750 distribution accurately modelled.[57] While commonly used for environmental planning, this scale may not be able to detect subtle components of the landscape, such as old-growth stands, rainforest gullies or important riparian vegetation. A more appropriate scale would be 1:50,000 or 1:25,000 to avoid omission of vegetation types because of coarse map scale.

An assessment of the efficacy of Tasmanian forest ecosystem protection in reaching the percentage criterion targets for the reserve system revealed that 27 forest ecosystems were adequately protected, 16 were close to being protected according to the criteria, but six had not been protected according to the indicative targets as a result of the 'flexibility caveat'.[58] In NSW, data demonstrated that most ecosystems (55% on average) in the North East RFA region were not protected according to the prescribed thresholds.[59] There were insufficient data available to analyse the Southern and Eden RFA regions.[60]

The original JANIS report stated: Modifications to reserve design will be required through time as new values are identified and programs monitoring the effectiveness of established reserves identify deficiencies in reserve design and management. Monitoring programs should enable appropriate reporting of the effectiveness of the establishment and success of the CAR reserve system. [61]

No detailed or systematic scientific review of the adequacy of the RFA-accredited CAR Reserve System has occurred. Appropriate updates have not been made to the CAR Reserve System framework, not to the land reserved on-the-ground to reflect new science or updated criteria for conservation.

In order for the CAR Reserve System to be effective it must be able to adopt and adapt to the latest science, technology and standards. It must incorporate up-to-date information if it is to reflect the current knowledge of the day.

2.1.3 Management of the CAR Reserve System

Under the RFAs, state environment departments and logging agencies are charged with management of parts of the CAR Reserve System that are protected in informal reserves and areas protected by prescription. Informal reserves and areas protected by prescription are meant to offer protection to threatened species as prescribed by the participating state's forest management framework, however there are examples of on-ground management failing to deliver conservation measures. In Tasmania, some areas of Swift Parrot habitat are supposed to be protected by prescription.[62] An assessment of management prescriptions in forestry operations for Swift Parrot protection revealed that on-ground implementation was typically not effective in retaining important habitat.[63] In addition, Swift Parrot protection sites implemented by prescription experienced substantial post-harvest disturbance.[64] According to Australia's Strategy for the National Reserve System 2009-2030, the CAR Reserve System should meet the IUCN's definition of a 'protected area', including 'clearly defined', that is 'able to be accurately identified on maps and on the ground', but it appears that the CAR Reserve System is failing on this front both as a result of coarse mapping (see above) and through inadequate communication between scientists and forest managers.[65]

Most of the native forests subject to logging are on public land, i.e. land managed by state governments on behalf of all of us. State governments (and in the absence of RFAs the Commonwealth government) can direct how public state

39 (UN Convention on Biological Diversity 2018)
40 As above.
41 (Soulé, et al. 2004)
42 (Commonwealth of Australia 1999)
43 (Munks, et al. 2004), (Brereton 1997)
44 (Leadbeater's Possum Advisory Group 2014)
45 (Australian Government 2018)
46 (Commonwealth of Australia 1999)
47 (Australian Government n.d.)
48 (Thackway and Cresswell 1995)
49 (Commonwealth of Australia 1999)
50 (Environment Australia 2000)
51 (Commonwealth of Australia 2012)
52 SEQ (South-East Queensland) bioregion, NET (New England Tableland) and NNC (NSW North Coast)
53 (Commonwealth of Australia 2012)
54 Note: the NE NSW RFA does not encompass all 52 subregions from the SEQ, NET and NNC bioregions.

55 (Australian Government 2009)
56 (Commonwealth of Australia 1999)
57 As above.
58 (Kirkpatrick 1998)
59 (Love and Sweeney 2015)
60 (Sweeney 2015)
61 (Commonwealth of Australia 1992)

62 (ANU 2018)
63 (Munks, et al. 2004)
64 As above.
65 (Australian Government 2009)

forests are managed and used. Currently, they are failing to manage them in a way that genuinely protects species and biodiversity.

Some areas that were protected according to the appropriate threshold are under threat from logging as a fault of land managers and legislative change. In Victoria in 2017, the Flora and Fauna Research Collective took the state environment department to court for logging more than the 60% threshold required for protection of old-growth outlined in JANIS criteria.[66] At the time of writing, the outcome of this case is pending.

In Tasmania, legislative changes provide for logging of old growth forests and rainforest species in some categories of reserves recognised as part of the CAR reserve system. Perversely, the recently renewed Tasmanian RFA has been amended to explicitly allow for this logging, despite Government reporting still referencing the Tasmanian Reserve Estate (part of the CAR reserve system) as being a primary mechanism that demonstrates the protection of environmental value, including old growth and rainforests, from the impacts of logging.

Without appropriate management, the CAR Reserve System is failing and will continue to fail its intended outcome of conservation.

The CAR reserve system was considered to be one of the most successful components of the RFAs, but its success in achieving conservation outcomes for environmental values is limited. Ecosystems, species and ecological processes are under significant stress in all RFA regions (indeed across the entire nation), suggesting the CAR Reserve System is not fulfilling its intended outcomes. Outdated methodologies, data and understanding of ecosystem requirements (e.g. we now recognise the importance of connectivity in the landscape for conservation), inappropriate mapping and inadequate management of species and the reserves themselves have all contributed to the CAR Reserve System failing to reach its intended outcome of preserving environment and heritage values.

2.2 Ecologically Sustainable Forest Management

RFA outcome: *Provide for the ecologically sustainable management and use of forests in the Region;*

According to the NFPS and National Forest Reserve Criteria (JANIS Criteria), those forests that exist outside of the CAR Reserve System and are available for logging should be managed in an ecologically sustainable way.[67] That is, logging must be conducted in a way that is harmonious with Ecologically Sustainable Development [ESD] that 'meets the needs of present generations without compromising the ability of future generations to meet their own needs'.[68] In the context of managing Australia's native forest, the NFPS stipulates that ESD must:

1. maintain ecological processes such as the water, carbon and nutrient cycles;
2. maintain biodiversity;
3. provide benefits to the community.

As a key measure of ESD, the success of the RFAs in maintaining biodiversity has been selected for further analysis.

2.2.1 Maintaining biodiversity

Biodiversity is defined as the variety of all life forms. Australia's Biodiversity Conservation Strategy 2010 – 2030 describes three levels of biodiversity[69]:

1. genetic diversity—the variety of genetic information contained in individual plants, animals and micro-organisms;
2. species diversity—the variety of species;
3. ecosystem diversity—the variety of habitats, ecological communities and ecological processes.

To assess the RFAs' success in maintaining biodiversity, the state of forest-dependent threatened species existing within RFA regions was analysed to determine whether the RFA had provided for threatened species conservation in forests. Each RFA lists priority species for conservation within the RFA region. The conservation status under Commonwealth law at the time the RFAs were signed of these priority-listed species was compared with their status in 2020. Data were taken directly from the RFAs to establish which species were prioritised for conservation at the time of signing, from the implementation reports prepared by the Commonwealth and relevant state governments and cross-referenced against the *EPBC Act 1999* species' conservation status.

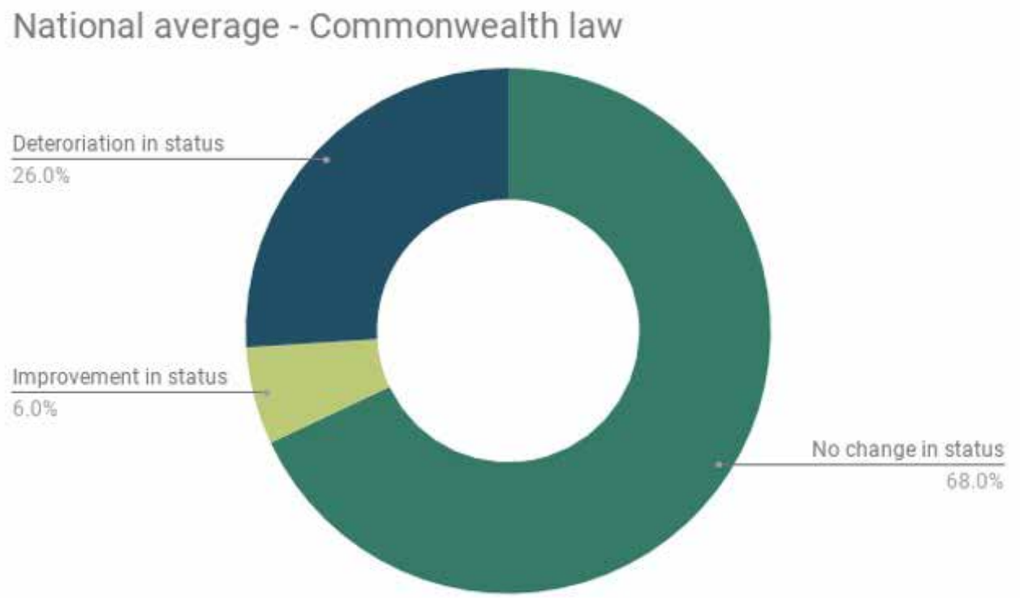


Figure 2 (above)**:** Average change in conservation status of species listed under Commonwealth legislation in NSW, Tasmania, Victoria and Western Australia between the time of signing of the RFAs and 2020. Teal=no change in conservation status, navy=deterioration in status, green=improvement in conservation status.[70,71]

Species that are threatened with extinction are listed as a threatened species under the *EPBC Act 1999* and given a status that represents the risk that they will go extinct. In order of severity, these levels are: extinct, extinct in the wild, critically endangered, endangered, vulnerable or conservation dependent. Change in species status from the time of initial RFA signing to 2020 met one of three characteristics:

1. **Deterioration in status** – those species that have undergone population declines that warrant their 'uplisting' – that is, species that are now classified in 2020 under a conservation status that represents a greater likelihood of extinction than they were at the time of signing.
2. **Improvement in status** – those species that are less likely to go extinct in 2020 than they were at the time of signing. These species have moved to a more secure conservation status.
3. **No change in status** – species that remain in the same category of risk in 2020 as they did at the time of signing.

It is important to note: very few Australian species have been reclassified as having a more secure conservation status through increased population size or fitness. In most cases, improvements in conservation status have resulted from improved information on the species.[72] For example, of the 21 forest-dwelling species that were removed from the Commonwealth threatened species list between 2006-11, 76% were removed because of increased information about the species, and the remaining 24% were removed because of taxonomic revisions (i.e. scientists reclassified the scientific name of a species); none were removed because of improved conservation status.[73]

Commonwealth law
In 2020, the conservation status of 26% of species had, on average, increased in severity in some way, meaning they are at a greater risk of extinction than they were 20 years ago as a result of forest management under the RFAs. The conservation status of only 6% of species had been downgraded to a more secure status (Figure 2).

66 (The Age, *Supreme Court shuts down Andrews government plan to log untouched forest* , 2017)
67 (Commonwealth of Australia 1992), (ANZECC 1997)
68 (World Commission on Environment and Development 1987)
69 Natural Resource Management Ministerial Council 2010

70 (NSW EPA 2017), (Victorian Government 2017), (Commonwealth of Australia 1997), (Commonwealth of Australia 1999), (Commonwealth of Australia 1998), (Commonwealth of Australia 2000), (Tasmanian RFA 1997), (Commonwealth of 1997), (Commonwealth of Australia 1999), (Department of Parks and Wildlife (WA) and Department of Agriculture, Fisheries and Forestry (Cwth) 2016), (Australian Government 2018), (Australian Government 2018)
71 Victorian data averaged across all regions except for East Gippsland which has been omitted due to incomplete data.
72 (Groom 2010)
73 (Montreal Process Implementation Group for Australia and National Forest Inventory Steering Committee 2013)

Figure 3 (above)**:** Change in conservation status of species listed under Commonwealth legislation in NSW, Tasmania, Victoria and Western Australia between the time of signing of the RFAs and 2020. Teal=no change in conservation status, navy=deterioration in status, green=improvement in conservation status.[74,75]

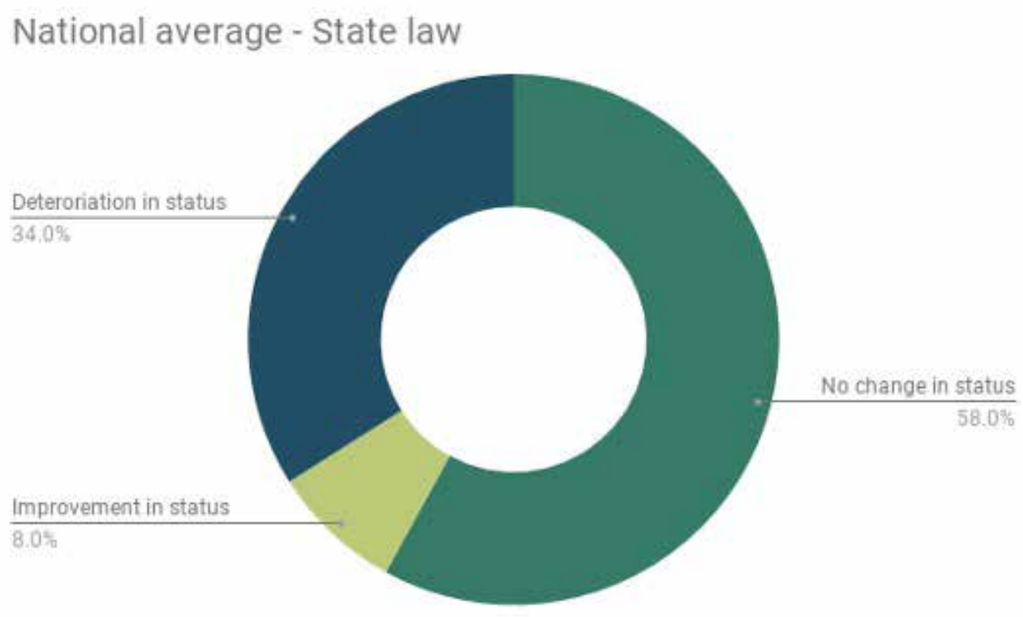
Under Commonwealth law, 52% of Western Australian species have deteriorated in conservation status since the RFAs were signed. A 2015 audit of Western Australia's biodiversity showed that many of Western Australia's species were rapidly heading towards extinction in the next 10 years , with lack of proper monitoring and auditing, insufficient funding, and lack of accountability cited as likely causes.[76]

Numerous species in NSW that were listed as threatened under Commonwealth law when the RFAs were signed have since been listed under NSW state law, when previously they weren't. This is an example of inconsistency between state and Commonwealth management of threatened species.

The data demonstrate that the majority of threatened species listed at the time of signing of the RFAs have either declined in population numbers or have experienced no improvement in conservation status since the RFAs were signed – meaning they are no closer to recovery than they were at the time of signing.

In some instances, stasis may be the best-case scenario for species with populations more prone to decline or that experience a greater number of threatening processes. The decline in species populations across the board demonstrates that native forest logging is not occurring in an ecologically sustainable way, which directly contravenes the principles of Ecologically Sustainable Forest Management that is prioritised in the NFPS and the RFAs.

74 (NSW EPA 2017), (Victorian Government 2017), (Commonwealth of Australia 1997), (Commonwealth of Australia 1999), (Commonwealth of Australia 1998), (Commonwealth of Australia 2000), (Tasmanian RFA 1997), (Commonwealth of 1997), (Commonwealth of Australia 1999), (Department of Parks and Wildlife (WA) and Department of Agriculture, Fisheries and Forestry (Cwth) 2016), (Australian Government 2018), (Australian Government 2018)
75 Victorian data averaged across all regions except for East Gippsland which has been omitted due to incomplete data.
76 (WAtoday, *Buried audit shows WA species plunging into extinction* , 2017)



State law
On average, the conservation status of 34% of species listed as threatened under State environment legislation had deteriorated between time of signing and 2017-18. Fifty-eight percent had not improved, and were at the same risk of extinction in 2017-18 as at the time of signing. Only eight percent had undergone an improvement in their status (Figure 4).

Figure 4 (above): Average change in conservation status of species listed under State legislation in NSW, Tasmania, Victoria and Western Australia between the time of signing of the RFAs and 2017-18. Teal=no change in conservation status, navy=deterioration in status, green=improvement in conservation status.[77,78]

77 (NSW EPA 2017), (NSW Threatened Species Scientific Committee 2018), (Victorian Government 2017), (Commonwealth of Australia 1997), (Commonwealth of Australia 1999), (Commonwealth of Australia 1998), (Commonwealth of Australia 2000), (Victorian Government 2018), (Tasmanian RFA 1997), (Commonwealth of 1997), (Commonwealth of Australia 1999), (Tasmanian Government 2017), (Department of Parks and Wildlife (WA) and Department of Agriculture, Fisheries and Forestry (Cwth) 2016), (Government of Western Australia 2018), (Government of Western Australia 2018)
78 Victorian data averaged across all regions except for East Gippsland which has been omitted due to incomplete data.

Figure 5 (above): Change in conservation status of species listed under State legislation in NSW, Tasmania, Victoria and Western Australia between the time of signing of the RFAs and 2017-18. Teal=no change in conservation status, navy=deterioration in status, green=improvement in conservation status.[79],[80]

More than half (53%) of the species listed under NSW state law have deteriorated in status since the RFAs were signed (figure 5). In Western Australia, 43% of species have deteriorated in conservation status under state law. At first glance, data for Victoria appears to demonstrate a somewhat less negative picture, with the vast majority of species (83%) classified under the same conservation status in 2017-18 as at the time of signing. However, this is very likely due to the fact that Victoria's state environment legislation that is responsible for classifying threatened species, the *Flora and Fauna Guarantee Act 1988*, does not distinguish between levels of risk to conservation status, merely categorizing species as either 'threatened' or 'not threatened', therefore there is no reflection under state law for those species that are at greater risk of extinction.[81],[82]

2.2.2 Contributing factors to biodiversity decline

Australia has the world's eleventh-highest extinction rate, and holds the world record for the most mammal extinctions.[83] The key contributing factors to extinction are habitat loss, altered fire regimes, climate change and predation and competition from pest plants and animals.[84] Habitat alteration or loss is a threatening process for the majority of threatened terrestrial vertebrates.[85] Forest-dependent threatened species are subject to these same issues, though their conservation is further complicated by the fact that they are ostensibly not protected under federal environment law. This exemption means that those actions that would normally trigger intervention or ministerial approval (e.g. destruction of habitat of threatened species which are considered matters of national environmental significance) can go ahead without repercussions. Under this arrangement, state laws, regulations and prescriptions are intended to provide for species. However, this often isn't the case. For example the Greater Glider, which is listed federally as a threatened species, receives no protection in the Central Highlands RFA region because the state framework hasn't updated prescriptions on how to respond to the presence of glider colonies in that area.[86] In Western Australia, Baudin's Black Cockatoo was uplisted from vulnerable to endangered in February 2018,[87] and a month later the state logging agency had moved to increase logging of karri, jarrah and marri forest by up to 50%, the latter two eucalypt types providing critical nesting and foraging habitat for the cockatoo.[88] Ordinarily, logging known threatened species habitat would trigger protection under the *EPBC Act 1999*, but because of the exemption, it does not.

The RFAs outlined plans and goals for ensuring the protection of threatened species, including implementation of recovery plans and state-based plans as a 'matter of priority'.[89] However a number of forest-dependent threatened species across the nation still do not have current recovery plans in place. Australia-wide, less than 40% of nationally listed threatened species have recovery plans in place.[90] Under Victorian state environment law, only 61% of threatened fauna and 18% of threatened vascular plants have an action plan.[91] Without recovery plans it is difficult to implement appropriate protection, and taking action without understanding what is required for a species' survival can have negative impacts.

Eighteen to twenty-eight percent of all vertebrates in Australia are dependent on tree hollows for habitat.[92] Eucalypt forests, like those subject to logging in Australia's RFA regions, support almost half (47%) of all hollow-dependent vertebrate species.[93] Habitat loss is the overwhelming threatening process for the majority of species in Australia.[94] For those species listed as priority species at the time of signing, the key threatening process to their survival, that is habitat loss from clearfell logging, has remained a prominent activity in the landscape because of the RFAs.
Numerous studies in all four states show that logging is a key threatening process to iconic threatened species like the Swift Parrot in Tasmania[95], WA's Western Ringtail Possum[96], Leadbeater's Possum in Victoria[97] and the Regent Honeyeater in NSW[98] all of which are critically endangered and have been uplisted between 2015-18.[99]

In signing the RFAs, parties agreed the protection of threatened species would be provided for through the CAR Reserve System, state and Commonwealth environment laws and state forest management plans and frameworks.[100] A cornerstone of successful Ecologically Sustainable Forest Management (ESFM) as described in the RFAs and the NFPS is the maintenance of the biological diversity of forests. The status of forest-dependent threatened species is one measure of the maintenance of the biological diversity of forests. In reality, more than a quarter of all federally listed forest-dependent threatened species are closer to extinction now than they were 20 years ago when the RFAs were signed, and 68% have not improved in their conservation status, demonstrating that forest management is not fulfilling the aim of ESFM.

There is a distinct lack of accountability and enforcement when it comes to threatened species management in RFA regions, which is compounded by the fact that native forest logging operations are exempt from Federal environment law, that is, the *EPBC Act 1999*.

79 (NSW EPA 2017), (NSW Threatened Species Scientific Committee 2018), (Victorian Government 2017), (Commonwealth of Australia 1997), (Commonwealth of Australia 1999), (Commonwealth of Australia 1998), (Commonwealth of Australia 2000), (Victorian Government 2018), (Tasmanian RFA 1997), (Commonwealth of 1997), (Commonwealth of Australia 1999), (Tasmanian Government 2017), (Department of Parks and Wildlife (WA) and Department of Agriculture, Fisheries and Forestry (Cwth) 2016), (Government of Western Australia 2018), (Government of Western Australia 2018)
80 Victorian data averaged across all regions except for East Gippsland which has been omitted due to incomplete data.
81 (Flora and Fauna Guarantee Act 1988)
82 In 2018 the Flora and Fauna Guarantee Amendment Bill 2018 that sought to amend the Flora and Fauna Guarantee Act 1998, Victoria's state environment law, included a proposal to update the FFG Act threatened species status classifications to reflect EPBC Act categories.
83 (IUCN Red List 2018-2 2018), (Woinarski, Burbidge and Harrison 2015)
84 (Hughes, Daily and Ehrlich 1997), (Ducatez and Shine 2017)
85 (Ducatez and Shine 2017)
86 (Victorian Government 2014)
87 (Threatened Species Scientific Committee 2018)
88 (Sydney Morning Herald, *Protesters rally as WA agency plans native forest logging increase* , 2018)
89 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
90 (The Guardian, *'Fantasy documents': recovery plans failing Australia's endangered species* , 2018)
91 (Victorian Government 2017), (Victorian Government 2014), (Victorian Government 2013)
92 (Smith and Lindenmayer 1992)
93 (Gibbons and Lindenmayer 2002)
94 (Smith and Lindenmayer 1992), (Kavanagh and Stanton 2005), (Eyre, et al. 2010), (Lindenmayer, et al. 2012), (Lindenmayer, et al. 2015)
95 (The Guardian, *Logging 'destroying' swift parrot habitat as government delays action* , 2018), (Birdlife International 2018)
96 (Burbidge and Zichy-Woinarski 2017)
97 (Woinarski and Burbidge 2016)
98 (Commonwealth of Australia 2016)
99 (Australian Government 2018)
100 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)

2.3 Security for industry

RFA outcome: *Provide long-term stability of Forests and Forest-based industries;*

Recognising the contribution local native forest industries historically have made to regional and state economies, the RFAs aimed to achieve a key outcome of long-term stability for forest industries.[101] The primary way the RFAs intended to achieve this was through providing secure access to timber resources to the industry for the duration of the 20-year agreements. Secure access, combined with assistance packages to the industry, was 'expected to encourage greater investment in value-adding projects and create new jobs in RFA regions.'[102]

The RFAs state that by providing greater certainty of access to industries, further industry development would be facilitated through new-investment, plantation development, value-adding in forest-based industries, downstream processing, introducing new technology, enhancing utilisation of regrowth for sawn products, investment in mining and tourism and recreation investment. [103]

However, despite the RFAs, there has been a steady decline in jobs in the native forest timber industry and volume of timber being extracted from native forests.[104]

The following section analyses the decline in timber volumes from native forests managed under RFAs, and employment in native forestry, both considered key indicators of a secure industry.[105] This section will also draw comparisons between the native forest timber industry and the plantation industry, to understand how secure the plantation sector is despite not operating under RFAs.

2.3.1 Volume of logs harvested

Native hardwood sawlogs
As part of its commitment to providing industry with secure access to forests through the RFAs, the Australian government committed to providing a minimum annual timber supply to industry.[106] The volumes of this supply were based on different measurements for different areas, with states setting minimum annual supply based on previous years, or on the supply legislated at the time.[107] The volume committed was based on cubic metres of sawlogs, with the exception of the Southern and Eden NSW RFAs that incorporated minimum annual pulpwood supply.[108] [109] Across the four states, approximately 2,210,000 cubic metres of sawlogs per annum were committed to industry through the RFAs, nearly double the 1.3 million cubic metres of sawlogs that were removed from Australian native hardwood forests in 1996-97.[110] An average of 2,234,000 cubic metres of sawlogs were taken out of Australia's native forests each year over the period of 2006-18.[111]

Native hardwood sawlogs, pulplogs and woodchips
In signing the RFAs, the government committed a total of approximately 2.2 million cubic metres of native forest sawlogs to industry. Volumes extracted exceeded minimum volumes committed in the RFAs by an average of 1.53% annually over the 2006-18 period. However, sawlogs are not the only type of logs removed from native forests.

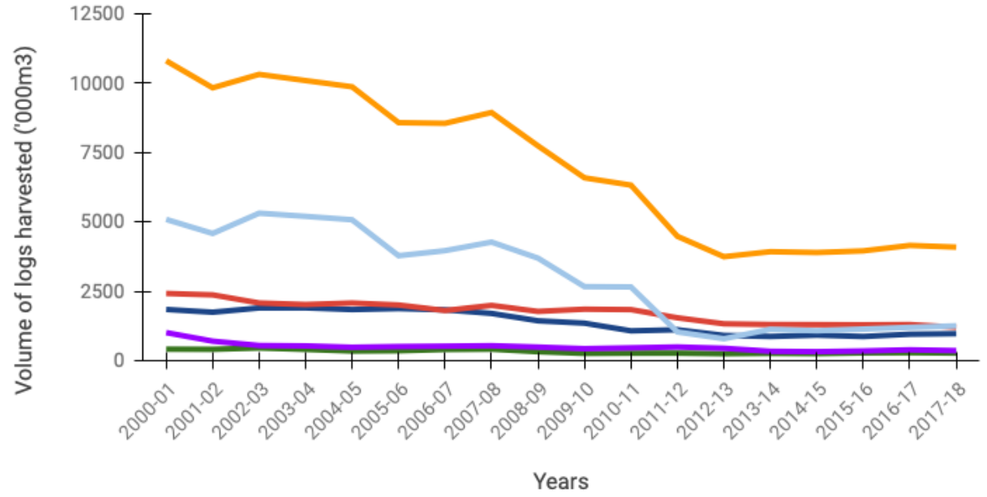


Figure 6 (above)**:** Volume of native hardwood logs harvested ('000m^3) between 2000-18 in Tasmania (light blue line), Western Australia (purple line), Queensland (green line), Victoria (red line), New South Wales (dark blue line) and the total in Australia (orange line).[116]

While these were the volumes that were committed to industry through the RFA mechanism, in reality pulplogs and woodchips contribute significantly to the volume of wood being extracted from the forests. National data on volume of logs coming out of native forests are not distinguished by state, though it is still possible to interpret harvest rates of pulp vs. sawlogs for Australia as a whole.[112] Over the 2006-18 period, on average sawlogs accounted for just 40% of logs being extracted from the forest, with 60% of logs being pulplogs for wood-based panels, paper products, woodchips for exports or other uses.[113]

The total volume of logs being extracted from the forests since the RFAs were signed has decreased over the last 20 or so years, with a more rapid decline occurring in the past decade (Figure 6).[114] In states with an RFA, the volume of logs being extracted from native forests has declined by 63% in the period from 2000 - 2018, declining by an average of 4.57% each year. In Australia, total native hardwood log production (saw and pulp) fell by 56% from 2008 to 2016.[115] It would appear that despite the RFAs' commitments to provide for secure industry, a key indicator of a secure industry (logs extracted) has significantly declined sign the RFAs were signed.

An annual average of 5,534,000 cubic metres of wood has been removed from native forests between 2006-18, over 2.5 times more than the national miniumum supply committed in the RFAs and what was being harvested before the RFAs were signed.

101 (Department of Agriculture 2015)
102 (Department of Agriculture 2018)
103 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
104 (McDonald 1999), (ABARES 2013), (ABARES 2019)
105 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
106 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
107 (Pöyry 1996), (NSW and Commonwealth Governments 1999), (Commonwealth and Victorian Regional Forest Agreement (RFA) Steering Committee 1997), (Commonwealth and Victorian Regional Forest Agreement (RFA) Steering Committee 1996), (Victorian Government 2000), (Commonwealth and Victorian Regional Forest Agreement (RFA) Steering Committee 1999), (Commonwealth and Victorian Regional Forest Agreement (RFA) Steering Committee 1998), (G. o. Australia, Assessment of Ecologically Sustainable Forest Management in the South-West Forest Region of Western Australia 1997)
108 (Eden NSW RFA 1999), (Southern NSW RFA 2000)
109 **NOTE:** Under the recently renewed RFAs, e.g. NSW, reference to specific volumes of logs has been removed (Commonwealth of Australia and the State of New South Wales 2018a, b, c)
110 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001), (National Forest Inventory 1998)
111 (ABARES 2019)
112 **NOTE:** Native forest logging agency annual reports provide data on volume of logs harvested from native forests. However, they often report figures inconsistently from year to year – changing the units of measure that they use to report wood production, or reporting combined pulp and sawlog figures one year and reporting them separately the next. This makes standardisation of log data within and between RFA regions challenging.
113 (ABARES 2019)
114 NOTE: further investigation is required to understand the volumes of logs that are extracted from the forest for alternative uses such as firewood.
115 (ABARES 2017)
116 (ABARES 2013), (ABARES 2019)

The RFAs intended to provide secure access to the forest resource to industry, and did so by committing to provide minimum volumes of sawlogs per annum. The annual volume of sawlogs extracted has consistently exceeded the minimum committed over the 18-year period between 2000-18. When annual volumes of woodchips and pulplogs are accounted for, more than double the minimum annual volume committed has been extracted each year. A 2013 review of the native forest industry shows that the volume of roundwood removed from Australia's native forests increased between 1997 and 2000 (the period in which nine of the ten RFAs were signed) before commencing a steady decline between 2000-18.[117]

By contrast, the volume of native forest hardwood coming out of forests in Queensland where there is no RFA in place has declined by only 33% at an annual average rate of 1% decline (Table 1).

Table 1 (below)**:** Rate of decline in volume of native forest hardwood logs between 2000-2018 across NSW, Victoria, Western Australia, Tasmania and Queensland.[118]

	Change in volume of logs extracted (%)	
	Annual average decline	Total decline from 2000 - 2018
NSW Native Hardwood	-4%	-47%
Vic Native Hardwood	-4%	-50%
WA Native Hardwood	-5%	-64%
Tas Native Hardwood	-5%	-75%
Average Native Hardwood for RFA states	-5%	-59%
Qld Native Hardwood*	-1%	-33%
Average Native Hardwood for non-RFA states**	-1%	-33%

* There is no Regional Forest Agreement in place in Queensland.
** Excludes ACT, NT, and SA as they do not have native forest logging in public forests.

117 (Macintosh 2013)
118 (ABARES 2013), (ABARES 2019)

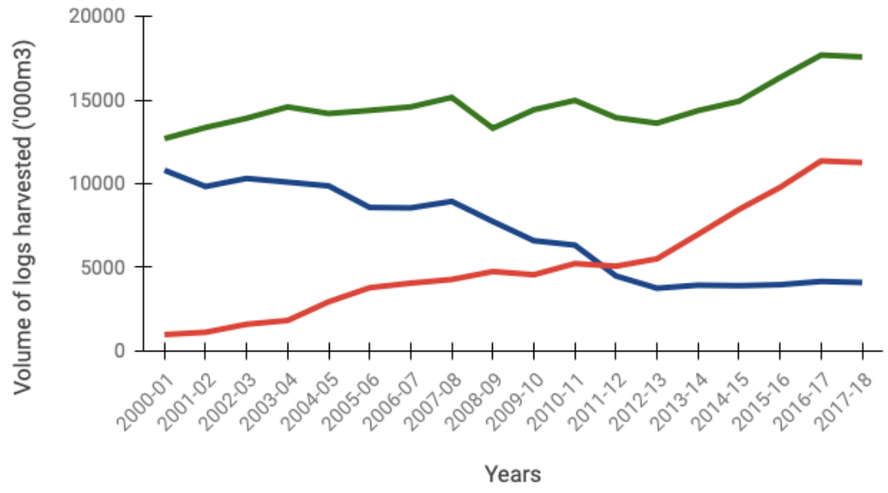


Figure 7 (above)**:** Total volume of logs harvested ('000m^3) between 2000-18 in all Australian states and territories from softwood plantations (green), hardwood plantations (red) and native hardwood forests (blue).[127]

2.3.2 Employment

By providing certainty of access to the forest for the timber industry in conjunction with Forest Industry Structural Adjustment Packages and other funding, it was expected the Regional Forest Agreements would result in increased job generation and no net job losses in RFA regions. [119] In the first five-year period there was great optimism for the timber industry and the increased jobs and funding that had come about as a result of the RFAs.[120] However, since the RFAs were signed there has been an average decline in employment in native forestry across the nation.[121]

A report released by the Australian Forest & Wood Products Association (AFWPA) in 2018 demonstrated that total national direct employment in the forest industry had declined by 25% in 2016 from 2011, part of a larger trend of decline that was also observed between 2006 and 2011.[122]

In Tasmania, timber industry (i.e. both the native forest and plantation sectors) employment dropped by 61% between 2008 to 2013, reducing from 6963 FTEs to 2715 FTEs.[123] In Victoria, an estimated 2,770 workers were employed in forestry support services and primary processing sector of the native forest industry in 2009, which had fallen to 2,284 by 2012[124], and to 1639 by 2018.[125] An estimated 811 people were directly employed in the Forestry and Logging and Forestry Support Services sectors in Western Australia, accounting for 0.07% of all WA employment in 2011.[126] Data for NSW are unavailable.

2.3.3 Growth in the plantation sector of Australia's wood products industry

In contrast to the decline in log production in the native forest logging industry, the plantation sector has steadily grown (Figure 7).[128]

The volume of logs used for sawn and residual (e.g. pulp or chip) products from hardwood and softwood plantations has steadily increased in all states (Figure 8). Plantations produced 76% of Australia's total log supply in the 2010-2011 period.[129]

119 (Commonwealth of Australia 2000), (Department of Agriculture 2018)
120 (Commonwealth of Australia 2000)
121 (McDonald 1999)
122 (ABARES 2019), (Schirmer, et al. 2018)
123 (Schirmer 2014)
124 (Schirmer, Mylek and Morison 2012)
125 (Schirmer et al. 2018)
126 (ABS 2011)
127 (ABARES 2013), (ABARES 2019)
128 (ABARES 2019)
129 (Montreal Process Implementation Committee 2013)

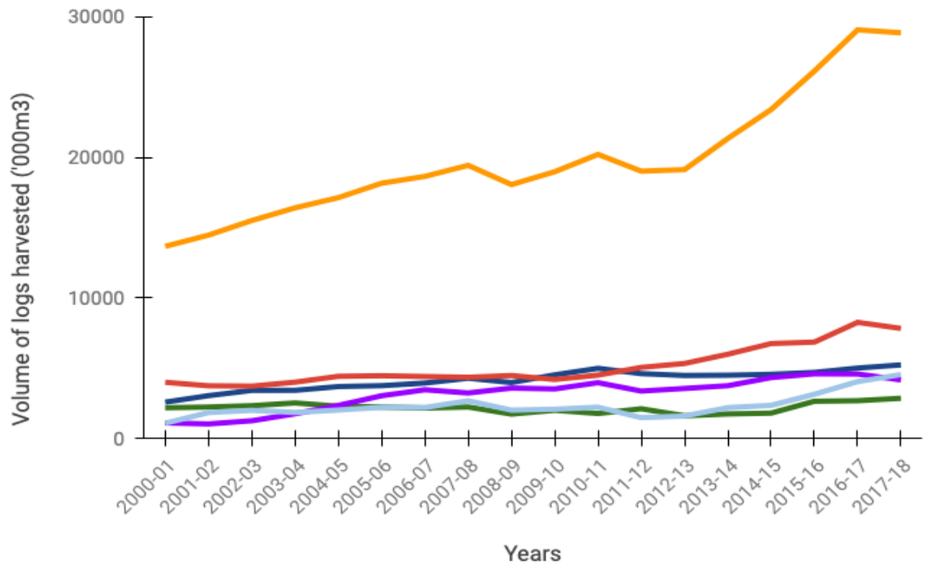


Figure 8 (above)**:** Volume of plantation logs ('000m^3) (both hardwood and softwood) harvested between 2000-18 in Tasmania (light blue line), Western Australia (purple line), Queensland (green line), Victoria (red line), New South Wales (dark blue line) and the total in Australia (orange line).[130]

Between 2000 and 2018, the volume of logs sourced from softwood and hardwood plantations increased by 111%, at an average rate of 4% per year (Table 2).

Table 2 (below)**:** Rate of increase in total volume of hardwood and softwood plantation between 2000-2018 across NSW, Victoria, Western Australia, Tasmania and Queensland.[131]

	Change in volume of logs harvested (%)	
Log Volume by state (m3)	Annual average increase	Total increase from 2000 - 2018
NSW Total	4%	102%
Vic Total	9%	95%
Qld Total	4%	31%
WA Total	4%	271%
Tas Total	9%	314%
Australia Total (including SA and NT)	4%	111%

130 (ABARES 2013), (ABARES 2018)
131 (ABARES 2013), (ABARES 2018).

2.3.4 Factors contributing to industry decline

The decline in native hardwood log production has been closely tracked by a decline in hardwood-sawn timber consumption, which has changed markedly in the last two decades since the signing of the RFAs. In Victoria, for example, consumption of hardwood-sawn timber declined by 52% between 2000 and 2014.[132] In Victoria in 2013, production of native hardwood-sawn timber exceeded consumption.[133] Meanwhile, production of (plantation) softwood-sawn timber increased 267% between 1989 and 2014.[134]

Changing markets will influence viability of native forest timber products. Alternative materials have replaced traditional ones in construction, e.g. aluminium is used for window frames, steel for fascia boards, I-beams and LVL are now used for joists and beams instead of wood, concrete flooring is replacing suspended wood flooring and high-density housing makes for reduced sawn timber demand.[135] Softwood timber is now more commonly used in housing materials than native hardwood,[136] with usage of native hardwood in detached houses down by 88% between 1997 and 2014.[137] It is predicted that demand for sawn timber will decline as residential building demand for sawn timber decreases.[138]

The major drivers of decline in the native forest logging industry have been largely attributed to several key factors:

1. **Advances in technology:** modernisation, mechanisation, less wasteful production processes[139]**;**
2. **Structural changes**: decline in full-time and part-time employment,[140] companies downsizing,[141] increased haulage and harvesting costs;[142]
3. **Changing markets:** increased demand for products sourced from plantations;[143]
4. **Changing demand:** use of alternative materials for building and paper,[144] decreased demand for timber because of a lack of growth in construction of detached housing;[145]
5. **Change in resource availability:** stricter forest management regulations,[146] lack of available timber as a result of historic 'over-cutting'.[147]

These changes have occurred despite the RFAs. The fact that the RFAs did not adequately predict or account for such changes, and therefore have not avoided negative results of these changes, demonstrates that they have failed to provide for a stable industry that is able to thrive in the face of advancing technology, structural changes, and changing markets, demand and resource availability.

Case study
In early 2017, the Hermal Group announced they were selling the Heyfield sawmill in Gippsland, Victoria owing to decreased volumes of native hardwood. In Victoria, the decrease in native hardwood volumes has been attributed to an increase in establishment of logging protection zones, implemented in response to detections of critically endangered Leadbeater's Possums.[148] However an analysis indicated that Leadbeater's Possum protection zones removed only 3,134ha or 1.8% of the 158,000ha of Ash forest available for logging in state forest of Victoria between 2014-17,[149] yet the production of sawlogs in Victorian declined by 54% in the 2000-14 period.[150]

Despite investment in native forest logging and ongoing subsidies, timber production from native forests peaked

132 (Taylor 2017)
133 As above.
134 As above.
135 (Forest and Wood Products Australia n.d.)
136 (BIS Shrapnel 2015)
137 (Taylor 2017)
138 (Forest and Wood Products Australia n.d.)
139 (Macintosh 2013)
140 (Montreal Process Implementation Group for Australia and the National Forest Inventory Steering Committee 2013)
141 (Schirmer et al. 2018)
142 (Macintosh 2013)
143 (Macintosh 2013)
144 (Schirmer et al. 2018)
145 (Macintosh 2013)
146 As above.
147 (McDonald 1999), (Sweeney 2016)
148 (Hurley 2017)
149 (Taylor 2017)
150 (BIS Shrapnel 2015)

above their pre-RFA era levels for a brief period in the late 1990s, but have been on a consistent downward trajectory since then, with this trend expected to continue into the future.[151] By contrast, the plantation sector has been consistently growing over the same time period.[152] Based on rates of wood production, it would appear that the plantation sector is more secure for workers and prosperity than the native forest logging industry, but the data show that rates of wood production under RFAs are far from secure.

The RFAs intended to deliver security to the native forest logging industry, but external factors such as consumer/market demand and advances in technology in areas of mechanisation and alternative fibres have meant that native forest logging has faced decline and insecurity. Therefore, despite their intention/claim that they would ensure a stable industry this has not occurred.

2.4 Regard to relevant research and projects

RFA outcome: *Have regard to studies and projects carried out in relation to all of the following matters relevant to the Region –*

(a) *environmental values, including old-growth, wilderness, endangered species, National Estate Values and World Heritage Values;*
(b) *indigenous heritage values;*
(c) *economic values of forested areas and Forest-based industries, including mineral exploration and production;*
(d) *social values (including community needs); and*
(e) *principles of ecologically sustainable management.*

In 1985, more than 10 years before the first RFA was signed, there were an estimated 695 full-time equivalent employees involved in forest research and development in Australia. That number fell marginally to 635 in 2008, and more dramatically to 396 in 2011.[153] This is thought to be the result of changes in funding and delivery models.

Of particular importance is ensuring forests are managed in a way that aligns with the heritage values of Traditional Owners. Forest management has in recent years acknowledged Indigenous culture by accounting for archaeological cultural sites, and have ignored land rights or economic use of the forest.[154] The Government acknowledges that as most native forests are publicly owned, native title rights may prevail in RFA regions and have the potential to contribute to intergenerational equity for Traditional Owners.[155] However the 20-year nature of the RFAs have essentially extinguished native title claims for Traditional Owners in a process that excluded them (except in the case of the development of the Eden RFA).[156]

In Victoria in 2018 historic legislation was passed to establish a framework to negotiate a treaty between Aboriginal Victorians and the Victorian Government.[157] The NSW Labor Party has committed to entering a treaty process should it win government in March 2019.[158] Renewing the RFAs in this context questions the legitimacy of the Government's intentions to work respectfully and genuinely with Traditional Owners.

2.5 Reviews

To achieve the vision for sustainable forest management laid out by the NFPS, each RFA prescribed milestones and obligations to be achieved by the RFA within specified timeframes.[159] Milestones and obligations of the parties covered clauses about conservation (develop threatened species recovery strategies, develop pest plan and animal control programs, participate in World Heritage assessments), ESFM (develop sustainability indicators to monitor forest changes, develop state-based management plans/frameworks), the CAR Reserve System (implement agreed changes to the existing reserve system) and industry (review legislation and policies relevant to allocation and pricing of hardwood logs from state forests, develop and implement methods for determining sustainable yields) (Appendix 2).[160]

In order to assess the progress of each Agreement and the extent to which they had achieved these milestones and obligations, the Parties (i.e. the Australian Government and relevant state governments) agreed to undertake five-yearly RFA reviews. The reviews also would provide an opportunity for public comment on the performance of each agreement to date, and would disclose the results of monitoring of sustainability indicators.[161]

The reviews were designed to enable adaptive forest management: RFAs could be amended so as to respond to, and incorporate, information from the reviews without needing to amend or renegotiate the RFAs.[162] However, the five-yearly reviews for all RFAs have been consistently delivered late since the RFAs were established. Only three of the 33 five-yearly reviews required for the ten RFAs were delivered on time, and only 21% were delivered either on time or within six months of the due date.[163]

On average, five-yearly reviews were completed three and a half years late (Table 3). East Gippsland was the first RFA to be signed and enforced, yet its first five-yearly review was not completed until 2010 – a full eight years late, 13 years after the agreement was initially signed. Delaying the first five-yearly review of a 20-year agreement by eight years is significant: the delayed response removed opportunities for timely public comment and for adaptive forest management in response to any issues with the RFA implementation. In short, a key process that the governments, in signing the RFAs, promised to deliver, was not fulfilled in an appropriate way.

In NSW, the first five-yearly reviews were delivered five, four and three years late for the Eden, North East and Southern regions respectively. Western Australia's first five-yearly review was nine years late. Tasmania managed to complete the first and second five-yearly reviews within a respectable 1-3 months of the due dates, but submitted the third five-yearly review three years late.

Table 3 (below)**:** Maximum and minimum range (in years) for completion of five-yearly review after the due date for each five-yearly review by State and average number of years of review completion (Appendix 3).[164]

	New South Wales	Tasmania	Victoria	Western Australia	National average
Range	2–8	-0.25–3	0–9	3–9	N/A
Average overdue	+4.8	+0.8	+3.12	+5.3	+3.5

151 (McDonald 1999), (Macintosh 2013), (ABARES 2011)
152 (ABARES 2011)
153 (Turner and Lambert 2011)
154 (Sweeney 2015), (Montreal Process Implementation Committee 2013)
155 (Montreal Process Implementation Committee 2013)
156 (Rangan and Lane 2001)
157 (The Guardian, *Victoria passes historic law to create Indigenous treaty framework* , 2018)
158 (The Guardian, *NSW Labor plans to sign treaty recognising Indigenous ownership* , 2018)
159 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
160 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)
161 As above.
162 (Department of Agriculture 2015)
163 (Tasmanian Government and Australian Government 2015), (Western Australian Government and Australian Government 2016), (State of NSW and Environment Protection Authority 2017), (Victorian Government and Australian Government 2017)
164 (Tasmanian Government and Australian Government 2015), (Western Australian Government and Australian Government 2016), (State of NSW and Environment Protection Authority 2017), (Victorian Government and Australian Government 2017)

The mandated five-yearly reviews have also been criticised for the lack of standardisation between states, and for being inadequate, cursory and poorly documented.[165] The Australian Environment Act Report of the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999: Final Report (the Hawke Review) recommended that where reviews are not undertaken or demonstrate severe non-compliance, the Federal Environment Minister ought to be able to enact the protections afforded under the *EPBC Act 1999*. Despite the fact that reviews have not been undertaken or have demonstrated non-compliance, so far no Federal Environment Minister has intervened in relation to this. The report also questioned whether, in the context of delayed or inadequate reviews, the exclusion of forestry operations from the EPBC Act is justified.[166]

The delay in reviewing the RFAs has contributed to the erosion of public trust in the process, and limits the capacity of government agencies to assess the efficacy of a RFA, as they are not able to address emergent issues in a timely manner. However, if recent history is anything to go by, it appears that even if reviews were delivered on time, recommendations made in reviews would still not be incorporated into the RFAs.

In 2017, community organisation Friends of Leadbeater's Possum launched a court case against the Victorian state-owned logging agency, VicForests, on the grounds that by being consistently late in reviewing the RFAs, they had breached the terms of the Regional Forest Agreement in the Central Highlands of Victoria.[167] Lawyers from Environment Justice Australia acting for Friends of Leadbeater's Possum stated that VicForests' activities should be subject to the *EPBC Act 1999* in areas of forest that are known threatened species habitat.[168] Though Justice Mortimer ruled that failure to observe the review provisions did not invalidate the RFAs,[169] this case illustrates the mistrust and concern created by the failure of the RFAs to meet major milestones in a timely fashion.

Additionally, the untimely and inadequate nature of the required five-yearly reviews have severely limited the ability of the RFAs to adapt to new information. As such, the RFAs operate in a way that does not incorporate up-to-date science regarding climate change, bushfire, threatened species, best-practice in designing conservation reserves, community opinion, market drivers or changes to industry. The recent catastrophic bushfires in Australia emphasise this failing sharply. The multi-year gap between reviews means this sort of fundamental change to the ecological and industry landscape does not trigger a review of current arrangements.

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165 (Australian Government 2009), (Feehely, Hammond-Deakin and Miller 2013), (Lacey, Edwards and Lamont 2016),
166 (Australian Government 2009)
167 (The Guardian, *Logging in native forests: court to hear challenge to historic 'peace deal'* , 2017)
168 As above.
169 (The Guardian, *VicForests banned from logging greater glider habitat pending legal challenge* , 2018)

3. Ability of the RFAs to meet intended outcomes into the future

Assessment of the effectiveness and relevance of the current RFAs is critical to ensure future timber harvesting and extraction meets the objectives of the NFPS and the timber industry, as well as the needs of the environment and future generations. All of the RFAs have recently been renewed without comprehensive reviews beforehand, with those in New South Wales and Western Australia until 2039, Tasmania until 2037, and Victoria until 2030.[170]

The following section addresses some of the numerous factors that have the potential to negatively impact the ability of the RFAs to achieve their intended outcomes, especially as there is already strong evidence that the RFA framework is incapable of achieving outcomes for conservation or for industry. These include impacts of climate change, factors contributing to loss of biodiversity and decline in the forest resource such as fire, disease and pest species, competing forest uses such as water, and carbon credits, changing industries, international agreements and legal concerns.

3.1 Climate change

Climate change has been identified as the single biggest threat to humanity. Increased global temperatures result in increased severity and frequency of natural disasters like fires, floods and drought, rising sea levels, melting ice-caps and increased spread of disease and pest species. Forests play an integral role in reducing and storing atmospheric carbon, and climate change is predicted to have a profound effect on forests and forestry.

3.1.1 The role of forests in climate change mitigation

In 2018 the International Panel on Climate Change (IPCC) released the Special Report on Global Warming of 1.5 C (SR15), stating that in order to Limiting global warming to 1.5 C would require rapid, far-reaching and unprecedented changes in all aspects of society .[171] A few days prior to the release of the IPCC report, 40 scientists from five different countries released a joint statement outlining the important role forests play in emissions reductions, predicting that protecting and restoring the world s forest would achieve 18% of the reduction in emissions required to stay below 1.5 C warming.[172]

Conversely, logging forests contributes to global emissions and reduces Australia's carbon sequestration capacity. The world's forests store 3 trillion tons of carbon[173], which is more than the 2.7 trillion tons of carbon found in the world's exploitable fossil fuel reserves.[174] Logging forests greatly reduces forests' carbon stock capacity, significantly decreasing Australia's carbon sequestration capacity. Undisturbed forests in southeastern Australia have stored 40 – 60% more carbon than those subject to logging.[175] Deforestation of Australia's temperate rainforests has resulted in a 44% decrease in carbon stocks across the nation.[176]

Forests play a significant role in global climate change mitigation. While the NFPS outlines the importance of managing forests in a way that would minimise greenhouse gas emissions from forest activities maintain or increase the forest's 'carbon sink' capacity,[177] the RFAs, however, do not mention climate change except to list it as an area of priority research.[178]

Given the scale and magnitude of the threat of climate change, and the crucial role forests play in mitigating this threat, it appears reckless to lock in 20-year agreements that do not value the role forests play in climate change mitigation.

3.1.2 Climate change impacts on conservation and native forestry

Greater levels of atmospheric CO_2, increased temperatures and reduced rainfall are expected to negatively impact forest productivity and health in regional forest agreement areas in Australia by 2030 and 2050 under both medium and high emission scenarios.[179] As a result, log availability is projected to decline across both native and plantation forest sectors, resulting in decreased employment in the industry.[180] The RFAs are intended to 'provide for' a secure industry, however they make no mention of how security will be ensured in the face of climate change and its impact on wood supply. Given this, can they really claim to provide for a secure industry?

Climate change will significantly alter species distribution and fitness. The 2018 IPPC Special Report on Global Warming of 1.5 C (SR15) said that 4% of vertebrate fauna, 8% of plants and 6% of insects of 105,000 species studied across the globe, a rise of 1.5 C would reduce over half of their climatically determined geographic range.[181] In Western Australia, record temperatures and dry conditions prompted 'sudden and unprecedented' canopy collapse in forests of the south-west, indicating the susceptibly to climate change of an ecosystem that was previously believed to be drought resistant and tolerant of disturbance.[182] Climate change and the resultant increase in temperatures and decrease in rainfall are predicted to disrupt ecosystem processes, interspecies interactions, plant physiology, growth, function and phenology (i.e. the timing of important cyclical occurrences such as bud burst and flowering), and species distribution, abundance and survival.[183]

Key threatening processes contributing to biodiversity decline are operating on scales larger than protected areas, which presents a significant challenge for those trying to halt the drastic decline in biodiversity in Australia which is further compounded by climate change.[184] In 2008, the Australian Government undertook a preliminary assessment into the potential implications of climate change on the National Reserve System (NRS), including those areas that form the CAR Reserve System within RFA regions. The assessment identified a broad and diverse reserve system would be essential in conserving species, and recommended it be implemented 'as widely as possible' in order to ensure adequate protection of habitat.[185]

Climate change will directly impact the health and survival of Australia's native forests, and is also expected to exacerbate all of the environmental threats to the forest's health discussed hereinafter.

3.2 Biodiversity loss/resource decline

Regardless of whether forests are considered and valued as habitat for a diversity of species or as a resource for extraction, forest health and survival is threatened by numerous environmental factors that are predicted to worsen in coming decades.

3.2.1 Altered fire regimes

One of the greatest predicted threats to the future of forests is altered fire regimes.[186] Bushfire poses a serious risk to the timber resource and to ecosystem integrity when severity and frequency is high, as is predicted to occur with climate change. Logging alters attributes of forest that may result in increased probability of fire severity and likelihood of ignition.[187] Studies show that extensive logging increases the severity of crown fires in Mountain Ash forests in Victoria.[188] Climate change in conjunction with the impacts of logging on forest fire ecology suggest that altered fire regimes will negatively impact forests in the future.

The recent catastrophic Australian bushfires of 2019/20 are a very clear example of this overwhelming threat. For example, 68% of state forests within the Eden RFA area in New South Wales was burnt, as was 83% of state forests in the East Gippsland RFA area in Victoria. Table 4 shows the full impact of the fires on the RFA areas.

170 (Department of Agriculture, Water and Environment 2020)
171 (IPCC 2018)
172 (Climate and Land Use Alliance 2018)
173 (Pan, et al. 2011), (Pan, Birdsey and Phillips, et al. 2013)
174 (Heede and Oreskes 2016)
175 (Roxburgh, et al. 2006), (Mackey, et al. 2008)
176 (Wardell-Johnson, Keppel and Sander 2011)
177 (Commonwealth of Australia 1992)
178 (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)

179 (ABARES 2011)
180 As above.
181 (IPCC 2018)
182 (Matusick, et al. 2013)
183 (Dunlop and Brown 2008)
184 (Australian Government 2009)
185 (Dunlop and Brown 2008)
186 (Montreal Process Implementation Committee 2013)
187 (Lindenmayer, et al. 2009)
188 (Taylor, McCarthy and Lindenmayer 2014)

Table 4 (below): Break down of burnt areas and State Forest within RFA area from the 2019/20 bushfire season, July 1 2019 to February 11 2020.[189]

State	RFA Area	RFA area (ha)	RFA area burnt (ha)	State Forest within RFA area (ha)	Total State Forest within RFA burnt (ha)	% of State Forest within RFA burnt
NSW	Eden	814,087	386,220	205,016	140,663	68.61%
NSW	Lower North East	5,802,564	1,666,221	484,701	206,972	42.70%
NSW	Southern	4,494,353	1,428,465	417,859	267,540	64.03%
NSW	Upper North East	3,910,707	1,343,819	430,464	285,207	66.26%
Vic	Central Highlands	1,132,024	73	389,804	5	0.00%
Vic	East Gippsland	1,218,663	862,597	580,478	482,626	83.14%
Vic	Gippsland	2,659,662	332,414	810,841	228,629	28.20%
Vic	North East	2,319,288	364,328	722,831	189,846	26.26%
Vic	West	5,772,943	16,833	305,482	3,835	1.26%
WA	South-West	4,259,191	61,940	1,200,299	26,872	2.24%
Tas	Tasmania	6,451,900	36,791	812,912	13,092	1.61%

Despite this, there is no automatic trigger compelling a review of RFAs after such a catastrophic event. While a voluntary 12 month review of the Victorian RFAs is underway (though logging continues in the meantime), there are no reviews currently planned for the RFAs in New South Wales.

Overall, this raises serious questions about the ongoing sustainability of the RFAs, particularly in light of the predicted increasing bushfire risk and likelihood of ongoing forest loss.

3.2.2 Disease

Plant diseases are an increasingly serious threat to the survival of individual forest species and ecosystems. Diseases such as myrtle rust and *Phytophthora cinnamomi*,[190] threaten commercial and non-commercial species, putting pressure on the forest as a resource and as habitat. In Western Australia, *Quambalaria coyrecup*, a fungal pathogen that destroys stands of Marri (*Corymbia calophylla*) is more prominent in disturbed stands of forest.[191] In Victoria and Tasmania, incidence of myrtle wilt, the disease that infects and kills myrtle beech which are the dominant tree species in cool temperate rainforests, is increased by logging.[192] Spread of the spotted gum canker disease in *Corymbia* forests of NSW has increased in recent years.[193]

189 Unpublished geospatial analysis by The Wilderness Society, August 2020.
190 (Morin, et al. 2012), (Montreal Process Implementation Committee 2013)
191 (Sapsford, et al. 2015)
192 (Packham 1994)
193 (Montreal Process Implementation Committee 2013)

3.2.3 Pest species

Competition and predation of invasive plants and animals put pressure on native flora and fauna. Invasive animals like foxes and cats predate native animals, and have been shown to pose a greater threat where logging occurs. Invasive plant species often favour disturbed environments. In Jarrah forests of Western Australia for example, the presence of weeds is significantly higher in logged coupes than in adjacent unlogged areas, which have a much higher diversity of native plant species.[194] In NSW, presence of the invasive weed *Lantana camara* is more likely in highly disturbed areas, particularly in logged forests. Establishment of *Lantana camara* is linked to Bell-Miner associated dieback of eucalypt canopy in NSW forests.[195]

Warmer climates favour generalist, opportunistic species (traits that characterise pest plants and animals) and additionally make forests more susceptible to pests and disease; increased favourability for pests and disease coupled with increased sensitivity of forests to pests and disease is predicted to have significant impacts on forests in the future.[196]

The RFAs cannot claim to provide for conservation or security for industry as they are, if they do not anticipate the negative impacts of altered fire regimes, disease and pest species on the forest as habitat and as a resource for industry.

3.3 Competing forest uses and values

Consideration also needs to be paid to competing industries and the value of other forest uses within the framework of the RFAs going forward. Other forest uses including beekeeping, tourism, hunting, Eucalyptus and Tea-tree oil production, specialty timber production and agriculture rely on the health and stability of the forest ecosystem and often have competing needs and interests to the native forest timber industry.[197]

3.3.1 Water

There is a fundamental conflict in forest use for water production vs. timber production.[198] The tall and medium eucalypt forests found in high rainfall zones that dominate the native forests in the RFA regions make important contributions to the water cycle and water yield of the catchments in which they are found.[199]

Studies have demonstrated the negative effects of logging on water quality and yields.[200] In Victoria's Central Highlands, forests under 25 years old (i.e. those that have been recently logged) yield half as much water as old forests.[201] Intensive logging in the forested catchment areas of Victoria's Central Highlands correspond to 9% reduction in current (2018) water yield, and is expected to reduce yields by 20% by 2050.[202] In the context of climate change, as outlined above, the conflict between water yields and timber extraction will be of growing concern in decades to come. Australia's major cities rely on forested water catchments for their water.[203] Growing populations, altered water cycles as a result of climate change and reduced water yield from logging water catchments present a dire outlook for water security in the near future.

3.3.2 Carbon credits

Carbon sequestration is an important ecosystem service of Australia's tall wet eucalypt forests, which are particularly carbon-dense.[204] The potential revenue earned from participating in carbon credit schemes is estimated to be quite high. In 2015, it was estimated that Victoria could earn $30 million a year by stopping logging and

194 (Burrows, Ward and Cranfield 2002)
195 (Wardell-Johnson, et al. 2006), (NSW Scientific Committee 2006)
196 (Montreal Process Implementaiton Committee 2013)
197 As above.
198 (Taylor, et al. 2018)
199 (National Forest Inventory 1998)
200 (Sweeney 2016),
201 (Vertessy, Watson and O'Sullivan 2001)
202 (Taylor, et al. 2018)
203 (Dudley and Stolton 2008)
204 (Keith, Mackey and Lindenmayer 2009)

sequestering carbon.[205] It was predicted that halting logging in the Southern NSW RFA region could earn as much as $222 million in carbon credits over a 20 year period.[206] Between $16 and $438 million per annum could be earned from stopping logging and earning carbon credits from the forest.[207]

3.4 Changing industries, markets and societies

The pressures outlined in a 2013 review of the native forest logging industry decline - advances in technology, changing markets, changing demand, change in resource availability - are predicted to continue into the future.[208] Changing markets will influence viability of native forest timber products. Alternative materials are replacing traditional ones in construction and paper manufacturing.[209]

Social license[210] is increasingly becoming an issue for industry, as consumers demonstrate a strong preference for products that are sustainable in environmental and social terms. A survey conducted by Forest & Wood Products Australia (FWPA) in 2016 revealed that 64% of Australians find native forest logging unacceptable , and only 16% found it acceptable.[211] Retailers are responding to changing consumer demand and social acceptability. In 2018 Officeworks and Bunnings announced they will no longer stock timber and paper products unless they are certified by the Forest Stewardship Council (FSC).[212] Bunnings has since announced it will no longer sell timber sourced from VicForests due to the Federal Court ruling that the state-owned timber company had breached laws governing harvesting.[213] Few native forest timber industry products have been FSC certified because of the impact native forest logging has on high conservation value habitats and ecological processes.[214] Native forestry is becoming increasingly unacceptable to a society that is demanding sustainably and ethically sourced products.

The RFAs as they are currently written detail how they will provide for a secure industry by giving industry assistant packages and secure access to native forests. However they failed to acknowledge or plan for changing consumer behaviour and market demands. It is practically impossible to ensure security without anticipating changing conditions. As the analysis in this report demonstrates, the industry has experienced insecurity in reduced volumes and decreased employment. Continuing the RFAs without anticipating changing conditions will likely result in the same outcome for industry for the next 20 years.

3.5 International and national agreements

Australia is signatory to a number of international agreements that relate to forest, biodiversity and climate, including the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, United Nations Convention to Combat Desertification, and The World Heritage Convention.[215] National commitments include National Biodiversity Conservation Strategy, the Native Vegetation Framework and the National Forest Policy Statement.[216] By continuing to allow the operation of the RFAs as is, the Australian Government may compromise its ability to meet targets laid out in international agreements.

205 (The Age, *Highlands logging halt would earn Victoria $30m a year in emissions reductions: report* , 2015)
206 (Perkins and Macintosh 2013)
207 (Macintosh 2012)
208 (Macintosh 2013)
209 (Taylor 2017), (Schirmer, et al. 2018), (FWPA 2016)
210 Social licence represents the broad approval or acceptance that the public or community of stakeholders affords to the operations of a company or industry. - (Lacey, Edwards and Lamont 2016)
211 (Sydney Morning Herald, *Bush turns its back on support for logging native forests* , 2018). The remainder of respondents 'didn't know' or had no opinion either way.
212 (ABC News, *Bunnings, Officeworks will dump Victorian native timber in two years unless sustainability proven* , 2018)
213 (ABC News, Bunnings stops selling native timber from state-owned VicForests after court ruling , 2020)
214 (ABC News, *Forestry Tasmania fails to gain crucial certification to aid overseas marketing* , 2016), (The Age, *Timber industry bid to prove its green credentials falls flat* , 2018)
215 (Australian Government 2018), (UN Convention on Biological Diversity 2018), (UN Framework Convention on Climate Change 2018), (UN Convention to Combat Desertification 2018), (UNESCO World Heritage Convention 2018)
216 (Natural Resource Management Ministerial Council 2010)

3.6 Legal concerns

In May 2020 the Federal Court ruled in favour of Friends of Leadbeater's Possum against VicForests and their logging operations in select coupes in the Victorian Central Highland RFA area.[217] The court found that by threatening the habitat and survival of the critically endangered Leadbeater's Possum and vulnerable Greater Glider, VicForests had unlawfully logged 26 coupes and that a further 41 coupes slated for logging would further put these species at risk.

In effect, the Federal Court ruled that VicForests was not exempt from provisions under the *EPBC Act 1999* to protect threatened species as they had breached the Code of Practice for Timber Production 2014, which was accredited as part of the RFA. The court found that VicForests had not applied the precautionary principle in planning and undertaking logging in the coupes in question and had not undertaken careful management to avoid impact on these species.

This court case has profound implications for the RFAs. It throws into doubt the legality of the *EPBC Act 1999* exemptions across all RFAs.

A separate court case challenging the legal validity of the Tasmanian RFA exemption the *EPBC Act 1999* has now also been lodged by the Bob Brown Foundation in the Federal Court.[218]

3.7 Findings

The above factors discussed are very likely to negatively impact the ability of the RFAs to ensure conservation and to provide the industry with secure access to the forest resource, either by diminishing or damaging the extent and/or health/resilience of forests both in terms of habitat and as a resource forests (e.g. bushfire, disease, pests, climate change) or through competition from other forests uses or values (e.g. competing uses such as tourism, beekeeping, agriculture and carbon accounting and competing values such as water supply and carbon sequestration/climate change impact mitigation). Changing market demand will likely continue to negatively impact the native forest timber industry as it has over the last two decades, meaning that a stable industry cannot be guaranteed by a RFA because of unpredictable external factors. Additionally, it is unclear how the Australian government intends to honour international and national commitments while RFAs are in operation. For example, Australia is signatory to the United Nations Convention on Biological Diversity which aims to conserve a minimum of 17% of all ecosystem types - 2% greater than the 15% target outlined in the JANIS criteria that underpin the RFAs. However, the RFAs included clauses that state that additions to the CAR Reserve System should not impede the ability of the industry to access the forest resource. It therefore appears that the Australian Government cannot protect the global standard of 17% of all ecosystems in the CAR Reserve System without impeding the industry's access.

In summary, continuing the RFAs as they are, without addressing negative impacts on forests (as habitat and a resource) that are likely to occur in the future, will likely compound negative impacts. Future changes to forests in ecosystem and economic terms should be incorporated via mechanisms that a) address predicted negative impacts and b) are measurable and crucially, enforceable.

217 (Friends of Leadbeater's Possum vs VicForests 2020)
218 (Morton 2020)

4. Conclusion

The analysis undertaken in this report indicates the RFAs have not met their intended outcomes - of creating a Reserve System that conserves nature, managing according to ESFM or providing for a secure industry - in the 20 years since they were signed. The establishment of the CAR Reserve System represented a significant advancement in forest conservation in Australia, but if it the CAR Reserve System is to genuinely provide for protection of environment and heritage values as was its original intention then a comprehensive overhaul and update will be required to ensure reserves are based on the best science, the highest international standards so as to provide for conservation. RFAs were intended to manage forest in an ecologically sustainable way, but loss of biodiversity in forests indicates this outcome has not been met. The plantation sector has grown in the past two decades, while the native forest sector has declined, indicating more wood volume security in plantations than in native forest logging conducted under RFAs.

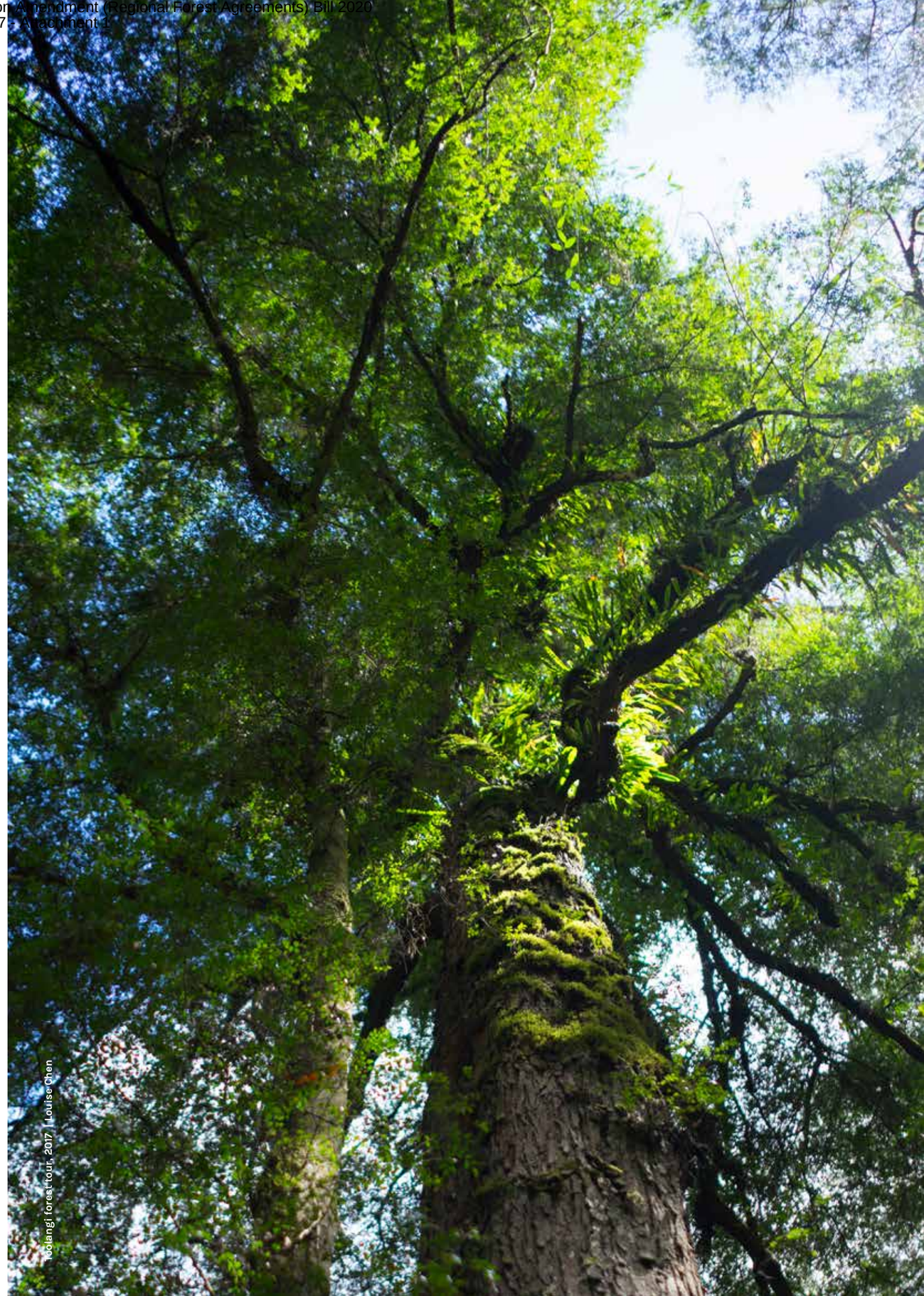
The ability of the RFAs to meet their outcomes in the future will be severely limited by a range of factors from impacts of climate change and altered fire regimes, to changing consumer demand and need to maintain healthy water catchments.

This raises the fundamental question: can the RFAs meet their intended outcomes while the needs of the stakeholders they wish to accommodate are fundamentally competitive? If the last 20 years are anything to go by, native forests cannot sustain a profitable and growing native forest timber whilst maintaining biodiversity and allowing ecological processes to thrive. The two are fundamentally at odds, and therefore mutually exclusive, as is evidenced by the biodiversity loss and industry decline where they co-occur.

Underlying principles of up-to-date information, measurable outcomes for industry and conservation, accountability, transparency, standardisation of measuring and evaluating the RFAs across states, enforcement and adaptability must be integrated that were previously not incorporated appropriately, must underpin any RFA framework going forward.

The Regional Forest Agreements represented a new era in forest management when they were signed 20 years ago, promising to settle conflict between stakeholders and foster a competitive and innovative native forest industry, while ensuring protection of Australia's unique forest ecosystems. Key indicators of deterioration in biodiversity and decline in native forest timber volumes demonstrate these ambitious goals have not been achieved.

When the RFAs were signed they symbolised the beginning of a new era in forest management. The proposal to conduct Comprehensive Regional Assessments and enact agreements that would cease conflict and provide security to industry while conserving the environment was ambitious. If Australia intends to demonstrate its loyalty to what was a ground-breaking proposal in the early 90s by continuing the RFAs as they are, it will inadvertently be contradicting the platform the RFAs were based on: finding new and innovative ways to manage forests for all forest users. The independent review of the *EPBC Act 1999* presents a unique opportunity to do what the original RFAs have failed to do – create jobs and protect forests – which will require radical transformation of the existing framework, and being prepared to do the work to welcome the *next* era of forest management in Australia, even if that means abolishing the RFAs altogether.



'Jolangi forest tour', 2017 | Louise Chen

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Appendices

APPENDIX 1

References listed above in reference list: (NSW EPA 2017), (Victorian Government 2017), (Commonwealth of Australia 1997), (Commonwealth of Australia 1999), (Commonwealth of Australia 1998), (Commonwealth of Australia 2000), (Tasmanian RFA 1997), (Commonwealth of 1997), (Commonwealth of Australia 1999), (Department of Parks and Wildlife (WA) and Department of Agriculture, Fisheries and Forestry (Cwth) 2016), (Australian Government 2018), (Australian Government 2018)

Table 1: Federal status of species listed as priority under the NSW RFAs at the time of signing and in 2020. Extinct = Extinct, Presumed Extinct = Presumed Extinct, CE = Critically Endangered, E = Endangered, V = Vulnerable, NL/NA = Not listed/no info, Blank = no info. B = Better/improvement in status, W = Worse/deteoration in status, NC = No change/no improvement in status.

State	REGION		Species name	Common name	Status at time of signing (TOS)	Status in 2020	Change in status from TOS to 2020
NSW	NE	Flora	*Acacia baueri subsp. baueri*	Tiny wattle	V	NL	B
NSW	NE, S	Flora	*Acacia bynoeana*	Bynoe wattle	V	V	NC
NSW	E	Flora	*Acacia constablei*	Constables or Narrabarba wattle	V	V	NC
NSW	NE	Flora	*Acacia courtii*	Northern brother wattle	V	V	NC
NSW	S	Flora	*Acacia flocktoniae*	Flockton wattle	V	V	NC
NSW	E	Flora	*Acacia georgensis*	Dr. George's or Bega wattle	V	V	NC
NSW	NE	Flora	*Acacia macnuttiana*	McNutt's wattle	V	V	NC
NSW	S	Flora	*Acacia phasmoides*	Phantom wattle	V	V	NC
NSW	NE	Flora	*Acacia pubifolia*	Velvet wattle	V	V	NC
NSW	NE	Flora	*Acacia pycnostachya*	Bolivia wattle	V	V	NC
NSW	NE	Flora	*Acacia ruppii*	Rupp's wattle	E	E	NC
NSW	NE	Flora	*Acronychia littoralis*	Scented acronychla	E	E	NC
NSW	NE	Flora	*Allocasuarina defungens*	Dwarf heath casuarina	E	E	NC
NSW	NE	Flora	*Allocasuarina simulans*	Nabiac casuarina	V	V	NC
NSW	NE	Flora	*Almaleea cambagei*	Torrington pea	V	V	NC
NSW	S	Flora	*Ammobium craspedioides*	Yass daisy	V	V	NC
NSW	NE	Flora	*Amyema plicatula (syn. Amyema scandens)*	(a busy mistletoe)	E	E	NC
NSW	NE	Flora	*Angophora robur*	Sandstone roughbarked apple	V	V	NC
NSW	NE	Flora	*Arthraxon hispidus*	Hairy-joint grass	V	V	NC
NSW	NE	Flora	*Asperula asthenes*	Trailing woodruff	V	V	NC
NSW	NE	Flora	*Austromyrtus fragrantissima (syn. Gossia fragrantissima)*	Sweet myrtle	E	E	NC
NSW	NE	Flora	*Baloghia marmorata*	Marbled balogia	V	V	NC
NSW	S	Flora	*Baloskion longipes*	Dense cord-rush	V	V	NC
NSW	NE	Flora	*Bertya ingramii*	Narrow-leaved bertya	E	E	NC
NSW	S	Flora	*Boronia deanei*	Deane's boronia	V	V	NC
NSW	NE	Flora	*Boronia granitica*	Granite boronia	E	E	NC
NSW	NE	Flora	*Bosistoa transversa (syn. Bosistoa selwynii)*	Three-leaved bosistoa	V	V	NC
NSW	NE	Flora	*Bothrichloa biloba*	Lobed blue-grass	V	DELISTED	B
NSW	NE	Flora	*Bulbophyllum globuliforme*	Miniature mossorchid	V	V	NC
NSW	NE	Flora	*Cadellia pentastylis*	Ooline	V	V	NC
NSW	S	Flora	*Caladenia concolor*	Crimson spider orchid	NL	V	W
NSW	S	Flora	*Caladenia tessellata*	Daddy long-legs	V	V	NC
NSW	NE, S	Flora	*Callitris oblonga*	Pigmy cypresspine	V	V	NC
NSW	NE	Flora	*Clematis fawcetti*	Northern or stream clematis	V	V	NC
NSW	NE	Flora	*Corchorus cunninghamii*	Native jule	E	E	NC
NSW	NE	Flora	*Corokia whiteana*	Corokia	V	V	NC
NSW	S	Flora	*Correa baeuerlenii*	Chef's cap	V	V	NC
NSW	NE	Flora	*Cryptocarya foetida*	Stinking cryptocarya	V	V	NC
NSW	S	Flora	*Cryptostylis hunteriana*	Leafless tongue orchid	V	V	NC
NSW	NE, S	Flora	*Cynanchum elegans*	White-flowered wax plant	E	E	NC
NSW	S	Flora	*Daphnandra johnsonii*	Illawarra socketwood	E	E	NC
NSW	NE	Flora	*Davidsonia jerseyana (syn. Davidsonia pruriens var. jerseyana)*	Davidson's plum	E	E	NC
NSW	NE	Flora	*Davidsonia johnsonii (syn. Davidsonia sp. A Mullumbimby-Currimbin Ck)*	Smooth Davidson's plum	E	E	NC
NSW	NE	Flora	*Desmodium acanthocladum*	Thorny pea	V	V	NC
NSW	NE	Flora	*Dichanthium setosum*	Bluestem	V	V	NC
NSW	NE	Flora	*Dichelachne parva*	(a tufted perennial grass)	V	NL	B
NSW	NE	Flora	*Digitaria porrecta*	Finger panic grass	E	DELISEED	B
NSW	NE	Flora	*Diospyros mabacea*	Red-fruited ebony	E	E	NC
NSW	NE	Flora	*Diploglottis campbellii*	Small-leaved tamarind	E	E	NC
NSW	S	Flora	*Discaria nitida*	Leafy anchor plant	NL	NL	NC
NSW	S	Flora	*Diuris aequalis*	Buttercup doubletail	V	V	NC
NSW	NE	Flora	*Diuris venosa*	Veined doubletail	V	V	NC
NSW	NE	Flora	*Elaeocarpus sedentarius (syn sp. Rocky Creek)*	Minyon quandong	E	E	NC
NSW	NE	Flora	*Elaeocarpus williamsianus*	Hairy quandong	E	E	NC
NSW	NE	Flora	*Endiandra floydii*	Crystal Creek walnut	E	E	NC
NSW	NE	Flora	*Endiandra hayesii*	Rusty rose walnut	V	V	NC
NSW	NE	Flora	*Eriocaulon australasicum*	Austral pipewort	V	E	W
NSW	NE	Flora	*Eriostemon ericifolius (now Philotheca ericifolia)*	(a spreading shrub)	V	-	B
NSW	NE, S	Flora	*Erythranthera pumila (syn Rytidosperma pumilum)*	Feldmark grass	V	V	NC
NSW	S	Flora	*Eucalyptus aquatica*	Broad-leaved sallee	V	V	NC
NSW	NE	Flora	*Eucalyptus caleyi ovendenii*	Ovenden's ironbark	V	V	NC
NSW	NE	Flora	*Eucalyptus camfieldii*	Camfield's stringybark	V	V	NC
NSW	NE	Flora	*Eucalyptus glaucina*	Slaty red gum	V	V	NC

NSW	E	Flora	*Eucalyptus imlayensis*	Imlay mallee	V	E	W
NSW	NE	Flora	*Eucalyptus infera*	Durikai mallee	V	V	NC
NSW	S	Flora	*Eucalyptus kartzoffiana*	Araluen gum	V	V	NC
NSW	S	Flora	*Eucalyptus langleyi*	Albatross mallee	V	V	NC
NSW	NE	Flora	*Eucalyptus mckieana*	McKie's stringybark	V	V	NC
NSW	NE	Flora	*Eucalyptus nicholii*	Black peppermint	V	V	NC
NSW	NE	Flora	*Eucalyptus pachycalyx subsp. Banyabba*	Shiny-barked gum	E	E	NC
NSW	NE	Flora	*Eucalyptus parramattensis decadens*	Earp's gum	V	V	NC
NSW	E, S	Flora	*Eucalyptus parvula*	Small-leaved gum	V	V	NC
NSW	S	Flora	*Eucalyptus pulverulenta*	Silver-leaved gum	V	V	NC
NSW	NE	Flora	*Eucalyptus pumila*	Polkolbin mallee	V	V	NC
NSW	S	Flora	*Eucalyptus recurva*	Mongarlowe mallee	E	CE	W
NSW	S	Flora	*Eucalyptus saxatilis*	Suggan buggan mallee	NL	NL	NC
NSW	NE	Flora	*Eucalyptus scoparia*	Wallangarra white gum	V	V	NC
NSW	S	Flora	*Eucalyptus strugissiana*	Ettrema mallee	NL	NL	NC
NSW	NE	Flora	*Eucalyptus tetrapleura*	Square-fruited ironbark	V	V	NC
NSW	NE	Flora	*Euphrasia bella*	Lamington eyebright	V	V	NC
NSW	NE	Flora	*Euphrasia collina subsp. Muelleri*	Purple eyebright	E	E	NC
NSW	NE	Flora	*Floydia praealta*	Ball nut	V	V	NC
NSW	NE	Flora	*Fontainea australis*	Southern fontainea	V	V	NC
NSW	NE	Flora	*Fontainea oraria*	Coastal fontainea	E	CE	W
NSW	S	Flora	*Genoplesium plumosum*	Tallong midge orchid	E	E	NC
NSW	E	Flora	*Genoplesium rhyoliticum*	Rhyolite midge orchid	E	E	NC
NSW	S	Flora	*Genoplesium vernale*	East Lynne midge-orchid	E	V	B
NSW	S	Flora	*Gentiana bredboensis*	Bredbo gentian	V	CE	W
NSW	S	Flora	*Gentiana wingecarribiensis*	Wingecarribee gentian	E	E	NC
NSW	NE	Flora	*Gentiana wissmannii*	New England gentian	V	V	NC
NSW	NE	Flora	*Gingidia montana*	Mountain angelica	E	E	NC
NSW	NE	Flora	*Grevillea beadleana*	Beadle's grevillea	E	E	NC
NSW	NE	Flora	*Grevillea guthriena*	Guthrie's grevillea	E	E	NC
NSW	S	Flora	*Grevillea iaspicula*	Wee Jasper grevillea	E	E	NC
NSW	NE	Flora	*Grevillea masonii*	Mason's grevillea	E	E	NC
NSW	NE	Flora	*Grevillea mollis*	Soft grevillea	E	E	NC
NSW	S	Flora	*Grevillea molyneuxii*	Tallowa grevillea	E	E	NC
NSW	NE	Flora	*Grevillea obtusiflora*	Grey grevillea	E	E	NC
NSW	S	Flora	*Grevillea rivularis*	Carrington Falls grevillea	E	E	NC
NSW	NE	Flora	*Grevillea shiressii*	Blue grevillea	V	V	NC
NSW	S	Flora	*Grevillea wilkinsonii*	Tumut grevillea	E	E	NC
NSW	NE	Flora	*Hakea dohertyi (syn sp. B Kowmung River)*	Kowmung hakea	E	E	NC
NSW	NE	Flora	*Hakea pulvinifera*	Lake Keepit hakea	E	E	NC

NSW	S	Flora	*Haloragis exalata subsp. exalata*	Square raspwort	V	V	NC
NSW	NE	Flora	*Haloragis exalata subsp. velutina*	Tall velvet seaberry	V	V	NC
NSW	NE	Flora	*Hicksbeachia pinnatifolia*	Red bopple nut	V	V	NC
NSW	NE	Flora	*Homoranthus darwinoides*	(a spreading shrub)	V	V	NC
NSW	NE	Flora	*Hydrocharis dubia*	Frogbit	V	DELISTED	B
NSW	S	Flora	*Irenepharsus trypherus*	Delicate cress	E	E	NC
NSW	NE	Flora	*Isoglossa eranthemoides*	Isoglossa	E	E	NC
NSW	NE	Flora	*Kennedia retrorsa*	Crimson coral pea	V	V	NC
NSW	S	Flora	*Kunzea cambagei*	Cambage kunzea	V	V	NC
NSW	NE	Flora	*Kunzea rupestris*	Rocky kunzea	V	V	NC
NSW	NE	Flora	*Lasiopetalum longistamineum*	(a spreading shrub)	V	V	NC
NSW	E	Flora	*Leionema ralstonii*	Ralston's leionema	V	V	NC
NSW	NE	Flora	*Lepidium hyssopifolium*	Basalt peppercress	E	E	NC
NSW	S	Flora	*Leptospermum thompsonii*	Monga tea-tree	V	V	NC
NSW	NE	Flora	*Leucopogon confertus*	Torrington beardheath	E	E	NC
NSW	NE	Flora	*Macadamia tetraphylla*	Rough-leaved Queensland nut	V	V	NC
NSW	NE	Flora	*Macrozamia occidua*	(a small cycad)	V	V	NC
NSW	S	Flora	*Melaleuca biconvexa*	Biconvex paperbark	V	V	NC
NSW	NE	Flora	*Melichrus sp. Newfoundland State Forest (P. Gilbour 7852) (syn. Melichrus hirsutus)*	Hairy melichrus	E	E	NC
NSW	S	Flora	*Micromyrtus minutiflora*	(a slender spreading shrub)	V	V	NC
NSW	S	Flora	*Monotaxis macrophylla*	Large-leaf monotaxis	NL	NL	NC
NSW	E, S	Flora	*Monotoca rotundifolia*	Trailing monotoca	NL	NL	NC
NSW	NE	Flora	*Myrsine richmondensis*	Ripple-leaf muttonwood	E	E	NC
NSW	NE	Flora	*Neoastelia spectabilis*	Silver sword lily	V	V	NC
NSW	NE	Flora	*Ochrosia moorei*	Southern ochrosia	E	E	NC
NSW	NE	Flora	*Olearia flocktoniae*	Dorrigo daisy bush	E	E	NC
NSW	NE	Flora	*Owenia cepiodora*	Bog onion	V	V	NC
NSW	NE	Flora	*Parsonsia dorrigoensis*	Milky silkpod	E	E	NC
NSW	S	Flora	*Persicaria elatior*	Tall knotweed	V	V	NC
NSW	NE	Flora	*Persoonia acerosa*	Needle geebung	V	V	NC
NSW	S	Flora	*Persoonia glaucescens*	Mittagong geebung	V	V	NC
NSW	NE	Flora	*Phaius australis*	Lesser swamp-orchid	E	E	NC
NSW	NE	Flora	*Phaius tankervilliae*	Swamp lily	E	DELISTED	B
NSW	NE	Flora	*Phebalium elatius subsp. Beckleri (now Leionema elatius)*	Tall phebalium	E	NL	B
NSW	S	Flora	*Phyllota humifusa*	Dwarf phyllota	NL	V	W
NSW	NE	Flora	*Pimelea venosa*	Bolivia Hill pimelea	E	E	NC
NSW	NE	Flora	*Plectranthus nitidus*	Nightcap plecranthus	E	E	NC
NSW	S	Flora	*Plinthanthesis rodwayi*	Bedawangs wallaby-grass	V	V	NC
NSW	NE	Flora	*Pomaderris brunnea*	Rufous pomaderris	V	V	NC

NSW	E, S	Flora	*Pomaderris cotoneaster*	Cotoneaster pomaderris	E	E	NC
NSW	E	Flora	*Pomaderris elachophylla*	Lacy pomaderris	NL	NL	NC
NSW	S	Flora	*Pomaderris gilmourii var. cana*	Grey Deua pomaderris	V	V	NC
NSW	S	Flora	*Pomaderris pallida*	Pale pomaderris	V	V	NC
NSW	S	Flora	*Pomaderris parrisiae*	Parris' pomaderris	V	V	NC
NSW	S	Flora	*Pomaderris sericea*	Silky or bent pomaderris	V	V	NC
NSW	S	Flora	*Prasophyllum affine*	Culburra leek orchid	E	E	NC
NSW	S	Flora	*Prasophyllum morganii*	Cobungra leek orchid	V	V	NC
NSW	S	Flora	*Prasophyllum petilum*	Boorowa or Tarengo leek orchid	E	E	NC
NSW	S	Flora	*Prasophyllum uroglossum*	Wingecarribee leaf orchid	E	NL	B
NSW	NE	Flora	*Prostanthera askania*	Tranquility mintbush	E	E	NC
NSW	NE	Flora	*Prostanthera cineolifera*	Singleton mintbush	V	V	NC
NSW	NE, S	Flora	*Prostanthera densa*	Villous mint-bush	V	V	NC
NSW	NE	Flora	*Prostanthera sp. Somersby (syn. P. junonsis)*	Somersby mintbush	E	E	NC
NSW	S	Flora	*Pterostylis gibbosa*	Pouched greenhood	E	E	NC
NSW	S	Flora	*Pterostylis pulchella*	Waterfall pretty greenhood	V	V	NC
NSW	S	Flora	*Pultenaea aristata*	Prickly bush-pea	V	V	NC
NSW	S	Flora	*Pultenaea baeurlenii*	Budawangs bush-pea	V	V	NC
NSW	NE	Flora	*Pultenaea campbellii*	New England bush-pea	V	DELISTED	B
NSW	NE	Flora	*Pultenaea stuartiana (syn. P. foliolosa)*	(a small shrubby pea)	V	DELISTED	B
NSW	NE	Flora	*Quassia sp. Mooney Creek (now Samadera sp. Moonee Creek)*	Moonee quassia	E	E	NC
NSW	NE	Flora	*Randia moorei*	Spiny gardenia	E	E	NC
NSW	S	Flora	*Ranunculus anemoneus*	Anemone buttercup	V	V	NC
NSW	S	Flora	*Rulingia prostrata (now Commersonia prostrata)*	Dwarf kerrawang	E	CE	W
NSW	NE	Flora	*Rutidosis heterogama*	Heath wrinklewort	V	V	NC
NSW	S	Flora	*Rutidosis leiolepis*	Monaro golden daisy	V	V	NC
NSW	S	Flora	*Rutidosis leptorrhynchoides*	Button wrinklewort	E	E	NC
NSW	NE	Flora	*Sarcochilus fitzgeraldii*	Ravine orchid	V	V	NC
NSW	NE	Flora	*Sophora fraseri*	Brush sophora	V	V	NC
NSW	S	Flora	*Swainsona recta*	Mountain Swainson-pea	E	E	NC
NSW	NE	Flora	*Symplocos baeuerlenii*	Small-leaved hazelwood	V	V	NC
NSW	NE	Flora	*Syzygium hodgkinsoniae*	Red lilly pilly	V	V	NC
NSW	NE	Flora	*Syzygium moorei*	Coolamon rose apple	V	V	NC
NSW	NE, S	Flora	*Syzygium paniculatum*	Creek satin ash	V	V	NC
NSW	NE	Flora	*Tasmannia glaucifolia*	Fragrant pepperbush	V	V	NC
NSW	NE	Flora	*Tasmannia purpurascens*	Purple or broad-leaved pepperbush	V	DELISTED	B

NSW	NE	Flora	*Tetratheca glandulosa*	Glandular pinkbell	V	DELISTED	B
NSW	NE	Flora	*Tetratheca juncea*	Black-eyed Susan	V	V	NC
NSW	NE, S	Flora	*Thesium australe*	Austral toad-flax	V	V	NC
NSW	NE	Flora	*Tinospora tinosporoides*	Arrow-head vine	V	DELISTED	B
NSW	S	Flora	*Triplarina nowraensis*	Nowra heath myrtle	E	E	NC
NSW	NE	Flora	*Tylophora woollsii*	Cryptic forest twiner	E	E	NC
NSW	NE	Flora	*Uromyrtus australis*	Peach myrtle	E	E	NC
NSW	NE	Flora	*Velleia perfoliata*	(a perennial herb)	V	V	NC
NSW	E	Flora	*Viola cleistogamoides*	Hidden violet	NL	NL	NC
NSW	E	Flora	*Westringia davidii*	David's westringia	V	V	NC
NSW	S	Flora	*Westringia kydrensis*	Kydra westringia	E	E	NC
NSW	S	Flora	*Zieria adenophora*	Araluen zieria	E	E	NC
NSW	S	Flora	*Zieria baeuerlenii*	Bomaderry zieria	E	E	NC
NSW	E	Flora	*Zieria buxijugum*	Box range zieria	E	E	NC
NSW	S	Flora	*Zieria citriodora*	Lemon-scented zieria	V	V	NC
NSW	E	Flora	*Zieria formosa*	Shapely zieria	E	E	NC
NSW	S	Flora	*Zieria granulata*	Narrow-leaf or Illawarra zieria	E	E	NC
NSW	S	Flora	*Zieria involucrata*	(a tall shrub)	V	V	NC
NSW	NE	Flora	*Zieria lasiocaulis*	Willi willi zieria	E	E	NC
NSW	S	Flora	*Zieria murphyi*	Velvet zieria	V	V	NC
NSW	E	Flora	*Zieria parrisiae*	Parris' zieria	E	E	NC
NSW	S	Flora	*Zieria tuberculata*	Warty zieria	V	V	NC
NSW	NE, E, S	Fauna	*Anthochaera phrygia*	Regent honeyeater	E	CE	W
NSW	S	Fauna	*Aprasia parapulchella*	Pink-tailed legless lizard	V	V	NC
NSW	NE, S	Fauna	*Burhinus grallarius*	Bush stone curlew	NO INFO	NL	NC
NSW	S	Fauna	*Burramys parvus*	Mountain pygmy-possum	E	E	NC
NSW	S	Fauna	*Calyptorynchus lathamii*	Glossy black cockatoo	NO INFO	NL	NC
NSW	NE	Fauna	*Caretta caretta*	Loggerhead turtle	E	V	B
NSW	S	Fauna	*Chalinolobus dwyeri*	Large-eared pied bat		E	W
NSW	NE	Fauna	*Chelonia mydas*	Green turtle	V	V	NC
NSW	NE	Fauna	*Cyclopsitta diophthalma coxeni*	Double-eyed fig parrot	E	E	NC
NSW	NE, S	Fauna	*Dasyornis brachypterus*	Eastern bristlebird	E	E	NC
NSW	E,S	Fauna	*Dasyurus maculatus*	Spotted-tailed quoll	V	E	W
NSW	NE	Fauna	*Dasyurus viverrinus*	Eastern quoll		E	W
NSW	S	Fauna	*Delma impar*	Striped legless lizard	V	V	NC
NSW	NE	Fauna	*Dermochelys coriacea*	Leatherback turtle	V	E	W
NSW	NE	Fauna	*Diomedea exulans*	Wandering albatross	V	V	NC
NSW	NE	Fauna	*Emydura macquarii signata*	Brisbane River turtle	V	NL	B
NSW	NE	Fauna	*Erythrotriorchis radiatus*	Red goshawk	V	V	NC
NSW	NE	Fauna	*Eubalaena australis*	Southern right whale	E	E	NC
NSW	S	Fauna	*Falsistrellus tasmaniensis*	Eastern false pipistrelle		NL	NC

NSW	E	Fauna	*Heleioporus australiacus*	Giant burrowing frog		V	W
NSW	S	Fauna	*Heleioporus australiacus*	Giant burrowing frog	V		B
NSW	NE	Fauna	*Hoplocephalus bungaroides*	Broad-headed snake	V	V	NC
NSW	S	Fauna	*Hoplocephalus bungaroides*	Broad-headed snake	V		B
NSW	E, S	Fauna	*Isoodon obesulus obesulus*	Southern brown bandicoot		E	W
NSW	S	Fauna	*Kerivoula papuensis*	Golden-tipped bat		NL	NC
NSW	NE, E	Fauna	*Lathamus discolor*	Swift parrot	V	CE	W
NSW	S	Fauna	*Lathamus discolor*	Swift parrot	E		B
NSW	NE, S	Fauna	*Litoria aurea*	Green and golden bell frog	V	V	NC
NSW	NE, S	Fauna	*Litoria booroolongensis*	Booroolong frog		E	W
NSW	NE	Fauna	*Litoria castanea*	Yellow-spotted bell frog		CE	W
NSW	NE	Fauna	*Litoria piperata*	Peppered frog		V	W
NSW	S	Fauna	*Lophoictinia isura*	Square-tailed kite		NL	NC
NSW	S	Fauna	*Mastacomys fuscus*	Broad-toothed rat		V	W
NSW	S	Fauna	*Miniopterus schreibersii*	Common bentwing bat		E	W
NSW	NE	Fauna	*Mixophyes balbus*	Stuttering frog		V	W
NSW	E	Fauna	*Mixophyes balbus*	Stuttering frog		V	W
NSW	S	Fauna	*Mixophyes balbus*	Stuttering frog		V	W
NSW	NE	Fauna	*Mixophyes fleayi*	Fleay's barred frog		E	W
NSW	NE	Fauna	*Mixophyes iteratus*	Giant barred frog		E	W
NSW	S	Fauna	*Mormopterus norfolkensis*	Eastern freetail bat		NL	NC
NSW	S	Fauna	*Myotis macropus (syn M. adversus)*	Southern myotis		NL	NC
NSW	S	Fauna	*Neophema pulchella*	Torquoise parrot		NL	NC
NSW	S	Fauna	*Ninox connivens*	Barking owl		NL	NC
NSW	E, S	Fauna	*Ninox strenua*	Powerful owl		NL	NC
NSW	S	Fauna	*Pachycephala olivacea*	Olive whistler		NL	NC
NSW	S	Fauna	*Pedionomus torquatus*	Plains-wanderer	V	CE	W
NSW	NE	Fauna	*Petalura gigantean*	Giant dragonfly		NL	NC
NSW	S	Fauna	*Petaurus norfolcensis*	Squirrel glider		NL	NC
NSW	NE	Fauna	*Petrogale penicillata*	Brush-tailed rock-wallaby	V	V	NC
NSW	S	Fauna	*Petrogale penicillata*	Brush-tailed rock-wallaby	V	V	NC
NSW	S	Fauna	*Petroica rodinogaster*	Pink robin		NL	NC
NSW	S	Fauna	*Phascogale tapoatafa*	Brush-tailed phascogale		NL	NC
NSW	E,S	Fauna	*Phascolarctos cinereus*	Koala		V	W
NSW	NE	Fauna	*Poephila cincta cincta*	Southern black throated finch	V	E	W
NSW	S	Fauna	*Polytelis swainsonii*	Superb parrot	V	V	NC
NSW	E	Fauna	*Potorous longipes*	Long-footed potoroo	E	E	NC
NSW	S	Fauna	*Potorous tridactylus*	Long-nosed potoroo	V	V	NC
NSW	E	Fauna	*Pseudomys fumeus*	Smoky mouse		E	W
NSW	S	Fauna	*Pseudomys fumeus*	Smoky mouse	E	E	NC
NSW	NE	Fauna	*Pseudomys oralis*	Hastings River mouse	E	E	NC
NSW	S	Fauna	*Pseudophryne australis*	Red-crowned toadlet			NC
NSW	S	Fauna	*Pseudophryne pengilleyi*	Northern corroboree frog	V	CE	W
NSW	NE	Fauna	*Pterodroma leucoptera leucoptera*	Gould's petrel	E	NL	B
NSW	S	Fauna	*Saccolaimus flaviventris*	Yellow-bellied sheathtail-bat		NL	NC
NSW	S	Fauna	*Scoteanax ruppellii*	Greater broad-nosed bat		NL	NC
NSW	S	Fauna	*Sminthopsis leucopus*	White-footed dunnart		NL	NC
NSW	NE	Fauna	*Sternula albifrons*	Little tern	E	NL	B
NSW	NE	Fauna	*Thersites mitchellae*	Mitchell's rainforest snail		CE	W
NSW	S	Fauna	*Thinornis rubricollis rubricollis*	Hooded plover	V	V	NC
NSW	NE	Fauna	*Turnix melanogaster*	Black-breasted button-quail	V	V	NC
NSW	E,S	Fauna	*Tyto novaehollandiae*	Masked owl		NL	NC
NSW	E, S	Fauna	*Tyto tenebricosa*	Sooty owl		NL	NC
NSW	S	Fauna	*Varanus rosenbergi*	Rosenberg's goanna		NL	NC

Table 2: Federal status of species listed as priority under the Tasmanian RFA at the time of signing and in 2020. Extinct = Extinct, Presumed Extinct = Presumed Extinct, CE = Critically Endangered, E = Endangered, V = Vulnerable, NL/NA = Not listed/no info, Blank = no info. B = Better/improvement in status, W = Worse/deteoration in status, NC = No change/no improvement in status.

State	REGION		Species name	Common name	Status at time of signing (TOS)	Status in 2020	Change in status from TOS to 2020
TAS		Fauna	*Dirce aesidora*		-	-	NC
TAS		Fauna	*Anoglypta launcestonensis*		-	-	NC
TAS		Fauna	*Dasyurus maculatus maculatus*		V	V	NC
TAS		Fauna	*Aquila audax fleayi*		-	E	W
TAS		Fauna	*Accipiter novaehollandiae*		-	-	NC
TAS		Fauna	*Engaeus yabbimunna*		-	V	W
TAS		Fauna	*Engaeus orramakunna*		-	V	W
TAS		Fauna	*Hoplogonus simsoni*		-	V	W
TAS		Fauna	*Lissotes menalcas*		-	-	NC
TAS		Fauna	*Tasmanipatus anophthalmus*		-	E	W
TAS		Fauna	*Ooperipatellus 'cryptus'*		-	-	NC
TAS		Fauna	*Migas plomleyi*		-	-	NC
TAS		Fauna	*Miselaoma weldii*		-	-	NC
TAS		Fauna	*Roblinella agnewi*		-	-	NC
TAS		Fauna	*Dasyurus viverrinus*		V	E	W
TAS		Fauna	*Pardalotus quadragintus*		E	E	NC
TAS		Fauna	*Lathamus discolor*		V	CE	W
TAS		Fauna	*Antipododia chaostola leucophaea*		-	E	W

TAS		Fauna	*Schayera baiulus*		-	-	NC
TAS		Fauna	*Lissotes latidens*		-	E	W
TAS		Fauna	*Pasmaditta jungermanniae*		NA	NA	NC
TAS		Fauna	*Tasmanipatus barreti*		-	-	NC
TAS		Fauna	*Tasmanophilus n. sp.*		NA	NA	NC
TAS		Fauna	*Cryptops n. sp.*		NA	NA	NC
TAS		Fauna	*Perameles gunnii gunnii*		V	V	NC
TAS		Fauna	*Oreixenica ptunarra*		-	E	W
TAS		Fauna	*Catadromus lacordairei*		-	-	NC
TAS		Fauna	*Lackrana carbo*		-	-	NC
TAS		Fauna	*Fraus latistria*			-	NC
TAS		Fauna	*Pseudomys novaehollandiae*		-	-	NC
TAS		Fauna	*Neophema chrysogaster*		E	CE	W
TAS		Fauna	*Engaeus spinicaudatus*		-	E	W
TAS		Fauna	*Galaxias fontanus*		E	E	NC
TAS		Fauna	*Galaxias johnstoni*		E	E	NC
TAS		Fauna	*Prototroctes maraena*		V	V	NC
TAS		Fauna	*Galaxias tanycephalus*		V	E	W
TAS		Fauna	*Astacopsis gouldi*		V	V	NC
TAS		Fauna	*Beddomeia krybetes*		-	-	NC
TAS		Fauna	*Beddomeia tumida*		-	-	NC
TAS		Fauna	*Galaxias pusilla*		-	V	W
TAS		Fauna	*Litoria raniformis*		-	V	W
TAS		Flora	*Acacia axillaris*		V	V	NC
TAS		Flora	*Acacia pataczekii*		-	-	NC
TAS		Flora	*Lachnagrostis punicea spp. Punicea*		-	-	NC
TAS		Flora	*Allocasuarina duncanii*		-	-	NC
TAS		Flora	*Alternanthera denticulata*		-	-	NC
TAS		Flora	*Amphibromus macrorhinus*		-	-	NC
TAS		Flora	*Anogramma leptophylla*		-	-	NC
TAS		Flora	*Aphelia gracilis*		-	-	NC
TAS		Flora	*Aphelia pumilio*		-	-	NC
TAS		Flora	*Argentipallium spiceri*		X	X	NC
TAS		Flora	*Arthrochilus huntianus has now become two species. Arthrochilus huntianus ssp. huntianus is now Thynninorchis hutiana and is extinct in Tas and not listed at EPBC. Arthrochilis huntianus ssp. nothofagicola is now Thynninorchis nothofagicola is Critically endangered at EPBC and endangered at TAS*		NA	NA	NC
TAS		Flora	*Asperula subsimplex*		-	-	NC
TAS		Flora	*Asplenium hookerianum*		V	V	NC
TAS		Flora	*Hookerochloa hookeriana*		-	-	NC
TAS		Flora	*Ballantinia antipoda*		E	E	NC
TAS		Flora	*Banksia serrata*		-	-	NC
TAS		Flora	*Barbarea australis*		E	E	NC
TAS		Flora	*Baumea gunnii*		-	-	NC

TAS		Flora	*Bertya rosmarinifolia ssp. Tasmanica*		-	E	W
TAS		Flora	*Blechnum cartilagineum*		-	-	NC
TAS		Flora	*Bolboschoenus medianus*		-	-	NC
TAS		Flora	*Bossiaea tasmanica*		-	-	NC
TAS		Flora	*Brachyglottis brunonis*		-	-	NC
TAS		Flora	*Brachyscome radicata*		-	-	NC
TAS		Flora	*Brachyscome rigidula*		-	-	NC
TAS		Flora	*Brachyscome sieberi var. gunnii*		-	-	NC
TAS		Flora	*Brachyscome tenuiscapa var. pubescens*		NA	NA	NC
TAS		Flora	*Brunonia australis*		-	-	NC
TAS		Flora	*Caesia calliantha*		-	-	NC
TAS		Flora	*Caladenia caudata*		-	V	W
TAS		Flora	*Caladenia lindleyana*		V	CE	W
TAS		Flora	*Caladenia pallida*		-	CE	W
TAS		Flora	*Callitris aff. oblonga*		V	E	W
TAS		Flora	*Calocephalus citreus*		-	-	NC
TAS		Flora	*Carex gunniana*		-	-	NC
TAS		Flora	*Carex longebrachiata*		-	-	NC
TAS		Flora	*Centipedia cunninghamii*		-	-	NC
TAS		Flora	*Cheilanthes distans*		-	-	NC
TAS		Flora	*Chiloglottis trapeziformis*		-	-	NC
TAS		Flora	*Colobanthus curtisiae*		E	V	B
TAS		Flora	*Cryptandra amara*		-	-	NC
TAS		Flora	*Cyathea X marcescens*		-	-	NC
TAS		Flora	*Rytidosperma fulvum*		E	-	B
TAS		Flora	*Rytidosperma indutum*		-		NC
TAS		Flora	*Desmodium gunnii*		-	-	NC
TAS		Flora	*Deyeuxia lawrencei*		X	X	NC
TAS		Flora	*Deyeuxia minor*		-	X	W
TAS		Flora	*Dianella amoena*		-	-	NC
TAS		Flora	*Discaria pubescens*		-	E	W
TAS		Flora	*Blechum rupestre*		-	-	NC
TAS		Flora	*Dryopoa dives*		-	-	NC
TAS		Flora	*Tetrarrhena juncea*		-	-	NC
TAS		Flora	*Epacris acuminata*		-	-	NC
TAS		Flora	*Epacris apsleyensis*		V	-	B
TAS		Flora	*Epacris barbata*		V	E	W
TAS		Flora	*Epacris curtisiae*		-	E	W
TAS		Flora	*Epacris exserta*		-	-	NC
TAS		Flora	*Epacris glabella*		V	E	W
TAS		Flora	*Epacris grandis*		V	E	W
TAS		Flora	*Epacris limbata*		V	E	W
TAS		Flora	*Epacris stuartii*		E	E	NC

TAS		Flora	*Eucalyptus morrisbyi*		E	CE	W
TAS		Flora	*Eucalyptus perriniana*		-	E	W
TAS		Flora	*Eucalyptus radiata ssp. radiata*		-	-	NC
TAS		Flora	*Eucalyptus risdonii*		-	-	NC
TAS		Flora	*Euphrasia fragosa Southport*		E	-	B
TAS		Flora	*Euphrasia scabra*		-	CE	W
TAS		Flora	*Gahnia sieberiana*		-	-	NC
TAS		Flora	*Glycine latrobeana*		V	E	W
TAS		Flora	*Gratiola pubescens*		-	V	W
TAS		Flora	*Gynatrix pulchella*		-		NC
TAS		Flora	*Haloragis aspera*		-	-	NC
TAS		Flora	*Haloragis heterophylla*		-	-	NC
TAS		Flora	*Hibbertia calycina*		-	-	NC
TAS		Flora	*Hibbertia obtusifolia*		-	-	NC
TAS		Flora	*Hyalosperma demissum*		-	-	NC
TAS		Flora	*Hydrocotyle laxiflora*		-	-	NC
TAS		Flora	*Hypolepis distans*		-	-	NC
TAS		Flora	*Pauridia vaginata*		-	E	W
TAS		Flora	*Isoetopsis graminifolia*		-	-	NC
TAS		Flora	*Isolepis habra*		-	-	NC
TAS		Flora	*Isolepis setacea*		-	-	NC
TAS		Flora	*Isolepis stellata*		-	-	NC
TAS		Flora	*Juncus amabilis*		-	-	NC
TAS		Flora	*Juncus vaginatus*		-	-	NC
TAS		Flora	*Lasiopetalum micranthum*		V	-	B
TAS		Flora	*Lepidium pseudotasmanicum*		-	-	NC
TAS		Flora	*Lepidosperma tortuosum*		-	-	NC
TAS		Flora	*Leptorhynchos elongatus*		-	-	NC
TAS		Flora	*Leucopogon affinis*		-	-	NC
TAS		Flora	*Lobelia pratioides*		-	-	NC
TAS		Flora	*Lobelia rhombifolia*		-	-	NC
TAS		Flora	*Lomatia tasmanica*		E	-	B
TAS		Flora	*Melaleuca pustulata*		-	CE	W
TAS		Flora	*Micrantheum serpentinum*		-	-	NC
TAS		Flora	*Odixia achlaena*		-	-	NC
TAS		Flora	*Pentachondra ericaefolia*		-	-	NC
TAS		Flora	*Phebalium daviesii*		E	-	B
TAS		Flora	*Pimelea curviflora var. gracilis*		-	E	W
TAS		Flora	*Pimelea filiformis*		-	-	NC
TAS		Flora	*Pimelea pauciflora*		-	-	NC
TAS		Flora	*Pneumatopteris pennigera*		-	-	NC
TAS		Flora	*Poa mollis*		-	-	NC
TAS		Flora	*Podotheca angustifolia*		-	-	NC
TAS		Flora	*Polyscias sp. Douglas-Denison*		-	-	NC
TAS		Flora	*Pomaderris elachophylla*		-	-	NC
TAS		Flora	*Pomaderris oraria ssp. oraria*		-	-	NC
TAS		Flora	*Pomaderris phylicifolia*		-	-	NC
TAS		Flora	*Prasophyllum perangustum*		-	-	NC
TAS		Flora	*Prasophyllum milfordense*		-	CE	W
TAS		Flora	*Prasophyllum robustum*		-	CE	W
TAS		Flora	*Prostanthera cuneata*		-	CE	W
TAS		Flora	*Prostanthera rotundifolia*		-	-	NC
TAS		Flora	*Stonesiella selaginoides*		-	-	NC
TAS		Flora	*Pultenaea humilus*		-	E	W
TAS		Flora	*Pultenaea selaginoides*		V	-	B
TAS		Flora	*Siloxerus multiflorus*		-	-	NC
TAS		Flora	*Scaevola aemula*		-	-	NC
TAS		Flora	*Schoenoplectus tabernaemontani*		-	-	NC
TAS		Flora	*Schoenus latelaminatus*		-	-	NC
TAS		Flora	*Scleranthus diander*		-	-	NC
TAS		Flora	*Scleranthus fasciculatus*		-	-	NC
TAS		Flora	*Spyridium lawrencei*		V	-	B
TAS		Flora	*Spyridium obcordatum*		V	E	W
TAS		Flora	*Stenanthemum pimelioides*		-	V	W
TAS		Flora	*Austrostipa blackii*		-	V	W
TAS		Flora	*Austrostipa scabra*		-	-	NC
TAS		Flora	*Tetratheca gunnii*		E	-	B
TAS		Flora	*Thesium australe*		V	E	W
TAS		Flora	*Thismia rodwayi*		-	V	W
TAS		Flora	*Thryptomene micrantha*		-	-	NC
TAS		Flora	*Tricoryne elatior*		-	-	NC
TAS		Flora	*Velleia paradoxa*		-	-	NC
TAS		Flora	*Veronica notabilis*		-	-	NC
TAS		Flora	*Vittadinia cuneata var. cuneata*		-	-	NC
TAS		Flora	*Vittadinia gracilis*		-	-	NC
TAS		Flora	*Vittadinia muelleri*		-	-	NC
TAS		Flora	*Wurmbea latifolia ssp. Vanessae*		-	-	NC
TAS		Flora	*Xanthorrhoea bracteata*		-	-	NC
TAS		Flora	*Pultenaea mollis*		-	E	W

Table 3: Federal status of species listed as priority under the Victorian RFAs at the time of signing and in 2020. Extinct = Extinct, Presumed Extinct = Presumed Extinct, CE = Critically Endangered, E = Endangered, V = Vulnerable, NL/NA = Not listed/no info, Blank = no info. B = Better/improvement in status, W = Worse/deteoration in status, NC = No change/no improvement in status. Data are averaged across all regions except for East Gippsland which has been omitted due to incomplete data.

State	REGION		Species name	Common name	Status at time of signing (TOS)	Status in 2020	Change in status from TOS to 2020
VIC	G, E	Flora	*Acacia caerulescens*	Limestone Blue Wattle	V	V	NC
VIC	G	Flora	*Adiantum diaphanum*	Filmy Maidenhair	-	-	NC
VIC	G	Flora	*Adriana quadripartita*	Coast Bitter-bush	-	-	NC
VIC	G	Flora	*Lachnagrostis adamsonii*	Adamson's Blown-grass	-	E	W
VIC	G, E, N	Flora	*Almaleea capitata*	Slender Parrot-pea	-	-	NC
VIC	G	Flora	*Amphibromus fluitans*	River Swamp Wallaby-grass	V	V	NC
VIC	G	Flora	*Asplenium hookerianum*	Maidenhair Spleenwort	V	V	NC
VIC	G	Flora	*Asplenium obtusatum*	Shore Spleenwort	V	-	B
VIC	G	Flora	*Boronia galbraithiae*	Aniseed Boronia	-	V	W
VIC	G, C	Flora	*Xerochrysum palustre*		-	V	W
VIC	G	Flora	*Caladenia orientalis*		E	E	NC
VIC	G	Flora	*Carex paupera*		-	V	W
VIC	G, N	Flora	*Celmisia sericophylla*		-	-	NC
VIC	G, W, C, E	Flora	*Cyathea cunninghami*		-	-	NC
VIC	G, E	Flora	*Cyathea leichhardtiana*		-	-	NC
VIC	G	Flora	*Discaria nitida*		-	-	NC
VIC	G, W, E	Flora	*Discaria pubescens*		-	-	NC
VIC	G	Flora	*Diuris ochroma*		V	V	NC
VIC	G, W, N	Flora	*Diuris punctata*				NC
VIC	G, E	Flora	*Drabastrum alpestre*		-	-	NC
VIC	G	Flora	*Epilobium brunnescens ssp. beaugleholei*		V	V	NC
VIC	G	Flora	*Epilobium willisii*		-	-	NC
VIC	G	Flora	*Eucalyptus strzelecki*		V	V	NC
VIC	G, W, N	Flora	*Euphrasia collina ssp. muelleri*		E	E	NC
VIC	G, E, N	Flora	*Euphrasia scabra*		-	-	NC
VIC	G, W, N	Flora	*Glycine latrobeana*		V	V	NC
VIC	G, E	Flora	*Isopogon prostratus*		-	V	W
VIC	G	Flora	*Lepidium aschersonii*		V	V	NC
VIC	G	Flora	*Olearia astroloba*		V	V	NC
VIC	G, E, N	Flora	*Poa saxicola*		-	-	NC
VIC	G	Flora	*Prasophyllum correctum*		E	E	NC
VIC	G, W, E	Flora	*Prasophyllum frenchii*		V	E	W
VIC	G	Flora	*Pseudoraphis paradoxa*		-	-	NC
VIC	G, E, N	Flora	*Pterostylis cucullata*		V	V	NC
VIC	G	Flora	*Pterostylis tenuissima*		V	V	NC
VIC	G	Flora	*Commersonia prostrata*		E	E	NC
VIC	G, W	Flora	*Thelymitra epipactoides*		E	E	NC
VIC	G, W, E	Flora	*Thelymitra matthewsii*		V	V	NC
VIC	G, E	Flora	*Thesium australe*		V	V	NC
VIC	G, E	Flora	*Wahlenbergia densifolia*		-	-	NC
VIC	W	Flora	*Acacia glandulicarpa*		V	V	NC
VIC	W, N	Flora	*Allocasuarina luehmannii*		-	-	NC
VIC	W, C	Flora	*Astelia australiana*		V	V	NC
VIC	W	Flora	*Asterolasia phebalioides*		V	V	NC
VIC	W	Flora	*Caladenia calcicola*		V	V	NC
VIC	W, C, N	Flora	*Caladenia concolor*		V	V	NC
VIC	W	Flora	*Caladenia formosa*		V	V	NC
VIC	W	Flora	*Caladenia fulva*		E	E	NC
VIC	W	Flora	*Caladenia hastata*		E	E	NC
VIC	W	Flora	*Caladenia tensa*		E	E	NC
VIC	W	Flora	*Caladenia versicolor*		V	V	NC
VIC	W	Flora	*Caladenia xanthochila*		E	E	NC
VIC	W	Flora	*Caleana disjuncta*		-	-	NC
VIC	W	Flora	*Comesperma polygaloides*		-	-	NC
VIC	W	Flora	*Cullen parvum*		E	-	B
VIC	W	Flora	*Cullen tenax*		-	-	NC
VIC	W	Flora	*Daviesia laevis*		V	V	NC
VIC	W	Flora	*Discaria pubescens*		-	-	NC
VIC	W	Flora	*Diuris palustris*		-	-	NC
VIC	W	Flora	*Dodonaea procumbens*		V	V	NC
VIC	W	Flora	*Eucalyptus aggregata*		-	-	NC
VIC	W	Flora	*Grevillea floripendula*		-	V	W
VIC	W	Flora	*Grevillea infecunda*		V	V	NC
VIC	W	Flora	*Isolepis congrua*		-	-	NC
VIC	W	Flora	*Leptorhynchos gatesii*		V	V	NC
VIC	W	Flora	*Olearia pannosa ssp. cardiophylla*		-	-	NC
VIC	W	Flora	*Prasophyllum diversiflorum*		E	E	NC
VIC	W	Flora	*Prasophyllum subbisectum*		E	E	NC
VIC	W	Flora	*Pterostylis cheraphila*		-	V	W
VIC	W	Flora	*Ptilotus erubescens*		-	-	NC
VIC	W	Flora	*Pultenaea graveolens*		-	-	NC
VIC	W	Flora	*Rutidosis leptorhynchoides*		E	E	NC
VIC	W, C	Flora	*Senecio macrocarpus*		V	V	NC
VIC	W	Flora	*Swainsona brachycarpa*		-	-	NC
VIC	W	Flora	*Swainsona swainsonioides*		-	-	NC
VIC	W	Flora	*Taraxacum cygnorum*		V	V	NC

VIC	W	Flora	*Thelymitra epipactoides*		E	E	NC
VIC	W	Flora	*Thelymitra mackibbinii*		V	V	NC
VIC	W	Flora	*Thelymitra matthewsii*		V	V	NC
VIC	W	Flora	*Thelymitra X merraniae*		-	-	NC
VIC	C	Flora	*Caladenia rosella*		E	E	NC
VIC	C	Flora	*Eucalyptus crenulata*		E	E	NC
VIC	C	Flora	*Lepidium hyssopifolium*		E	E	NC
VIC	C	Flora	*Amphibromus pithogastris*		-	-	NC
VIC	C	Flora	*Carex tasmanica*		-	V	W
VIC	C	Flora	*Grevillea barklyana ssp. barklyana*		-	-	NC
VIC	C	Flora	*Nematolepis wilsonii*		-	V	W
VIC	C	Flora	*Thismia rodwayi*		-	-	NC
VIC	E	Flora	*Cryptostylis hunteriana*		V	V	NC
VIC	E	Flora	*Pomaderris cotoneaster*		E	E	NC
VIC	E	Flora	*Pomaderris sericea*		V	V	NC
VIC	E	Flora	*Acacia maidenii*		-	-	NC
VIC	E	Flora	*Brunoniella pumilio*		-	-	NC
VIC	E	Flora	*Myoporum floribundum*		-	-	NC
VIC	E	Flora	*Pterostylis baptistii*		-	-	NC
VIC	E	Flora	*Sambucus australasica*		-	-	NC
VIC	E	Flora	*Sarcochilus falcatus*		-	-	NC
VIC	E	Flora	*Symplocos thwaitesii*		-	-	NC
VIC	N	Flora	*Acacia deanei ssp. deanei*		-	-	NC
VIC	N	Flora	*Acacia phasmoides*		V	V	NC
VIC	N	Flora	*Sannantha crenulata*		V	V	NC
VIC	N	Flora	*Brachyscome gracilis ssp. gracilis*		-	-	NC
VIC	N	Flora	*Carex cephalotes*		-	-	NC
VIC	N	Flora	*Dipodium hamiltonianum*		-	-	NC
VIC	N	Flora	*Diuris dendrobiodes*		-	-	NC
VIC	N	Flora	*Eucalyptus alligatrix ssp. limaensis*		V	-	B
VIC	N	Flora	*Eucalyptus cadens*		V	E	W
VIC	N	Flora	*Argyrotegium mackayi*		V	V	NC
VIC	N	Flora	*Euphrasia eichleri*		V	V	NC
VIC	N	Flora	*Goodenia macbarronii*		-	-	NC
VIC	N	Flora	*Kelleria laxa*		V	V	NC
VIC	N	Flora	*Pomaderris subplicata*		V	V	NC
VIC	N	Flora	*Santalum lanceolatum*		-	-	NC
VIC	N	Flora	*Swainsona galegifolia*		-	-	NC
VIC	N	Flora	*Thelypteris confluens*		-	-	NC
VIC	G, N, C, W	Fauna	*Dasyurus maculatus*		V	E	W
VIC	G, N	Fauna	*Potorous longipes*		E	E	NC
VIC	G, C	Fauna	*Pseudomys novaehollandiae*		-	V	W
VIC	G, N, C	Fauna	*Rhinolophus megaphyllus*		-	-	NC
VIC	G, N, C, W	Fauna	*Miniopteris orianae bassanii*		-	CE	W
VIC	G, N, C	Fauna	*Lathamus discolor*		V	CE	W
VIC	G, N, C, W	Fauna	*Anthochaera phrygia*		E	E	NC
VIC	G, N, C	Fauna	*Haliaeetus leucogaster*		-	-	NC
VIC	G, N, C, W	Fauna	*Ninox strenua*		-	-	NC
VIC	G, N, C, W	Fauna	*Tyto novaehollandiae*		-	E	W
VIC	G, N, C	Fauna	*Tyto tenebricosa*		-	-	NC
VIC	G, C, N	Fauna	*Litoria spenceri*		E	E	NC
VIC	G, C, W	Fauna	*Heleioporus australiacus*		-	V	W
VIC	N, C, W	Fauna	*Phascogale tapoatafa*		-	E	W
VIC	N	Fauna	*Burramys parvus*		-	E	W
VIC	N, C, W	Fauna	*Petaurus norfolcensis*		-	-	NC
VIC	N	Fauna	*Neophema pulchella*		-	-	NC
VIC	N, C, W	Fauna	*Grantiella picta*		-	V	W
VIC	N, C, W	Fauna	*Pomatostomus temporalis*		-	-	NC
VIC	N, C, W	Fauna	*Burhinus grallarius*		-	-	NC
VIC	N	Fauna	*Calyptorhinchus lathami*		-	-	NC
VIC	N	Fauna	*Cyclodomorphus praealtus*		-	E	W
VIC	N	Fauna	*Eulamprus kosiuskoi*		-	-	NC
VIC	N	Fauna	*Morelia spilota variegata*		-	-	NC
VIC	C	Fauna	*Gymnobelideus leadbeateri*		-	CE	W
VIC	C	Fauna	*Lichenostomus melanops cassidix*		E	CE	W
VIC	C	Fauna	*Philoria frosti*		V	E	W
VIC	W	Fauna	*Pseudomys shortridgei*		E	E	NC
VIC	W	Fauna	*Calyptorhynchus banksii graptogyne*		E	E	NC
VIC	W	Fauna	*Dasyornis broadbenti broadbenti*		-	-	NC

Table 4: Federal status of species listed as priority under the Western Australian RFA at the time of signing and in 2020. Extinct = Extinct, Presumed Extinct = Presumed Extinct, CE = Critically Endangered, E = Endangered, V = Vulnerable, NL/NA = Not listed/no info, Blank = no info. B = Better/improvement in status, W = Worse/deteoration in status, NC = No change/no improvement in status.

State	REGION		Species name	Common name	Status at time of signing (TOS)	Status in 2020	Change in status from TOS to 2020
WA		Fauna	*Atrichornis clamosus*	Noisy Scrubbird	NA	E	W
WA		Fauna	*Bettongia penicillata ogilbyi*	Woylie	NA	E	W
WA		Fauna	*Cacatua pastinator pastinator*	Muir's corella		V	W
WA		Fauna	*Calyptorhynchus banksii naso*	Forest red-tailed black cockatoo		V	W
WA		Fauna	*Calyptorhynchus baudinii*	Baudin's cockatoo or forest black cockatoo		E	W

WA		Fauna	*Calyptorhynchus latirostris*	Carnaby's black cockatoo		E	W
WA		Fauna	*Dasyurus geoffroii*	Chuditch	E	V	B
WA		Fauna	*Engaewa pseudoreducta*	Margaret River burrowing crayfish		CE	W
WA		Fauna	*Engaewa reducta*	Dunsborough burrowing crayfish		CE	W
WA		Fauna	*Engaewa walpolea*	Walpole burrowing crayfish		E	W
WA		Fauna	*Galaxias truttaceus hesperius*	Western trout minnow		E	W
WA		Fauna	*Geocrinia alba*	White-bellied frog	E	CE	NC
WA		Fauna	*Geocrinia vitellina*	Orangebellied frog	V	V	NC
WA		Fauna	*Pezoporus wallicus flaviventris*	Western ground parrot		CE	W
WA		Fauna	*Potorous gilbertii*	Gilbert's potoroo		CE	W
WA		Fauna	*Pseudemydura umbrina*	Western swamp tortoise		CE	W
WA		Fauna	*Pseudocheirus occidentalis*	Western ringtail possum	V	V	NC
WA		Fauna	*Psophodes nigrogularis nigrogularis*	Western whipbird		E	W
WA		Fauna	*Setonix brachyurus*	Quokka		V	W
WA		Fauna	*Spicospina flammocaerulea*	Sunset frog		V	W
WA		Fauna	*Botaurus poiciloptilus*	Australasian bittern		E	W
WA		Fauna	*Myrmecobius fasciatus*	Numbat	E	E	NC
WA		Fauna	*Phascogale calura*	Red-tailed phascogale	E	E	NC
WA		Fauna	*Phascogale tapoatafa subsp (WAM M434)*	Brushtail phascogale		NOT LISTED	NC
WA		Fauna	*Leipoa ocellata*	Mallefowl	V	V	NC
WA		Fauna	*Petrogale lateralis lateralis (and four other rock wallaby taxa)*	Black-flanked rock-wallaby	V	V	NC
WA		Fauna	*Rallus pectoralis clelandi*	Lewin's water rail	PRESUMED EXTINCT	PRESUMED EXTINCT	NC
WA		Flora	*Andersonia annelsii*			NOT LISTED	NC
WA		Flora	*Banksia (previously Dryandra) nivea subsp. uliginosa*		E	E	NC
WA		Flora	*Banksia (previously Dryandra) squarrosa subsp. argillacea*			V	W
WA		Flora	*Boronia exilis*			E	W
WA		Flora	*Brachyscias verecundus*			CE	W
WA		Flora	*Caladenia bryceana subsp. bryceana*		E	E	NC
WA		Flora	*Caladenia busselliana*		E	E	NC
WA		Flora	*Caladenia huegelii*		V	E	W
WA		Flora	*Caladenia lodgeana*			CE	W
WA		Flora	*Caladenia procera*			**CE**	W
WA		Flora	*Caladenia viridescens*		E	E	NC
WA		Flora	*Caladenia winfieldii*		E	E	NC
WA		Flora	*Commersonia erythrogyna (previously Rulingia sp. Trigwell Bridge)*		E	E	NC
WA		Flora	*Conospermum undulatum*			V	W
WA		Flora	*Conostylis misera*			E	W
WA		Flora	*Cryptandra congesta*				NC
WA		Flora	*Darwinia apiculata **		V	E	W
WA		Flora	*Darwinia ferricola **		V	E	W
WA		Flora	*Drakaea elastica*		V	E	W
WA		Flora	*Drakaea confluens*		V	E	W
WA		Flora	*Grevillea acropogon*			E	W
WA		Flora	*Grevillea althoferorum (subsp. althoferorum)*			E	W
WA		Flora	*Grevillea brachystylis subsp. grandis*			CE	W
WA		Flora	*Grevillea fuscolutea*			NOT LISTED	NC
WA		Flora	*Grevillea rara*			E	W
WA		Flora	*Lambertia orbifolia subsp. orbifolia ms*		V	E	W
WA		Flora	*Lambertia orbifolia subsp. Scott River plains*			E	W
WA		Flora	*Lasiopetalum pterocarpum*			E	W
WA		Flora	*Rhacocarpus rehmannianus var. webbianus*			NOT LISTED	NC
WA		Flora	*Sphenotoma drummondii*		E	E	NC
WA		Flora	*Stylidium semaphorum*				NC
WA		Flora	*Synaphea sp. Fairbridge Farm (D. Papenfus 696)*			CE	W
WA		Flora	*Thelymitra dedmaniarum*		E	E	NC
WA		Flora	*Trithuria occidentalis (previously Hydatella dioica)*			E	W
WA		Flora	*Verticordia apecta*			CE	W
WA		Flora	*Verticordia fimbrilepis subsp. fimbrilepis*			**E**	W
WA		Flora	*Verticordia plumosa var. ananeotes*			E	W
WA		Flora	*Laxmannia grandiflora subsp. brendae*			NA	NC
WA		Flora	*Acacia anomala **		V	V	NC
WA		Flora	*Acacia aphylla**		V	DELISTED	B
WA		Flora	*Acacia brachypoda*			E	W
WA		Flora	*Acacia chapmanii subsp. australis*			E	W
WA		Flora	*Anthocercis gracilis **		V	E	W
WA		Flora	*Asterolasia nivea **		V	**V**	NC
WA		Flora	*Banksia goodii*		V	V	NC
WA		Flora	*Banksia verticillata **		CE	**V**	B
WA		Flora	*Caladenia christineae **		V	V	NC
WA		Flora	*Caladenia dorrienii **		E	E	NC
WA		Flora	*Caladenia excelsa **		V	E	W
WA		Flora	*Caladenia harringtoniae **		V	V	NC
WA		Flora	*Chamelaucium sp. S coastal plain (R.D.Royce 4872) (used to be Chamelaucium roycei ms *)*		V	V	NC
WA		Flora	*Darwinia acerosa **		E	E	NC
WA		Flora	*Daviesia elongata subsp. elongata*			V	W
WA		Flora	*Diplolaena andrewsii*			NOT LISTED	NC

WA		Flora	*Diuris drummondii*		V	V	NC
WA		Flora	*Diuris micrantha*		V	V	NC
WA		Flora	*Diuris purdiei*		NOT LISTED	E	W
WA		Flora	*Drakaea micrantha*		V	V	NC
WA		Flora	*Banksia (previously Dryandra) aurantia*			CE	W
WA		Flora	*Banksia (previously Dryandra) mimica* *		E	E	NC
WA		Flora	*Eleocharis keigheryi*			V	W
WA		Flora	*Eremophila glabra subsp. chlorella*			NOT LISTED	NC
WA		Flora	*Gastrolobium modestum*			V	W
WA		Flora	*Goodenia arthrotricha*			NOT LISTED	NC
WA		Flora	*Grevillea brachystylis subsp. australis*			V	W
WA		Flora	*Grevillea bracteosa*			NOT LISTED	NC
WA		Flora	*Grevillea christineae*			E	W
WA		Flora	*Grevillea flexuosa* *		V	V	NC
WA		Flora	*Jacksonia velveta ms*			E	W
WA		Flora	*Kennedia glabrata* *		V	V	NC
WA		Flora	*Kennedia lateritia (previously macrophylla)* *		V	E	W
WA		Flora	*Lechenaultia laricina* *		V	E	W
WA		Flora	*Myriophyllum trifidum (previously Meziella trifida)* *		V	NA	B
WA		Flora	*Microtis globula* *		V	V	NC
WA		Flora	*Pultenaea pauciflora* *		V	V	NC
WA		Flora	*Reedia spathacea*			CE	W
WA		Flora	*Spirogardnera rubescens* *		E	E	NC
WA		Flora	*Tetraria australiensis* *		V	V	NC
WA		Flora	*Thelymitra stellata* *		V	E	W
WA		Flora	*Tribonanthes purpurea*			V	W
WA		Flora	*Verticordia carinata*			V	W
WA		Flora	*Verticordia densiflora var. pedunculata*			E	W
WA		Flora	*Verticordia fimbrilepis subsp. australis* *		V	V	NC
WA		Flora	*Verticordia plumosa var. vassensis*			E	W
WA		Flora	*Aponogeton hexatepalus*		V	NOT LISTED	B
WA		Flora	*Asterolasia grandiflora* *		V	NOT LISTED	B
WA		Flora	*Centrolepis caespitosa*		V	DELISTED	B
WA		Flora	*Hydrocotyle lemnoides*		V	NOT LISTED	B
WA		Flora	*Laxmannia jamesii* *		V	DELISTED	NC
WA		Flora	*Schoenus natans*		V	NA	B
WA		Flora	*Trithuria australis (previously Hydatella leptogyne)*			DELISTED	NC
WA		Flora	*Eucalyptus goniantha subsp. goniantha*		V	DELISTED	B
WA		Flora	*Verticordia plumosa var. brachyphylla*			E	W

APPENDIX 2

Table: Summary of Milestones and obligations detailed in the RFAs. * Denotes milestones/obligations not listed in a Milestone Attachment but found elsewhere in the RFA. References: (East Gippsland RFA 1997), (Tasmanian RFA 1997), (Central Highlands RFA 1998), (Eden New South Wales RFA 1999), (Western Australia RFA 1999), (North East RFA 1999), (North East NSW RFA 2000), (West Victoria RFA 2000), (Gippsland RFA 2000), (Southern New South Wales RFA 2001)

	Signed in:	**Feb 1997**	**Nov 1997**	**Mar 1998**	**May 1999**	**Aug 1999**	**Aug 1999**	**Mar 2000**	**Mar 2000**	**Mar 2000**	**April 2001**
Milestone/Obligation	**RFA:**	**East Gippsland**	**Tas**	**Central Highlands**	**WA**	**North East Vic**	**Eden**	**West Vic**	**Gipps**	**NE NSW**	**SE NSW**
PRESENT IN ALL RFAS	Description	Clause									
Victoria and the Commonwealth to develop sustainability indicators // that are appropriate, practical, and cost effective sustainability indicators//Western Australia in consultation with the Commonwealth will develop and implement an appropriate set of sustainability indicators to monitor Forest changes//Both parties to develop, review, and if necessary revise Sustainability Indicators	Sustainability indicators	40	91	50	46	48&50	52(d)	49&51	49&51	53(d)	52(d)
Victoria and the Commonwealth to undertake and where relevant complete threatened species work as detailed in Attachment 4// Tas: The State to develop and implement a Threatened Species Protection Strategy//Att 2 Table 1: New South Wales to develop Recovery Plans for species listed in Table 1	Threatened species	45	Att 10 (3)	57	60*	55-57	Att 2 Table 1	56,57,58:	56,58	Att 2 Table 1	Att 3 Table 1
Victoria to develop programs for pest plant and pest animal control//NSW will complete the Threat Abatement Plan for the European Red Fox// Eden: Promote good environmental practice in relation to pest management.// WA: 21. Implementing a regional-level forest health surveillance system (including private forests) to provide early warning of potential pest disease and weed problems, develop an associated action plan, and undertake risk analyses for likely incursions or outbreaks;// Tas: The State to develop and implement statewide policies across all tenure on fire management, nature based tourism and recreation management, cultural heritage management in Forest, and Forest pest and disease management.	Pest management	46	Att 10 (7)	59	Att 5 (21)*	59	Att 14 (c)*	60	60	Att 3 Point 4	Att 3 point 4
Victoria to implement agreed tenure changes to establish the CAR Reserve System// Tas: 24(a) 24. The State undertakes to (a) manage the areas in the CAR Reserve System identified in Attachment 6, with the exception of Commonwealth owned or leased land, on the basis outlined in that Attachment and in accordance with the relevant objectives set out in Attachment 7; // CH: Victoria undertakes to: continue to manage the dedicated reserves within the CAR Reserve System in accordance with the relevant government approved recommendations of the Land Conservation Council;//Western Australia will within one year from the date of this Agreement establish new formal reserves under the Land Administration Act 1997 (WA).//New South Wales to establish all Dedicated Reserve and Informal Reserve components of the CAR Reserve System	CAR tenure change	49	24(a) 24.	45 (c)	70 (b)	62	Att 1 point 7	64 Att 1:	64 Att 1:	Att1A Point 8:	Att 1 point 8
Victoria to publish an amendment to the East Gippsland Forest Management Area Plan//CH: 65: Victoria to publish a Central Highlands Forest Management Plan//Western Australia agrees to produce and publish a Forest Management Plan to implement the commitments of this Agreement by 30 June 2004 taking into account the importance of RFA certainty and commencing the planning process by early 2001//Victoria to produce and publish the North East Forest Management Plan.//New South Wales to grant an Integrated Forestry Operations Approval covering the Eden region. //Tas: The State to review the policy for maintaining a permanent Forest Estate as part of the ongoing review of the Forest Practices Code	FMP/IOFA	51	Att 9 (11)	65	43	65	46 (g)	67	67	51	47 (e)
Victoria to complete a review in accordance with the Competition Principles Agreement// Tas: The State to review legislation relevant to the allocation and pricing of hardwood logs from State forests as part of the Competition Principles Agreement//New South Wales to review legislation and policies relevant to the allocation and pricing of hardwood logs from State forests as part of the Competition Principles Agreement // WA:The Parties recognise that in accordance with the Competition Principles Agreement, Western Australia will undertake a review of relevant sections of the CALM Act and a review of competitive neutrality applying to CALM's wood-based businesses. The Commonwealth agrees that the day to day pricing and allocation arrangements for Forest Produce from public forests are matters for Western Australia. Western Australia confirms its commitment to the wood pricing and allocation principles set out in the NFPS.//NE Vic: 80. 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 Victoria. Victoria confirms its commitment to the pricing and allocation principles set out in the National Forest Policy Statement. Victoria confirms that legislation and policies relevant to the allocation and pricing of hardwood logs from State forests have been reviewed as part of the Competition Principles Agreement. Competitive neutrality principles will be taken into account in any changes following the review.	Competition principles	61	87	82	87*	80*	86	88*	88*	99*	97*

Victoria and the Commonwealth develop a data agreement and lodge archival copies of data//Tas: The State and the Commonwealth to list and archive Data used for RFA Purposes// WA: The Parties will lodge archival copies of CRA data//New South Wales and the Commonwealth to develop a data agreement and lodge archival copies of data	Data agreement	67	Att 14 (4.1)	86	93	84	92 &93	92	92	105	103
Parties agree to actively investigate, and participate in, World Heritage assessment of the Australia-wide Eucalypt theme, including any potential contribution from East Gippsland/CH/NorthEast/West/ Gippsland//The State and the Commonwealth to jointly participate in further World heritage assessment of the relevant themes//WA:The Parties agree to actively participate in the World Heritage assessment of the Australia-wide Eucalypt theme//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 Eden region.	World heritage	16*	Tas 39	26	27	26	26	27*	27	27	27
Victoria confirms that the sustainable yield for forests for East Gippsland will continue to be based on areas available for timber harvesting outside the CAR Reserve System.// Tas: The State to publish a description of the methods of calculating sustainable yield on Public Land, including for special species timber sawlogs//Vic CH: implement the Integrated Forest Planning System and the Statewide Forest Resource Inventory (SFRI) in the Central Highlands in time for the next review of sustainable yield due in 2001.// WA: Western Australia will have externally reviewed the sustained yield estimating process and outputs immediately before the commencement of the development of each Forest Management Plan and will incorporate improvements during the Forest Management Planning process.//New South Wales to 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)//New South Wales to implement the review and monitoring processes and develop the strategic and operational requirements of sustainable yield systems and processes to enable a review of Sustainable Yield	Sustainable yield	23*	Att 11 (2)	45 (e)*	50	45	46(f)	74*	74	48 (g)	47 (g)
This Agreement establishes milestones (Attachment 3) and parties will report annually on their achievement using an appropriate public reporting mechanism//Tas: The parties to provide each other with written reports detailing the achievements of Milestones// CH:This Agreement establishes milestones (Attachment 4) and Parties will report annually on their achievement for the first five years, and then as they fall due and as part of the 5 yearly review, using an appropriate public reporting mechanism.//WA: Parties agree to provide each other with an annual report detailing their achievement of the milestones for the first four years, and then as they fall due and as part of the five-yearly reviews and report in accordance with Clauses 36 and 37. Public annual reporting on the achievement of milestones during the first four years will be through a brief statement in the annual report of the relevant agency//NSW: Parties to report annually on the achievement of milestones in this Agreement	Annual reporting	25*	44	35	34	35	37	36, 39(Att 1)	36, 39 (Att 1)	39	37

Every five years, 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: the extent to which milestones and obligations have been met including management of the National Estate; the results of monitoring of sustainability indicators; and invited public comment on the performance of the Agreement.//CH: The State and the Commonwealth to review the performance of the RFA//WA: 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: the extent to which milestones and obligations have been met including management of the National Estate; the results of monitoring of sustainability indicators; and invited public comment on the performance of the Agreement. Each review will be scheduled concurrent with the five yearly reviews required for the East Gippsland RFA//NSW: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.	5 yrly reviews	30*	45	36	34	35	38*	36, 39(Att 1)	36, 39 (Att 1)	40*	38*
PRESENT IN SOME/MOST RFAS											

Victoria to implement the Integrated Forest Planning System and the Statewide Forest Resource Inventory (in time for the next review of sustainable yield.)/The State to review sustainable high quality sawlog supply levels to reflect the changes in the forest inventory and new intensive management forest management initiatives concluded in the RFA. | The State to undertake a review—including reporting to Governments—on pricing and allocation policies for commercial government owned forestry operations (using a method consistent with the principles and processes used in the Forest Resource and Management Evaluation System (FRAMES)) //Ongoing inventory of existing timber resource is a fundamental requirement of the Regional Forest Agreement and will be used to support ongoing management by SFNSW of the timber production forest.//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.	Forest inventory	34	98,99	45	X	45	46 (f)	46 (c) Att 10	46 (c) Att 10	Att 11 (7)*	Att 8, 6(e)
Victoria to complete and publish regional prescriptions for timber production// Tas: The State to further develop its Forest Management Systems and processes.//NSW: New South Wales to produce a code of practice for Timber Harvesting of native forest on Private Lands	Prescriptions timber production	34	93	45	X	X	56	X	X	X	X
Victoria to complete and publish management plans for all National and State Parks/Tas: The State to ensure that management plans are implemented: - for all State Forest and National Parks; and - for all other Formal Reserves/New South Wales to complete and publish plans of management for areas dedicated under the National Parks and Wildlife Act 1974 (NSW)	Plans for parks	34	Att 10 (8)	45	X	X	46 (b)	X	X	48 (c)	47(c)
Victoria to publish its rainforest research// CH: Att 1: Victoria to publish a Technical Report on Rainforest//New South Wales to prepare a Compendium of New South Wales Forest Research	Forest research	64	X	Att 1	X	X	89	X	X	102	100
Tas: The State and the Commonwealth to jointly fund and accredit digital maps at 1:100 000 scale of all lands in Tasmania listed on the Register of the National Estate | The State to finalise boundaries (of CAR reserves) on 1:25 000 maps to enable gazette. | Forestry Tasmania to include Informal Reserves in new and revised Forest Management Plans// Western Australia will finalise reserve boundaries on 1: 25,000 maps to enable gazettal.	Mapping	X	Att 1 (6), Att 6 (5), Att 6 (17)	X	Att 1, para 5	X	X	X	X	X	X
PRESENT IN NSW RFAS											
New South Wales to establish a continuous FRAMES development program for the Eden region consistent with the Statewide FRAMES // NE: SFNSW will complete the enhancemenet of FRAMES, commission and publish an independent review of the enhanced system and review the timber and annual volume to be harvested from 2007 - 2018 //Southern: SFNSW will publish all FRAMES CRA reports for the Southern region	FRAMES	X	X	X	X	X	Att 11 point 5	X	X	Att 12 Part B 15	Att 8 Point 5
PRESENT IN MOST VICTORIAN RFAS											

Victoria to implement an ongoing quality assurance program//Gipps:Parties note that to develop the transparency and accountability of its forest management processes, Victoria is implementing an on-going quality assurance program utilising, as appropriate, expertise external to the forest agency in the Department of Natural Resources and Environment or its equivalent.	Quality assurance	29	X	44	X	44	X	45	45	X	X
CH: Victoria to prepare Regional Vegetation Plans covering the Central Highlands which provide for the protection of endangered, vulnerable or rare EVCs on private land//	EVCs	X	X	Att 1	X	Att 1	X	Att 1	Att 1	X	X
OTHER											
Western Australia will develop a system of pre-logging fauna assessment to be implemented by the commencement of the next FMP.	Pre-harvest surveys	X	X	X	Att 5, point 12	X	X	X	X	X	X
Victoria to phase out harvesting firewood, posts and poles within the CAR reserve system.	Prevent firewood harvesting	X	X	X	X	X	X	87	87	X	X
Subject to availability of suitable land NSW will establish at least 10,000ha of hardwood plantations	Plantations	X	X	X	X	X	X	X	X	Att 12 Part C 19	X
Monitor FRAMES through comparison of Actual versus predicted volumes	Predicted vs. actual volumes	X	X	X	X	X	X	X	X	Att 12 Part E 22 Dot 6	Att 8 point 6(f)
Commonwealth to seek passage of amendments to woodchip export regulations under the Export Controls Act 1982	Woodchips	20	X	X	X	X	X	X	X	X	X
Victoria and the Commonwealth to assess the outcomes of the Montreal Process Implementation Group (MIG) process	Montreal process	38	X	X	X	X	X	X	X	X	X
Commonwealth to seek to remove export controls for timber sourced from all Victorian plantations	Remove export controls	56	X	X	X	X	X	X	X	X	X

APPENDIX 3

Table: Due dates of each five-yearly review for all regions and number of years late.

State	Region	Review period	Date due	Date completed	Discrepancy between due date and date completed
NSW	Eden	First	August 2004	Nov 2009	5+ years
NSW	Eden	Second	August 2009	April 2018	8+ years
NSW	Eden	Third	August 2014	April 2018	3+ years
NSW	North-east	First	March 2005	Nov 2009	4+ years
NSW	North-east	Second	March 2010	April 2018	8+ years
NSW	North-east	Third	March 2015	April 2018	3+ years
NSW	Southern	First	April 2006	Nov 2009	3+ years
NSW	Southern	Second	April 2011	April 2018	7 years
NSW	Southern	Third	April 2016	April 2018	2 years
Tasmania	Tasmania	First	Nov 2002	Dec 2002	1 month
Tasmania	Tasmania	Second	Nov 2007	Feb 2008	3 months
Tasmania	Tasmania	Third	Nov 2012	Nov 2015	3 years
Tasmania	Tasmania	Final	Nov 2017	Aug 2017	On time
Victoria	East Gippsland	First	Feb 2002	May 2010	8+ years
Victoria	East Gippsland	Second	Feb 2007	May 2010	3+ years
Victoria	East Gippsland	Third	Feb 2012	Feb 2018	6 years
Victoria	East Gippsland	Final	Feb 2017	March 2018	On time
Victoria	Central Highlands	First	March 2003	May 2010	7+ years
Victoria	Central Highlands	Second	March 2008	May 2010	2+ years
Victoria	Central Highlands	Third	March 2013	Feb 2018	4+ years
Victoria	Central Highlands	Final	March 2018	March 2018	On time
Victoria	North-east	First	August 2004	May 2010	5+ years
Victoria	North-east	Second	August 2009	May 2010	9 months
Victoria	North-east	Third	August 2014	Feb 2018	3+ years
Victoria	West	First	March 2005	May 2010	5+ years
Victoria	West	Second	March 2010	May 2010	2 months
Victoria	West	Third	March 2015	Feb 2018	2+ years
Victoria	Gippsland	First	March 2005	May 2010	5+ years
Victoria	Gippsland	Second	March 2010	May 2010	2 months
Victoria	Gippsland	Third	March 2015	Feb 2018	2+ years
Western Australia	South-west	First	May 2004	Dec 2013	9+ years
Western Australia	South-west	Second	May 2009	Dec 2013	4+ years
Western Australia	South-west	Third	May 2014	May 2017	3 years


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