Independent Consultation Paper - Modernisation of the Victorian Regional Forest Agreements

Dr William Jackson

May 2019

Victorian and Australian Government Foreword

Aboriginal acknowledgment

The Victorian and Australian Governments proudly acknowledge the Victorian Aboriginal community and their rich culture and pay respect to their Elders past and present. We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

Consultation on the modernisation of the Victorian Regional Forest Agreements

There are five Regional Forest Agreements (RFAs) in place between the State of Victoria and Commonwealth of Australia, applying to East Gippsland, Central Highlands, West Victoria, North East, and Gippsland. These are in place until 31 March 2020.

The RFAs aim to balance the social, environmental and economic values of key forested regions. They establish a bilateral framework for the provision of a Comprehensive, Adequate and Representative (CAR) reserve system, ecologically sustainable management and use of forests, and the long-term stability of forests and forest industries within the Victorian RFA regions.

The Victorian and Australian Governments have signed a Memorandum of Understanding and committed to working towards delivering a modernised and harmonised RFA framework to meet the needs of communities, industry and the environment.

In addition to making practical improvements to enhance the performance of the Victorian RFA framework, the RFAs will also be amended and modernised to reflect changes that have occurred in the twenty years since they commenced. The Victorian and Australian governments acknowledge the impacts of climate change, extreme weather events (including drought and bushfires), scientific and technological progress, advances in our understanding of forests and ecosystems, changing forest-based industries and opportunities, and the recognition of the rights of Victoria's Traditional Owners to partner in land management and seek economic and cultural opportunities.

To ensure the modernised RFAs enable future forest management that delivers the highest and best value uses of Victoria's forests to communities, the Victorian and Australian Governments are seeking to understand the community's views on opportunities to improve the Victorian RFAs.

Dr William Jackson was appointed to develop an independent consultation paper that would provide an overview of the RFAs performance to date and form a basis for the community to provide feedback on what they believe needs to be changed or improved in the RFAs for the future.

The paper will support the discussion about how the Victorian RFAs are operating, and where they can be strengthened. It will also help inform the Victorian Government as it implements its program of reform and improvement to forest management.

How to get involved

The Victorian and Australian Governments are actively seeking community feedback on amendments to the RFAs. There are a number of ways you can participate in this conversation, and feedback on the independent consultation paper will assist in building an understanding of what improvements are needed to deliver a modernised RFA framework.

In particular, we are seeking your responses to the following questions:

- What changes have you seen in the RFA regions?
- What should the Victorian RFAs aim to achieve over the next 20 years?
- How could the potential improvements in Section 4 of this Independent Consultation Paper help modernise the Victorian RFAs?
- What are the potential improvements you think should be made that are not described?
- Do you have any views on which potential improvements are most important?

Feedback on the consultation report can be provided by:

- Lodging a submission or responding to an online survey on the Engage Victoria site: https://engage.vic.gov.au/future-of-our-forests/rfa-consultation-paper.

- Participating in a face-to-face engagement event to be held in each of the five Victorian RFA regions in June 2019.

A link to the Engage Victoria site and further information on opportunities to get involved are available at: https://www2.delwp.vic.gov.au/futureforests.

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Executive Summary

This independent consultation paper has been developed to engage the Victorian community on potential improvements to the five Victorian Regional Forest Agreements (RFAs), as part of a process of extending and modernising them.

This paper identifies a range of options to change the Victorian RFAs. The Victorian and Australian Governments are seeking feedback from the community on these suggestions and other ideas to improve the RFAs. The potential improvements identified in this consultation paper are suggestions from the author and are not final or agreed policy positions.

This consultation paper has four main sections:

- Section 1 – Provides an introduction to the RFA modernisation process
- Section 2 – Briefly describes the objectives of the Regional Forest Agreements.
- Section 3 – Provides a review of the current state of Victoria's forests and forest management compared to the objectives of the RFAs.
- Section 4 – Describes areas of potential improvements to the RFAs.

The consultation document was prepared independently of the Victorian and Australia Governments.

The context for modernising the Victorian RFAs

Nationally, there are ten RFAs. Of these, five RFAs are between the Commonwealth of Australia and the State of Victoria. These cover the areas of East Gippsland, the Central Highlands, the North East, West Victoria and Gippsland. These RFAs were signed between 1997 and 2000, each for a twenty-year period. They are due to expire on 31 March 2020.

The RFAs include provisions to extend the agreements. The Victorian and Australian Governments are working toward long-term extensions and updates to the Victorian RFA framework by March 2020.

The Victorian and Australian Governments have embarked on a program to modernise the Victorian RFAs. Engaging with Victorian communities and stakeholders to inform the modernisation of the Victorian RFAs, and the forest management system they accredit, is a key element of the program. The Victorian Government has committed to work in partnership with Traditional Owners to deliver the RFA modernisation program and manage Victoria's forests into the future.

Details of the RFA modernisation program can be found on the Department of Environment, Land, Water and Planning (DELWP) website: https://www2.delwp.vic.gov.au/futureforests.

The need to modernise the Victorian RFAs

The Victorian RFAs were negotiated between the Victorian and Australian Governments over two decades ago. Since that time there have been many important changes. Significant areas of change include:

- The legislative framework and government policies related to forests and the environment.
- The Victorian Government's approach to working with Aboriginal Victorians, organisations and the wider community.
- How fires are managed in Victoria.
- The size and structure of the forest industry.
- The use of forests for recreation and tourism.
- Knowledge of forest biodiversity and the wide range of values that forests provide.
- Our understanding of the impacts of climate change on forests and communities.

At the same time, there are differing views about how Victoria's forests should be managed, and a level of distrust within the community about how well Victoria's forests are being managed. Differing views within the community about the harvesting of native forests for timber continue to generate debate and conflict.

The RFA modernisation process will consider evidence of the effectiveness of the Victorian RFAs, the implications for forest management of the changes described above, and the views of the community.

Summary of the analysis of the State of Victoria's forests and forest management

Section 2 of this consultation paper sets out the objectives of the RFAs, and Section 3 considers the current state of Victoria's forests and forest management compared to the objectives of the RFAs. A short summary of these sections is provided below.

Objectives of the RFAs

The National Forest Policy Statement, released in 1992, is the national strategy for the ecologically sustainable management of Australia's forests. It aims to achieve the full range of benefits that forests can provide now and in the future. It includes eleven national goals designed to achieve a shared vision for Australia's forest estate and to ensure that the community obtains a balanced return from all forest uses (Commonwealth of Australia 1995).

The RFAs provide the regionally-based planning framework for implementing the goals of the National Forest Policy Statement. The RFAs are long-term bilateral agreements that strike a balance between the environmental, social and economic uses of forests (Department of Agriculture and Water Resources 2019).

The objectives of the RFAs are:

- To identify a Comprehensive, Adequate and Representative (CAR) reserve system and provide for the conservation of those areas.
- To provide for the ecologically sustainable management and use of forests in each RFA region.
- To provide for the long-term stability of forests and forest industries.

In terms of the objectives set for the Victorian RFAs an analysis of published information for this consultation paper found the following:

- Victoria has developed an extensive Comprehensive, Adequate and Representative (CAR) reserve system and has applied the principles of ecologically sustainable forest management to public forests.
- The formal reserve system covers the full range of Victoria's bioregions and ecological vegetation communities (EVCs), although the level of representation within the reserve system varies.
- Publicly available data does not allow an assessment of the effectiveness of complementary management of forests outside the CAR reserve system.
- Achieving the ideal level of coverage of forest ecosystems within Victoria's CAR reserve system is complicated by a legacy of historical land clearing that has left fragmented and degraded forests across the state.
- Forest management in Victoria recognises a range of threats to forest health including invasive species, the loss of hollow-bearing trees, and landscape-scale fires. Looking to the future, climate change will increase the pressure on Victoria's biodiversity by exacerbating existing threats and introducing new ones.
- Victorian Government Action Statements and Commonwealth Government Recovery Plans have been developed and, in most cases, updated for forest-dependent threatened species, threatened habitats, and threatening processes. However, concerns remain within the community about the effectiveness of the management of forest-dependent threatened species and habitats. Invasive species, fire and climate change, as well as the interaction between these three factors remain ongoing and serious challenges for forest health in Victoria.
- More effort is needed to stop the overall decline of forest-dependent threatened species and improve the extent and condition of forest habitats.
- The RFAs have not provided long-term stability of supply for the timber industry. There have been considerable reductions in the area available for harvest from native forests.
- Victoria has a comprehensive regulatory framework and institutional arrangements to manage the health of public forests. The management of forest fire, forest-based recreation and tourism and timber production demonstrate elements of good practice.

In terms of the governance and management of Victoria's forests, an analysis of published information for this consultation paper found the following:

- Forest management in Victoria lacks a clear vision to guide the various government agencies involved in forest management. This is being addressed by the Victorian Government through the development of a new vision for Victoria's public forests that includes the entire range of environmental, social and economic values and benefits that forests can provide.

- Victoria has a comprehensive legislative and regulatory framework for forests and forest management. Some of the legislation is over 60 years old. There may be efficiencies gained from streamlining legislation and reducing complexity and duplication.

- Further effort is required to improve transparency in the application of the Code of Practice for Timber Production.

- The Sustainability Charter for Victoria's State forests could be improved by clearer reference to the entire suite of values of forests, the need to adapt to climate change, and partnerships with Victorian Traditional Owner Groups.

Summary of potential improvements to the RFAs

A summary of the potential improvements to the Victorian RFAs and to forest management in general is provided below:

Theme 1   Ecologically Sustainable Forest Management

This analysis has identified opportunities for the Australian and Victorian Governments to:

- **Recognise all forest values** – by more clearly addressing the wide range of values and benefits that forests provide.

- **Conserve forest biodiversity and maintain ecosystem health** - by supporting Victoria's biodiversity plan and Matters of National Environmental Significance, including through the use of a range of conservation strategies, such as changes to the formal and informal CAR reserve system, restoration of EVCs, improving connectivity between fragmented EVCs, and working with private landholders to conserve under-represented EVCs.

- **Promote Traditional Owner rights and partnership** – by including meaningful consideration of the rights and aspirations of Traditional Owners in the Victorian RFAs and the broader forest management system.

Theme 2   The long-term stability of forests and forest industries

This analysis has identified opportunities for the Australian and Victorian Governments to:

- **Address climate change and other large-scale disturbances** – by ensuring that forest management decisions are informed by up-to-date scientifically-credible information on the current and likely future impact of climate change and other large-scale disturbances. It should also incorporate multi-scale actions that build the resilience of Victoria's forests, including state-wide policy and guidance, landscape level actions across RFA regions, and local level forest management actions.

- **Support the development of forest dependent industries** – by ensuring healthy forests governments can support the development of forest-based industries, including the forest and wood products industry, tourism and recreation industry, apiary, and the water industry, and ensure that these industries are sustainable into the future.

This process should include consideration of the climate change, severe fires, invasive species, Matters of National Environmental Significance.

Theme 3   Governance and management of Victoria's forests

This analysis has identified opportunities for the Australian and Victorian Governments to:

- **Support the Victorian Government efforts to improve forest management planning** – by providing information on how best to develop a more inclusive, adaptive and consultative approach to public forest management planning that delivers ecologically sustainable forest management. This should include improving the alignment between forest management plans and park management plans at a landscape or RFA region scale and using the five-yearly RFA review process to better identify and manage risks to the community, forest dependent industries and forest health.

- **Identify research priorities** – by facilitating negotiations on forest research priorities between the Victorian and Australian Governments, including identifying how existing research programs and investment can be better utilised.

- **Improve monitoring and reporting** – to enhance evidence-based decision making and improve the transparency of forest management with the community.

Work underway in the Victorian Government

In parallel, work is under way within the Victorian Government to improve its forest management system. This includes:

- Actions to strengthen the regulation of timber harvesting, set out in the *Government's response to the Independent Review of Timber Harvesting Regulation*[1].

- Work to clarify the objectives and direction of forest management by setting a clear vision and strategy for the management of Victoria's public native forests.

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[1]	https://www.forestsandreserves.vic.gov.au/__data/assets/pdf_file/0022/414166/DELWP-Response-to-the-Independent-Review-of-Timber-Harvesting-Regulation.pdf

1. Introduction

The Australian and Victorian Governments have embarked on a process to extend and modernise the Victorian Regional Forest Agreements (RFAs).

The Victorian RFAs were negotiated between the Commonwealth of Australia and the State of Victoria over two decades ago. Since that time there have been many changes that should be considered when modernising the Victorian RFAs. For example, over the past twenty years there have been changes to:

- The legislative framework and government policies related to forests and the environment
- The Victorian Government's approach to working with Aboriginal Victorians, organisations and the wider community
- How fires are managed in the state
- The size and structure of the forest industry
- The use of forests for recreation and tourism
- Knowledge of forest biodiversity and the wide range of values that forests provide
- Our understanding of the impacts of climate change on forests and surrounding communities.

The Australian and Victorian Governments have responded to many of these changes and to the recommendations of the two formal reviews of the reports on the Victorian RFAs. They have also taken into consideration information on the state and trends of forests and the forest industry provided in various Australian and Victorian State of the Forests Reports and other relevant reports.

The process of modernising the RFAs provides an opportunity to review the evidence about the state and trends of forests and the forest industry, to more strategically incorporate the changes described above into the RFAs, and to consult with the community about future directions for the use and management of Victoria's forests.

1.1 Purpose of this consultation paper

The purposes of this consultation paper are to deepen the understanding of RFAs and engagement with communities and stakeholders by drawing together the key findings from publicly-available reports, and to seek feedback from the public on potential improvements to forest management and the Victorian RFAs.

The consultation paper has four sections:

- Section 1 – Provides an introduction to the RFA modernisation process.
- Section 2 – Briefly describes the objectives of the Regional Forest Agreements.
- Section 3 – Provides a review of the current state of Victoria's forests and forest management compared to the objectives of the RFAs.
- Section 4 – Describes areas of potential improvements to the RFAs.

The potential improvements described in Section 4 are the author's suggestions for how the RFAs could be modernised and are not agreed or final policy positions of the Victorian or Australian Government.

1.2 The approach to developing the consultation paper

This consultation paper has been developed independently of the Australian and Victorian Governments. It was informed by an analysis of the State of Victoria's forests and forest management in terms of the following:

- The achievement of the overall objectives of the RFAs.
- The governance and management of forests in Victoria.

The analysis was based on a review of:

- The recommendations and commentary provided by the two independent reviews of the reports on progress with implementation of the Victorian RFAs, published in 2010 and 2017 respectively (see, Wallace 2010; Wilkinson 2018).

- Relevant reports/inquiries/reviews, including the State of the Forests Reports (Victorian and National), and the Victorian State of the Parks reports.
- Other relevant literature and data.

The analysis considered the National Forest Policy Statement, the *Regional Forest Agreements Act 2002* (Cth) and information on the Victorian Department of Environment, Land, Water and Planning (DELWP) and Commonwealth Department of Agriculture and Water Resources websites.

As far as the published information allows, the analysis uses a four-point scale to rank Victoria's forests and forest management (the outcomes) against the objectives of the RFAs:

- **Good practice:** The level of outcomes achieved meets or exceeds expectations and/or there were no serious short comings
- **Satisfactory:** The level of outcomes achieved was as expected, but there may be opportunities for improvement
- **Improvement needed:** The level of outcomes requires improvement
- **Unable to Assess:** The information does not allow an assessment of the level of outcomes achieved.

2. What are Regional Forest Agreements?

Following many years of controversy and debate over forest management and use, the National Forest Policy Statement[2] was developed by the Australian Government and State and Territory Governments.

Released in 1992, the National Forest Policy Statement is a strategy for the ecologically sustainable management of Australia's forests. It aims to achieve the full range of benefits that forests can provide now and in the future. It includes eleven national goals designed to achieve a shared vision for Australia's forest estate and to ensure that the community obtains a balanced return from all forest uses (Commonwealth of Australia 1995).

The Regional Forest Agreements (RFAs) provide the regionally-based planning framework for implementing the goals of the National Forest Policy Statement.

The RFAs are long-term bilateral agreements that strike a balance between the environmental, social and economic uses of our forests (Department of Agriculture and Water Resources 2019).

Ten RFAs were signed between the Commonwealth and four State Governments between 1997 and 2001 (Department of Agriculture and Water Resources 2017b). There are five RFAs in Victoria, three in New South Wales and one each in Western Australia and Tasmania (Department of Agriculture and Water Resources 2017a).

The objectives of the RFAs are:

- To identify a Comprehensive, Adequate and Representative (CAR) reserve system and provide for the conservation of those areas
- To provide for the ecologically sustainable management and use of forests in each RFA region
- To provide for the long-term stability of forests and forest industries.

2.1 Renewal of the Victorian RFAs

The five Victorian RFAs cover East Gippsland, the Central Highlands, the North East, West Victoria and Gippsland. The Victorian RFAs were signed into force between 1997 and 2000 for a twenty-year period.

The RFAs included provisions for extending the agreements for a further period based on a process to be determined jointly by the Australian and Victorian Governments. The East Gippsland, Central Highlands and North East RFAs had short term extensions agreed in March 2018 and the Governments recently announced their intention to agree long-term extensions and updates to the Victorian RFA framework by March 2020.

Accordingly, the Australian and Victorian Governments have embarked on a major program to modernise the State's RFAs through comprehensive engagement with Victorian communities.

The Victorian Government has also committed to work in partnership with Traditional Owners to deliver the RFA modernisation program and manage Victoria's forests into the future.

More details of the RFA modernisation program can be found on the Department of Environment, Land, Water and Planning (DELWP) website: https://www2.delwp.vic.gov.au/futureforests.

3. Have the Victorian RFAs achieved their objectives?

3.1 Ecologically sustainable forest management and the conservation of forest biodiversity

In support of the National Forestry Policy Statement, the Victorian RFAs sought to identify a Comprehensive, Adequate and Representative (CAR) reserve system and provide for the conservation of those areas, and to provide for the ecologically sustainable management and use of forests.

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2   The National Forest Policy Statement was signed by all participating Governments, with the exception of Tasmania, in 1992. Tasmania became a signatory in 1995 (Commonwealth of Australia 1995).

The National Forest Policy Statement anticipates that efficiently and sustainably managed public and private forests will provide the basis for nature conservation and maintaining forest biological diversity, and for regional economic development and employment opportunities in a wide range of sectors.

The nature conservation goal of the National Forest Policy Statement is:

To maintain an extensive and permanent native forest estate in Australia and to manage that estate in an ecologically sustainable manner so as to conserve the full suite of values that forests can provide for current and future generations. These values include biological diversity, and heritage, Aboriginal and other cultural values (Commonwealth of Australia 1995).

The National Forest Policy Statement envisaged that the nature conservation goal for Australia's forests would be pursued through:

- A dedicated nature conservation reserve system (the CAR reserve system, see below)

- Complementary management of public forests outside reserves

- Management of private forests in sympathy with nature conservation goals (Commonwealth of Australia 1995).

The Comprehensive, Adequate and Representative (CAR) reserve system is based on a set of nationally-agreed criteria that were developed by the Joint ANZECC / MCFFA[3] National Forest Policy Statement Implementation Sub-committee, or JANIS in short. These criteria are known as the JANIS criteria.

The objectives for the conservation of forest biodiversity set by JANIS are as follows:

- To maintain ecological processes and the dynamics of forest ecosystems in their landscape context

- To maintain viable examples of forest ecosystems throughout their natural ranges

- To maintain viable populations of native forest species throughout their natural ranges

- To maintain the genetic diversity of native forest species (JANIS 1997).

JANIS specifies that these objectives will be most efficiently and effectively achieved through the development of integrated regional conservation strategies, which provide for the establishment and effective management of conservation reserves (the CAR reserve system) and complementary management of adjoining forest areas (JANIS 1997). The JANIS criteria do not require all forest to be placed in the CAR reserve system, but they do anticipate that the management of native forests outside the reserve system will complement the CAR reserve system.

3.1.1 The CAR reserve system

The RFAs aimed to identify areas to be included within the CAR reserve system and to provide for the conservation of those areas. The three elements of the CAR reserve system are:

- Comprehensive: the inclusion in the National Reserve System of examples of regional-scale ecosystems in each bioregion

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

- Representative: the inclusion of areas at a finer scale, to encompass the variability of habitat within ecosystems (Department of Environment and Energy nd).

In Victoria, the CAR reserve system includes formal reserves[4], informal reserves, and private land as follows:

- Formal reserves include Crown land that has been formally reserved for environmental protection (e.g. National Parks, State Parks, nature conservation reserves and other conservation areas)

- Informal reserves include public land protected through administrative instruments by public authorities. Areas within State forest that provide for conservation value are classified under Victoria's Forest Management Zoning (FMZ) system as Special Protection Zones (SPZs), see the section below on forest management planning for a description of FMZs.

- Private land that has legal mechanisms to protect biodiversity.

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[3]   ANZECC is the Australian and New Zealand Environment and Conservation Council, MCFFA is the Ministerial Council on Forestry, Fisheries and Aquaculture

[4]   Described as dedicated reserves in the JANIS criteria

To identify the areas of forest that needed protection, and the areas of forest that could be used for commercial purposes, Comprehensive Regional Assessments were undertaken in each RFA region as part of the RFA process (Department of Agriculture and Water Resources 2015a).

In Victoria, the information developed through the Comprehensive Regional Assessments was used to identify changes to public land tenure and changes to the management of State forests. All the changes to land tenure identified through this process were implemented in Victoria's RFA regions between 1999 and 2004. The outcome was an expansion of Victoria's CAR reserve system, and a corresponding reduction in the area of State forest and other Crown lands.

By 2003, 900,000 hectares of forest had been added to the existing reserve system in Victoria through the RFA process (Department of Sustainability and Environment 2005).

Further changes to forest tenure during the 20 year implementation period of the RFAs, but outside of the scope of the RFAs, have expanded the area of forest within the CAR reserve system beyond the area that was originally identified for formal reservation (Department of Environment and Primary Industries 2014b). Recent additions to the CAR reserve system include 45,000 hectares in the East Gippsland RFA area, and 170 hectares in the North East RFA (Wilkinson 2018).

Today, the total area of forest within Victoria is estimated at 7.88 million hectares. This includes:

- 3 million hectares of forest within the formal reserve system (Victoria has 3.68 million hectares of parks and conservation reserves)

- 3 million hectares of forest within State forests (Victoria has 3.21 million hectares of State forest), of which 756,000 hectares is within the informal reserve system (SPZs) (source DELWP 2016 data sets)

- 430,000 hectares of forest within other Crown land (Victoria has 1.0 million hectares of other Crown land)

- 1.45 million hectares of forest (including plantations) on private land[5], of which about 100,000 hectares is protected by conservation covenants or similar mechanisms.

Overall, the CAR reserve system covers about 49 per cent of Victoria's remaining forests or just under 18 per cent of Victoria's pre-1750 forest area[6].

Information on Victoria's CAR reserve system is reported periodically by the Victorian Government through their State of the Forests Reports and State of the Parks Reports. The State of the Forests Reports includes information on the state and trends of the entire forest estate, whereas the State of the Parks Reports focus on the formal reserve system within the State.

In Victoria, the highest terrestrial biodiversity values are found on public land. Although public land covers only 40 per cent of Victoria's land area, it accounts for over 70 per cent of the areas in the highest biodiversity values. The protected area system [the formal reserve system] supports 40 per cent of Victoria's highest biodiversity value areas on less than 20 per cent of Victoria's land (Victorian Environmental Assessment Council 2017c).

In terms of the formal reserve system, Parks Victoria reports that:

- Sixty per cent of land-based parks (just under 40 per cent by area) are in excellent or good condition, and the majority of land-based parks have been in a stable condition since 2010

- While there have been positive trends for some threatened species, many continue to be at risk from large-scale and localised threats affecting parks

- Park managers reported the most common threatening processes to be weed invasion, pest animals, fire frequency and severity and illegal uses. The impact and trend of key threats was reported as variable, with the majority of parks reporting that weeds and pest animals were having moderate or major impacts. The impact of some threats such as deer, *Phytophthora* dieback, and illegal activities were reported as increasing and emerging across a large proportion of parks (Parks Victoria 2013b).

The informal reserve system plays an important complementary role to the formal reserve system by protecting areas of high value throughout State forests. Victoria's *Code of Practice for Timber Production 2014* and the

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5   The area figures for private forest land include plantation. Disaggregated figures for private land are not available

6   Prior to European settlement forest covered about 90 per cent of Victorian land. Since that time more than 14 million hectares (60 per cent) of Victorian forest has been cleared, making it proportionally, the most cleared of all Australian States (Commissioner for Environmental Sustainability 2019).

Management Standards and Procedures for timber harvesting operations in Victoria's State forests 2014 contain a range of mandatory and discretionary actions for the protection of environmental values.

Whilst the area of Victoria's formal reserve system is relatively stable, and indeed has grown over the 20-year time frame of the RFAs, the informal reserve system relies on an adaptive management approach, having flexible boundaries that can change over time to reflect new information and forest dynamics (Department of Environment and Primary Industries 2014b).

Victoria has several mechanisms to protect biodiversity on private land, including:

- Conservation covenants under the *Victorian Conservation Trust Act 1972* (Vic)
- Land Management Cooperative Agreements under the *Conservation Forests and Lands Act 1987* (Vic), and
- Provisions of the *Planning and Environment Act 1987* (Vic) (Department of Environment and Primary Industries 2014b).

Private land protected by these mechanisms can only be included in the CAR reserve system with the consent of the land owner. In 2017 there was about 60,000 hectares of conservation covenants on private land and 44 Trust for Nature reserves comprising almost 40,000 hectares[7] in Victoria (Trust for Nature 2017). In addition, Bush Heritage protects 1,300 hectares of woodlands in Victoria (Bush Heritage 2019).

Trust for Nature has a conservation covenant program that enables landowners to permanently protect native vegetation, including habitat for plants and wildlife, on their properties. This program was established under the *Victorian Conservation Trust Act 1972*. A conservation covenant is a permanent, legally-binding agreement placed on the title of a property. This agreement is voluntary and negotiated between Trust for Nature and an individual landowner (Trust for Nature 2017).

There is scant publicly-available information on the effectiveness of private forests within the CAR reserve system.

Satisfactory – The Victorian RFA process successfully identified areas to be included in the state's CAR reserve system. Today, Victoria has 3 million hectares of forest within the formal reserve system. The modernisation of the Victorian RFAs will need to take into consideration the targets within Victoria's biodiversity plan, including supporting collaboration between stakeholders to drive improvement in biodiversity conservation (see, Department of Environment, Land, Water and Planning 2017). There is a need for better information on the effectiveness of the informal reserve system and forests on private land in protecting biodiversity, and for this information to be made available to the public.

3.1.2 Conservation of forest bioregions and Ecological Vegetation Classes

Forest ecosystems in Victoria are classified within bioregions and Ecological Vegetation Classes (EVCs). EVCs are sometimes grouped into Ecological Vegetation Divisions (EVDs).

Australia's landscapes are divided into 89 large geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. These bioregions are classified according to the Interim Biogeographic Regionalisation for Australia (IBRA, currently version 7) (Department of the Environment and Energy n.d.).

Victoria has 11 IBRA bioregions that are further divided into 28 Victorian bioregions (or IBRA sub regions).

EVCs are based on the ecological characteristics of vegetation (e.g. dominant species, community structure) and physiographic variables (e.g. soil type, annual rainfall) (Cheal 2010).

To determine whether a reserve system is comprehensive, adequate and representative, it is necessary to look at whether the system includes examples of regional-scale ecosystems in each bioregion, sufficient levels of each ecosystem and variability of habitat within ecosystems. The JANIS criteria related to these requirements include (but are not limited to) the following guides:

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[7] Note that not all this area is forest

- As a general criterion, 15 per cent of the pre-1750 distribution of each forest ecosystem should be protected in the CAR reserve system with flexibility considerations applied according to regional circumstances, and recognising that as far as possible and practicable, the proportion of Dedicated Reserves should be maximised

- Where forest ecosystems are recognised as vulnerable, then at least 60 per cent of their remaining extent should be reserved

- All remaining occurrences of rare and endangered forest ecosystems should be reserved or protected by other means as far as is practicable (JANIS 1997).

The JANIS criteria emphasise flexibility to enable consideration of differing regional circumstances and to ensure that the CAR reserve system delivers optimal nature conservation outcomes as well as acceptable social and economic outcomes (JANIS 1997).

The extent that Victoria's bioregions are represented in the formal reserve system is variable. Those bioregions that are the most well represented in the CAR reserve system include Wilsons Promontory and the Greater Grampians, while those bioregions least represented are Dundas Tablelands, Strezlecki Ranges and the Victorian Riverina (Parks Victoria 2013b). Figure 1 shows the percentage of the state's bioregions that are within the formal reserve system (Parks Victoria 2013b).

Figure 1 Percentage of Victoria's bioregions within parks
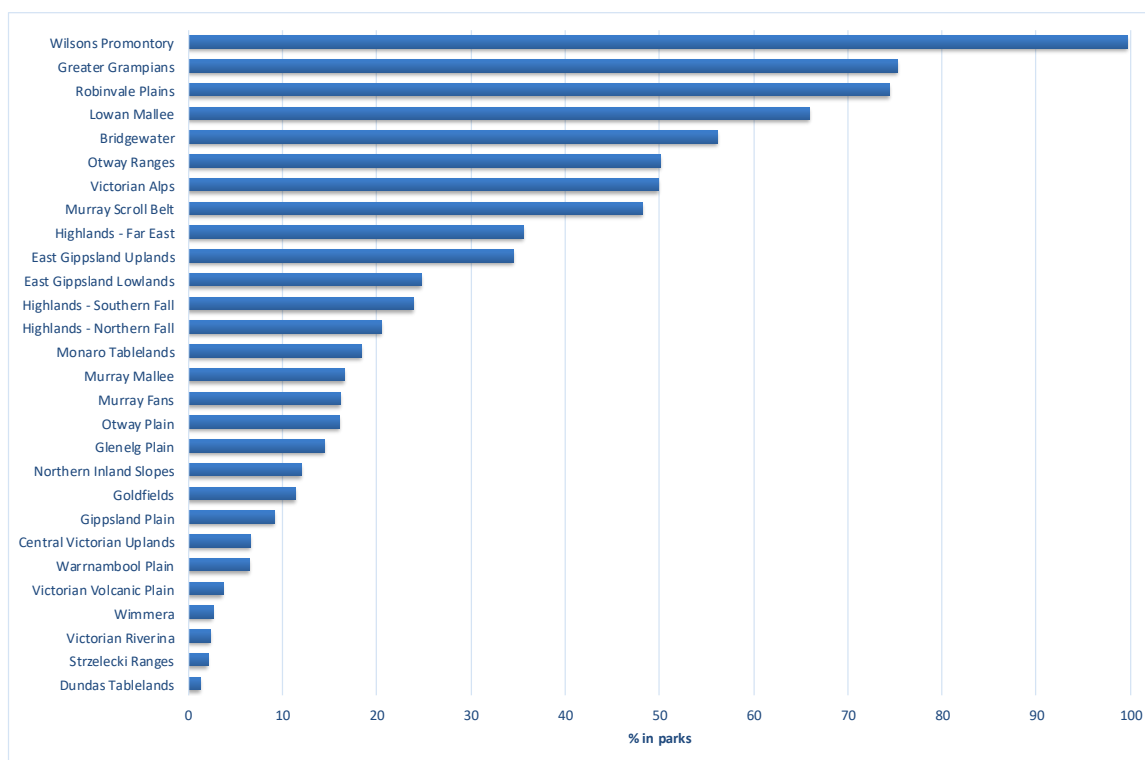
Details on the levels of protection of EVCs and old-growth forest achieved in the CAR reserve system can be found in the Australian and Victorian Governments' *Reports on Progress with Implementation of the Victorian Regional Forest Agreements* (see, for example Department of Environment and Primary Industries 2014b).

Parks Victoria reports that all Ecological Vegetation Divisions (EVDs) that are found in Victoria are included within the CAR reserve system, although the level of representation varies greatly. The least well-represented EVDs include Inland Plains Woodland (4 per cent of total area), Foothills Forest and Western Plains Woodland (18 per cent of total area) and Forby Forest (21 per cent of total area). The representation of EVDs in Victoria's parks [the formal reserve system] is partly a reflection of past land use with the pre-1750 extent of some EVDs now highly depleted due to past land uses (Parks Victoria 2013b).

A combination of EVC [or EVD] and bioregion is used to determine the bioregional conservation status (BCS) of an EVC. This comprises a measure of the current extent and quality for each EVC, when compared to its original (pre-1750) extent and condition. On this basis, a BioEVC will have a BCS of endangered, vulnerable, depleted, least concern or rare (Department of Environment, Land, Water and Planning 2018). It should be noted that the criteria for BCS differs from the JANIS criteria. Table 1 provides a comparison of the JANIS and BCS criteria.

Table 1 A comparison of the JANIS criteria with the BCS criteria

JANIS criteria for CAR Reserve system for forest ecosystems	Bioregional Conservation Status

Endangered E
 	
1. An endangered ecosystem is one where its distribution has contracted to less than 10% of its former range; or
2. the total area has contracted to less than 10% of its former area; or
3. where 90% of its area is in small patches which are subject to threatening processes and unlikely to persist
	Endangered E
	
	1. Contracted to less than 10% of former range; OR
	2. Less than 10% pre-European extent remains; OR
	3. Combination of depletion, degradation, current threats and rarity is comparable overall to the above:
	  a. 10 to 30% pre-European extent remains and severely degraded over a majority of this area; or
	  b. naturally restricted EVC reduced to 30% or less of former range and moderately degraded over a majority of this area; or
	  c. rare EVC cleared and/or moderately degraded over a majority of former area.

Vulnerable V
 	
A vulnerable forest ecosystem is one which is:
1. approaching a reduction in areal extent of 70% (**10 to 30% of original extent remains**) within a bioregional context and which remains subject to threatening processes; or
2. not depleted but subject to continuing and significant threatening processes which may reduce its extent.
	Vulnerable V
	
	1. 10 to 30% pre-European extent remains; OR
	2. Combination of depletion, degradation, current threats and rarity is comparable overall to the above:
	  a. greater than 30% and up to 50% pre-European extent remains and moderately degraded over a majority of this area; or
	  b. greater than 50% pre-European extent remains and severely degraded over a majority of this area; or
	  c. naturally restricted EVC where greater than 30% pre-European extent remains and moderately degraded over a majority of this area; or
	  d. rare EVC cleared and/or moderately degraded over a minority of former area

Rare R 1. A rare forest ecosystem is defined as one with a restricted geographic distribution, involving a total range of generally less than 10,000 ha; or 2. a total area of generally less than 1,000ha; or 3. where patch sizes are generally less than 100 ha, where such patches do not aggregate into significant areas.	**Rare R** Rare EVC (as defined by geographic occurrence) but neither depleted, degraded nor currently threatened to an extent that would qualify as Endangered, Vulnerable or Depleted

Source DELWP

Figure 2 shows the percentage of EVDs within Victoria's parks and reserves and Special Protection Zones.

Figure 2 Percentage of Victoria's Ecological Vegetation Divisions within parks and SPZs
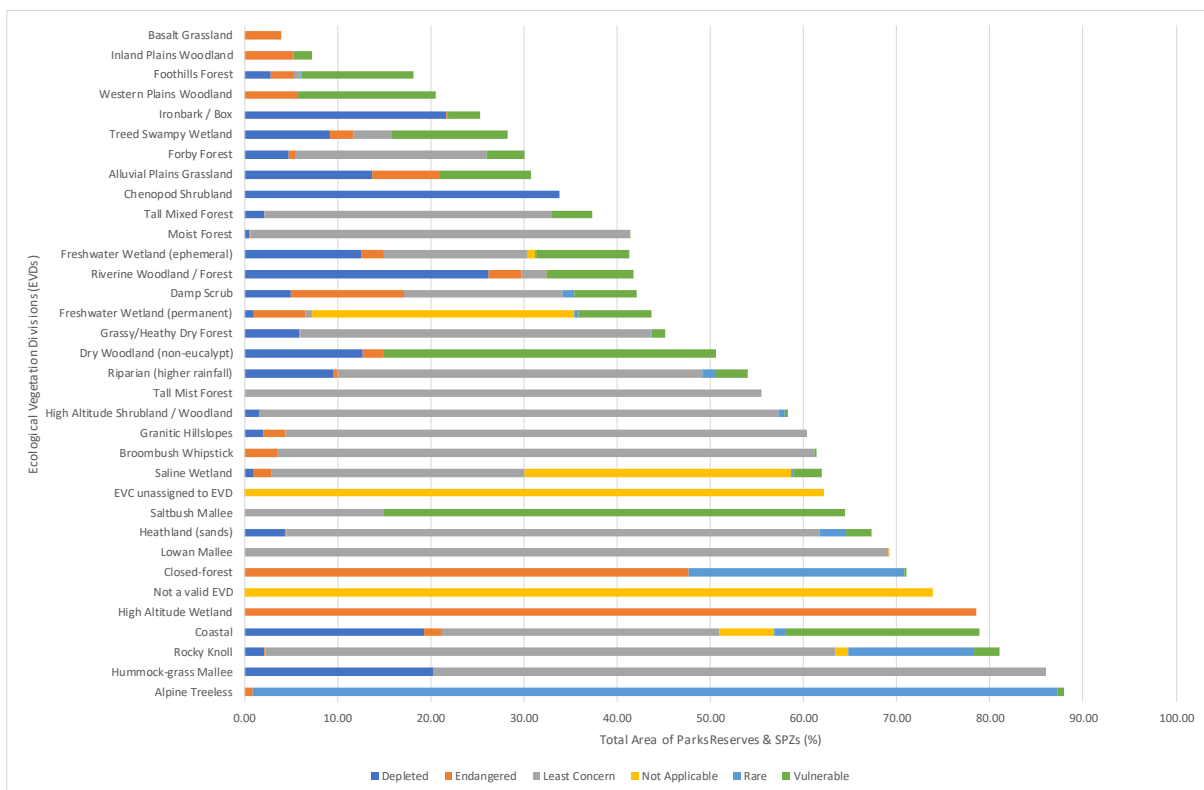
Source: DELWP, 2019

It is not always feasible to reach the JANIS target of 15 per cent of the pre-1750 distribution of each forest ecosystem because the EVC/bioregion may be already depleted below the 15 per cent level, or it may be highly dispersed and it would be necessary to include a considerable area of already well-represented EVCs in the CAR reserve system in order to achieve comparatively small gains in protection (Department of Environment and Primary Industries 2014b).

There are BioEVCs in Victoria that have been depleted to the point that less than 15 per cent of their pre-1750 extent remains. These BioEVCs are primarily those occurring on land suitable for agricultural development. There are also BioEVCs in Victoria that have more than 15 per cent of their pre-1750 extent remaining, which are primarily found on private land.

The JANIS criteria emphasise flexibility in applying the criteria and note that though all forest species and ecosystems should be represented in the reserve system, the effort to achieve this for the last few percent of communities and habitats may reach a point of diminishing return, and in these situations nature conservation objectives may be more efficiently and effectively achieved through other strategies (JANIS 1997).

Satisfactory – Victoria's CAR reserve system covers all bioregions and EVDs, although the level of coverage of individual bioregions/EVDs varies. Whilst there may be remaining opportunities to incorporate EVCs that have low levels of representation into the CAR reserve system, other strategies including restoration and improving connectivity between fragmented EVCs and working with private landholders to conserve under-represented EVCs may also provide effective conservation outcomes.

3.1.3 Threatened Species and threatening processes

The RFAs include requirements for the protection of threatened species and threatened ecological communities, and requirements to address key threatening processes. A key threatening process is one that threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community (Department of Environment and Energy n.d.).

There are 485 forest-dependent species that are listed as threatened under the *Flora and Fauna Guarantee Act 1988* in Victoria. Table 2 lists the number of threatened species by conservation status (source DELWP)[8].

Table 2 Number of forest-dependent threatened species by Victorian conservation status (2018)

Species groupings	Extinct	Extinct in the Wild	Regionally Extinct	Critically Endangered	Endangered	Vulnerable	Near Threatened	Data Deficient	Total
Fauna									
Amphibians				7	3	2		3	15
Birds				4	15	18	17		54
Fish				3	1	6	1		11
Invertebrates				6	11	17	1	8	43
Mammals	9	1	9	2	7	7	15	2	52
Reptiles			1	6	7	8	7	3	32
Flora									
Vascular plants					92	165	6	1	264
Other flora					4	10			14
Total	9	1	10	28	140	233	47	17	485

Source: DELWP 2019

Both formal and informal reserves contribute to the protection of forest-dependent threatened species. Table 3 lists the area and percentage of the total habitat for each key forest-dependent threatened species that is within the formal and informal reserve system, as well as the percentage of total habitat that is protected. The selection of threatened species follows the approach used by the Victorian Environmental Assessment Council (VEAC) in their 2017 report on the *Conservation values of state forests* (see, Victorian Environmental Assessment Council 2017a).

Table 3 Representation of key forest-dependent threatened species in Victoria's formal and informal reserve system, based on predicted habitat (2019) [9]

Species	Formal reserves		Informal reserves		Protected
	ha	%	ha	%	%
Spotted Tree Frog	28	36%	48	62%	99%
Brush-tailed Rock Wallaby	21,748	96%	25	0%	96%
Orbost Spiny Cray	7	54%	6	42%	96%
Alpine Bog Skink	100,165	89%	1,269	1%	90%
Helmeted Honeyeater	47	85%	0	0%	85%
Baw Baw Frog	4,523	52%	2,744	31%	83%
Broad-toothed Rat	117,865	69%	8,215	5%	74%
Rosenberg's Goanna	349,095	64%	25,729	5%	69%
Serpent Heath	11,829	53%	3,536	16%	69%
Baw Baw Berry	67,651	55%	14,257	12%	66%
Upright Pomaderris	291	57%	37	7%	65%
Martin's Toadlet	50,786	45%	19,147	17%	62%

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8   The FFG Act Threatened List is available at https://www.environment.vic.gov.au/conserving-threatened-species/flora-and-fauna-guarantee-act-1988 .

9   Several of the species included in the table have specific detection based prescriptions, including in some cases the creation of additional Special Protection Zones.

Species	Formal reserves		Informal reserves		Protected
	ha	%	ha	%	%
Velvety Geebung	80,029	52%	14,165	9%	61%
White-bellied Sea-Eagle	143,857	59%	2,084	1%	60%
Green and Golden Bell Frog	77,790	46%	19,803	12%	58%
Outcrop Guinea-flower	54,847	37%	27,847	19%	56%
Spot-tailed Quoll	517,140	45%	108,545	9%	54%
Veined Pomaderris	128,808	45%	26,467	9%	54%
Trout Cod	43	44%	10	10%	54%
Grey-headed Flying-fox	32,472	42%	8,506	11%	53%
Swamp Skink	182,693	42%	44,505	10%	52%
Smoky Mouse	69,742	41%	18,629	11%	52%
Small Fork-fern	168,512	42%	42,067	10%	52%
Chestnut-rumped Heathwren	763,854	42%	161,009	9%	51%
Forest Geebung	150,460	43%	25,711	7%	51%
Brown Guinea-flower	32,176	35%	14,574	16%	51%
Tall Astelia	65,922	42%	10,676	7%	49%
Elegant Daisy	97,189	35%	34,469	12%	48%
Southern Toadlet	182,329	34%	75,548	14%	48%
Leafless Pink-bells	220,283	34%	81,743	13%	47%
Smooth Geebung	193,413	35%	67,139	12%	47%
Large Brown Tree Frog	33,143	35%	11,080	12%	47%
Tree Geebung	67,745	32%	28,362	13%	45%
Square-tailed Kite	617,669	34%	187,469	10%	44%
Eastern Pomaderris	181,584	32%	65,073	12%	44%
Forest Phebalium	231,218	30%	98,907	13%	44%
Sandfly Zieria	186,715	29%	89,809	14%	43%
Powerful Owl	870,257	31%	318,286	11%	43%
Masked Owl	538,668	30%	218,457	12%	42%
Eastern Horseshoe Bat	129,636	29%	61,884	14%	42%
Lace Monitor	877,922	31%	289,160	10%	42%
Slender Fork-fern	71,808	38%	5,637	3%	41%
Leadbeater's Possum	54,694	28%	27,087	14%	41%
Long-footed Potoroo	99,255	30%	36,133	11%	41%
Sooty Owl	356,401	27%	187,559	14%	41%
Oval Fork-fern	146,681	31%	46,383	10%	40%
Grey Goshawk	549,550	32%	136,969	8%	40%
Forest Sedge	90,806	27%	41,547	13%	40%
Greater Glider	640,535	25%	372,482	15%	40%
Glossy Black-Cockatoo	50,024	22%	38,789	17%	40%

| Species | Formal reserves | | Informal reserves | | Protected |
	ha	%	ha	%	%
Booroolong Tree Frog	16,001	36%	1,437	3%	39%
Gippsland Stringybark	65,171	23%	45,426	16%	39%
Gully Grevillea	7,691	32%	1,428	6%	38%
Barred Galaxias	536	15%	766	22%	37%
Cox's Gudgeon	571	24%	324	13%	37%
Tasmanian Wax-flower	27,002	25%	11,735	11%	36%
Brown Toadlet	153,107	30%	25,242	5%	35%
Barking Owl	306,466	31%	30,917	3%	35%
Brush-tailed Phascogale	74,245	29%	9,303	4%	32%
Macquarie Perch	843	21%	438	11%	32%
Swift Parrot	154,707	30%	6,154	1%	31%
Squirrel Glider	110,837	30%	1,666	0%	31%
Australian Grayling	21,539	20%	10,486	10%	30%
Blackfellow's Hemp	16,573	13%	21,202	17%	30%
Regent Honeyeater	124,749	28%	8,147	2%	30%
Speckled Warbler	230,670	26%	27,089	3%	29%
Giant Burrowing Frog	11,748	12%	17,355	17%	29%
Flat-headed Galaxias	14,174	28%	332	1%	28%
Colquhoun Grevillea	1,702	5%	8,574	24%	28%
Murray Cod	24,049	26%	1,240	1%	27%
Dwarf Galaxias	168	13%	50	4%	17%

Source DELWP data sets 2019

The RFAs include a priority list of species for the preparation of Action Statements, made under the *Flora and Fauna Guarantee Act 1988* (FFG Act), and Recovery Plans made under the EPBC Act.

Progress has been reported with the implementation of recommended actions identified in Action Statements within the RFA regions (Department of Environment and Primary Industries 2014b).

Of the 88 species identified in the five RFAs as priority for the preparation of Victorian Government Action Statements or Commonwealth Government Recovery Plans, more than 80 per cent have been addressed, and in most cases new or revised Action Statements and/or Recovery Plans have been prepared. In some cases, plans are currently in preparation (Department of Environment and Primary Industries 2014b).

The priorities for the preparation of Action Statements and Recovery Plans have been adjusted over time as new information emerges and as a result of changes in state and national priorities and law (Department of Environment and Primary Industries 2014b).

Changes to the management of threatened species have also followed legislative changes at the national level. The Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) superseded the *Endangered Species Protection Act 1992* (Cth) (ESP Act) and introduced altered and additional requirements for national Recovery Plans. As a consequence, the Action Statements prepared under Victoria's FFG Act no longer meet the requirements of Commonwealth environmental law (Wilkinson 2018).

In 2018 the Victorian Government signed an intergovernmental memorandum of understanding with the Australian Government on a common assessment method for the listing of threatened species and ecological communities (see, Department of the Environment and Energy n.d.).

Australia's *State of the Forests Report 2018* notes that nationally, over the reporting period of 2011 to 2016, 68 forest-dwelling species were added to the national list of threatened species (Department of Agriculture and Water Resources 2018a).

Most newly listed forest-dwelling fauna and flora species were added to the list of threatened species because of their small population size and/or restricted range, and threat categories relating to land clearing (agricultural and urban), mortality agents, unsuitable fire regimes, predation, grazing and invasive species impacts (Department of Agriculture and Water Resources 2018a).

Forest operations were identified as primary threats in 10 per cent (four species) of new listings of forest-dwelling fauna species, and 25 per cent (seven species) of new listings of forest-dwelling flora species (Department of Agriculture and Water Resources 2018a).

Davey notes that for forest-dwelling flora, small or localised populations, mortality agents and unsuitable fire regimes were prominent threats in listings of threatened species, while land-use change and/or forest loss and predation by introduced fauna were prominent threats in the listing of forest-dwelling fauna. He notes that forestry operations were specified as a threat category in only a relatively low proportion of listings (Davey 2018).

These findings deserve further consideration during the RFA modernisation process to enable stakeholders to understand better the state and trend of threatened species and the nature of the environmental pressures that generate the threats.

The state and trend of threatened species is influenced by both contemporary pressures, such as invasive species, and historical pressures, including historical land clearing and past fire regimes. Whilst both contemporary and historical pressure can be influenced by present-day forest management, the legacy of historical pressures is often expensive and difficult to address. For example, addressing the fragmentation of forest EVCs that has resulted from historical land clearing is a highly complex land management challenge.

The Victorian RFAs recognise a range of threatening processes listed under the EPBC Act and the FFG Act, extending beyond Victoria relevant to all RFA regions, for which national Threat Abatement Plans have been adopted. These threatening processes include competition and land degradation by rabbits, predation by the European red fox and by feral cats, disease caused by the root-rot fungus (*Phytophthora cinnamomi*) and infection of amphibians with chytrid fungus (Department of Environment and Primary Industries 2014b).

The Central Highlands RFA identifies the loss of hollow-bearing trees from Victorian native forests as a potentially threatening processes under the FFG Act (Department of Environment and Primary Industries 2014b). This process is of particular relevance to species such as Leadbeater's Possum, which remains at a high risk of extinction until 2050-70, due to ongoing habitat loss (especially loss of hollow-bearing trees) and the likelihood of future bushfires (Department of Environment, Land, Water and Planning 2019).

Looking to the future, climate change will increase the pressure on Victoria's biodiversity, by exacerbating existing threats and introducing new ones, such as:

• Increased frequency and severity of extreme weather events

• Increased frequency and intensity of bushfires and drought

• Changes to waterway flows, levels and regimes

• Changes in the range, distribution, abundance and seasonality of species

• Changes in the range, distribution and impacts of introduced plants and animals, including the introduction of new pests taking advantage of a changed climate (Department of Environment, Land, Water and Planning 2017).

Climate change will require forest management in Victoria to be increasingly adaptive.

Improvement needed – The Victorian RFAs, and the forest management system they accredit, have made an important contribution to the management of forest-dependent threatened species, threatened ecological communities and key threatening processes through the CAR reserve

system and the management of parks, reserves and State forests. However, biodiversity continues to be lost in Victoria.

More effort is needed to stop the overall decline of threatened species and improve the extent, condition and connectivity of forest habitats. The Victorian Government's plan for Protecting Victoria's Environment – Biodiversity 2037 provides a basis for re-examining how the Victorian RFAs, and the forest management system they accredit, can best support biodiversity conservation. This includes:

- Broader scale threat management that benefits multiple species and provides a preventative approach, reducing the risk of species becoming more threatened.

- Specific threat management to meet the unique needs of individual species or situations (including for endangered and critically endangered species).

The likely impact of climate change on threatened species, threatened ecological communities and key threatening processes, and the adaptation mechanisms needed to address these impacts, requires attention in the modernisation of the RFAs and Victoria's forest management system.

3.1.4 Complementary management of forests outside the CAR reserve system

The National Forest Policy Statement envisages that the management of public native forests that are available for wood production and other commercial uses, forests on unallocated or leased Crown land, and private native forests will complement the nature conservation values of the reserve system (Commonwealth of Australia 1995).

In Victoria, the complementary management of forests outside the formal reserve system for timber harvesting is subject to the conditions laid down in the Code of Practice for Timber Production 2014 (see, Department of Environment and Primary Industries 2014a), which is described later in this report.

The independent review of the Victorian RFAs for the period 2009-2014 notes that the contribution of complementary management of public forests outside reserves to nature conservation is an ill-defined and contentious issue (Wilkinson 2018).

Furthermore, Wilkinson notes that 'the differing expectations of the community with respect to the use of native forests is not helped by a lack of clarity and consistency within the legislative, policy and institutional framework with respect to the relative contribution that forests outside of reserves should make to the maintenance of biodiversity.' (Wilkinson 2018).

The publicly available information does not readily support an analysis of the role of complementary management effectiveness of forests outside the CAR reserve system in conserving nature.

Unable to Assess – The information does not allow an assessment of the effectiveness of complementary management of forests outside the CAR reserve.

3.2 The long-term stability of forests and forest industries

The RFAs aimed to provide long-term stability of forests and forest industries. This included certainty of access to timber resources for the timber industry and consideration of other forest values (see, Department of Agriculture and Water Resources 2015b).

To monitor the long-term stability [or sustainability] of forests, the RFAs required that appropriate mechanisms to monitor and review the sustainability of forest management practices be developed. It was expected that indicators to monitor forest changes would be consistent with the Montréal Process Criteria[10].

The Montréal Process Criteria include seven criteria for assessing forest trends and progress toward sustainable forest management, these are:

1. Conservation of biological diversity

2. Maintenance of productive capacity of forest ecosystems

3. Maintenance of forest ecosystem health and vitality

4. Conservation and maintenance of soil and water resources

5. Maintenance of forest contribution to global carbon cycles

6. Maintenance and enhancement of long-term multiple socio- economic benefits to meet the needs of societies

7. Legal, institutional and economic framework for forest conservation and sustainable management.

Victoria has developed monitoring and reporting systems that are consistent with the Montréal Process Criteria.

The following section focuses on Montréal Process Criteria 2 to 6. The conservation of biodiversity (criterion 1) has been covered in the previous section and the legal and institutional framework for Victoria's forests (criterion 7) is provided in the next section.

Detailed information on indicators of the long-term stability of forests can be found in the Australian and Victorian State of the Forests reports.

3.2.1 Maintenance of productive capacity of forest ecosystems

The sustainable supply of goods and services from forests depends on maintaining the productive capacity of forest ecosystems. If this capacity is exceeded there is the risk of ecosystem decline and collapse (The Montréal Process 2015). The following indicators provide information on the productive capacity of forest ecosystems in Victoria.

Area of forest available for wood production

Out of an estimated 6.43 million hectares of forested public land in Victoria, about 2.29 million hectares is considered available for harvest. Over the past ten years the area of public forest available for harvest has reduced by more than 200,000 hectares.

Area of timber harvesting

The area of State forest harvested for timber between 2011-12 and 2016-17 was between 4,400 and 5,600 hectares per year. This represents less than one per cent of the total area available for timber harvesting from public forest (Commissioner for Environmental Sustainability 2019).

Volume of wood harvested

In most RFA regions, the industry faced a staged, but sometimes substantial, reduction in resource supply as a result of reducing harvesting to sustainable levels and establishment of new reserves (Department of Agriculture and Water Resources 2015b).

Over the life of the Victorian RFAs there has been a decline in the availability of timber including as a result of:

- A review of timber resource availability in 2001 which determined that harvesting levels at that time were above that which could be sustained in the long term

- Landscape scale fires in 2003, 2006-07 and 2009 which burnt over 2 million hectares and significantly impacted the availability of timber resources

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10   Internationally agreed-upon criteria and indicators for the conservation and sustainable management of temperate and boreal forests (The Montréal Process 2018).

- The phase out of timber harvesting in some State forests (Department of Environment and Primary Industries 2014b).

Between 2006 and 2012, an average of 1.8 million m3 of wood products was harvested annually from Victoria's State forests (Department of Environment and Primary Industries 2014c).

The production rate for sawlogs has decreased from 729,000 m3 in 1996-97 to 299,740 m3 in 2016-17. Pulpwood production has decreased at a similar rate to sawlogs since 2004-05. However, the production of other products, such as low-grade logs has increased. Overall the production of wood products has been stable since 2012-13 (Commissioner for Environmental Sustainability 2019).

The Victorian Environmental Assessment Council (VEAC) investigation into fibre and wood supply notes:

A primary challenge facing VicForests and the native forest industry is the exhaustion of the 1939 ash regrowth after 2030, but before sufficient new forest resources from subsequent regeneration events are available to harvest

While VicForests' projections based on current assumptions are reasonable, further fires, detection of additional new Leadbeater's possum colonies, or reductions in volume due to climate or other disturbances, will exacerbate pressures for further downward revisions of wood supply level

Sustainable harvest levels have been reduced by more than 50 per cent over the past decade. These reductions have occurred due to the impacts of unexpected events, such as major landscape level bushfires and Leadbeater's possum discoveries

Accounting for future potential losses due to unexpected events such as bushfires presents a significant challenge for VicForests and creates a potential vulnerability for the native forest industry, which is looking for some security in the forest resource in the medium term.

In addition to unexpected events, climate change presents a long-term threat to the viability of the native forest resource (Victorian Environmental Assessment Council 2017b).

Firewood collection

The Victorian State of the Forests Report 2013 notes a general decline in the volume of firewood collected over the period 2001 to 2011, with an average annual volume of domestic firewood collected between 2006 and 2011 of 31,480 m3 (Department of Environment and Primary Industries 2014c).

In September 2011, the license system for domestic firewood collection was discontinued. Because of this discontinuation, the amount of domestic firewood collection in State forests after 2011-12 is unknown (Commissioner for Environmental Sustainability 2019). Whether this discontinuation resulted in any change in the rate of domestic firewood collection or the impact on forest health and productivity is unknown.

Forest regeneration following harvest of wood products

Victoria's Code of Practice for Timber Production 2014 (see below) has mandatory requirements for the effective regeneration of harvested forest. Since 2011-12, 20,627 hectares of native forest has been harvested and 18,578 hectares have been regenerated.

The Victorian Auditor General's Office (VAGO) recommended improvements to the management of responsibilities for regenerating forest, and to the monitoring of VicForests' regeneration compliance (Victorian Auditor-General's Office 2013).

Forest regeneration activities are also undertaken by DELWP following large scale fires (Department of Environment and Primary Industries 2014c).

Improvement needed - The Victorian RFAs have not achieved long-term stability of supply for the timber industry. Reductions in the area available for harvest have resulted from increases in the area of formal and informal reserves and from the effect of fires.

Climate change is likely to lead to changes in the productivity of forests and to further reductions in the area available for harvest.

3.2.2 Maintenance of ecosystem health and vitality

The maintenance of forest health and vitality is dependent upon the ability of the functions and processes in an ecosystem to recover from or adapt to disturbances[11] (The Montréal Process 2015).

Two indicators are reported on under the maintenance of ecosystem health and vitality criterion:

Processes that affect forest health and vitality

Fire and climate are two processes that affect forest health and vitality.

Fires

The health of Victoria's forests is affected by historical and contemporary fire regimes. Whilst much of the Victorian flora and fauna is adapted to fire, inappropriate fires can lead to a decline in forest health through changes to species composition and abundance and disturbance of habitats.

In 1939, bushfires swept across Victoria, burning approximately 2 million hectares of land and killing all standing trees over a vast area (Department of Sustainability and Environment 2005). Over the past two decades, large areas of public land were burnt in 2003, 2007, 2009 and 2014.

Fire is the main threat to old-growth forest in Victoria (Department of Sustainability and Environment 2009). Over 10,000 hectares of alpine ash and some areas of snow gum forests in North East Victoria have burnt three times within the past decade (Department of Environment and Primary Industries 2014c).

Following large scale fires, fire recovery teams help re-establish forest in areas with inadequate natural seed crops, assist threatened species recovery and help prevent the spread of invasive species (Department of Environment and Primary Industries 2014c).

Climate

Rainfall deficit and high temperatures can have a severe impact on forest health. Prolonged rainfall deficit (drought) and high temperatures can also contribute to increased fire activity and general land degradation. In addition, drought-stressed forests are more susceptible to disease and insect infestations (Department of Environment and Primary Industries 2014c).

Over recent decades Victoria's climate has become drier and warmer. From 1997 to early 2010 Victoria experienced its longest recorded period of drought (Department of Environment and Primary Industries 2014c). Looking to the future, climate change will bring more extreme events including drought, floods, and heatwaves (Department of Environment, Land, Water and Planning 2018f).

Victoria's *Climate Change Adaptation Plan 2017 – 2020* notes that factoring climate change impacts into decisions about managing and protecting Victoria's natural heritage is essential to building the resilience of the natural environment to climate change (Department of Environment, Land, Water and Planning 2016).

No mention is made of climate change or adaptation in the Victorian RFAs. Moreover, Victoria's approach to forest management planning and park management planning does not clearly include mechanisms to enable the level of adaptive capacity that will be necessary to cope with climate change.

Human-induced disturbance

A range of human activities generate disturbance in forests, some of these are described below. If these disturbances extend beyond a critical threshold, forest ecosystem health and vitality may be significantly altered and the ability of a forest ecosystem to recover could be reduced or lost (The Montréal Process 2015).

Timber production

Over the past 20 years, considerable public and media attention has focused on timber production and its impact on forest health.

Forest health in timber production areas is managed through Victoria's regulatory system, via several levels of forest management planning, including Forest Management Zoning, and through Forest Coupe Plans that are developed prior to each timber harvesting operation.

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[11]   The term resilience is used to describe the ability to recover from disturbance.

Compliance with the regulations, codes of practice, the Sustainability Charter for the management of Victoria's State forests, and planning requirements is undertaken by DELWP and via independent environmental audits commissioned by DELWP.

Planned burning

Planned burning is a key tool used in public land management to reduce risk associated with bushfires. Over the past 20 years there have been significant changes in Victoria's approach to planned burning. A risk-based approach is applied to reduce fuel hazards and protect human life. Planned burning represents a major portion of the forest-based activities of DELWP and Parks Victoria.

Invasive species management

Invasive species are a serious threat to forest health. They have contributed to species decline through predation, habitat alteration and competition with native species (Department of Sustainability and Environment 2005).

Invasive plants and animals within Victoria's public forests are managed within the context of the whole-of-government Biosecurity Strategy for Victoria. Aligned with this strategy is the Invasive Plants and Animals Policy Framework which is the overarching approach by the Victorian Government to managing existing and potential invasive species (Agriculture Victoria 2017).

Tourism and recreational activity management

Tourism and recreational activities require varying amounts of infrastructure, depending on the type of activity and intensity of visitation. Such infrastructure includes roads, trails, picnic and camping areas and buildings. The behaviour of visitors to forests can also have an impact on forest health, including through illegal use of fire, ember escapes from campfires, trampling and picking vegetation, illegal hunting and fishing, rubbish dumping, and the introduction and spread on invasive species and disease.

Parks Victoria and DELWP apply a range of management strategies and compliance mechanisms to minimise negative impacts of tourism and recreational activities on forest health. These strategies include interpretation and education, signage, staff and volunteer interaction with visitors, and compliance activities.

Improvement needed - Invasive species, fire and climate change, as well as the interaction between these three environmental pressures, are serious challenges to forest health in Victoria.

Over the past two decades, landscape-scale fires have burnt over large areas of public land. Climate change is causing Victoria to become drier and warmer.

Increased effort is needed to address the key pressures affecting forest health. This includes research into the state and trend of pressures on forests, and the effectiveness of management actions to address pressures.

Victoria has a comprehensive regulatory framework and institutional arrangements to manage the health of public forests. The management of forest fire, forest-based recreation and tourism and timber production demonstrate elements of good practice.

3.2.3 Conservation and maintenance of soil and water resources

Factors such as drought, floods, fires and human-caused disturbances can affect soil and river health. Both soil and river health is related to the quality the catchment.

Victoria has a comprehensive regulatory framework, that includes both legally and non-legally binding instruments, to support soil conservation and river health in public forests (Department of Environment and Primary Industries 2014c). The regulatory framework has been periodically updated, with substantial changes recently being made to the *Code of Practice of Timber Production 2014* and *Management Standards and Procedures for timber harvesting operations in Victoria's State forests 2014* (Commissioner for Environmental Sustainability 2019). Other mechanisms for the management of soil and water resources include Forest Management Plans, which are currently being updated.

Timber harvesting is subject to strict mandatory requirements including the use of buffers around waterways, and managing track drainage to reduce erosion risks (Department of Environment and Primary Industries 2014c).

Victoria has a well-established program to assess post-fire hydrological processes that can threaten ecosystems and species, infrastructure, socio-economic wellbeing and human life (Department of Environment and Primary Industries 2014c).

There is a strong correlation between rivers that are in good to excellent condition and the extent of forest cover in each catchment. Across Victoria, 23 per cent of total river length is in good to excellent condition. In contrast, 45 per cent of the total river length within forested catchments is in good to excellent condition (Commissioner for Environmental Sustainability 2019).

Overall, the results of the forest audit program demonstrate a high level of compliance with the Code of Practice of Timber Production requirements, including soil conservation and river health (Commissioner for Environmental Sustainability 2019; Department of Environment and Primary Industries 2014c).

Good practice – The management of Victoria's public forest estate contributes to soil conservation and river health.

3.2.4 The contribution of forests to the global carbon cycle

Forest ecosystems play a vital role in the global carbon cycle and global greenhouse gas balance by storing carbon in trees, soil and other pools. Victoria's forests store a considerable amount of carbon, and the ability of the forest to take up carbon may factor in future attempts to mitigate climate change (Department of Environment and Primary Industries 2014c).

The total forest ecosystem biomass and carbon in Victorian public forests has remained relatively stable over time (Department of Environment and Primary Industries 2014c).

Victoria's Land Use, Land-Use Change and Forestry (LULUCF) sector has become a net sink of carbon emissions, except for years when major bushfires occurred (Commissioner for Environmental Sustainability 2019). Carbon can be sequestered (removal of carbon dioxide from the atmosphere) through afforestation and reforestation activities.

Good practice – Victoria's forests play an important role in sequestering greenhouse gases. The rate of forest-related carbon sequestration is related to the level of afforestation and reforestation activities.

3.2.5 Maintenance and enhancement of long-term multiple socio- economic benefits

Victoria's forests provide a wide range of socio-economic values including water, timber, fibre, fuelwood, non-wood products, recreational and tourism values, aesthetic values, and spiritual and cultural values. Forests also help regulate the climate.

The Victorian RFAs sought to balance and protect the full range of environmental, social, economic and heritage values that forests provide for current and future generations (Department of Environment and Primary Industries 2014b).

The RFA process considered a range of forest values not just wood and wood products. It also included minerals, tourism and recreation, and other forest products such as apiculture, flora collection, forest grazing, water resources and management and cultural heritage (Department of Agriculture and Water Resources 2015b).

The Victorian Government recognises that the State's forest ecosystems are highly diverse and have a number of important values with regard to carbon storage, ensuring water security, maintaining biodiversity and habitat, and socio-economic uses (Department of Environment and Primary Industries 2014b).

However, many of these values have not been quantified and their interactions at management-relevant scales are not well understood (Department of Environment and Primary Industries 2014b).

Over the past two decades there have been major developments in how to value, in economic terms, the goods and services provided by ecosystems. Examples of these major developments include the work of the Millennium Ecosystem Assessment (Millennium Ecosystem Assessment (Program) 2005), the Economics of Ecosystems and Biodiversity global initiative (TEEB n.d.), and the World Bank–led Wealth Accounting and the Valuation of Ecosystem Services partnership (WAVES n.d.).

The Victorian Government has been closely involved with the development of a common national approach to environmental-economic accounting (see, Australian Government 2018). This includes DELWP developing accounting applications based on the internationally accepted standard of the *System of Environmental-Economic Accounting (SEEA) framework* (Department of Environment, Land, Water and Planning 2015b). SEEA, developed under the auspices of the United Nations, includes a set of accounting principles that can help recognise the interdependence of societies, economies and the environment (United Nations n.d.).

DELWP aims to provide better, integrated and more consistent information and analysis on environmental assets in Victoria – information about which assets have been depleted or lost, which are declining in condition, and how the health of these assets affects our well-being as a society (Department of Environment, Land, Water and Planning 2015b).

The lack of standard methods and data analysis has meant that reporting on forest values has tended to focus on wood and non-wood products rather than the full range of ecosystem services that Victoria's forests generate.

This situation is beginning to change. In 2015, Parks Victoria and DELWP used the SEEA framework to produce a report that recognised, quantified and valued the ecosystem services provided by Victoria's parks and the environmental and societal benefits generated (Parks Victoria and the Department of Environment, Land, Water and Planning 2015). The *Valuing Victoria's Parks* report noted that:

- The economic contribution of park-attributable tourism to the Victorian economy is conservatively estimated at around $1 billion Gross Value Added (GVA) and 14,000 jobs
- The park-based apiary sector produces honey and related products worth $3.4-$4.6 million per annum and receives payments to beekeepers for pollination services in the range of $0.6-$1 million per annum (Parks Victoria and the Department of Environment, Land, Water and Planning 2015).

Whilst not all of these values can be attributed to forested parks and reserves, and the data does not include tourism or apiary in State forests, the values do provide an indication of the importance of Victoria's forests for these sectors.

Value of wood products

Wood products produced from Victorian forests are categorised as sawlogs, pulpwood, and other products.

The types of wood products harvested from State forests depend on the forest types, features of the different timber species and the management arrangements. In western Victoria DELWP controlled wood production until 2014 when VicForests assumed this responsibility. In the east, VicForests is responsible for managing, harvesting and selling timber resources (Department of Environment and Primary Industries 2014c).

Sawlogs are used to produce sawn timber, the sawdust and wood chips generated from the production of sawn timber are useful by-products. Logs that are not suitable as sawlogs are used as pulpwood. Pulpwood is used to produce pulp, paper and composite board products domestically or exported as log or woodchips (Department of Environment and Primary Industries 2014c).

Other products include firewood, low quality sawlogs, posts and poles, fire salvage logs and specialty craft timbers.

In 2016-17 wood products produced from State forests included 544,700m3 of sawlogs valued at $56.9 million, 757,300m3 of pulpwood valued at $45.4 million and 14,000m3 of other products valued at $0.5 million (Commissioner for Environmental Sustainability 2019).

In 2016-17, 5,794,000 m3 of pulpwood valued at $623 million was produced from hardwood and softwood plantations in Victoria (Commissioner for Environmental Sustainability 2019).

The RFAs were instrumental in removing all export controls on woodchips and other processed wood from the RFA regions (except product sourced from plantations). This was achieved through The *Export Control*

(Regional Forest Agreement) Regulations 1997 which removed controls in relation to application of the *Export Control Act 1982* (Cth) (Department of Environment and Primary Industries 2014b).

The value of wood imports into Australia exceeds the value of exports, indicating a trade deficit in wood products (ABARES 2018). It's possible that this may drive innovation in the sector with higher value process and engineered wood products.

Demand for wood products in Victoria is likely to continue to rise for the foreseeable future as the population increases. Supply of wood products from Victorian forests is likely to decline as the area available for timber production in State forests falls and the area of plantation decreases.

The consequence of demand for wood products increasingly outstripping supply is an increasing reliance on imported wood products and/or an increasing substitution of wood products with more energy-intensive materials such as steel and concrete. Using wood to replace more energy-intensive building materials can reduce the level of greenhouse gas emissions embodied in buildings (Yu et al. 2017; Planet Ark 2018) .

It should be noted that the situation with plantations in Victoria may change over time given the Victorian Government allocated $110 million in 2017 to establish a timber plantation in the Latrobe Valley, to support the long term sustainability of Victoria's timber harvesting industry (State of Victoria (Department of Treasury and Finance) 2017), and in 2018, the Australian Government announced funding of $20 million to underpin growth in Australia's renewable timber and wood-fibre industry (Department of Agriculture and Water Resources 2018b).

In addition, the Australian Government's *Growing a better Australia - A billion trees for jobs and growth plan* includes funding to:

- transform farm forestry as a commercial enterprise supplying timber to Australia's forestry sector
- enable the identification, improvement and use of existing forest resources on Indigenous
- owned and managed land, and privately owned land
- drive further innovation, research and development of new products and value-adding in forest industries
- determine opportunities and gaps in key Regional Forestry Hubs (Department of Agriculture and Water Resources 2018b).

Research and development

Over the past 20 years, Victorian Government investment in research and development related to forest management has risen from about $3.6 million to an average of about $5.6 million per year in recent years (Commissioner for Environmental Sustainability 2019).

Forest research and development has resulted in improved forest management and the creation of new and improved technologies which have increased the efficiency of forestry operations (Department of Environment and Primary Industries 2014c).

However, at the same time there has been a steady decline in the number of forestry graduates from Australian universities in recent years. The longer-term consequences of this decline on forest management are yet to be fully understood.

Technology and value adding

It was anticipated that the RFAs would encourage the introduction of new technology and value adding.

Increases in the productivity of Victoria's timber industry were achieved through increasing levels of investment, the adoption of new technologies, and increases in the capacity and competitiveness of processing and value-adding sectors (Department of Environment and Primary Industries 2014b).

Between 2001 and 2006 it is estimated that the Victorian native hardwood processing industry invested over $50 million in new processing equipment and technologies, including technologies required for the production of higher-value dried timber products. (Department of Environment and Primary Industries 2014b)

During the past 20 years there have been major advances in technology that have benefited forest management and conservation. These include the emergence of hand-held devices includes smart phones and GPS (global positioning system), geospatial technology such as GIS (geographic information systems) and remote sensing techniques.

Recreation and tourism

Victoria's public forests are important for both recreation and tourism.

Parks Victoria estimates that there were 34.8 million visits to Victoria's National and State parks in 2013 and that this had risen to 42.3 million visits by 2016-17. Data is not available on visitation to State forests in Victoria, however, visitation rates are likely to be significant and growing at a similar rate to national and State park visitation.

As mentioned previously, in 2015 the annual economic contribution of park-attributable tourism to the Victorian economy was conservatively estimated at around $1 billion Gross Value Added (GVA) and 14,000 jobs (Parks Victoria and the Department of Environment, Land, Water and Planning 2015).

Over the past two decades the number and type of facilities within public forests for recreation and tourism has expanded.

Parks Victoria reports that a major effort has been made to increase engagement and access to parks for people from culturally diverse backgrounds, and people with disabilities (Parks Victoria 2013b).

Traditional Owners

The RFAs make only limited reference to Traditional Owners and this largely in the context of cultural heritage. The RFAs required Victoria to *manage cultural values, both Aboriginal and non-Aboriginal … based on Statewide Guidelines for the Management of Cultural Heritage Values in Forests, Parks and Reserves which will be jointly agreed.*

State-wide guidelines for the management of cultural heritage values were not developed, although *Guidelines for the Management of Cultural Heritage Values in Forests, Parks and Reserves in East Gippsland* were published in 1997 (Department of Environment and Primary Industries 2014b).

Whist the RFAs may not have set out clear directions for the forest sector and Aboriginal people, there are a regulatory frameworks and government strategies that are relevant to Aboriginal people and forest management in Victoria. Some of these are described below.

Both the Australian and Victorian Governments have legislation and policies related to Traditional Owners and Aboriginal people including the *Native Title Act 1993* (Cth), the *Aboriginal Heritage Act 2006* (Vic) and the *Traditional Owner Settlement Act 2010* (Vic).

The Victorian Government is actively entering into Recognition and Settlement Agreements under the *Traditional Owner Settlement Act 2010* (Vic) with Traditional owners.

The *Aboriginal Heritage Act 2006* (Vic) and *Aboriginal Heritage Regulations 2007* (Vic) provide a consistent approach to protecting and managing Aboriginal cultural heritage as well as providing clear guidance about when, and how, Aboriginal cultural heritage management issues must be considered (Department of Environment and Primary Industries 2014b).

The Victorian Government has been working to increase the level of participation of Traditional Owners in the management of forest areas (Commissioner for Environmental Sustainability 2019).

During the implementation period of the RFAs, DELWP released its *Aboriginal Inclusion Plan Munganin – Gadhaba 'Achieve Together'* that includes the goals of building collaborative relationships and working partnerships with Victorian Traditional Land Owner Groups, delivering opportunities to Aboriginal Victorians and creating a culturally competent DELWP (Department of Environment, Land, Water and Planning 2015a).

Recently, Parks Victoria developed its *Managing Country Together* framework that provides both practical and symbolic recognition of Traditional Owner rights and includes a set of ten principles for park managers to work with Traditional Owners, these include recognition of Traditional Owner priorities and aspirations, respect for Aboriginal governance systems and self-determination and recognition of traditional culture, knowledge and history (Parks Victoria nd).

Victoria's State-wide biodiversity plan, *Protecting Victoria's Environment – Biodiversity 2037,* commits the Victorian Government to understanding Aboriginal biodiversity values and uses by working in respectful partnership with Traditional Owners. This includes engaging with Traditional Owners and Aboriginal Victorians to include Aboriginal values and traditional ecological knowledge in biodiversity planning and management, supporting Aboriginal access to biodiversity for economic development and building capacity to increase Aboriginal participation in biodiversity management (Department of Environment, Land, Water and Planning 2017).

Employment

Employment related to Victoria's RFA areas includes direct employment in the forestry industry, conservation, apiary, tourism, recreation, education and research.

In 2005-06, 22,500 people were employed in the forestry industry (Department of Sustainability and Environment 2009), it is estimated that this number had declined to 16,735 in 2016 (Commissioner for Environmental Sustainability 2019).

Statistics on employment of people who depend on forests, but who work outside the forestry sector are not readily available.

However, as an indication of the type of direct employment in the tourism sector that is supported by public forests, Parks Victoria reports that in 2013 there were 372 Licensed Tour Operators in Victoria providing bushwalking, fishing, gold panning and fossicking, native wildlife viewing, vehicle touring, whale watching, guided nature tours and Aboriginal cultural heritage interpretation (Parks Victoria 2013b).

Improvement needed – Victoria's forests generate a wide range of values that provide substantial environmental and socio-economic benefits. In addition to providing material values for the benefit of people, such as water, wood, fibre and recreational opportunities, Victoria's forests have important cultural and historical heritage values.

Many of these values have not been quantified and the benefits that forests provide are not well understood. Recent efforts in Victoria to measure a broader range of forest values and the benefits that they provide to society provide a good basis for developing a more comprehensive and transparent environmental-economic accounting system that can inform both the public and decision makers about the state and trend of forests and forest values.

There is an increasing gap between demand for wood products and the ability of Victoria's forests to supply these products. The broader implications of this trend in terms of the future price of wood products to consumers in a market increasingly reliant on imports deserves further investigation. Moreover, governments need to consider the role of plantations in the long-term security of supply to the forest products industry.

Continued support for forest research is important for enabling evidence-based adaptation of forest conservation and management.

The longer-term implications of the steady decline in the number of forestry graduates from Australian universities deserves further analysis.

Whilst there have been several major developments in the regulatory environment and with the release of policy statements related to Traditional Owners, the practical engagement of Traditional Owners and Aboriginal people in forest management has yet to be fully realised.

3.3 Governance and management of Victoria's forests

This section summarises Victoria's forest management systems. This includes regulatory mechanisms, institutional arrangements, codes of conduct, and planning, monitoring and reporting systems.

The National Forest Policy Statement considered that ecologically sustainable forest management included:

- The continued development of integrated planning processes
- Codes of practice and environmental prescriptions
- Management plans that, among other things, incorporate sustainable-yield harvesting practices (Commonwealth of Australia 1995).

These requirements are reflected in the Victorian RFAs in terms of an obligation for the Victorian Government to have a fully integrated and strategic forest management system capable of responding to new information.

Elements of Victoria's forest management processes and systems were accredited by the Commonwealth through the RFA process.

3.3.1 Institutional arrangements for forest management

The Australian Government's role in the RFAs is to coordinate a national approach to environmental and industry-development issues. This is supported by the Australian Government's Department of Agriculture and Water Resources, who also produce the Australian State of the Forests Reports.

The implementation and oversight of forest policy and law in Victoria involves the following agencies:

- **Department of Environment, Land, Water and Planning (DELWP)** - has direct responsibility for the management of natural resources on public land. This includes:
  - forest policy and administration
  - forest planning and stewardship functions, including the development of Forest Management Plans and the administration of forest management zoning within State forests
  - regulation of compliance, including codes of practice.

In addition, DELWP is supported by:

  - **Forest Fire Management Victoria** – manages DELWP's firefighting resources in coordination with resources of Parks Victoria, VicForests and Melbourne Water
  - **Arthur Rylah Institute for Environmental Research** - provides strategic research and management advice to answer key questions affecting ecologically sustainable land or water management and resource use policies.

- **Catchment Management Authorities** - are responsible for the integrated planning and coordination of land, water and biodiversity management in each of Victoria's ten catchment and land protection regions
- **Department of Jobs, Precincts and Regions (DJPR)** - has governance and policy roles regarding forest management, including providing guidance to, and managing the Allocation Order that vests timber resources with, VicForests
- **Environment Protection Authority** – an independent statutory authority that focuses on the prevention and control of air, land and water pollution, industrial noise and waste.
- **Melbourne Water** - a statutory authority that provides, manages, operates, maintains and protects water supply systems for the greater Melbourne area
- **Parks Victoria** - a statutory authority responsible for managing parks and conservation reserves, including over 3 million ha of forest. Its primary responsibility is to protect, manage and enhance parks and conservation reserves for current and future generations
- **VicForests** – a State-owned enterprise that is responsible for the sustainable re-growing, harvest and commercial sale of timber from State forests in Victoria. The Department of Treasury and Finance (DTF) supports the Treasurer who is the sole shareholder of VicForests and oversees its commercial and financial performance.

Victoria's institutional arrangements for forest management incorporate elements of good practice insofar as there is a separation between DELWP, which has responsibility for forest policy and administration and VicForests (responsible for the harvest and commercial sale of timber from State forests), and Parks Victoria (responsible managing parks and reserves).

However, there is little evidence of consistent coordination between government forest management agencies or between these agencies and Traditional Owners and private forest owners. There is, however, evidence of improving relationships between DELWP and Traditional Owners and Parks Victoria and Traditional Owners. Perhaps the best example of coordination between government forest management agencies is the role that Forest Fire Management Victoria plays in coordinating agencies on forest fire management.

Ineffective coordination between forest management agencies can lead to disharmony and lost opportunities for efficient and effective delivery of forest management responsibilities. It can also lead to missed opportunities to identify and address emerging threats to forest sustainability and to building partnerships with Traditional Owners and communities.

> **Improvement needed** – the institutional arrangements for forest management in Victoria include several agencies as well as private forest owners and Traditional Owners. There is a need for the Victorian Government to set a clear vision and policy direction for forest management and use. A shared vision and an improved policy environment that ensures clear allocation of responsibilities can contribute to improved coordination between agencies and a stronger focus on community engagement.

3.3.2 Regulatory mechanisms for ecologically sustainable forest management

Forest management in Victoria is subject to Federal legislation including the *Environment Protection and Biodiversity Conservation Act 1999* and the *Native Title Act 1993*.

At the State level, there is a range of legislation that is directly relevant to forest management, this includes (in alphabetical order) the:

- *Aboriginal Heritage Act 2006*
- *Conservation, Forests and Lands Act 1987*
- *Crown Land (Reserves) Act 1978*
- *Flora and Fauna Guarantee Act 1998*
- *Forests Act 1958*
- *Land Act 1958*
- *National Parks Act 1975*
- *Parks Victoria Act 2018*
- *Planning and Environment Act 1987*
- *Sustainable Forests (Timber) Act 2004*
- *Traditional Owner Settlement Act 2010*
- *Victorian Conservation Trust Act 1972*
- *Water Act 1989*
- *Wildlife Act 1975*

The Victorian Environmental Assessment Council (VEAC) State-wide assessment of public land recommended to simplify, strengthen and modernise the legislation in consultation with stakeholders and the broader community (Victorian Environmental Assessment Council 2017c).

VEAC notes that there are substantial efficiencies for land management and administration to be gained from streamlining legislation and reducing complexity and duplication, including improved compliance frameworks, improved transparency and facilitating community involvement in public land (Victorian Environmental Assessment Council 2017c).

Codes of Practice, Forest Management Zoning and the Allocation Order are the primary controls on timber harvesting within Victoria's State forests.

Code of Practice for Timber Production

The *Code of Practice for Timber Production 2014* applies to commercial timber production in both public and private native forests and plantations in Victoria (Department of Environment and Primary Industries 2014a). It aims to ensure that commercial timber growing, and timber harvesting operations are carried out on both public land and private land in such a way that:

- Permits an economically viable, internationally competitive, sustainable timber industry
- Is compatible with the conservation of the wide range of environmental, social and cultural values associated with timber production forests

- Provides for the ecologically sustainable management of native forests proposed for continuous timber production
- Enhances public confidence in the management of Victoria's forests and plantations for timber production (Department of Environment and Primary Industries 2014b).

The Code is based on six principles developed from the internationally recognised Montreal Process criteria. The principles are consistent with the objectives of the *Sustainability Charter for Victoria's State forests* (see below). The principles are:

- Biological diversity and the ecological characteristics of native flora and fauna within forests are maintained
- The ecologically sustainable long-term timber harvesting capacity of forests managed for timber harvesting is maintained or enhanced
- Forest ecosystem health and vitality is monitored and managed to reduce pest and weed impacts
- Soil and water assets within forests are conserved. River health is maintained or improved
- Cultural heritage values within forests are protected and respected
- Planning is conducted in a way that meets all legal obligations and operational requirements.

The Code incorporates management standards and procedures, and planning standards. All timber harvesting operations in State forests must be undertaken in accordance with the Code.

Code of Practice for Bushfire Management on Public Land

The *Code of Practice for Bushfire Management on Public Land 2012* sets the objectives, strategies and actions for the prevention and preparedness for and response to and recovery from bushfires, and for fuel management, including planned burning.

The Code sets the following objectives for managing fire on public land:

- To minimise the impact of major bushfires on human life, communities, essential and community infrastructure, industries, the economy and the environment (the Code notes that human life will be afforded priority over all other considerations)
- To maintain or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water, carbon storage and forest products.

The Code includes a risk analysis framework and a monitoring, evaluation and reporting framework for bushfire management.

The Sustainability Charter for Victoria's State forests

The Sustainability Charter for the management of Victoria's State forests includes the following objectives:

- To maintain and conserve biodiversity in State forests
- To maintain and improve the capacity of forest ecosystems to produce wood and non- wood products
- To promote healthy forests by actively managing disturbance
- To maintain and conserve the soil and water resources of State forests
- To maintain and better understand the role of Victoria's State forests in global carbon cycles
- To maintain and enhance the socio-economic benefits of State forests to Victorian communities
- To ensure Victoria's legal, institutional and economic frameworks effectively support the sustainable management of State forests.

Satisfactory – The legislative framework for Victoria's forests is comprehensive. However, there may be efficiencies gained from streamlining legislation and reducing complexity and duplication.

The *Code of Practice for Timber Production 2014* incorporates good practice. However, further effort is required to improve transparency in the application of the Code.

The *Code of Practice for Bushfire Management 2012* is based on good practice.

The *Sustainability Charter for Victoria's State forests* includes elements of good practice. It could be improved by clearer reference to the entire suite of values of forests, the need to adapt to climate change, and partnerships with Victorian Traditional Land Owner Groups.

3.3.3 Forest management planning

Planning systems for public forests include a range of mechanisms for State forests and separate mechanisms for parks and reserves.

Park management plans

Management planning for Victoria's formal reserve system is undertaken by Parks Victoria through the preparation of park management plans. These plans are prepared in consultation with DELWP and the community for the approval of the DELWP Secretary and the Minister for Energy, Environment and Climate Change.

Park management plans have a 15-year time frame and adopt a landscape-wide approach, so they consider things bordering the park that influence how a park operates (Parks Victoria n.d.)

Zones and overlays provide further prescriptions for park management within defined areas, these include: Conservation Zones, Conservation and Recreation Zones, Recreation Development Zones, Wilderness Zones, Reference Area Zones and Education Zones. Some zones are defined through legislation, such as Reference Areas, while others are set through the management plan, such as Conservation Zones (Parks Victoria n.d.).

Forest management plans

Forest management plans are prepared by DELWP under the *Forests Act 1958*. There are nine forest management plans currently operational in Victoria. These plans were developed between 1992 and 2011 in consultation with various experts and local communities. The development of Victoria's forest management plans was supported by the Comprehensive Regional Assessments process (described earlier in this document), as such there is a close alignment between the forest management plans and the RFAs.

Forest management plans incorporate Forest Management Zones designed to balance objectives for conservation, management and use, including timber harvesting. The Forest Management Zones are:

- General Management Zones (GMZ) - are managed for a range of objectives, with timber production given high priority
- Special Management Zones (SMZ) - are managed to conserve specific features, whilst catering for timber production under specific conditions
- Special Protection Zones (SPZ) – are managed for particular conservation values, forming a network designed to complement the formal conservation reserve system. Timber harvesting operations are excluded from SPZs (Commissioner for Environmental Sustainability 2019).

The independent review of the Victorian RFAs for the period 2009-2014 notes that most submissions to the RFA review 2009-2014 contended that the planning processes used to protect threatened species, in particular Leadbeater's Possum, were not adequate (Wilkinson 2018).

Victoria's forest management plans have not been revised or updated since they were approved. As such, they do not reflect changes to the regulatory environment, institutional arrangements for forests, new knowledge or changing expectations for forest conservation and use. Forest management plans would also benefit from updating in relation to climate change and Traditional Owners.

Management of sustainable timber production

The total area of forest considered available and commercially suitable for timber production is estimated to be six per cent of Victoria's public forest estate. In recent years the average annual rate of timber harvesting has been around 4,400 to 5,600 hectares (Commissioner for Environmental Sustainability 2019).

VicForests is responsible for the sustainable re-growing, harvest and commercial sale of timber from State forests in Victoria.

The Minister for Agriculture is responsible for allocating timber in State forests to VicForests through the Allocation Order, in accordance with the *Sustainable Forests (Timber) Act 2004*. The Allocation Order sets five-year limits for timber harvesting and describes:

- The forest stands within State forest to which VicForests has access

- The location of those forest stands

- The total extent and available areas of those forest stands

- The maximum area available for timber harvesting in any five-year period

- Any additional activities that VicForests is permitted to undertake

- The conditions VicForests must comply with in carrying out its functions under the Allocation Order including compliance with all relevant Codes of Practice and the Forest Management Zoning Scheme.

There are currently a range of approaches to mapping across the Allocation Order, Forest Management Zones and the planning system used by VicForests. The differences between the mapping systems can lead to public confusion about forest management and public understanding of how timber is allocated. Ensuring consistent, high resolution, digital maps with clear processes for maintaining their currency would improve the transparency of forest management and provide a more effective evidence base for decision-making.

VicForests Resource Outlook and associated plans

In addition to the Allocation Order, VicForests periodically produces:

- A Resource Outlook detailing the level of sawlog timber that can be supplied on a sustainable basis over the medium-term

- Timber Release Plans that describe potential future timber management operations

- Forest Coupe Plans that are developed prior to each timber harvesting operation.

The Resource Outlook uses a Strategic Wood Supply Model to forecast how much sawlog timber is able to be commercially supplied from the State forests in eastern Victoria in the medium term on a sustainable basis (VicForests 2017).

Resource Outlooks consider a range of factors including: the forest description (what the forest looks like), harvesting, wildfires and other events that can alter the age and structure of the forest, data about the forest structure and mix of tree species, information about the amount of timber that may be produced, and changes to the available area due to regulatory and policy decisions (VicForests 2017).

A risk management approach is used to assess factors that could potentially impact future timber-resource availability (VicForests 2017).

In relation to Victoria's strategic wood supply modelling process, VEAC notes the following:

- While VicForests' current strategic wood supply modelling process is rigorous and repeatable, there are some potential areas which could be improved such as the currency of the data underpinning the resource assessment, now 15-25 years out of date

- Victoria's strategic wood supply modelling process is sound, the assumptions that underpin the approach are appropriate, and the sustainable harvest levels are reasonable

- The modelling framework is unavoidably complex. This complexity is difficult to explain to non-experts and makes the process seem opaque to the public (Victorian Environmental Assessment Council 2017b).

Satisfactory - Victoria's approach to park management planning follows the best practice guidelines produced by the World Commission on Protected Areas of the International Union for Conservation of Nature (see, IUCN 2016).

To meet good practice with forest management plans, consideration should be given to revising and updating the plans as part of Victoria's process of modernising the RFAs.

The processes for managing timber production apply elements of good practice. In the mid to long term, factors including climate change, threatened species management and severe fires present a challenge to the viability of timber supply from native forests.

The harvesting of timber from Victoria's native forests has been the focus of divergent views and opinions. Whilst some stakeholders want to see an end to native forest harvesting, others want to see the timber industry continue to provide economic benefit through ecologically sustainable forest management.

Managing divergent societal expectations for Victoria's multiple use of forest estate is a challenge that the program to modernise the Victorian` RFAs will need to face.

The Allocation Order has not been kept updated in relation to Forest Management Zones. There is a need to modernise and improve the transparency of the Allocation Order process including through the use of consistent, high resolution, digital maps.

3.3.4 Monitoring and reporting

There is a wide range of public reports relevant to the Victorian RFAs. These include Victorian Environmental Assessment Council reports (previously the Land Conservation Council), forest management plans, park management plans, numerous technical, research and other reports, State of the Forests Reports (both Australian and Victorian), State of the Parks Reports, Regional Forest Agreement reports and independent reviews. The following section covers a cross section of these reports.

Australia's State of the Forests Reports

Australia has produced State of the Forests Reports in 1998, 2003, 2008, 2013 and 2018. The seven criteria for sustainable forest management used in Australia's State of the Forests Report 2018 are those developed by the international-level Montreal Process Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests.

Victoria's State of the Forests Reports

Victoria has produced State of the Forests Reports in 2003, 2008 and 2013, and 2019. Victoria's State of the Forests Reports are closely aligned with the approach taken in the Australian State of the Forests.

Victoria's State of the Forests reports provide detailed information on the state and trends of forest health. Indicators of forest health reported include changes in the area of forest, forest fragmentation, forest dependent species, invasive species, forest species at risk, forest health and vitality and forested catchment river health among other things (see, Commissioner for Environmental Sustainability 2019). These reports exceed the reporting requirements set out in the *Sustainable Forests (Timber) Act 2004*.

Data gaps have been identified for over two-thirds of the indicators of sustainable forest management in Victoria's criteria and indicator framework, these gaps are primarily due to many of these indicators being difficult and/or costly to measure (Department of Environment and Primary Industries 2014b).

The interim Victorian State of the Environment Report notes a number of data limitations with the State of the Forests report, these include:

- Complete data coverage is not available for all the 45 indicators used in State of the Forests reports
- The majority of indicators use data and information that is less than five years old, so it is difficult to conduct trend analysis
- Climate change impact data on native forests is limited
- The number of forest-dependent species[12] at risk from isolation is difficult to assess (Commissioner for Environmental Sustainability Victoria 2018).

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[12]   Forest dependent species are those that rely on forest habitat for all or part of their life cycle (Commissioner for Environmental Sustainability 2019)

It is anticipated that this situation will improve with the implementation of the Victorian Forest Monitoring Program (VFMP), see below.

The Victorian Forest Monitoring Program

The Victorian Forest Monitoring Program (VFMP) was established in 2010. It is a state-wide forest system that aims to assess and monitor the extent, state and sustainable development of Victorian forests in a timely and accurate manner (Department of Environment, Land, Water and Planning 2018c).

To date, 649 ground plots have been installed and measured and the program has begun to provide baseline data. Over time, the VFMP will provide time-series data that will enable the analysis of trends in the extent, state and sustainability of management of Victoria's forests (see, Commissioner for Environmental Sustainability 2019).

The VFMP is Australia's most comprehensive state wide public land monitoring system (Department of Environment, Land, Water and Planning 2018c).

DELWP anticipates that the detailed information gathered through the VFMP approach will improve evidence-based decision making and policy development across a range of forest management issues (Department of Environment, Land, Water and Planning 2018c).

The independent review of the Victorian RFAs for the period 2009-2014 notes that the VFMP and other monitoring programs demonstrate the Victorian Government's commitment to making significant improvements in the state's capacity to achieve and demonstrate sustainable forest management (Wilkinson 2018).

Regional Forest Agreement reviews and reporting

The RFAs include provision for review every five years. The purpose of the five-yearly review is to provide an assessment of progress of the RFAs against the established milestones. The five-yearly reviews 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.

The RFAs stipulate that the outcomes of the review will be made public. The reviews are conducted by an independent expert.

In preparation for each RFA review, the Australian and Victorian Governments prepare a publicly available report on progress with implementation of the RFAs and this report provides the basis for public consultation process (see, for example, Department of Environment and Primary Industries 2014b).

No review was undertaken at the end of the first five-year period of the Victorian RFAs. Instead, a combined review was undertaken to cover the first and second five-year periods (see, Wallace 2010). The third five-yearly review report was published in 2018 (see, Wilkinson 2018).

There are some gaps in the information provided in the reports on progress, for example there is a lack of information on how well the objectives of management within the CAR reserves are being achieved (Wilkinson 2018). Independent reviews of the RFAs, and the Joint Government Responses to the recommendations of the independent reviews, are tabled in the Parliament of Australia.

Victoria's State of the Parks Reports

Parks Victoria evaluates the effectiveness of park management activities in parks across Victoria through the State of the Parks program. The purpose of State of the Parks is to:

- Undertake a systematic evaluation of the outcomes of management programs and the extent to which park management objectives are being met
- Review achievements, highlight current challenges and identify emerging issues
- Inform and adapt management programs following the review.

State of the Parks reporting is consistent with State and National priorities for evaluation and reporting including the Commonwealth Government National Reserve System guidelines for the States and Territories (Parks Victoria 2013a).

Victorian Environmental Assessment Council Investigations

The Victorian Environmental Assessment Council (VEAC) conducts investigations that are requested by the Victorian Government relating to the protection and ecologically sustainable management of the environment and natural resources of public land (Victorian Environmental Assessment Council n.d.).

Recent investigations relevant to the RFA modernisation process include a *Statewide Assessment of Public Land* (Victorian Environmental Assessment Council 2017c), *Conservation values of State forests* (Victorian Environmental Assessment Council 2017a) and *Fibre and wood supply* (Victorian Environmental Assessment Council 2017b).

VEAC investigations provide a wide range of recommendations to government and the Victorian government formally responds to these. The investigations include extensive public consultation and are based on good practice in terms of using evidence.

Good practice – Australia and Victoria have comprehensive systems for reporting on the state and trends of forests. The system is based on internationally agreed criteria and indicators. In Victoria, there are some weaknesses with data and coverage of issues, but these are being addressed.

The VFMP is based on good practice and is considered cutting edge. It could, however, be improved with the inclusion of monitoring of faunal species that provide indicators of forest health.

Improvement is needed to the RFA review process. There are gaps in the information provided in the reports on progress with implementation of the RFAs. The reporting and independent reviews of the RFAs would likely benefit from more critical reflection on the impact of the RFAs, and on the implications of changes to the operating environment, for example, climate change. The style of reporting and review of the RFAs could be improved to better inform the public.

Victoria's approach to State of the Parks reporting follows the best practice guidelines on evaluating management effectiveness of protected areas, produced by the World Commission on Protected Areas of the International Union for Conservation of Nature (Courrau et al. 2006)

The VEAC investigations are based on good practice. They provide evidence-based recommendations and the investigation process includes extensive public consultation.

Many forest values have not been quantified and the benefits that forests provide are not well understood. Recent efforts in Victoria to measure a broader range of forest values and the benefits that they provide to society provide a good basis for developing a more comprehensive and transparent environmental-economic accounting system that can inform both the public and decision makers about the state and trend of forests and forest values. Environmental-economic accounting also has the potential to provide evidence of the effectiveness of the Victorian RFAs in supporting the delivery of a broad range of values from the State's forests.

3.3.5 Audit and compliance

Forest audits and compliance investigations

Each year DELWP commissions an independent audit of commercial timber harvesting activities conducted within Victoria's State forests against the requirements set out in the Code of Practice for Timber Production 2014 (Department of Environment, Land, Water and Planning 2018d). This process provides a measure of compliance of commercial timber harvesting operations, informs improvements to the regulatory framework and produces findings to be implemented by the timber industry to improve operational practices.

The published audit reports, alongside formal responses to the auditor's recommendations from both VicForests and DELWP are used to enhance the transparency of Victoria's forest management arrangements (Department of Environment, Land, Water and Planning 2018d).

DELWP is responsible for ensuring the compliance of timber harvesting practices on public land. Under DELWP's compliance strategy, priority is determined in a risk-based manner and given to cases that may involve significant levels of environmental impact (Department of Environment, Land, Water and Planning 2018b).

The independent review of the Victorian RFAs for the period 2009-2014 notes that many stakeholders hold the view that the planning and enforcement framework is not adequate, particularly in relation to the management of threatened species (Wilkinson 2018).

Audits by the Victorian Auditor General's Office

The Victorian Auditor General's Office (VAGO) published the findings of its audit into *Managing Victoria's Native Forest Timber Resources* in 2013. The audit encompassed a review of how the government was managing the systems in place to deliver sustainable timber resource management outcomes, how well they are operating and what they are achieving (Victorian Auditor-General's Office 2013).

The audit concluded that:

- *Victoria's timber resources are being managed productively. However, the environmental, social and economic sustainability of timber resource management could be enhanced by improving the way DEPI [now DELWP] protects forest values, documents decisions affecting where harvesting can occur, and manages its backlog of forest regeneration from before 2004. VicForests can also improve its process for estimating sustainable harvest levels*

- *DEPI [DELWP] has not had the measures, monitoring and data to show what its activities are achieving, or how forest health and the condition of other forest values are faring over time. It is now working to address these gaps*

- *VicForests and DEPI [DELWP] need to build on the strengths of their current collaborative approach, measure progress and continue to adapt their management of Victoria's timber resources to meet and respond to foreseeable future challenges and pressures* (Victorian Auditor-General's Office 2013).

The audit made a range of recommendations including related to setting a clear goal for State forest management, reporting publicly, and improving forest management zoning and forest planning. In June 2018, VAGO issued a report on the follow-up of the 2013 performance audit into *Managing Victoria's Native Forest Timber Resources*. The report noted DELWP and VicForests have taken steps to address most of the VAGO recommendations but progress has been slow (Victorian Auditor-General's Office 2018). VAGO notes that:

- Agencies' improvements have focused on managing Victoria's forest resources more productively and sustainably, but it is too early to determine what effect any improvements have had on forest sustainability.

- DELWP has improved its approaches to protecting forest values including building its seed store, using biodiversity research to underpin its management actions and introducing a risk-based approach to managing environmental compliance. However, it still has more to do, including:

  - setting a holistic goal for State forest management, in collaboration with stakeholders

  - reviewing the forest management zoning that helps determine where harvesting can occur

  - managing threatened species

  - ensuring there is adequate seed supply for forest regeneration (Victorian Auditor-General's Office 2018).

In 2010, VAGO published the findings of an audit into the *Control of Invasive Plants and Animals in Victoria's Parks*. The audit found governance arrangements for the control of invasive species, specifically between the Departments of Sustainability and Environment [now DELWP], Primary Industries [now DJPR] and Parks Victoria, are complicated and not well coordinated. It pointed to a range of weaknesses with planning and monitoring and evaluation of invasive species management. The audit concluded that if the organisational issues and resource constraints are not addressed, invasive species will continue to pose a major and likely growing threat to Victorian parks (Victorian Auditor-General's Office 2010).

Satisfactory - Further improvements to the transparent reporting on the outcomes of, and responses to, forest audits may help build public awareness and confidence in forest management planning and enforcement of the regulatory framework.

VAGO audits follow good practice. They have provided a range of conclusions and recommendations that are relevant to the process of modernising the RFAs.

3.3.6 Consultation and partnerships with stakeholders and the community

The RFA review process reports that on-going opportunities for public participation and consultation associated with existing Victorian and Commonwealth processes and instruments were provided.

During the most recent review of the Victorian RFAs (2009-2014), 426 submissions were received from stakeholders during an eleven-week public consultation period. The majority of these submissions (80 per cent) were based on form letters that were highly critical of the RFAs (Wilkinson 2018).

DELWP's 2020 strategy commits the agency to listen, work alongside and partner with the people of Victoria, in everything DELWP does (Department of Environment, Land, Water and Planning 2018a). Recently DELWP has engaged in an extensive consultation process on the RFA modernisation program – *Future of our Forests*. This has included a round table discussion series with representatives from the forest industry, environmental groups, scientists, councils and user groups, workshops, forums and discussions with local communities and web-based opportunities for people to share with DELWP their vision for the future management of Victoria's forests (Department of Environment, Land, Water and Planning 2018e).

DELWP (and its predecessors) has undertaken a range of other consultation processes. For example, the Criteria and Indicators for Sustainable Forest Management in Victoria were adopted following extensive community consultation (Department of Environment and Primary Industries 2014b).

DELWP reports that Traditional Owners and other relevant Aboriginal groups are consulted in regards to mitigation of impacts on Aboriginal cultural heritage values (Commissioner for Environmental Sustainability 2019). The information that is publicly available does not enable an assessment of the effectiveness of consultation with Traditional Owners or other Aboriginal groups.

Parks Victoria undertakes consultation processes with communities for all park management plans.

Notwithstanding the above, overall engagement with the community about forest management, tends to be limited. There are concerns held within the community about the effectiveness of forest management, including, but not limited to, the management of threatened species and the sustainability of wood production. Concerns are not limited to the management of State forests, the management of parks and reserves is also subject to occasional conflict.

The conflict over the use and management of Victoria's forests generates uncertainty for the timber industry and challenges for government agencies entrusted with forest management responsibilities.

Satisfactory – DELWP, Parks Victoria and VicForests have made efforts to consult with the public over the past two decades. However, consultation has tended to be focused around planning and on specific processes of change, for example proposals to revise legislation or regulations.

Feedback provided during the RFA review processes and more recently to DELWP on the Future of Our Forests, suggest most stakeholders would welcome more opportunities for consultation.

There are, for example, opportunities for DELWP and other agencies to consult more effectively with local government, Traditional owners and a broad range of stakeholders beyond those that have been conventionally engaged in consultations.

4. Potential improvements

The following section of the consultation paper describes a range of potential improvements to modernise the Victorian RFAs, and the forest management system that they accredit. The potential improvements, described below under three themes, are suggestions based on the analysis of the previous reviews of the Victorian RFAs, not final policy positions.

It is important to note that there are some improvements already underway, that sit outside the scope of the RFA modernisation process. The Victorian Government has commenced development of a new vision for managing Victoria's public forests for the range of environmental, social and economic values and benefits that forests can enable. A clear vision for Victoria's public forests should assist government agencies and Traditional Owners to deliver ecologically sustainable forest management.

The new vision for managing Victoria's forests should seek to:

- Support the goals of Australia's National Forest Policy Statement, including conservation, water supply and catchment management, tourism and other economic and social opportunities, wood production and industry development, and integrated and coordinated decision making and management

- Promote partnerships between the Victorian Government and Traditional Owners

- Encourage a coordinated, proactive and transparent approach to involving local communities in forest management issues

- Build resilience of Victoria's forests to climate change and other large-scale disturbances

- Consider all public forests.

The Victorian Government has commenced public consultation to inform the development of this work, and further information can be found at: https://engage.vic.gov.au/future-of-our-forests.

4.1 Theme 1 Ecologically Sustainable Forest Management

The Victorian RFA modernisation process should:

4.1.1 Recognise all forest values

Whilst the vision of Australia's National Forest Policy Statement included a 'holistic' approach to managing forests for all their values and uses so as to optimise benefits to the community (Commonwealth of Australia 1995), the Victorian RFAs have tended to focus on conservation of forest biodiversity and timber production.

Healthy forests have intrinsic value and can sustainably provide a wide range of benefits to Victorian society and its economy. The benefits that forests provide are known as ecosystem services. The ecosystem services provided by Victoria's forests include:

- Water supply, wood and fibre, honey

- Regulation of the climate, carbon sequestration, regulation of water catchments, and pollination services

- Opportunities for recreation and tourism, education and scientific research, cultural and historical heritage, and amenity and aesthetic values.

Victoria's forests give us a sense of place and provide opportunities for social connection. Forests are central to the culture and identity of Aboriginal Victorians.

The Victorian RFAs should more clearly incorporate the wide range of values and benefits that forests provide.

4.1.2 Conserve forest biodiversity and maintain ecosystem health

Two decades ago, the RFA process supported the expansion of the CAR reserve system and included a focus on threatened species. However, despite these efforts, biodiversity continues to be lost from Victoria and further effort is needed to halt and reverse the decline.

The modernised RFAs should respond to the likely impact of climate change and other environmental pressures on threatened species, threatened ecological communities and key threatening processes by including the adaptation mechanisms needed to address these impacts. The RFAs should support:

- Victoria's biodiversity plan including broader scale threat management, specific threat management and supporting collaboration between stakeholders to drive improvement in biodiversity conservation (see, Department of Environment, Land, Water and Planning 2017)
- Matters of National Environmental Significance under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The most relevant Matters of National Environmental Significance for forests include, national and world heritage, wetlands of international importance (listed under the Ramsar Convention), listed threatened species and ecological communities, and migratory species protected under international agreements (see, Department of the Environment and Energy n.d.).

To conserve forest biodiversity and maintain ecosystem health, the modernised RFAs should include a range of conservation strategies, including changes to the formal and informal CAR reserve system, restoration of EVCs, improving connectivity between fragmented EVCs, and working with private landholders to conserve under-represented EVCs.

4.1.3 Promote Traditional Owner rights and partnership

DELWP has already committed to building collaborative relationships and working partnerships with Victorian Traditional Owner groups. This includes increasing the involvement of Traditional Owner groups in the management of country (see, Department of Environment, Land, Water and Planning 2015a).

The RFA modernisation process provides impetus to include meaningful consideration of the rights and aspirations of Traditional Owners in the RFAs and Victoria's forest management system.

The RFAs should support the recognition of the rights of Victoria's Traditional Owners to partner in land management on parks, reserves and State forests, and seek economic and cultural opportunities for Aboriginal Victorians.

4.2 Theme 2 The long-term stability of forests and forest industries

The Victorian RFA modernisation process should:

4.2.1 Address climate change and other large-scale disturbances

Climate change and other large-scale disturbances, including landscape-level fires and invasive species, are threats to Victoria's forest biodiversity, forest-dependent industries and the communities that live near forests.

A modernised RFA process should ensure that forest management decisions are informed by up-to-date scientifically-credible information on the current and likely future impact of climate change and other large-scale disturbances. This includes improving our understanding of how the interaction between climate change and other pressures on the natural environment is leading to cumulative impacts, and amplifying the threats faced by forests.

Forest management strategies for State forests, parks and reserves should incorporate multi-scale actions that build the resilience of Victoria's forests, including State-wide policy and guidance, landscape level actions across RFA regions, and local level forest management actions.

4.2.2 Support the development of forest-dependent industry

The Victorian RFAs have not achieved long-term stability of supply for the timber industry. Without certainty of supply, it is difficult for the timber industry to invest with confidence, to develop value added approaches to processing wood products or to support efforts to reduce greenhouse gas emissions using low embodied energy building materials that store carbon.

In addition, there are a range of industries that are dependent or partially dependent on healthy forests. These include the tourism and recreation industry, apiary, and the water industry.

The RFA modernisation process should consider how governments can best support the development of forest-based industries, including the forest and wood products industry, tourism and recreation industry, apiary, and the water industry, and ensure that these industries are sustainable into the future.

This process should include consideration of climate change, severe fires, invasive species, Matters of National Environmental Significance, and other factors that present a challenge to the viability of forest dependent industries.

The RFA modernisation process should also consider opportunities to encourage investment in innovation and new market opportunities.

4.3 Theme 3 Governance and management of Victoria's forests

The Victorian RFA modernisation process should:

4.3.1 Support the Victorian Government's efforts to improve forest management planning

Victoria's approach to forest management planning has served the State well, but forest management plans now require renewal. The Victorian Government has indicated an intention to update forest management plans and it is important that this happens.

Changing the approach to forest management planning and extending the new approach across the State will take time. The RFA modernisation program provides an opportunity to identify milestones to help the Victorian Government work towards achieving the necessary reforms over the coming years. It also is an opportunity for the Victorian Government to obtain feedback from stakeholders on forest management planning, and to collect information that will help in the development of a more inclusive, adaptive and consultative approach to forest management planning.

Overall, forest management planning for public forests (including State forests, and forested parks and reserves) should aim to deliver ecologically sustainable forest management and work towards the State's vision for forests. It should be undertaken in partnership with Traditional Owners.

Moreover, as new knowledge is acquired, and circumstances related to forests change, the forest management planning system will need to adapt. For this reason, the reforms to forest management planning should be an ongoing process of improvement.

Key elements of an improved forest management planning system in Victoria may include:

- Updating, and where possible simplifying, forest management plans and park management plans to reflect contemporary legislative and policy frameworks
- Improving the alignment between forest management plans and park management plans at a landscape or RFA region scale
- Developing clearer linkages between forest management plans and park management plans and forest fire management
- Modernising and improving the transparency of the Allocation Order
- Adopting a proactive, adaptive approach to identifying and managing risks including:
  - Identifying thresholds in environmental states that may trigger management responses
  - Using the best available evidence of the current state and trends of pressures on forests and assessments of likely future impacts.
- Enhancing consultation, reporting and communicating to build awareness in the community, and improve transparency of forest management decision-making
- Interacting regularly with scientists and other knowledge holders, and using the five-yearly RFA review process to better identify and manage risks to the community, forest dependent industries and forest health.

4.3.2 Identify research priorities

The Australian and Victorian Governments recognise that continuing research can contribute to improved outcomes for adaptive management and continual improvement in forest management, as well as in the management of Matters of National Environmental Significance, social impacts and benefits, and industry development (Department of Agriculture and Water Resources et al. 2018). The Governments also recognise that research priorities will change and evolve over time as new information is generated and as circumstances change.

The RFA modernisation process should facilitate negotiations on forest research priorities between the Victorian and Australian Governments, including identifying how existing research programs and investment can be better utilised. There is, for example, a need for more research into:

- The state and trend of pressures on forests, and the effectiveness of management actions to address pressures

- The implications of an increasing gap between demand for wood products and the ability of Victoria's forests to supply these products

- The implications of the steady decline in the number of forestry graduates from Australian universities.

4.3.3 Improve monitoring and reporting

Forest management needs to be based on robust data and systematically monitoring, evaluating and reporting on the objectives of forest management (Department of Agriculture and Water Resources et al. 2018).

The Victorian Forest Monitoring Program has already begun to provide information, including baseline data for long-term trend detection, which is being used to inform continuous improvement in the management of Victoria's forests. The Victorian Government has also engaged in the development of environmental-economic accounting to provide better, integrated and more consistent information and analysis on environmental assets, including forests.

The RFA modernisation program presents an opportunity to continue to improve monitoring and reporting to enhance evidence-based decision making and improve the transparency of forest management with the community.

Actions to be considered in the RFA modernisation process include:

- Review the current suite of indicators used to report the state and trend of forests and forest-dependent industries, including a review of gaps (e.g. socio-economic values, climate change and emerging pressures), and the relevance and cost effectiveness of current indicators

- Continue and improve the Victorian Forest Monitoring Program

- Provide better information on the effectiveness of the informal reserve system and forests on private land in protecting biodiversity

- Expand efforts to engage people in monitoring and citizen science in State forests, parks and reserves

- Enhance reporting on key sustainability indicators, including indicators of the effectiveness of forest and park management, in formats that are readily understood by decision makers and the community

- Improve the alignment between the various forest-related reporting systems, including the State of the Forests Reports, the State of the Parks Reports and the RFA reports and reviews, to enable stakeholders to have a more transparent view of the state and trends of the entire forest estate

- Improve the RFA review and reporting processes and the reporting on the outcomes of, and responses to, forest audits

- Continue to develop environmental-economic accounting and use the results to build a shared understanding with the community about the state and trend of all values provided by forests

- Promote regular engagement between forest management agencies, Traditional Owners and the science and research community.

4.4 Conclusion

The Australian and Victorian Governments are seeking feedback from the public on these suggestions and other ideas for change. Feedback will be considered in developing and refining changes to modernise the Victorian RFAs.

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