VNPA Preliminary Submission to the Major Event Review of Regional Forest Agreements

25 August 2021

Major Fire Event = Major changes needed

Overview

This Major Event Review responds to the landscape-scale 'Black Summer' bushfires in eastern Victoria and their impact on native forests and the native forest logging industry.

The 2019-20 bushfires had widespread and devastating impacts on Eastern Victoria's plant and wildlife species, their habitats and forest ecosystems. The scale and severity of these bushfires across the eastern seaboard was almost unprecedented. In Victoria it is the third landscape-scale fire above a million hectares in 20 years. Many of the impacts and consequences of the fires are yet to be fully understood.

The Major Event Review (MER) will aim to identify what, if any, remedial actions need to be taken to address the impacts of the 2019-20 bushfires. The review will assess the impact of the bushfires in relation to the Regional Forest Agreements (RFAs), Victoria's legal arrangements for managing native forest logging.

The state and federal governments point out that the Review will not open the RFAs for renegotiation. However, if the MER's remedial actions recommend taking steps towards the appropriate protection of Victoria's native forests, the reluctance to renegotiate the RFAs will contradict the efficacy of the Review. This will result in persisting with legally binding agreements that further destroy our native forests when these ecosystems are at their most vulnerable.

Following the fires, immediate threats to species included: loss of habitat such as hollow bearing trees and other important habitat structures; loss native vegetation for feeding; increased predation from invasive species such as cats and foxes; and browsing from invasive herbivores. These issues highlight the importance of unburnt refuge areas both within and beyond the fire footprint for species survival. Additional to those immediate impacts, the cumulative effects of drought, bushfires, and habitat loss through native forest logging, will combine with increasing extreme climatic events to exacerbate threats to eastern Victoria's flora, fauna, and ecological communities in the future.

The VNPA has identified ten key issues, which we will discuss in detail through our submission. They are:

1. **Assessing implications of climate change, fires and forests**
2. **Impact on logging yield**
3. **Impact of salvage and post-disturbance logging**
4. **Impact on threatened species and communities**
5. **Protecting unburnt forest refuges**
6. **Impact on the reserve system**
7. **Impact on ash forests**
8. **Old growth impacts**
9. **Protection of large old trees**
10. **Better management post fire**

Scope:

As defined in the Victorian RFAs, a 'Major Event' is a substantial change in circumstances that has the potential to significantly impact upon:

- the objectives and operation of the RFAs
- the comprehensiveness, adequacy or representativeness of the Comprehensive, Adequate and Representative (CAR) Reserve System
- Ecologically Sustainable Forest Management (ESFM)
- one or more Matters of National Environmental Significance (MNES), or
- the stability of Forest Industries
- and include public consultation on and assessment of impacts on environment & heritage values, listed species and communities, ecosystem services, economic values.

The Panel intends to submit a final draft of their Report to government by the end of 2021 https://www.delwp.vic.gov.au/futureforests/what-were-doing/the-major-event-review-of-regional-forest-agreements.

Summary of issues

1. Assessing Implications of Climate Change, Fires & Forests

In Victoria the 2019–2020 fires are the third landscape scale fire above a million ha in the last 20 years. This frequency and intensity is consistent with the minimum 1.5°C climate change scenario, and the implications of further climate change should be a key consideration of the MER.

The current RFAs have 16 clauses which address climate change, and climate change is mentioned over 40 times in the East Gippsland RFA. Yet the Major event review summary document does not mention climate change.

Key Points

- The relationship between climate change and extreme fire should be assessed in the context of the combined impact of logging at detailed and regional scales in the MER. These interacting factors will have profound impact on the capacity of the forest to supply both wood/pulp and habitats in the future.
- Specifically address the climate resilience actions identified in the RFAs (causes 15R; 52E; 52F) such as:
    - Ensure that all Ecological Vegetation Classes (EVCs) that are climate change vulnerable are afforded additional protections beyond that provided for under the JANIS Reserve Criteria
- Identify and protect key refugia
- Protect important occurrences of the species or community in the comprehensive, adequate and representative (CAR) reserve system (see: Key Issue 4) and maintain or restore ecological management regimes to ensure its viability
- Improve climate change resilience and future viability of listed species and communities and other MNES informed by best practice approaches, best available science and Traditional Owner Knowledge

2. Logging yield and supply

The 2019–2020 fires impacted around 50% of available annual volume in native forest, pushing the already declining industry into further decline. Almost 40% of the General Management Zone (the area open for logging) in East Gippsland was impacted by fire. The overall impact of the fire is significant on supply of native forest products. We are concerned that the impact on forest in East Gippsland, Gippsland and North East will drive additional logging in other parts of the state such as central highlands or is more inaccessible or sensitive areas.

With the dramatic decrease in timber yield resulting from the fires, as well as likely future fires further decreasing potential yield in the future, the targets in the State Government's Forest Plan to phase out native forestry by 2030 and timelines need to be reassessed.

Key Points:

- Review yield against future fire predictions, climate change and the exit target in the Forestry Plan
- In the context of reduced supply, the transition out of native forest logging should be brought forward, with relevant increase in funding to support worker and industry transition
- Introduce peer review and clear transparency around wood modelling, and the assumptions used
- Develop a clear break down of segments of yield, sawlog, and pulp log over time and the relationship with sustainable yield.

3. Impact of salvage and post-disturbance logging

Post fire or salvage logging is one of the most destructive forms of logging and has long lasting impacts on the forest ecology and health as well as forest dependent wildlife.

Salvage and post-disturbance logging subject native forests to the mechanical pressures of logging during the post-fire recovery stage of the vegetation, compounding various disturbance pressures of both fire and logging. Added claims that salvage logging assists with fuel reduction are contrary to studies which show that it can actually increase bushfire risk, because the salvage logging slash increases fine surface fuels on the ground.
With a planned 2030 phase out of native forest logging in Victoria, the impacts of salvage/post-disturbance logging will linger for many generations after the logging industry has finished, leaving a legacy of degraded and less resilient forest landscapes in the face of a rapidly changing climate.

Key Points:

- Unsustainably high yield levels should be avoided in high conservation value fire impacted areas where these levels currently drive salvage and post-disturbance logging which damages recovering ecosystems and threatened species
- Establish long term monitoring plots across all FMA areas that have been subjected to salvage and post-disturbance logging to further understand the impacts
- Undertake ecosystem recovery works if suitable

4. Impact on Threatened Species and Communities

In Victoria during the 2019–20 fire season, 244 species had more than 50% of their modelled habitat within the burnt area, including 215 rare or threatened species (Flora and Fauna Guarantee (FFG) Act). Of those species, 43 had more than 50% of their modelled habitat impacted by high severity fire, and all but one were considered rare or threatened species (FFG Act). This placed extreme and acute stress on those populations.

When considered with the additional threat from ongoing forestry operations, many of these species are at great risk. There are at least 23 threatened species and communities that are at high or significant risk as a result of forestry operations, mainly from loss of hollow-bearing trees, habitat loss and fragmentation, direct mortality, loss of feed source or sedimentation effects. Examples include Giant Burrowing Frog, East Gippsland Galaxias,

Glossy Black-Cockatoo, Leadbeater's Possum and Diamond Python. The MER must address the protection of these species within their broader risk context.

Key Points

- Implement critical habitat determinations under the FFG Act for protection of key unburnt areas of high conservation significance.
- Undertake a detailed gap analysis of forest dependent species on the new FFG list acknowledging the impacts of the 2019–2020 bushfires, and the longer-term impacts of climate change and logging.
- Take appropriate action to protect important occurrences of the identified species or communities in the CAR reserve system and maintain or restore ecological management regimes to ensure its viability.
- Recommend that action statements be prepared for all identified forest dependent species list on the new FFG list within the next two years.

5. Protecting unburnt forest refuges

The Victorian National Parks Association together with community conservation groups from East Gippsland commissioned an analysis of the impact of the bushfires on a range of threatened plant and animal species in Eastern Victoria – and the impact of ongoing logging on remaining forest spared from the flames.

The released joint report *After the Fires: Protecting Our Forest Refuges* used the Victorian government's own spatial data and focused on ten forest areas: Errinundra, Cottonwood, Cabbage Tree, Far East Gippsland, Swifts Creek, Nunniong, Colquhoun, Mt Alfred, Sardine Creek to Bemm, and the North-East Alpine Region.

Many of these unburnt and lightly burnt refuge areas contain extremely valuable and rich habitat features essential for the rehabilitation, recruitment and dispersal of wildlife into recovering forests. The analysis revealed:

- Of the 585,000 ha of state forests in the East Gippsland forest management areas, only 112,000 ha is outside the fire extent. Of that unburnt forest, 90,000 ha remains unprotected and open to habitat loss caused by native forest logging.
- Across the 10 refuge areas, 553 logging coupes covering more than 20,000ha of forest are planned for logging by the Victorian government's logging agency VicForests.
- Not only have there been no reductions or substantive changes to existing logging plans since the bushfires, two additional logging schedules have been approved by state-owned VicForests in the 12 months since the fires.

Key Points

The *After the Fires* report makes the following recommendations, which should be considered by the Major Event Review.

1. Protect each of the key refuges identified in the report and any other remaining unburnt forests from current and future logging, to ensure the survival and persistence of flora and fauna species that rely on these forests to survive.
2. Commit to not logging any identified habitat remaining in Victoria for each threatened species significantly affected by the 2019-20 bushfires, particularly those species listed in the report.

3. Bring forward the 2030 transition out of native forest logging. In November 2019 the Victorian government committed to a decade-long transition out of native forest logging. Doing so sooner would avoid further damage.
4. Prioritise funding and restoration of areas impacted by the bushfires to restore habitat and provide better resources for weed and pest control programs in forest areas to improve recovery from bushfire events.
5. Declare and map the key refuges identified in this report as high priority assets in need of protection from all types of future fires, including planned burns.

6. Impacts on the reserve system

The RFAs require the Victorian government to establish a comprehensive, adequate and representative (CAR) reserve system. Some of these are formal reserves but in Victoria they mostly operate within a fixed zoning system, like special protection zones. The fire impact in East Gippsland was extensive with much of the CAR reserve system arising from the RFAs (special protection zones and management areas) and immediate protection zones severely impacted by fire.

There is distinct bias in the CAR reserve system, with EVCs on more productive and economically valuable land afforded lower levels of protection. Existing reserves are not adequate and therefore do not meet one of the core principles of a CAR protected area network. Furthermore, off-reserve management is currently not providing a sufficient complementary contribution to the reserve system for forest dependent species.

In 2019 the Victorian Government committed to the Interim Protection Areas (IPAs) protect Greater Glider habitat as a conservation measure in the Greater Glider Action Statement under the FFG Act[1]. The IPAs are yet to be formalised by government, 18 months after the announcement. In East Gippsland, 71% of the IPA was severely burnt.

Key Points

- Expand CAR reserves under RFAs to meet the updated needs of threatened species and ecosystems after the bushfires
- Formalise and expand Interim Protection Areas (IPAs) to adequately cover the needs of threatened species and ecosystems after the bushfires

7. Impacts on ash forests

The ongoing impact of the fires on Alpine Ash and Mountain Ash forests are also of great concern. The bushfires in 2019–20 burnt 4,286 hectares of Mountain Ash Forest and 52,516 hectares of Alpine Ash Forest (DELWP 2020). The 2009 Black Saturday fires burnt 78,200 hectares of Mountain Ash Forest in the Central Highlands. The remaining Ash forests of Victoria now rest on a knife's edge. The management of these forests now will determine if we have Ash forests at all in the future.

RFAs tend to ignore the successive or cumulative impact of bushfire, despite the occurrence of multiple extensive fires in the last 10 years. The issue of fire is complex, yet the RFAs ignore fire impact on both the extent and structure of the forest. The RFAs also fail to consider the implications of fire on resource availability for industry. Less wood in Gippsland may also mean more logging in the central highlands.

Key points

- Consider the cumulative impacts of fire and logging on the landscape and capacity of the forest to supply wood products particularly in Ash forests.
- Consider the likelihood of increased fire frequency under climate change and the flow on effects to future yield of wood products particularly in Ash forests.

8. Old growth impacts

Protection of old growth forest is a vital issue. It is identified in the East Gippsland RFA (Section 52A, 52B) for its 'environment and heritage values'. It is clearly in scope of the MER as it is a part of criteria in the CAR reserve system (clause C, in MER Scope). Impacts on old growth forests are not mentioned in the MER summary report.

When old growth forests are burnt, they are no longer considered to be old growth. This leaves the old growth forest estate vulnerable to exploitative logging following fire, even if values on the ground remain and fire severity was less than modelling showed. Despite commitments in East Victoria to protect old growth forest, this loophole is of great concern. It also begs the question of how much old growth is actually left and how a commitment to "90,000 hectares of Victoria's remaining rare and precious old-growth forest … will be protected immediately" can be delivered.

Key Points

- Assess in detail the value of the RFAs in old growth forests following the fires
- Assess in detail how remaining old growth values were impacted in the 2019–20 fire season, including mapping, and assess how those values will be protected post fire
- Update the old growth forest identification assessment tool, including re-evaluating disturbance thresholds, to enable old growth forest to be protected in all its forms across different forest types and species.
- Identify mechanisms to deliver commitment to protect 90,000 ha of old growth.

9. Protection of large old trees

The protection of large old trees in native forests is pivotal to combating the decline of large old trees across the landscape. Protecting these trees also protects threatened species such Greater Gliders and Leadbeaters Possum that require the hollows in these trees as habitat. The loss of hollow bearing trees from Victorian native forests and woodlands is recognised as a threatening process under the Flora and Fauna Guarantee Act 1988. Large old trees are also important for carbon sequestration.

The current protections for large old trees are inadequate and should adopt the Australian Standard, Protection of Trees on Development Sites used in most other industries, to expand the protection zone around these important trees and protect them from logging. The impacts of the 2019–20 fires on the old growth forest and large old trees needs to be understood due to the importance of old growth forests as wildlife habitat, ecosystem recovery and carbon sequestration.

Key Points

- Develop publicly available mapping of all large old tree remaining in areas impacted by the 2019–20 bushfires.
- Protect large old trees by implementing Australian Standard, Protection of Trees on Development Sites (AS4970 2009) in areas impacted by logging, roads and other development works.
- In areas with high densities of large old trees and hollow bearing trees, logging should be excluded.
- Replace the criteria for large old trees to have a DBH of 2.5m or more with a more ecologically appropriate definition to include smaller ecologically significant trees.

10. Better management post fire

Forest ecosystems are at their most fragile and vulnerable after large disturbance events such as bushfires. Australian forest types are adapted to fire to an extent, but further disturbance associated with pest plant and animal invasion, salvage logging, removal of hollow bearing trees and use of heavy machinery in areas recovering from fire delays the recovery of forest ecosystems for decades after the fire and in some cases could lead to permanent damage to ecosystems. Reduction of threats to the recovery of forests immediately after fire and for many years after is needed to allow these areas to natural regenerate and recover from mass disturbance events.

The responses by the state government: initiating the 'Victoria's bushfire emergency: biodiversity response and recovery' program; and funding the Bushfire Biodiversity Response and Recovery Program is to be commended, but longer-term programs are also needed.

Key Points:

- Develop weed and pest management plans for the regions impacted by the fires taking into account local conditions, values, species and threats.
- Secure long-term funding of weed management programs in fire affected regions on a 3–5-year basis.
- Expand large scale management programs to control pest carnivores such as cats and foxes, building on the work of the Southern and Glenelg Ark programs run by DELWP.
- Introduce plans for sustained reductions of pest herbivore species such as deer, pigs and horses.
- List of deer as a pest species in Victoria to remove confusion for land managers and owners across all land tenures.

Full Discussion of Issues:

1. Assessing the Implication of Climate Change, Fires and Forests

In Victoria the 2019-2020 fires are the third landscape scale fire above a million hectares in the last 20 years. This frequency and intensity is consistent with the minimum 1.5°C climate change scenario, and the implications of further climate change should be a key consideration of the MER.

The DELWP webpage on RFAs clearly outlines the relationships between fires and climate change and highlights the expectation that MER will consider climate change:

> The RFAs *"…recognise the pressures facing our forests today, including climate change and bushfires, meaning that forest management requires a different approach to the past. Key to effective forest management is our ability to recognise and respond to change. New features like the Major Event Review activate an appropriate and robust response to major events which impact our forests such as the devastating 2019-20 bushfire"* [1]

And the East Gippsland RFA Clause 52E, and 52F, 52G and 15R all have explicit actions relating to climate and the scope of the MER. For example 52E The Parties acknowledge:

(a) Climate Change is driving more extreme weather and disturbance events that will impact on a wide range of Forest Values, including Biodiversity, water and Timber Resources;

The first page of the East Gippsland RFA even notes the increased frequency of "natural disturbances" and the fact that the impacts of 2019-20 fires are not known at the time of renewal:

> *"The parties recognise that natural disturbances, which are occurring at greater frequency and intensity, have the potential to impact on Forest values. In particular, the parties acknowledge the occurrence of the 2019-20 bushfires, and recognise the significant impact they have had on forest values within the East Gippsland RFA Region, notwithstanding the fact that at the time of extending this agreement in March 2020, the full extent of the impacts from these bushfires was not yet known. The impacts of these bushfires and future major natural disturbances will be the subject of further monitoring and assessment within the framework of this RFA*."

The rest of Clause 52E notes:

a) Climate Change is a continuing and Threatening Process for Listed Species and Communities and other MNES;
b) Climate Change will have an impact on ESFM, the CAR Reserve System and the stability of Forests and Forest Industries;

[1] https://www.delwp.vic.gov.au/futureforests/what-were-doing/victorian-regional-forest-agreements

c) Integrating Climate Change adaptation into Forest Management, including the management of Listed Species and Communities and other MNES, is required to build resilience and manage climate risks and meet the objectives of ESFM;
d) The need to manage Forests to maintain or enhance the sequestration and storage of carbon;
e) That maintaining Native Forests, through the CAR Reserve System, the Forest Management System and other mechanisms, plays an important role in the effective management of carbon within the carbon cycle; and
f) That effective management of Forests to maintain functioning Forest Ecosystems in a changing climate is required to maintain the quality and quantity of water resources.

Other examples include:

Clause 52F. The Parties agree to use their best endeavours to improve Climate Change resilience and future viability of Listed Species and Communities and other MNES informed by best practice approaches, best available science and Traditional Owner Knowledge.

Clause 52G (c) will use reasonable endeavours to ensure that all EVCs that are Climate Change Vulnerable are afforded additional protections beyond that provided for under the JANIS Reserve Criteria.

Clause 15R. For all Listed Species and Communities present in the East Gippsland RFA Region, Victoria will use its best endeavours to:
(a) protect important populations and sufficient current and future habitat in the CAR Reserve System where such action is likely to ensure that viable populations are maintained throughout the species' range;
(b) as appropriate, apply additional measures where that species or community is Climate Change Vulnerable, including (but not limited to) measures such as:
(i) identification and protection of Refugia;
(ii) greater active management, including of threats; and
(iii) consideration of options for translocation, gene mixing and ex situ conservation;
and
(c) protect important occurrences of the species or community in the CAR Reserve System and maintain or restore ecological management regimes to ensure its viability.

The global IPCC report Summary for Policymakers (SPM), released early in August, highlights that climate change is indeed having impact on increased chance and intensity of fire weather. Section A.3 notes:

Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. Evidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and, in particular, their attribution to human influence, has strengthened since AR5 (the previous report released in 2014).

It also notes:

> "*A.3.5 Human influence has likely increased the chance of compound extreme events since the 1950s. This includes increases in the frequency of concurrent heatwaves and droughts on the global scale (high confidence);* ***fire weather in some regions of all inhabited continents (medium confidence)****; and compound flooding in some locations (medium confidence).*" [2]

The Inspector General for Emergency Management through the Inquiry into the 2019-20[3] Victorian fire season also make the link. The Phase 1 report stated:

> *"Climate change is influencing the patterns of natural hazards globally. In Australia, increases in temperature and changes in rainfall patterns are contributing to an increase in extreme fire weather across much of the country. This is especially true in south-east Australia where there have been long-term decreases in rainfall and the bushfire season is lengthening"*

The IGEM report also quotes:

> *"The 2018 CSIRO report [State of the Climate, 2018. Canberra 2019] predicted changes that Australia will experience over the coming decades with implications for bushfire including:*
>
> - *further increase in temperatures, with more extremely hot days and fewer extremely cool days*
> - *a decrease in cool-season rainfall across many regions of southern Australia, with more time spent in drought*
> - *an increase in the number of high fire weather danger days and a longer fire season for southern and eastern Australia.*
>
> *"There is also likely to be an increase in dangerous fire conditions for communities and fire fighters with studies indicating climate change could amplify the conditions associated with pyrocumulonimbus development. Climate change may also result in more ignitions as there is a link between increased lightning-ignited fire occurrence and climate change, with this trend likely to continue*."

The Royal Commission into Natural Disaster Arrangements. Commonwealth of Australia 2020.[4] In its terms of reference, the Commission was asked to examine, among other things: *"Australia's arrangements for improving resilience and adapting to changing climate conditions."* It notes in the overview (p.22):

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[2] (*SPM page 11*) https://www.ipcc.ch/report/ar6/wg1/#SPM

[3] Inquiry into the 2019-20 Victorian fire season: Phase 1 report. Inspector General for Emergency Management State of Victoria. 2020
https://files.igem.vic.gov.au/202103/Inquiry%20into%20the%202019%2020%20Victorian%20Fire%20Season.pdf

[4] Royal Commission into Natural Disaster Arrangements. Commonwealth of Australia 2020
https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%5Baccessible%5D.pdf

"Floods and bushfires are expected to become more frequent and more intense. Catastrophic fire conditions may render traditional bushfire models and firefighting techniques less effective."

The Royal Commission also notes from the section 'Outlooks for different natural hazards' (p. 63)

"There has been a long-term increase in dangerous fire weather, and in the length of the fire season, across large parts of Australia. There has been a reduction in the time between the catastrophic bushfire events of Australian history."

Threatened Species and Communities Risk Assessment Victoria's Regional Forest Agreements, DEWLP Oct 2020, describes the link between climate and fire:

"*The hazards described …interact to varying extents. There is evidence that climate change is increasing the frequency and severity of droughts in south-eastern Australia, which in turn increases the frequency, extent and severity of bushfires. Bushfires and forestry operations may combine to accelerate the loss of mature and senescent forest growth stages.*"[5]

The risk assessment has identified 48 threatened species and communities that are at high or significant risk as a result of climate change. In East Gippsland RFA at least 13 of these species were also impacted by logging operations including Large Brown Tree Frog, Greater Gliders, Forest Owls (Masked, Powerful, Sooty) and seven aquatic species.

It is clear that climate change is impacting on health, function and species found within native forests in Victoria right now. The 2019-20 bushfires and the 2009 Black Saturday bushfires show the increase in fire size and severity in Victoria's forests and the growing impact on threatened species, EVCs and communities. However, while carbon sequestration is briefly considered (section 8.3) in a discussion of the impact of the fires on carbon stocks, the MER summary never explicitly mentions climate change or the implications of climate for extreme weather events such as fires on other values. The current RFAs have 16 clauses which address climate change, and climate change is mentioned over 40 times in the East Gippsland RFA. Yet the MER summary document has no mention of climate change.

Climate change should be a key consideration of this MER considering the dire warning and crystal-clear links made by the both Victorian and Federal Royal Commission, and the recent global IPCC report. Efforts to improve ecosystem resilience and recovery must be implemented immediately. This includes the removal of manageable pressures and degrading forces such as native forest logging and invasive species. Removing these pressures will protect ecosystem services such as carbon sequestration, water filtration and creation, and will allow forest ecosystems to adapt and recover from the impacts of climate change. Further delays will see ecosystems, species and ecological communities collapse and disappear from Victoria's forest ecosystems.

[5] https://www.environment.vic.gov.au/conserving-threatened-species/threatened-species-and-communities-risk-assessment

Key Points:

- The implications for climate and the link to extreme fire and the combined impact of logging should be assessed in detail ant a regionals scale in the Major Event review as it will have profound impact on the capacity of the forest to supply both wood/pulp and habitats in the future.
- Specifically address climate resilience action identified in the RFAs (clauses 15R and 52 E, 52F) such as
    - ensure that all EVCs that are Climate Change Vulnerable are afforded additional protections beyond that provided for under the JANIS Reserve Criteria
    - identification and protection of Refugia
    - protect important occurrences of the species or community in the CAR Reserve System and maintain or restore ecological management regimes to ensure its viability
    - improve Climate Change resilience and future viability of Listed Species and Communities and other MNES informed by best practice approaches, best available science and Traditional Owner Knowledge

2. Logging yield and supply

The 2019-2020 fires impacted around 50per cent of available annual volume in native forest, pushing the already declining industry into further decline. Almost 40% of the General Management Zone (the area open for logging) in East Gippsland was impacted by fire.

The MER summary document provided an estimate the impact of fires as 371,245 cubic metres of Ash and 335,310 cubic metres of mixed species, or 706,555 cubic metres (Table 5). The report footnote notes this is D+ Operable Inventory is the volume of D-grade sawlog and better that is available for harvest within VicForests' Strategic Wood Supply Model at the commencement of the planning period, 1 July 2019.

Table 5: Fire impact on wood volumes (D+ Operable Inventory) by RFA[32] [33]

RFA region	Ash (m^3)	Mixed species (m^3)
Central Highlands	Nil impact	Nil impact
East Gippsland	−7,095	−306,569
Gippsland	−155,871	−16,307
North East	−208,279	−12,435
Western Victoria	Nil impact	Nil impact
Total	−371,245	−335,310

VicForests currently log between 1.2 and 1.3 million cubic meters[6] of native forest per annum (Table 4, below). Based on the estimates provided in the MER Summary Report, the 2019-20 fires impacted ~50% of available annual volume. However, it is unclear in the figures presented what proportion relates to sustainable yield of sawlog and pulp, although it has a significantly lower figure of around 280,000 cubic metres. The MER must assess which segments are impacted by the fires and what aspects and assumptions the VicForests modelling is based on.

Table 4: Volume harvested by species eastern Victoria and western Victoria ('000 m³)

Species		2006-7	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
East VIC	Ash	1,054	1,262	1,073	1,265	1,092	873	847	810	925	964
	Other	617	678	608	587	606	559	412	404	362	338
	Total	**1,671**	**1,940**	**1,681**	**1,852**	**1,697**	**1,431**	**1,259**	**1,214**	**1,286**	**1,302**
West VIC[1]	Ash	-	-	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	20	23	23	21	21
	Total	**-**	**-**	**-**	**-**	**-**	**20**	**23**	**23**	**21**	**21**
Total VIC	Ash	1,054	1,262	1,073	1,265	1,092	873	847	810	925	964
	Other	617	678	608	587	606	579	435	427	383	359
	Total	**1,671**	**1,940**	**1,681**	**1,852**	**1,697**	**1,451**	**1,282**	**1,237**	**1,307**	**1,323**

Source: VicForests. Components may not add up to totals due to rounding
1: No data available for western Victoria prior to 2011-12

According the VicForests' Resource Outlook, published in the RFA Further Assessment Report 2019[7] The volume of D+ grade sawlogs harvested from eastern Victoria RFA regions has decreased from 532,300 cubic metres in 2004–05 to 230,800 cubic metres in 2018–19, (Figure 2). The calculated sustainable yield over the corresponding period has also declined from 517,400 cubic metres in 2004–05 to 253,000 cubic metres.

The further assessment report also notes: "The overall trajectory of harvest volumes in more recent times has been decreasing, with harvest volumes in 2018 approximately 800,000m^3 less than those in 2005. A significant reduction in harvest volumes is apparent after the 2009 Black Saturday bushfires." A similar pattern should be expected post 2019-20.

[6] https://www.vicforests.com.au/about-vicforests/deloitte-access-economics-2017
[7] https://www.agriculture.gov.au/sites/default/files/documents/qid78487_att_a_-_further_assessment_of_matters_report_2019.pdf page 197

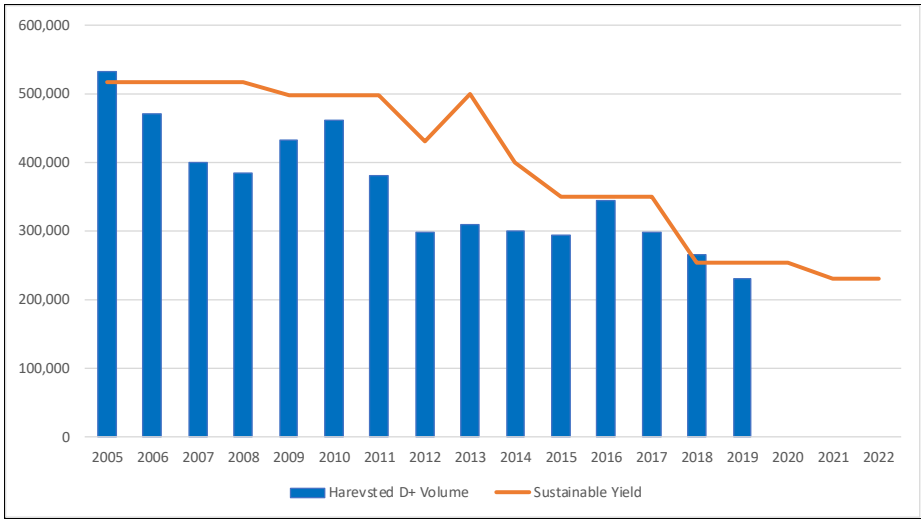

Figure 2: D+ grade sawlogs harvested from eastern Victoria RFA regions since 2005 (VicForests 2019)

The overall impact of the fire on supply of native forest products is significant. We are concerned that the impact on forest in East Gippsland, Gippsland and North East will drive additional logging in other parts of the state such as central highlands and other areas that are more sensitive, and until now have been protected by their inaccessibility.

The Victorian Government has developed the Victorian Forestry Plan to assist the industry as it manages its gradual transition away from large-scale native forest harvesting. Under the plan, and to ensure security of supply, VicForests will meet existing contractual obligations and negotiate new sawlog supply contracts for all mills to mid-2024. A competitive process will be used to allocate timber from mid-2024 to 2030, after which commercial native timber harvesting in State forests will cease.[8] With the dramatic decrease in timber yield relating to the fires likely under future fire regimes and climate change, these targets and timelines need to be reassessed.

Key Points:

- Review yield against future fire predictions, climate change and the exit target in the Forestry Plan
- In the context of reduced supply, the transition out of native forest logging should be brought forward, with relevant increase in funding to support worker and industry transition
- Introduce peer review and clear transparency around wood modelling, and the assumptions used
- Develop a clear break down of segments of yield, sawlog, and pulp log over time and the relationship with sustainable yield

[8] https://djpr.vic.gov.au/forestry/forestry-plan

3. Impact of salvage and post-disturbance logging

Post fire or salvage logging is one of the most destructive forms of logging and has long lasting impacts on the forest ecology and health as well as forest dependent wildlife.

Salvage and post-disturbance logging subject native forests to the mechanical pressures of logging during the post-fire recovery stage of the vegetation, compounding various disturbance pressures of both fire and logging. Added claims that salvage logging assists with fuel reduction are contrary to studies which show that it can actually increase bushfire risk, because the salvage logging slash increases fine surface fuels on the ground.

Salvage and post-disturbance logging has a more severe impact on forest ecosystems and is known to:

- modify rare post-disturbance habitats
- influence populations of plants and animals
- alter ecological community composition
- impair the recovery of natural vegetation
- facilitate the colonization of invasive species and weeds
- alter and damage soil properties
- nutrient levels and plant and microbial communities within soil[9]
- increase erosion
- modify natural hydrological regimes and aquatic ecosystems
- simplifies the landscape ecologies[10]

Table 2. Additional ecological impacts of salvage logging after fires in Victoria's Mountain Ash forest. More detail https://vnpa.org.au/save-or-salvage/

Flora and fauna	• Simplifies forest structure and species composition. • Results in a disproportionate loss of ferns and midstorey trees e.g. Myrtle Beech, Banyalla, Blanket Leaf, Rough Tree Fern, Australian Mulberry, Forest Lomatia, Native Olive, Tasmanian Pepperberry. • Encourages growth of bracken and shrubs. • Decreases abundance of wood-boring insects which are a post-fire food source for insectivorous birds and mammals. • Destroys old and dead hollow-bearing trees important for forest animals such as possums, gliders, owls and parrots. • Reduces bird species richness, even more so than fire and logging on their own.
Soil	• High intensity combination of physical disturbance and fire: ▪ exposes the forest floor ▪ compacts the soil ▪ volatizes soil nutrients ▪ redistributes organic matter • Significantly lowers concentrations of key nutrients such as nitrates and available phosphorus for many decades.
Water	• Increases siltation of rivers and streams. • May reduce water quality in water catchments.

[9] Temporal patterns of forest seedling emergence across different disturbance histories, Bowd et.al 2021
[10] Salvage Logging, Ecosystem Processes, and Biodiversity Conservation Lindenmayer & Noss 2006

With a planned 2030 phase out of native forest logging in Victoria, the impacts of salvage and post-disturbance logging will linger for many generations after the logging industry has finished, leaving a legacy of degraded and less resilient forest landscapes in the face of a rapidly changing climate.

Since the 2019-20 fire season, state-backed enterprise VicForests has commenced salvage and post-disturbance logging across eastern Victoria, predominantly in the bushfire affected North East FMA[11]

Key Points:

- Unsustainable yield levels drive salvage/post disturbance logging that cause massive damage to recovering ecosystems and threatened species and should be avoided in high conservation value fire impacted areas.
- Establish long term monitoring plots across all FMA areas that have been subjected to Salvage/post-disturbance logging to further understand the impacts
- Undertake ecosystem recovery works if suitable

4. Impact on Threatened Species and communities

In Victoria during the 2019-20 fire season, 244 species had more than 50% of their modelled habitat within the burnt area, including 215 rare or threatened species (Flora and Fauna Guarantee (FFG) Act). Of those species, 43 had more than 50% of their modelled habitat impacted by high severity fire, and all but one was considered rare or threatened species (FFG Act). This placed extreme and acute stress on those populations.

When considered with the additional threat from ongoing forestry operations, many of these species are at great risk. There are at least 23 threatened species and communities that are at high or significant risk as a result of forestry operations, mainly from loss of hollow-bearing trees, habitat loss and fragmentation, direct mortality, loss of feed source or sedimentation effects. Examples include Giant Burrowing Frog, East Gippsland Galaxias, Glossy Black-Cockatoo, Leadbeater's Possum and Diamond Python. The MER must address the protection of these species within their broader risk context.

There are five EPBC listed communities and 8 FFG listed species within the fire boundary (DELWP 2020). With a raft of EPBC listed species also impacted with 25 Fauna species, 7 invertebrates and 14 plant species impacted by the 2019-20 bushfires, most by high severity fire.

The Threatened Species and Communities Risk Assessment states

> "Species and communities affected by the 2019-20 bushfires may have a higher risk rating than would otherwise be the case due to the elevated uncertainty as to the impacts of the bushfires and the implications for the

[11] VicForests commences responsible harvesting in East Gippsland Forest Management Area, 10 May 2021

additional impacts that forestry operations might have on those species and communities as they recover" [12]

The Victorian Environment Assessment Council 2017 report 'Conservation values of state forests assessment' identified that 79 plant and animal species depend on the forest of Eastern Victoria within the Central Highlands, North East, Gippsland and East Gippsland RFA areas. This report did not include the West RFA areas, which also have significantly high levels of threatened ecological communities and threatened species.

Threatened Species and Communities Risk Assessment (December 2020) was limited in its species assessment:

> "*It should be noted that species included on DELWP's advisory lists but not formally listed … were not assessed*" and "*There is no definitive list of species or communities that are, or have the potential to be, impacted by forestry operations.*"[13]

Previously, Victoria had multiple lists of threatened species - those listed under the FFG Act, and non-statutory lists called the Victorian Threatened Species Advisory Lists. Recent amendments to the FFG Act have removed duplication by establishing a single "legal or formal" comprehensive list of threatened flora and fauna species. This will continue to be known as the FFG Act Threatened List. With the new comprehensive list now in effect, the Advisory lists have been revoked.[14]

The new formal list has dramatically increased in size from around 687 formally listed species under the FFG Act to almost 2000 species (1993 species), following reassessments and increases in extinction threat. To fulfil its objectives, there needs to be detailed gap analysis of forest dependent species on the new FFG list that incorporates the impacts of the 2019-2020 bushfires, the long-term impact of climate change, and native forest logging as part of the MER.

Only about 40 per cent of the old FFG list had full action statements as required. Given the existing departmental resources and the low proportion of the initial list that had action statements, it is unclear how the additional 1306 species now listed will obtain appropriate Action Statements. We note clause 15l of the RFA

> "*Where a taxon or community that is present in the East Gippsland RFA Region becomes a Listed Species and Community by virtue of it being newly listed under the FFG Act, Victoria agrees to develop and publish a Statutory Conservation Planning Document for that taxon or community within 24 months of the date of listing.*"

Which means that large numbers of species will require action statements within the next two years.

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[12] https://www.environment.vic.gov.au/conserving-threatened-species/threatened-species-and-communities-risk-assessment

[13] https://www.environment.vic.gov.au/conserving-threatened-species/threatened-species-and-communities-risk-assessment page 6

[14] https://www.environment.vic.gov.au/conserving-threatened-species/threatened-list

There are also seven communities listed under the Flora and Fauna Guarantee Act 1988 impacted by the fires. These communities are:

- Cool Temperate Mixed Forest (~40% of community within current fire extent);
- Dry Rainforest (Limestone) (44% of community within current fire extent);
- Warm Temperate Rainforest (Coastal East Gippsland) (>80% of community within current fire extent);
- Warm Temperate Rainforest (East Gippsland Alluvial Terraces) (~90% of community within current fire extent);
- Warm Temperate Rainforest (Far East Gippsland) (>70% of community within current fire extent);
- Warm Temperate Rainforest (Cool Temperate Overlap, Howe Range) Community (>90% of community within current fire extent); and
- Cool Temperate Rainforest (8% of community within current fire extent).[15]

Rainforest in Victoria develops in the long-term absence of severe disturbance such as fire, and there are significant areas of rainforest within the current fire extent, threatening the integrity of the community as a whole. In addition to the bushfires, these sites are at high risk of the future indirect impacts of bushfire such as soil erosion, exposure, weed invasion, eucalypt invasion and encroachment and elevated levels of feral herbivore browsing.

Threatened Species and Communities Risk Assessment identifies the potential for "targeted responses", such as the protection of identified habitat areas or specific features through regulatory prohibitions, rather than guiding management approaches. For the purpose of introducing enforceable interim protections, there are two main options under consideration:

- Minor Amendments to the Forest Management Zoning Scheme under s22 Forests Act 1958; and
- Critical Habitat Determination under s20 Flora and Fauna Guarantee Act 1988.

The report notes

> "*Both options can be implemented in shorter timeframes than other enforceable protection options however require more definitive information regarding location and extent of communities, critical habitat or occupancy, and require careful evaluation of social and economic impacts. Both options can also provide legally enforceable restrictions to a range of activities under Victorian law*".[16]

Consideration should be given for the use of critical habitat determination and associated tool for key high conservation unburn areas and the creation of refugia as per clause 15R of the RFAs

[15] https://www.environment.vic.gov.au/conserving-threatened-species/threatened-species-and-communities-risk-assessment

[16] https://www.environment.vic.gov.au/conserving-threatened-species/threatened-species-and-communities-risk-assessment page30

Key Points:

- Critical habitat determinations under the FFG Act should be considered for protection of key unburnt areas of high conservation significance
- The MER undertake a detail gap analysis of forest dependent species on the new FFG list and there potential to be impacts on by the 2019/ 2020 bushfires, long term impact of climate change and logging
- Of species identified take appropriate action to protect important occurrences of the species or community in the CAR Reserve System and maintain or restore ecological management regimes to ensure its viability
- The MER recommend that action statements be prepared for all identified forest dependent species list on the new FFG list within the next two years

5. Protecting unburnt forest refuges

More than 200 flora species have had 50–100 per cent of their extent affected by the fires, of which 154 have been identified by the Department of Environment, Land, Water and Planning (DELWP) as of high concern due to fire impacts. DELWP has also identified 67 fauna species of most concern, of which 20 had 50–80 per cent of their entire habitat burnt.

The Victorian National Parks Association together with community conservation groups from East Gippsland commissioned an analysis of the impact of the bushfires on a range of threatened plant and animal species in Eastern Victoria – and the impact of ongoing logging on remaining forest spared from the flames.

The released joint report *After the Fires: Protecting Our Forest Refuges* used the Victorian government's own spatial data and focused on ten forest areas: Errinundra, Cottonwood, Cabbage Tree, Far East Gippsland, Swifts Creek, Nunniong, Colquhoun, Mt Alfred, Sardine Creek to Bemm, and the North-East Alpine Region.

Many of these unburnt and lightly burnt refuge areas contain extremely valuable and rich habitat features essential for the rehabilitation, recruitment and dispersal of wildlife into recovering forests. The analysis revealed:

- Of the 585,000 hectares of state forests in the East Gippsland forest management areas, only 112,000 hectares is outside the fire extent. Of that unburnt forest, 90,000 hectares remains unprotected and open to habitat loss caused by native forest logging.
- Across the 10 refuge areas, 553 logging coupes covering more than 20,000 hectares of forest are planned for logging by the Victorian government's logging agency VicForests.
- Not only have there been no reductions or substantive changes to existing logging plans since the bushfires, two additional logging schedules have been approved by state-owned VicForests in the 12 months since the fires.

Key Points:

The *After the Fires* report makes the following recommendations, which should be considered by the Major Event Review.

1. Protect each of the key refuges identified in the report and any other remaining unburnt forests from current and future logging, to ensure the survival and persistence of flora and fauna species that rely on these forests to survive.
2. Commit to not logging any identified habitat remaining in Victoria for each threatened species significantly affected by the 2019-20 bushfires, particularly those species listed in the report.
3. Bring forward the 2030 transition out of native forest logging. In November 2019 the Victorian government committed to a decade-long transition out of native forest logging. Doing so sooner would avoid further damage.
4. Prioritise funding and restoration of areas impacted by the bushfires to restore habitat and provide better resources for weed and pest control programs in forest areas to improve recovery from bushfire events.
5. Declare and map the key refuges identified in this report as high priority assets in need of protection from all types of future fires, including planned burns.

6. Impact of Comprehensive Adequate Representative Reserve System and Interim Protection Areas (IPAs)

Around 92 per cent of so-called reserves created under all the Victorian RFAs are informal (Special Protection Zones and Management Areas etc.). Only 8 per cent of reserves related to RFAs are protected in formal reserves such as national parks.

This is in contrast to other jurisdictions such as NSW, which protected 23 per cent of the area in formal or dedicated reserves and less than 4 per cent in informal reserves (either as reserves or by prescription) in its RFAs.[17] So there is an argument as to whether Victoria has ever lived up to its promise of a CAR Reserve System.

Many of the RFAs' standards for the protection of ecosystems fall below international and national benchmarks. For example, elements of the JANIS criteria embedded in the RFAs are inconsistent with the National Reserve System (NRS) Strategy adopted by all Australian Governments in 2009, and the Convention on Biological Diversity (CBD) Aichi Biodiversity Targets (specifically Target 11), adopted in 2010.

The impact on the CAR reserve system and Immediate Protection Areas in East Gippsland FMZs was extensive with much of the CAR reserve system areas (Special Protection Zones and Management Areas) set up within the RFAs severely impacted by fire. As shown in Table 2 below, many CAR areas were severely impacted.

The Interim Protection Areas (IPAs) were committed to by the Government in 2019 to protect Greater Glider habitat as a conservation measure in the Greater Glider Action Statement under the FFG Act [18] The IPAs are yet to be formalised by government, 18 months after the announcement.

[17] https://vnpa.org.au/publications/submission-regional-forest-agreements/
[18] https://www.environment.vic.gov.au/conserving-threatened-species/threatened-species-fact-sheets/greater-glider

Likewise it is unclear how much if any old growth has been protected under the current prescriptions.

Table 2:[20] Impacts on the CAR reserve system and related components by type of protection[21]

Area	Included in CAR reserve or a related protected area	Total area across the state (ha)	Area in fire extent (ha)	Area in fire extent burnt by high severity fire (ha)
National parks and nature conservation reserves	CAR reserve	3,900,480	482,094	285,462
Permanent protection on private land	CAR reserve	49,025	404	130
Special protection zone (SPZ) areas	CAR reserve	765,900	203,758	127,966
Prescriptions (modelled exclusions and rainforest, per *Management Standards and Procedures for timber harvesting operations in Victoria's State forests*)	CAR reserve	629,120	193,375	12,359
Immediate Protection Areas (additional new protected areas, as identified in the Greater Glider Action Statement No. 267)[22]	Related protected area, not part of CAR reserve	95,107	44,169	31,255

A detailed analysis of adequacy of Victorian protected areas in conserving forest dependent species published recently in Austral Ecology by Chris Taylor and David Lindenmayer from ANU highlight that not all forests are equal when it comes to logging. The analysis revealed a distinct bias in the reserve system, with EVC Groups on more productive and economically valuable land afforded lower levels of protection. This is consistent with previous, broader national-level analyses as well as work in other parts of the world.

The paper notes

> *"…past logging operations and proposed further logging operations have been concentrated in particular EVC Groups such as those with a high predicted value for a suite of threatened forest-dependent species. Logging operations therefore have a disproportionally higher impact relative to the size of the area within which they occur."*
>
> "*The Wet and Damp Forest EVC Group has been heavily targeted for logging…Nearly 260 000 hectares or 19per cent of this EVC Group has been subject to logging, with around74per cent of this logged using clearcutting."*
>
> *"This means that existing reserves are not adequate and therefore do not meet one of the core principles of a CAR protected area network. Second, off-reserve management is currently not providing a sufficient complementary contribution to the reserve system for these species"*

The ongoing logging under the Timber Release Plan will only serve to further erode the suitability of off-reserve areas for biodiversity. This is especially because such operations will

be concentrated in areas with significantly higher predicted values for forest-dependent threatened species than in forests where logging is not occurring.

In its conclusion, the paper suggested that, as part of modernising RFAs, areas of the Wet and Damp EVCs should be among those targeted for addition to the existing dedicated protected area network to promote the conservation of forest-dependent threatened species.[19]

Key points:

- CAR reserves under RFAs need to be formalised and expanded to meet needs of threatened species and ecosystems
- Interim Protection Areas (IPAs) need to be formalised and expanded to meet needs of threatened species and ecosystems

7. Impact on Ash Forests

The ongoing impact of the fires on Alpine Ash and Mountain Ash forests are also of great concern. The bushfires in 2019-20 burnt 4,286 hectares of Mountain Ash Forest and 52,516 hectares of Alpine Ash Forest (DELWP 2020). The 2009 Black Saturday fires burnt 78,200 hectares of Mountain Ash Forest in the Central Highlands. It is estimated that between 22,000 hectares and 11,500 hectares of immature ash forest was impacted by high severity fire in 2019-20 (DELWP 2021). The growing interactions between wildlife and logging in these ecosystems are pushing them into a landscape trap situation that will potentially create "irreversible changes to disturbance dynamics, forest cover, landscape pattern, and vegetation structure, and thereby lead to a major regime shift or alternative state"[20]

Ash species take over 20 years to reach reproductive maturity. With large areas of Ash forest in East Gippsland and the Central Highlands under reproductive age due to large scale industrial logging across the landscape converting large areas into monocultures, much of the remaining Ash forest ecosystems are highly susceptible to landscape traps and collapse. The immature Ash stands required re-seeding due to the stands of trees being too young to reproduce naturally[21].

The Mountain Ash Forest of the Central highlands were assessed using the IUCN Red List of Ecosystem risk assessment criteria to estimate the risk of ecosystem collapse within 50 to 100 years, it was found with current management they have a ≥ 92per cent chance of ecosystem collapse by 2067[22]. Only 20per cent of Mountain Ash forests in the Central Highlands are protected with the remaining 80per cent subject

[19] Taylor, C. Lindenmayer, D B., The adequacy of Victoria's protected areas for conserving its forest-dependent fauna. Austral Ecology (2019) 44, 1076–1091

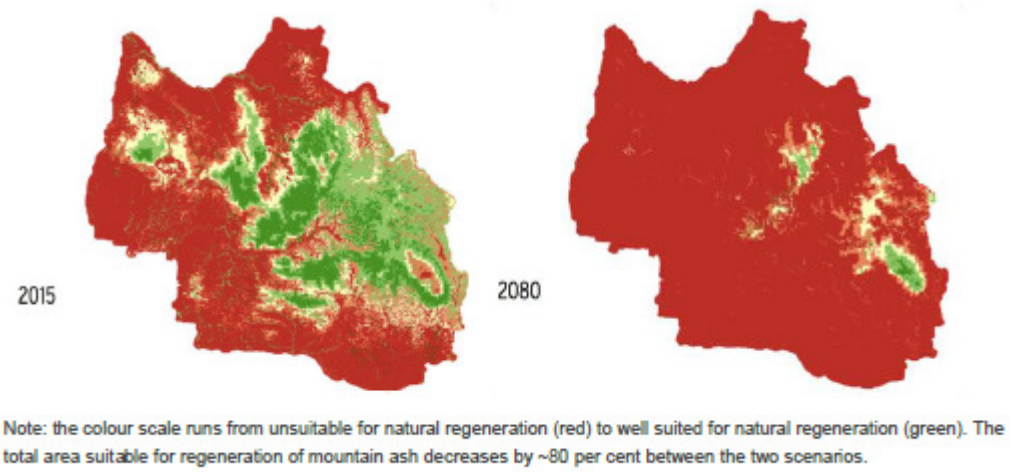
[20] Newly discovered landscape traps produce regime shifts in wet forests, Lindenmayer et al. 2011

[21] Victorian Government, Airlift operation to bring forest back to life after bushfire [media release], Victorian Government, 2 October 2020

[22] An ecosystem assessment of mountain ash forest in the Central Highlands of Victoria south-eastern Australia (2014), Burns et al.

to logging[23]

With Ash forests across the state in different levels of collapse and degradation the need to remove pressure of these ecosystems is vital to ensure their persistence. The impact of climate change on ash forest and their recruitment and regeneration will lead to an estimated contraction of 80per cent with a rise of 3 degrees in temperature [24] (Figure 1).



Note: the colour scale runs from unsuitable for natural regeneration (red) to well suited for natural regeneration (green). The total area suitable for regeneration of mountain ash decreases by ~80 per cent between the two scenarios.

Figure 1. Regeneration suitability of mountain ash (*Eucalyptus regnans*) across the Central Highlands under current climate (left) and a future climate that is 3ºC warmer (right) (VEAC 2017).

The MER summary report indicates a reduction of 371,245 cubic metres from Ash forests based on VicForests' Strategic Wood Supply Model but does not allow the reader to access VicForests' Strategic Wood Supply to understand the process. The MER summary also states that there is *Nil Impact* of fire on Ash and mixed forest in the Central Highlands RFA regions. This is incorrect as the 2009 Black Saturday fires burnt 388,261 hectares of which 269,030 hectares was native forest on public land (DSE 2010), much of this being Ash forest type which is heavily affected by fire. It is concerning that this has not been acknowledged by the MER process and could lead to the Central Highlands RFA areas coming under further pressure from native forest logging while still recovering from the 2009 fires.

RFAs tend to ignore the successive or cumulative impact of bushfire, even though there have been multiple extensive fires in the last 10 years. The issue of fire is complex, yet the RFAs ignore the impact on both extent and structure of the forest, as well as resource availability for industry.

[23] Mountain ash in Victoria's state forests, Andrew Flint and Peter Fagg 2007
[24] https://www.veac.vic.gov.au/investigations-assessments/previous-assessments/investigation/conservation-values-of-state-forests-assessment-report

Research on the 2009 Black Saturday fires showed that recent logging increased the probability of a crown fire in a range of forest types.[i] Logging can increase the susceptibility of moist forests—such as those found in all of the RFA regions—to fire due to several factors:

1. Altering the microclimate by removing the canopy
2. Altering stand structure and composition
3. Altering fuel characteristics (e.g. via adding fine fuel for ignition)
4. Increasing or altering ignition points (e.g. via road creation providing access to forests)
5. Altering the spatial pattern of stands which can influence fire spread [ii]

Estimates from DELWP show that at least 40–60 per cent of state forest has since 1960 already been logged or burnt or is proposed to be logged in the next few years (see following table). Assuming that many of the easier and non-constrained areas of forest have been logged first, there is limited resource left, particularly if future fires are taken into account. There is no clear provision in the RFAs to consider the impacts or cumulative implications of these scales and rates of fire plus logging. These figures do not include the extensive area burnt in 2019-20 fire season.

Regional Forest Agreement Area	State forest in RFA that has been logged since 1960 or is on TRP or has been burnt (ha)	State forest in RFA that has been logged since 1960 or is on TRP or has been burnt (%)
Central Highlands	177,271	44
East Gippsland	233,997	40
Gippsland	461,710	57
North East	320,118	46

The Victorian Environmental Assessment Council's *Fibre and Wood Supply Assessment 2017, Appendix A Consultants'* Report makes a series of points about the implication of fire for wood supply and wood supply models.

> *"The mean proportion of the commercially valuable 1939 regrowth ash forests from the Central Highlands that was lost in simulated fires over the next 20 years was 20 per cent, ranging from 3-47 per cent. These results were consistent with the historical data on fire activity."*
>
> *"It is unclear how much, if any, buffer is included to account for unexpected future events, such as fires. The process, by which these scenarios are aggregated, evaluated and analysed, and then combined with other information to select a single annual sustainable harvest level, is not documented and is the least transparent part of the process."*[iii]

Key Points:

- Consider the cumulative impacts of fire and logging on the landscape and capacity of the forest to supply wood products particularly in Ash forests
- Consider the likelihood of increased fire frequency under climate change and the flow on effects to future yield of wood products particularly in Ash forests

8. Old Growth Impacts

Protection of old growth forest is a vital issue. It is identified in the East Gippsland RFA (Section 52A, 52B) for its 'environment and heritage values'. It is clearly in scope of the MER as it is a part of criteria in the CAR reserve system (clause C, in MER Scope). Impacts on old growth forests are not mentioned in the MER summary report.

When old growth forests are burnt, they are no longer considered to be old growth. This leaves the old growth forest estate vulnerable to exploitative logging following fire, even if values on the ground remain and fire severity was less than modelling showed. Despite commitments in East Victoria to protect old growth forest, this loophole is of great concern. It also begs the question of how much old growth is actually left and how a commitment to "90,000 hectares of Victoria's remaining rare and precious old-growth forest … will be protected immediately" can be delivered.

Protection of old growth is clearly a key issue in East Gippsland and is identified in the East Gippsland RFA (Section 52 A and 52 B) clearly in scope of the major event review a it is a part of criteria in the CAR reserve system (clause C, in MER Scope) and part of the "environment and heritage values" in the RFA. Impact on old growth is not mentioned in the MER summary report.

For example, (Clause 52 B) states:

> *Victoria commits to ensuring that, for the duration of the Agreement, all Rainforest and Old Growth Forest within Native Forests on Public Land will remain protected from timber harvesting.*

Further, under definition in RFAs*:*

> *"Environment and Heritage Values" include Old Growth Forests, Wilderness, endangered species, National Estate Values, World Heritage Values and Indigenous heritage values;"*

In November 2019, the Victorian government announced that "90,000 hectares of Victoria's remaining rare and precious old-growth forest – aged up to 600 years old – will be protected immediately."

This suggested that there would be no more logging of old-growth forest, but it would have to be assessed in the field prior to logging. A critical issue, then, is how old-growth is to be recognised in the field. To address this, the Victorian Government's Office of the Conservation Regulator (OCR) put out a draft old-growth field assessment procedure in late 2019, then a final procedure in July 2020.

An old-growth forest in Victoria was defined in the 1990s as "a forest which contains significant amounts of its oldest growth stage in the upper stratum – usually senescing trees – and has been subjected to any disturbance, the effect of which is now negligible". The initial assessment is based on computer modelling, which is then checked in the field.

In the context of the major event review and the 2019-2020 bushfires, the concept of disturbance is a critical issue. The definition of disturbance for old growth is:

> *"Events that cause short-term (e.g. impacts of a low intensity fire) or long-term (e.g. harvesting operations, associated management activities and/ or a high severity fire) changes to forest structure and/or composition."* [25]

The issue that arises from this definition of disturbance is that if an area is burnt, it is no longer considered old growth.

This leaves the old growth forest estate vulnerable to exploitative logging following fire, even if values on the ground remain and fire severity was less than modelling showed. Despite commitments in East Victoria to protect old growth forest, this loophole is of great concern. It also begs the question of how much old growth is actually left and how a commitment to "90,000 hectares of Victoria's remaining rare and precious old-growth forest … will be protected immediately" can be delivered.

Key Points:

- Assess in detail the value of the RFAs in old growth forests following the fires
- Assess in detail how remaining old growth values were impacted in the 2019-20 fire season, including mapping, and assess how those values will be protected post fire
- Update the old growth forest identification assessment tool, including re-evaluating disturbance thresholds, to enable old growth forest to be protected in all its forms across different forest types and species
- Identify mechanisms to deliver commitment to protect 90,000 hectares of old growth

*See more on issue with the current assessment methods Old Growth Forest Imperilled in Victoria, Michael Feller 2021 here https://vnpa.org.au/old-growth-forests-imperilled-in-victoria/

9. Protection of large old trees

The protection of large old trees in native forests is pivotal to combating the decline of large old trees across the landscape. Protecting these trees also protects threatened species such Greater Gliders and Leadbeater's Possum that require the hollows in these trees as habitat. "*Loss of hollow-bearing trees from Victorian native forests and woodlands"* (DSE 2003) is listed as a Threatening Process under the Flora and Fauna Guarantee Act. Native forest logging is acknowledged as a threat to hollow bearing trees in Victoria "Forest management

[25] https://engage.vic.gov.au/method-identifying-old-growth-forests-victoria

practices that result in a net loss of hollow-bearing trees include timber harvesting, some silvicultural practices and fuel reduction burning. [26]

Additionally, the large tree protections proposed under 4.1.1.2, 4.1.1.1.3, 4.1.1.4 of the Code of Timber Production (2014) (the Code) and the associated management standards are inadequate, vague and do not set any firm or enforceable guidelines for buffers or exclusion zones to retain large trees.

A bare-minimum protection of large trees would be the implementation of The Australian Standard, Protection of Trees on Development Sites (AS4970 2009), this standard is widely used across most state government sites and imbedded in planning schemes.

The standard involves the calculation of Tree Protection Zone (TPZ) using the Diameter at breast height (DBH) or 1.4 meters above ground to determine the diameter of the tree. Using the diameter of the tree divided by 12 (DBHx12=TPZ) a sufficient protection zone can be established to maintain the trees viability and vigour.

The use of a TPZ reduces the impact of machinery use near its roots and radiant heat from post logging burns, more than logging up to the base of the tree or not allow slash to build up within 3 meters of the trees base as proposed in the changes in The Code.

In 4.2 Activities restricted within the TPZ (AS4970 2009) outlines activities that are to be excluded from the TPZ to ensure the trees viability. This included the use of machinery and lighting of fires.

The use of AS4970 2009 to protect large trees in coupes will not only result in protection of large trees, but also make implementation and enforcement of regulations easier for the regulator. Enforcement of AS4970 2009 is regularly under taken by local government officials and is used across most local council areas and state government development sites across the state.

The use of 2.5 metre diameter criteria for large tree categorisation neglects to protect many large trees across all Forest Management Areas (FMAs) and forest types. Trees in the West FMAs are not likely to reach 2.5 meter in diameter but are still vital for wildlife habitat and are large trees for their vegetation types. There is a need to define a large tree incorporating the area and conditions the tree is found in, not just its diameter.

Proposed addition *4.1.1.5 Include all large trees in a Large Tree Register*. This was only included in the East Gippsland FMA areas but has been proposed to be extended to all FMAs across the five RFA areas in Victoria. It is unclear what further protection the Large Tree Register. The list is not publicly available.

The uniform definition of old growth forests across all EVCs does not protect large old trees or old growth forest and fails to meet the 2019 commitment. Counting of big trees only bigger than 2.5 meters at breast height misses many large, significant and the next

[26] Action Statement No.192 (DSE 2003) Loss of hollow-bearing trees from Victorian native forests and woodlands, Flora and Fauna Guarantee Act 1988

generation of old growth forests as well as existing old growth forests. Due to the skewed old growth forest identification procedures released by the Office of the Conservation Regulator, forests that have been burnt by fire are no longer considered old growth forest. While the Minister in 2018 stated that "all native trees across the state greater than 2.5 metres in diameter would also be protected, whether they stood in forests or along roadsides" (ABC 2018), these expectations are not being met, and it is clear that the processes to identify and protect these important trees are not sufficient. The impacts of the 2019-20 fires on the old growth forest and large old trees needs to be understood due to the importance of old growth forests as wildlife habitat, ecosystem recovery and carbon sequestration.

Key Points:

- Develop publicly available mapping of all large old tree remaining in areas impacted by the 2019-20 bushfires
- Protect large old trees by implementing Australian Standard, Protection of Trees on Development Sites (AS4970 2009) in areas impacted by logging, roads and other development works
- In areas with high densities of large old trees and hollow bearing trees, logging should be excluded
- Replace the criteria for large old trees to have a DBH of 2.5m or more with a more ecologically appropriate definition to include smaller ecologically significant trees

10. Better Management post fire

Forest ecosystems are at their most fragile and vulnerable after large disturbance events such as bushfires. Australian forest types are adapted to fire to an extent, but further disturbance associated with pest plant and animal invasion, salvage logging, removal of hollow bearing trees and use of heavy machinery in areas recovering from fire delays the recovery of forest ecosystems for decades after the fire and in some cases could lead to permanent damage to ecosystems. Reduction of threats to the recovery of forests immediately after fire and for many years after is needed to allow these areas to natural regenerate and recover from mass disturbance events.

The rise in temperature caused by human induced climate change will lead to forest landscapes becoming more flammable. The need to build resilience into our forest landscapes is essential in allowing them to adapt to these current and future changes. The responses by the state government: initiating the 'Victoria's bushfire emergency: biodiversity response and recovery' program; and funding the Bushfire Biodiversity Response and Recovery Program is to be commended, but longer-term programs are also needed.

Pest and weed management

Following fire ecosystems are in a state of recovery, the plant and animal species that

survived the initial fire impact are vulnerable to predation by pest carnivores such as Ref Fox and Feral Cats due to lack of habitat structure and cover while plant species and recovering ecosystems are highly susceptible to damage from herbaceous grazers such as feral deer, feral pig and feral horses through compaction, grazing and ringbarking of plants and seedlings.

The *Bushfire Biodiversity Response and Recovery program* established to improve biodiversity in bushfire-affected areas and managed by DELWP should be commended, but planning and funding need to be secured for many years after the initial fire impact to allow adequate reductions in pest plant and animal species while the landscape recovers.

Key Points:

- Weed and pest management plan for the regions impacted by the fires taking into account local conditions, values, species and threats
- Expansion of large-scale management programs of pest carnivores such as cats and foxes building on the work of the Southern and Glenelg Ark programs run by DELWP
  Sustained and planned reductions of pest herbivore species such as Deer, Pigs and horses
- Listing of Deer as a Pest species is Victoria to remove confusion for land managers and owners across all land tenures
- Long term funding of weed management programs in fire affected regions on a 3-to-5-year basis

[i] Bradstock, R. A., and O. F. Price. 2014. Logging and Fire in Australian Forests: errors by Attiwill et al. (2014). Conservation Letters 7:419-420. & Price, O. F., and R. A. Bradstock. 2012. The efficacy of fuel treatment in mitigating property loss during wildfires: Insights from analysis of the severity of the catastrophic fires in 2009 in Victoria, Australia. Journal of Environmental Management 113:146-157.

[ii] Lindenmayer, D. B., M. L. Hunter, P. J. Burton, and P. Gibbons. 2009. Effects of logging on fire regimes in moist forests. Conservation Letters 2:271-277.

[iii] www.veac.vic.gov.au/documents/Appendix%20A%20-%20Consultants'%20Report.pdf