

## **Senate inquiry into the lessons to be learned in relation to the preparation and planning for, response to and recovery efforts following the 2019-20 Australian bushfire season**

### **Submission by the Victorian National Parks Association**

Thank you for inviting submissions into this inquiry. Victoria was significantly impacted by the 2019/2020 Australian wildfires with particularly extensive impacts on communities, forests and wildlife in the east of our state. The Victorian National Parks Association recognises the difficult and dangerous work undertaken by many volunteers and professionals during the emergency response operations and we thank them sincerely for their service.

The VNPA is Victoria's leading nature conservation organisation. We are an independent, non-profit, membership-based group, which exists to support better protection and management of Victoria's biodiversity and natural heritage. We aim to achieve our vision by facilitating strategic campaigns and education programs, developing policies, undertaking hands-on conservation work, and by running bushwalking and outdoor activity programs which promote the care and enjoyment of Victoria's natural environment.

#### **Key recommendations:**

The 2019-20 wildfires had a profound impact across Australia's south-eastern temperate forests and there is a potential for post-fire young regrowth to significantly increase wildfire risk in the near future. There is an urgent need to strategically counter rising challenges by shifting focus from fire-based fuel management to other methods of reducing wildfire risk. This includes working towards:

- the ramping up of point of ignition control, including developing landscape-wide aerial firefighting capabilities to suppress ignition points in both urban and remote landscapes.
- improved funding arrangements between the Federal and state governments in order to support aerial operational responses to wildfires in remote areas and to support the protection of environmental and cultural assets. Currently Federal funding is only available for aerial intervention if a fire is clearly threatening lives

and infrastructure. This discourages critical point-of-ignition control in remote areas.

- the improvement of wildfire preparedness for citizens in towns and cities, including improved evacuation planning and procedures, and support for private bushfire shelters.
- Emphasis on strategic and regulated fuel reduction of understorey vegetation close to assets.
- evidence-based and strategically planned fuel reduction burn programs with follow up monitoring of post-fire regrowth and fuel loads
- the incorporation of the ecological and associated flammability outcomes of planned burns and wildfires in different forest types into wildfire risk modelling
- reducing the long term flammability of the landscape by setting targets to protect and promote the growth of older vegetation in those forest types where older growth is historically less flammable than younger post-fire growth
- protection of critical habitat features, such as (but not only) hollows in trees and coarse woody debris.

### **VNPA's responses to the Terms of Reference**

**Lessons to be learned in relation to the preparation and planning for, response to and recovery efforts following the 2019-20 Australian bushfire season, with particular reference to:**

**(a) advice provided to the Federal Government, prior to the bushfires, about the level of bushfire risk this fire season, how and why those risks differed from historical norms, and measures that should be taken to reduce that risk in the future;**

The extent of the 2019/2020 wildfires in Australia were unprecedented and exceeded earlier predictions of increased wildfire in risk assessment models and climate science models. The various causal factors at play demand serious investigation and consideration. There is no single solution to the situation and a range of tools will be required to mitigate future wildfire risks. Some of the contributing factors to wildfire risk in south-eastern Australia will be briefly addressed below, with a focus on Victoria. These factors are: the increase in planned and wild fire the landscape; widespread young post-fire vegetation in the landscape; changes in climatic conditions; and the impacts of native forest logging.

## *Temperature and rainfall*

Climate and weather are significant drivers of fire. Australia's climate is warming and the Bureau of Meteorology's temperature trend maps from 1970 to today show that south-eastern Australia has been experiencing a pronounced decrease in the annual number of cold days (maximums less than 15oC).<sup>1</sup> Immediately prior to this fire event East Gippsland (large areas of which have traditionally been wet forests difficult to burn) also experienced three consecutive years of significant rainfall deficits.<sup>2</sup> Victorians were warned by the Bushfire and Natural Hazards Cooperative Research Centre in August 2019 of the potential for increased bushfire activity in the coastal and foothill forests of East Gippsland "with severe levels of underlying dryness persisting in soils and heavy forest fuels, along with higher abundance of dead fuel components and higher flammability of live vegetation".<sup>3</sup>

## *Fire frequency*

The occurrence of fire both planned and wild in Victorian landscapes has increased significantly in recent decades. There have now been three fires over 1 million hectares in Victoria since 2003: in 2003, 2007 and 2020. In recent decades planned burning in Victoria has occurred at relatively high levels with over 700,000 hectares treated in the last 5 years alone. Between 2003-04 and 2016-17 the Snowy district in East Gippsland had more planned burning than any other district in Victoria.<sup>4</sup>

Palaeoecological evidence suggests a low frequency of fire in East Gippsland during the Holocene period prior to European settlement and then a dramatic increase in fire after European settlement. While it is difficult to establish the extent of historical Indigenous burning in different parts of the landscape, research challenges claims of extensive burning across the landscape. "Burning by aboriginal people was not frequent in at least some parts of south eastern Australia and the modern, regular use of fire is not necessarily reflective of pre-European patterns."(Gell, Stuart and Smith, 1993)<sup>5</sup>

The extent and frequency of planned and wild fire in the landscape is highly relevant to wildfire risk management. Frequent fire can change the structure and composition of vegetation and fuel loads to become more fire-prone. In many forest types in Victoria, a

<sup>1</sup> Australian climate extremes – Trend Maps (cold days). Australian Bureau of Meteorology <http://www.bom.gov.au/cgi-bin/climate/change/extremes/trendmaps.cgi?map=CD15&period=1970>

<sup>2</sup> Archive – Twelve-monthly rainfall totals for Victoria. Australian Bureau of Meteorology <http://www.bom.gov.au/jsp/awap/rain/archive.jsp?colour=colour&map=totals&year=2019&month=12&period=12month&area=vc>

<sup>3</sup> Australian seasonal bushfire outlook: August 2019. Bushfire and Natural Hazards Cooperative Research Centre. <https://www.bnhcrc.com.au/hazardnotes/63>

<sup>4</sup> Commissioner for Environmental Sustainability Victoria, 2018. Scientific Assessments Part III Fire. <https://www.ces.vic.gov.au/reports/state-environment-2018/fire>

<sup>5</sup> Gell, P. A., Stuart, I. and Smith J. D. The response of vegetation to changing fire regimes and human activity in East Gippsland, Victoria, Australia. *The Holocene* 3(2), 150-160 (1993).

fire can initially (for a few years) reduce undergrowth, but young post-fire regrowth can then be more flammable and more prone to wildfire than before a fire occurred – a condition that can extend for decades. This is particularly the case in the Australian Alps<sup>6</sup> and in the damp and relatively high rainfall eucalypt forests and rainforests in the east of our state.

Some forested areas in Victoria naturally have (or had) no recorded fire history due to chance and/or low flammability, or a lack of clear records. According to Victoria's 2018-19 Fuel Management Report, in 1980 47% or 3.52 million hectares of public land in Victoria had no recorded fire history. By 2019 this figure had dropped to just 22% or 1.66 million hectares, corresponding to the increase in large bushfires and fuel reduction burning over the last decade.<sup>7</sup> Unfortunately Victoria has now had further losses of unburnt forests after ancient rainforests and old growth forests tragically burned in last summer's fires.

The loss of rainforests in East Gippsland is a pressing concern as they can take many decades, even hundreds of years, without fire to re-develop after a major fire event. A recent Arthur Rylah Institute report into post-fire dynamics of cool temperate rainforests<sup>8</sup> outlines that rainforests are only burnt when surrounding forests carry the fire into them, and therefore conservation of rainforests is largely dependent on protection of the ecotone vegetation and its eucalypt forest buffer. Rainforests and wet forests are not suited to fuel reduction burning ecologically or in a practical sense.

Before last summer's fires, because of so much recent fire in the landscape much of the vegetation of public land in Victoria was in an adolescent or younger growth stage, and this was especially the case in Gippsland. In 2019 about 50% of public land in Victoria was below its minimum tolerable fire interval.<sup>9</sup> If fire occurs too frequently it can wipe out various species before they get a chance to grow to reproductive maturity, potentially causing ecosystem collapse as the vegetation is replaced with more fire-loving species. For example, fires in 2003, 2007 and 2009 burnt over 87% of Victoria's Alpine Ash forests, with some areas being burnt a second or third time within a decade by a fire in 2013. This resulted in local elimination of Alpine Ash seedlings in parts of the landscape and an aerial sowing program was implemented in an attempt to mitigate the impacts.<sup>10</sup>

<sup>6</sup> Zylstra, P. J. Flammability dynamics in the Australian Alps. *Austral Ecology* 43, 578–591 (2018).

<sup>7</sup> Victorian fuel management report 2018-19. <https://www.ffm.vic.gov.au/fuel-management-report-2018-19/statewide-achievements/bushfire-risk>

<sup>8</sup> Tolsma, A., Hale, R., Sutter G. & Kohout, M., 2019. Post-fire dynamics of cool temperate rainforest in the O'Shannassy Catchment. Arthur Rylah Institute for Environmental Research Technical Report Series No. 298. *Department of Environment, Land, Water and Planning*, Victoria.

<sup>9</sup> Victorian fuel management report 2018-19.

<sup>10</sup> Bassett, O. D., Prior, L. D., Slijkerman C. M., Jamieson D. & Bowman D. M. J. S. Aerial sowing stopped the loss of alpine ash (*Eucalytus delegatensis*) forests burnt by three short-interval fires in the Alpine National Park, Victoria, Australia. *Forest Ecology and Management* 342, 39–48 (2015).

There is an urgent need to shift focus from fire-based fuel management to other methods of reducing wildfire risk, such as seriously ramping up control of ignition points, by a range of means. There is also a need to overhaul fuel reduction programs through more risk-based and strategic planning.

Currently there is no accountability for fuel reduction programs; a burn in some ecosystems can, perversely, significantly increase long-term fuel loads, but long-term burn impacts are rarely assessed. There is an urgent need to establish monitoring programs to build our understanding of post-fire regrowth and fuel loads.

The ecological and associated flammability outcomes of planned burns and wildfires in different forest types must be incorporated into wildfire risk assessment and modelling. Land managers should aim to reduce the long term flammability of the landscape by setting targets to protect and promote the growth of older vegetation in those forest types where older growth is historically less flammable than younger post-fire growth.

### *Logging*

Forest ecologists are advising policy makers to recognize that the historical and contemporary logging of forests in Australia has had profound effects on fire frequency and the severity of the 2019/2020 fires. In an article published a few weeks ago by *Nature Ecology and Evolution*, Lindenmayer et al (2020)<sup>11</sup> contend that logging regimes have not only significantly impacted on biodiversity and threatened species but have made many Australian forests more fire prone and have contributed to increased fire severity and flammability. They explain that logging operations can leave large amounts of debris on the ground and that ecological impacts of logging include changes in forest composition and structure, such as the creation of extensive, dense stands of young trees with a scarcity of elements such as tree ferns and rainforest plants, which in turn can influence fire dynamics and the spread of wildfire. They point out that fires have spread from logged areas and burnt into adjacent old growth eucalypts and rainforests dominated by ancient Gondwanan lineages. “The former have either never burned since establishment or are subject to extremely rare fires (for example, every 300–500 years), and the latter have never burned, with fire only at the rainforest edges at intervals of ~1,000 years.”

Another issue of concern is that of post-fire salvage logging of burnt trees which is both a threat to biodiversity and a potential factor in future wildfire risk. Research in the Mountain Ash forests of south-eastern Australia has found that salvage logging results in an overall loss of species richness, including a disproportionate loss of ferns and

<sup>11</sup> Lindenmayer, D. B., Kooyman, R. M., Taylor, C., Ward, M. and Watson, J. E. M. Recent Australian wildfires made worse by logging and associated forest management. *Nature Ecology & Evolution* (2020). <https://doi.org/10.1038/s41559-020-1195-5>

midstory trees and in increase in the abundance of bracken and shrubs.<sup>12</sup> Such research must be considered by governments and logging industries when planning for conservation, forest management and fire management. Bracken for example is a colonizer of open ground that responds well to fire and logging and can have significant implications for biodiversity and fire risk. Bracken can dominate the area, crowd out other plants, compete for moisture and nutrients, and can contribute significantly to near-surface fuel levels.

**(b) the respective roles and responsibilities of different levels of government, and agencies within government, in relation to bushfire planning, mitigation, response, and recovery;**

Australia could benefit from greater national coordination in regard to ignition control and emergency response, wildlife conservation, habitat protection and restoration, building standards and urban safety. However, land management responsibilities associated with wildfire risk reduction, especially local fuel reduction activities, must remain in control of the States and Territories. Australia's landscapes and vegetation is incredibly diverse and strategic management can only occur with local knowledge, local monitoring and careful planning.

Victoria has been increasing its effectiveness in point-of-ignition control, but more needs to be done. Becoming far more effective in ignition control will be expensive, but investing seriously in ignition control will have many benefits, increasing:

- public safety
- public health
- protection of infrastructure
- protection for agriculture
- reducing the onerous burden on volunteer and career firefighters
- protection for tourism
- viability for insurance companies
- reduced carbon emissions
- and ... long-term benefits for biodiversity

That has to be good return on such a solid investment.

**(c) the Federal Government's response to recommendations from previous bushfire Royal Commissions and inquiries;**

After such an unprecedented fire season the Federal Government now needs to make every effort to identify the mistakes of the past in order to avoid repeating bad

<sup>12</sup> Blair, D. P., McBurney, L. M., Blanchard, W., Banks, S. C. & Lindenmayer, D. B. Disturbance gradient shows logging affects plant functional groups more than fire. *Ecological Applications* 26, 2280–2301 (2016).

decisions based on reactionary responses, misconceptions, ideologies and ecological ignorance. It is particularly common after significant wildfires to hear calls for yet more broad-scale planned burning as well as calls for grazing livestock on public land, despite ecological evidence showing that such propositions would make Australia more fire prone and cause destruction to our natural heritage.

While we are not the people to be making definitive statements about Indigenous burning practices – that should be the province of Traditional Owners in relation to their Country – we have to be careful not to accept without question claims that talk of landscape-scale Indigenous fire programs. There is strong evidence that traditional Indigenous burning in Victoria, though common, was not broadscale. It appears to have been largely selective, purpose-based, and easily controllable.

Also, the evolution of Australia's characteristic flora took place over the last 45 million years, a much longer period than Indigenous burning.

In response to the tragic fires of Black Saturday, the Victorian Bushfires Royal Commission recommended burning at least 5% (around 390,000 hectares) of public land in Victoria annually. This proved to be a considerable overstep on the advice of the Commission's expert panel on fuel reduction which had only agreed on setting a 5% target as a trial in Victoria's 'foothill forests'. Panel members had pointed out that setting a statewide target could lead fire managers to burn remote places where large areas could most easily be burnt. That turned out to be the case, and even though the 5% target was never fully achieved, large burns were conducted in the Mallee and other areas where they were causing considerable ecological harm without significant public safety benefits.

Fuel reduction burning can have its own risks. In October 2015, a planned burn in bushland near Lancefield broke its containment lines and ended up destroying four homes and burning more than 3000 hectares of farmland and state forest. An independent investigation found a lack of adequate resources throughout the operation and in response to this finding the Environment Minister explained that staffing levels are based on risk assessment and that if the fire had been assessed as higher risk, more staffing would have been available.<sup>13</sup>

A media release titled '*Government responds to Lancefield and sets out future of planned burning*' linked the 5% target with the Lancefield event, and this could be viewed as an acknowledgement of the negative effect that hectare targets have. The release stated "*In the past, the approach to planned burning has been driven by a*

<sup>13</sup> Gray, D. Independent report condemns Environment Department's handling of Lancefield planned burn. *The Age*, 20 November 2015. <http://www.theage.com.au/victoria/independent-report-condemns-environment-departments-handling-of-lancefield-planned-burn-20151119-gl36g3.html>

*target, not by focusing on the areas of high risk. We will now work to reduce the risk of bushfire by focusing on high risk areas and listening to locals.”*

In 2015 an Inspector General of Emergency Management inquiry into fuel reduction targets recommended abandoning the 5% statewide hectare target and replacing it with a risk-based approach to fuel management. The target was subsequently dropped and a new “risk reduction” target was set out in *Safer Together: A new approach to reducing the risk of bushfire in Victoria*. New fire management strategies were applied to the operational delivery of the hectare based target with burns prioritised to deliver the greatest risk reduction. Despite this revamp of fire management planning, adaptive management to this day has still not been adequately applied – especially in regards to the biodiversity and ecological outcomes of planned burns and the serious impacts that post-fire regrowth in different forest types can have on future fire risk.

There is a clear need to overhaul broad scale fuel reduction burn programs in Victoria to be more strategic and evidence-based, and to include follow up monitoring of the post-fire regrowth and fuel loads. This includes incorporating the ecological and associated flammability outcomes of planned burns and wildfires in different forest types into wildfire risk modelling.

**(d) the adequacy of the Federal Government’s existing measures and policies to reduce future bushfire risk, including in relation to assessing, mitigating and adapting to expected climate change impacts, land use planning and management, hazard reduction, Indigenous fire practices, support for firefighters and other disaster mitigation measures; and**

This section is answered together with (e) below.

**(e) best practice funding models and policy measures to reduce future bushfire risk, both within Australia and internationally;**

The main area of fire management where Australia could benefit from greater national coordination is in wildfire suppression and emergency response. In particular, under inappropriate fire regimes and a warming climate the capacity for aircraft to quickly get to the point of ignition of a wildfire is paramount for the protection of both the community and of our natural heritage. There is a need for an expanded aerial firefighting fleet and a radical increase of secure state and federal funding to support the operational costs of fighting wildfires before they become uncontrollable in both remote and populated areas.

A number of fire managers and conservation organisations have expressed concerns about Disaster Recovery Funding Arrangements where maximum funding from the Federal government to cover operational costs of firefighting only flows to States when firefighting is targeted at "imminent" risks to lives and property. These funding arrangements have had the capacity to discourage fire managers from sending aircraft



to control some ignitions in remote areas,<sup>14</sup> essentially letting remote fires burn until they become larger, harder to manage, and pose a significant risk to communities. As was also evident this last summer, such fires can unfortunately cause considerable environmental destruction in their wake.

**For further information:**

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<sup>14</sup> Foley, M. & Smith, A. Ex-fire chiefs say 'ridiculous' bushfire funding stymies waterbombing. *Sydney Morning Herald*, 28 February 2020. <https://www.smh.com.au/politics/federal/ex-fire-chiefs-say-ridiculous-bushfire-funding-stymies-waterbombing-20200228-p545dz.html>