WITHOUT DOUBT BUSHFIRE MITIGATION IN WA IS BETTER THAN VICTORIA

John Cameron, September 2023

1. Preamble

This article has been prepared in response to the article in Timberbiz on 6th September titled *'Doubts over WA prescribed burning program'*.

The Environmental Protection Authority of Western Australia (EPA) recommended[1]:

- An independent scientific review of prescribed burning under the provisions of the EPA Act, or alternatively;
- A review (or inquiry) to consider the impacts of prescribed burning against broader environmental, health, social, and economic objectives of the state.

Clearly the first option is too narrow in its focus and unlikely to come up with recommendations based on risk-reward across all the aspects that need to be considered. The latter approach is better as it takes into account environmental, social, and economic considerations (if such an inquiry is justified given the large body of evidence in support of the WA fuel mitigation approach). However, this latter recommendation by the EPA needs strengthening to ensure adequate consideration of the potential for catastrophic loss of life.

The EPA notes that an enquiry would be consistent with the approach taken to investigate and resolve similar contested issues in other states such as Victoria where they held the *'Inquiry into the 2019-20 Victorian fire season'.* This enquiry lead to the continuation of the 'Safer Together' fire policy with its excessively high residual risk target of 70% (i.e. only a 30% reduction in the risk of a catastrophic bushfire). Unfortunately this Inquiry was more about political deflection, where climate change was used as an excuse for ineffective bushfire mitigation and wildfire suppression. Analysis of 140 years of climatic data shows Victoria has had worse fire seasons.

The Victorian Policy should be called 'Scorched Together', and Victoria is the last place WA needs to look for improvements to WA's 'best practise' prescribed burning and bushfire mitigation regime.

2. Effectiveness of WA and Victorian bushfire mitigation

Effective use of low intensity prescribed burning as practised in the South West forests of Western Australia has been proven to reduce wildfire area and save lives. If Victoria adopted a similar regime a large proportion of the 312 bushfire deaths in Victoria over 1962 to 2020 could have been avoided (**Table *1***).

Table 1: Effective fuel reduction reduces the area burnt by wildfire and saves lives[2]

Attribute	Victoria 7.8 mill ha	South West WA 2.5 mill ha
Prescribed burn 1962-1999 (% of forest area)	1.6	11
Prescribed burn 2000-2020 (% of forest area)	1.4	5.6
Bushfire 1962-1999 (% of forest area)	1.9	0.6
Bushfire 2000-2020 (% of forest area)	10.0	1.7
Lives lost 1962-1999 (No)	129	0
Lives lost 2000-2020 (No)	183	2

[1] Review of Forest Management Plan 2024-2033 by WA EPA Report 1745, August 2023.

[2] Cameron J N (2020) Victorian mega bushfires and government policy and practise. Submission NND.600.00145.01 to Royal Commission into National Natural Disaster Arrangements

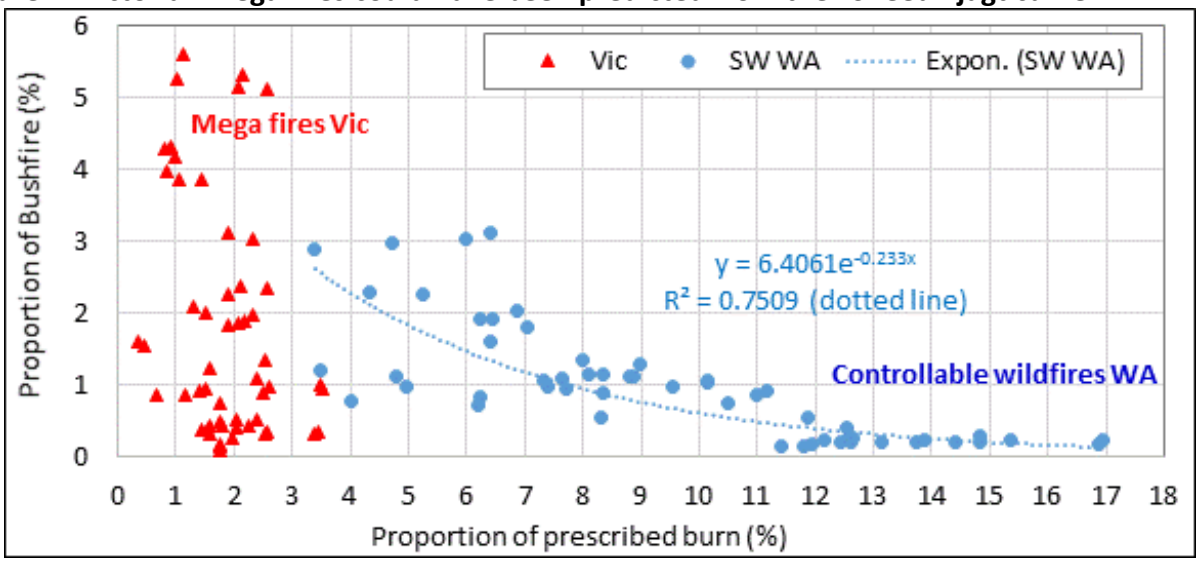
The 5.4 million hectares of wildfire over the last 20 years represents 70% of the 7.5 million hectares of Victoria's public native forest. This includes four megafires and is attributed to the low area treated by fuel reduction since 2000 (only ca. 1.4% of the forest fuel reduced each year).

The Victorian Bushfire Royal Commission and fire behaviour experts recommended that 5% to 8% of the forest be fuel reduced each year. Victorian wildfires have been far larger, more intense and much more damaging because Victoria fuel reduced is inadequate with respect to scope, coupe size and location. The result has been loss of life, livelihoods and homes; huge loss of wildlife; ecological damage; erosion and stream sedimentation; and atmospheric emissions, many times larger than any impact from prudent use of low intensity prescribed fire under mild conditions (e.g. as practised in the South West forests of WA).

3. WA avoided megafires & Victoria had avoidable megafires

Victoria's high intensity 'mega' fires over the last 20 years were predictable and preventable. These Victorian megafires could have been predicted based on a proven relationship between the extent of low intensity fuel reduction fire and its relationship to the extent of high intensity wildfire, known as the "Sneeuwjagt curve". The graphed 61 years of data (**Figure *1***) clearly shows that increased low intensity prescribed fire, as practised in the South West forests of Western Australia, resulted in less area burnt by high intensity wildfire. However, in Victoria insufficient use of prescribed burning has resulted in more high intensity wildfires. In hot dry summers our luck runs out resulting in mega fires. The negligence will eventually result in some form of legal action against the Government, its agencies and decision makers.

Figure 1: Victorian mega fires could have been predicted from the "Sneeuwjagt curve"[3]



4. Victoria's Bushfire Residual Risk of 70% is too risky

Following the 2009 bushfires the Victorian Bushfire Royal Commission (VBRC) recommended 5% of the forest be fuel reduced each year, even though fire behaviour experts called for 8% in line with WA practise.

In 2015 the Victorian Government ignored the VBRC recommendation and advice of our experienced fire behaviour experts, and introduced a new approach, '*Safer Together*'[4], The Minister Hon Lisa Neville said:

> *"Our new approach is about doing more to reduce the risk of bushfire, and knowing what we do is more effective. We will involve local communities in decision making, taking into account what people value in their local area."*

[3] Cameron J N (2021). Inquiry into Ecosystems decline in Victoria, public hearing by Zoom 26 August 2021. The figure is updated from Sneeuwjagt (2011), 'The Effectiveness of Prescribed Burning in the Control of Large Eucalypt Forest Fires', Fifth International Wildfire Conference, South Africa and based on 61 years of actual data (1962-2022) from Agency annual reports for the entire forest in both regions (rolling 4 year average with 4 year lag).

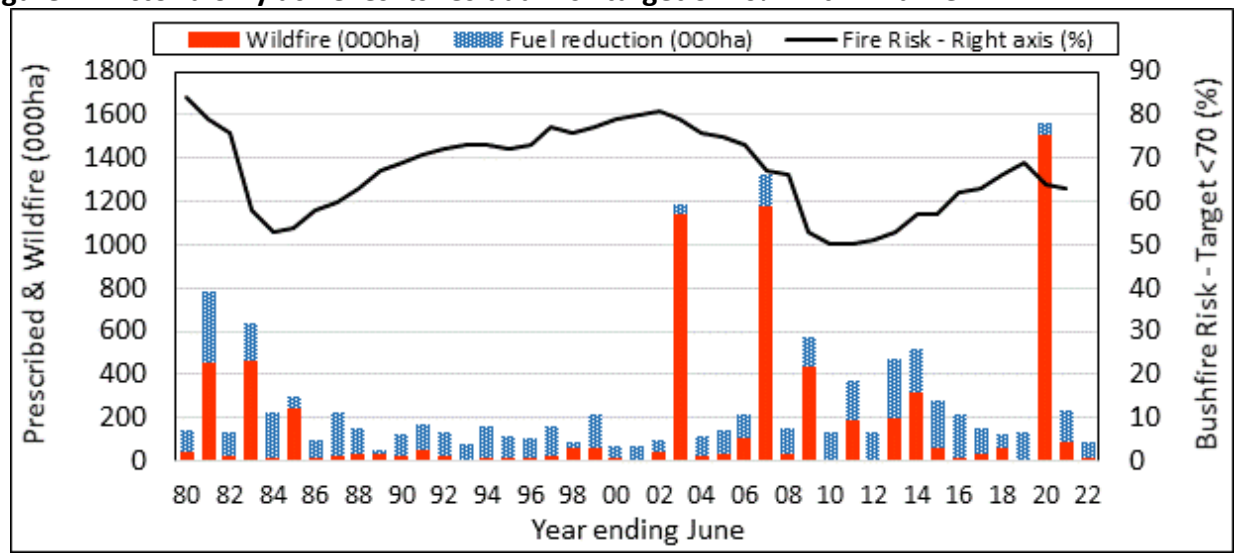
[4] Victorian State Government (2015). Safer together, A new approach to reducing the risk of bushfire in Victoria.

'*Safer Together*' has involved doing less to reduce bushfire risk, was not safer, nor more effective, nor what local rural communities wanted (nor what mills wanted facing loss of log supply).

The resulting fuel reduction since 2015 (prescribed burning + mechanical treatment), has averaged about 1.4% of the forest each year, well below the VBRC 5% target and expert recommendation of 8%. In the summer of 2019-20 about 1.6 million ha was burnt, 396 house destroyed, businesses irreparably damaged and five lives lost, despite mild weather and low forest fire danger in the fortnight after ignition. Heavy fuels and a tardy initial response contributed to a controllable bushfire growing into a disaster.

Victoria only achieves 70% residual risk by counting the area burnt by disastrous wildfire, the lethal fires the policy is supposed to avoid (**Figure *2***) – what a nonsense. In periods without significant wildfire the residual risk (black line in **Figure *2***) trends up, indicating insufficient risk reduction. Victoria's 'Safer Together' policy is unfit for purpose and its continued use is negligence.

Figure 2: Victoria only achieves its residual risk target of 70% with wildfire



5. Environmental impact of prescribed fire and wildfire

The WA Forest Alliance claim that prescribed burning emits huge volumes of carbon every year into the atmosphere. This is incorrect, it is wildfires that emit huge volumes of CO^2.

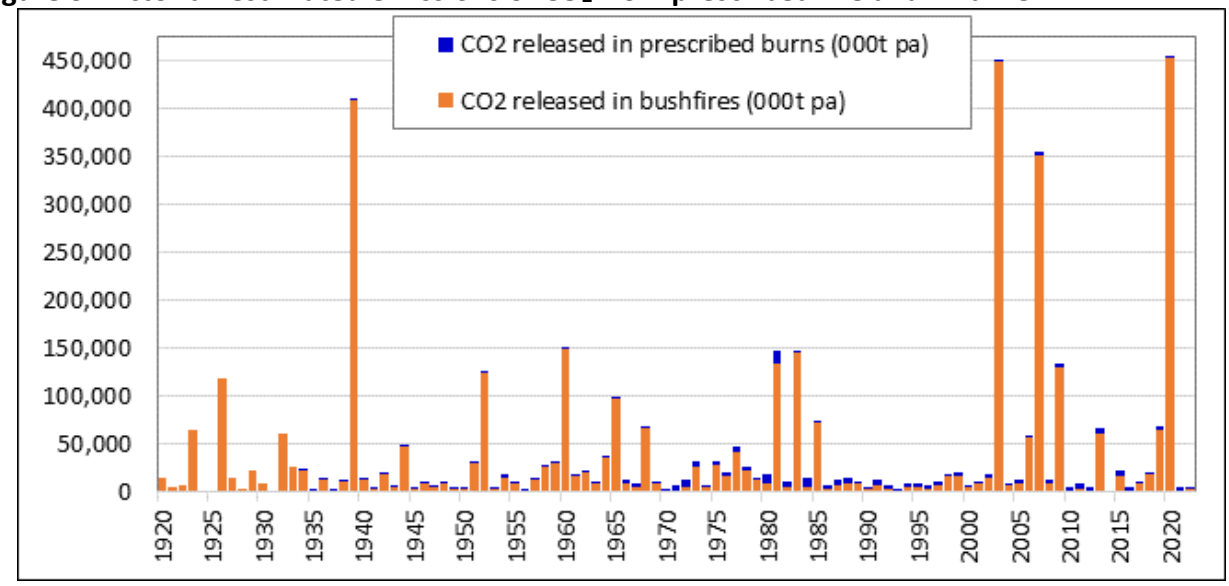
Wildfires make up about 5 to 10% of global CO_2 emissions each year because they release massive amounts of CO_2. The Black Saturday bushfire in 2009 released about 165 million tonnes of CO_2, or 379t/ha, equivalent to approximately one-third of Australia's annual carbon emissions.[5]

The amount of CO_2 released by low intensity prescribed burning is small, and the store of carbon on the forest floor is replaced as the fine fuels burnt re-accumulate over 5-10 years. Analysis of seven prescribed burns of 82 to 637kW/m intensity, across a range of forest types in South Eastern Australia, released an average of 23t/ha CO_2 into the atmosphere.[6]

Analysis of 100 years of prescribed fire and wildfire in Victoria shows that the amount of carbon dioxide (and smoke) emitted each year from wildfire is on average 17 times more than emitted from prescribed fire. The situation is getting worse, with emissions from wildfires 25 times larger than from prescribed fire over the last 20 years (**Figure *3***). Scope exists to substantially reduce CO_2 emissions from fire by increasing the area burnt by low intensity prescribed fire and reducing the area burnt by high intensity wildfire.

[5] AFAC and FFMG (2015). Overview of Prescribed burning in Australia. Report for National Burning Project: Sub-Project 1.
[6] L. Volkova and C. J. Weston (2019). Carbon loss from planned fires in south-eastern Australian dry Eucalyptus forests. Forest Ecology and Management 336.

Figure 3: Victorian estimated emissions of CO_2 from prescribed fire and wildfire



The WA Forest Alliance state that prescribed burning has devastating impacts on fire sensitive species and ecosystems. The WA Forest Alliance should have a look at what the 2019-20 wildfire in heavy fuels did to flora, fauna, water, human health and other values in Victoria. Oh and these fires also burnt homes and killed people, and no amount of fire suppression equipment was able to stop such fires in heavy fuels under hot windy weather. The pre-summer rainfall and summer temperature conditions were no worse than many occasions experienced over the last 140 years.

And as for their concern about the frequency of prescribed burns. Prescribed burns are typically on a ca. 15-20 year cycle. In Victoria as a result of too little fuel reduction, we have large areas of forest burnt by intense wildfire three times in 15 years. That could have been avoided with better fuel reduction.

The Victorian wildfires have resulted in destruction of entire landscapes and changed species composition with volunteer invasive species with ladder fuel crowding out herbaceous species (wildflowers). The impact on threatened species was much worse than the impact of any prescribed burn. Prescribed burns under prescription should only burn 70% to 90% of coupes. The 2019-20 East Gippsland wildfire (***Figure 4***) burnt 1.6 million ha equivalent to two thirds of the entire South West forest of WA.

Figure 4: The 2019-20 East Gippsland bushfire that burnt 1.6 million ha of public forest[7]

[7] Arthur Rylah Institute.