

Parliament of Victoria

Inquiry into Ecosystem decline

Opening Statement for “ZOOM” hearing 26 August 2021

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I have 60 years of research into bushfires in CSIRO, Chisholm Institute, Dept of Defence, Bureau of Meteorology and Monash University. I have published over 50 scientific papers, most peer reviewed.

Victoria faces its greatest threat by disaster fire to the total environment for around 30,000 years and that hazard has occurred during the 20th century due to Government interference with indigenous and grazier practice of “natural” patchy but frequent cool fires and suppression of cool season lightning fires.

This policy of zero fire has resulted from political activity fed by misinformation, distortion, lies and very bad “science”, more correctly politics by a different name.

It is necessary for important and critical policy formation that bushfires are understood and the post modern ignorance is removed.

Bush fires have been predictable since the 1960s (i.e. 60 years ago)when Alan McArthur produced his Fire Danger Index formed from hundreds of experimental fires and verified by George Peet in the dry and wet forests of Southwest Western Australia.

The McArthur Fire Danger Index (FDI) is accurate enough for most purposes except precision prescribed burning where the W.A Fuel Reduction Tables work superbly.

The FDI indicates the difficulty of suppression of bushfires and quantifies the fire danger at 3pm on any day.

The FDI is calculated from drought, rainfall, fuel moisture and wind. IT DOES NOT INCLUDE FUEL IN ITS CALCULATION.

To obtain the estimated rate of spread of the fire front (R kph), the average flame height and the distance of spot fires, a fuel measurement (W tonnes per hectare) is included in a separate calculation.

It is fundamental and necessary to understanding bushfire behaviour to be familiar with the following elemental relationships.

$$R \text{ (kph)} = 0.0012 \times \text{FDI} \times \text{Fuel weight}$$

And the Intensity of a fire (I mega watts per metre) is ...

$$I = 17 \times w \times r \quad \text{where } r \text{ is rate of spread in metres per second} \\ \text{and } w \text{ is the fuel in Kg per square metre.}$$

Some examples of the use of these parameters

a) Fire realties

Maximum Intensity for fuel reduction burning	0.5 MW/m
Limit for fire fighting	1.0 to 4.0 MW/m
Limit to survival	10 MW/m
Serious bushfire	10 -17 MW/m
Disaster fire	17 -80 MW/m

Fatalities' Deaths = 0.66 Intensity⁻¹¹ (correlation coefficient =0.52)

But r depends directly on w, therefore Intensity depends on r x r or r squared.

Therefore, if by fuel reduction R decreases from 36 tonne/hectare to 8 tonne/ hectare the bushfire Intensity decreases by 20 times and ALL FIRES CAN BE CONTROLLED, environmental damage is reduced to zero AND NO lives are lost.

This is why the Sneeuwjagt curve works in Western Australia and why it will work in Victoria.

Failure to reduce fuels to less than 8 tonnes per hectare is destruction of the environment, loss of water supplies, death and injury to humans and fauna and loss of houses and infra structure and will almost certainly occur within the next 30 years.

Failure to manage fuel is a crime against the environment.