



## ***The Bushfire Front Inc***

***Motto: "Those who desire peace must prepare for war"***

*P.O. Box 1014 Subiaco WA. 6904*

***Email: yorkgum@westnet.com.au***

The Director  
Department of Agriculture, Water and Environment  
Canberra, ACT

Dear Sir,

### **Review of Fire Regimes that cause biodiversity decline in Australia**

Thank you for inviting submissions on your concerns about the impact of fire regimes on biodiversity decline in Australia and the accompanying paper which sets out your views on the issue.

#### **1. This submission**

This submission is made by the Bushfire Front Inc of Western Australia. Our organisation comprises scientists and land/forest managers. We have decades of experience in bushfire history, science, research, operations and administration. Our focus is WA, but our comments apply nationally.

#### **2. Fire history**

Fire was frequent and all-encompassing before European settlement for many thousands of years. Fires in south-west forests, for example were lit by Noongar people or by lightning. Fires were lit at any time of the year, and wildfires were not extinguished. All of the anthropological, ethnohistorical and ecological evidence indicates that fires were mostly frequent, of mild-intensity and patchy.

Therefore, the biota evolved in an environment in which fire occurred all the time.

#### **3. Fire Regimes**

Fire regimes are characterised by the interplay between : (a) the length of the interval between successive fires at the same place (sometimes called "fire frequency"); (b) the intensity of the fire; and (c) the degree of patchiness (areas left burnt and unburnt post-fire).

These factors are linked – for example fire intensity will tend to be greater in areas long unburnt, and the more intense the fire the lower the degree of patchiness post-fire.

---

There is an infinite number of fire regimes. However, experience demonstrates that only two of these lead to decline in biodiversity in Australian ecosystems: (i) long absence of fire; and (ii) repeated very high-intensity fire.

#### **4. Decline versus irreversible loss of biodiversity**

Decline of biodiversity, in the wake of disturbance such wind storm, flood inundation or mild-intensity fire, is temporary. Plants regenerate, animals recolonise, the biodiversity recovers. This is of little concern ecologically. On the other hand, irreversible (or permanent) loss of biodiversity, as occurs at its worst extreme after agricultural clearing or open-cut mining, is of concern.

We are not aware of any irreversible or permanent loss of biodiversity in Australian ecosystems associated with any fire regimes. However, biodiversity decline, which might eventually lead to species loss, is certainly associated with prolonged absence of fire, and with repeated high-intensity fire.

#### **5. Our position**

We support the use of planned, frequent prescribed fire as a means of mitigating the severity, cost and damage caused by high-intensity wildfire, and because regular burning improves the health and beauty of Australian ecosystems, as well as its biodiversity.

Frequent fire, at low intensity, with about 8-10% of the estate burned annually, is the regime that we have found optimises biodiversity. The assertion that frequent burning will destroy “fire-vulnerable” species is flawed, because the more frequent the fire, the patchier the outcome and the less likely that vulnerable ecotypes (on rock outcrops, within swamps) will be burned every time.

#### **6. Lack of case studies**

We note that you have not presented ***one single example*** of a case study that demonstrates irreversible loss (extinction) or ongoing decline in biodiversity as a result of a regime of frequent, low-intensity fire. If the problem was as serious as suggested, there would be hundreds of examples on the ground and in the literature. We conclude that because they are not mentioned, there are no examples to cite.

#### **7. Lack of options**

Even if it is demonstrated that fire regimes are a threat to biodiversity, what action can be taken to abate the threat? Attempting to permanently exclude fire has been tried, but never succeeds. The outcome even if it could be achieved, would be ecosystems carrying long-unburnt and massive fuel loads. Lightning cannot be stopped, and the forest would be ignited sooner or later. The resulting fire would be of high intensity, which would completely incinerate all the biodiversity existing at the time, and the recovery period would be long and challenging.

We are aware that some academics have postulated that leaving areas long-unburnt will result in the absence of fuels. This has never been demonstrated in the field, and is considered to bilge.

---

Bushfire management is complex and nuanced. It is not simply a matter of burning or no burning. The Bushfire Front has developed a Blueprint for effective bushfire management in Australia, which is summarised in the attached paper. This sets out all the factors that must be put in place to achieve multiple objectives, including human, social, economic and environmental.

## **8. Other considerations**

Biodiversity is important but there are other factors a land/bushfire manager must consider, including the need to protect human lives, social and economic assets and community infrastructure. In national parks, the aesthetics and beauty of the landscape are also of significant value. And we must at all times consider the well-being and safety of firefighters, and the economic consequences of policy.

## **9. Your paper**

We have reviewed the paper accompanying your call for submissions, and your arguments. Both are deficient. The paper is fundamentally flawed, indeed is shamelessly biased. It fails to define the real problem, as opposed to an imagined one. No credible argument or evidence is presented that suggest that a regime of "frequent" (which you have not defined) low-intensity burns has any deleterious effect on biodiversity. The literature is selectively cited, and over and over again it fails to quote from papers that do not suit a position of opposition to frequent low-intensity prescribed burning. You have failed to give a single example of a fire regime that benefits biodiversity, despite there being many research papers that demonstrate this.

The key questions of temporal and spatial scales in relation to biodiversity decline are not discussed. This is particularly puzzling, as it is one of the most critical issues.

Instead, your paper applies a long-outdated and ecologically erroneous theory of plant life history (juvenile age of obligate seeders) as a basis for establishing minimum fire return intervals. This flawed theory is rejected by all enlightened plant ecologists, because it does not take account of the ability of obligate seeders to survive (and thrive) in landscapes that are burnt frequently. They survive because either (i) they are not killed by very low fire intensity; or (ii) fires don't reach them. The merest observer will see that fires in frequently burnt landscapes are patchy, and the more frequent the burns, the patchier the outcome. There are numerous published papers on this, but you chose not to cite one of them.

In fact, the fire regimes most likely to cause a decline in biodiversity in Australian ecosystems are either long absence of fire, or the occurrence of landscape-level high-intensity fires that leave almost nothing in their wake. You have failed miserably to make this point.

## **10. Conclusion**

Bushfire managers in Australia need to avoid irreversible or permanent loss of biodiversity, and they know that this might result if fire is excluded from ecosystems, or if the biota is subject to too-frequent high-intensity wildfires. We also need to protect human lives and assets and consider the well-being of firefighters.

The fires that do the most damage are the landscape-level “crown” fires, that not only kill the biota, but cook and erode the soil, upset the hydrology and ruin the beauty of the bush. Any policy adopted by the Federal government that leads to an increase in high-intensity fires and the damage they cause, will be foolish and inhumane, and will have nothing but a deleterious impact on biodiversity

Yours sincerely



Roger Underwood AM  
CHAIRMAN, The Bushfire Front Inc  
January 10, 2022

## A blueprint for Australian bushfire management

Australia needs a revolution in bushfire management. The Bushfire Front in Western Australia has vast experience in, and knowledge of the bushfire science, operations and politics. This is a summary of our blueprint for an effective bushfire management system for Australia.

### Essential background truths:

1. ***Australia's climate and weather.*** Periodic drought and hot, dry summers have been, and always will be, a feature of the climate of southern Australia.
2. ***Australia's vegetation.*** The Australian bush is highly flammable. In the absence of fire, bushfire fuels increase over time.
3. ***Sources of ignition.*** Bushfire ignitions cannot be eliminated. From one source or another, fires will start somewhere, sometime, every summer.
4. ***Fire intensity.*** Fires vary in intensity from low to extreme. Low intensity fires are harmless, beneficial and can be easily controlled. High-intensity fires are harmful and impossible to control.

### The critical elements of an effective bushfire management system (BMS):

1. ***Leadership and policy.*** Clear-headed leaders are needed to devise policy, assign priorities, build capacity, fight for budgets, oversee outcomes, and ensure system feedback and correction. They will insist on proactive, rather than responsive bushfire management. There will be no progress without strong leadership and sound policy.
2. ***Bushfire prevention and mitigation of bushfire damage.*** There must be significant investment in mitigating bushfire damage and in preparing communities and bushland in the expectation of fire. Reducing bushfire fuels through a well-planned, science-based prescribed burning program, with 8-10% of bushland treated annually, is the fundamental underpinning of a BMS. "Prevention is better than cure".
3. ***Firefighting capability.*** An effective BMS demands the maintenance of efficient fire detection, good bush access, rapid response from well-trained and equipped firefighters, a managed collaboration between land management and fire response agencies, and the capacity to call on experienced, trained incident teams to command firefighting operations and to fight fires.
4. ***Bushfire-resilient communities.*** Local Government Authorities must develop tenure-blind risk management plans that identify threats and priorities, and measures to reduce risks and

threats. Fuel age plans must be publicly available. Implementation of the plans will use funds raised through the Emergency Services Levy, with all landowners required to comply.

5. ***Economic and financial decision-making.*** State Treasuries will ensure that taxpayers' money is spent where it will do the most good, i.e. in the prevention of bushfire disasters rather than dealing with them after the event. Cost/benefit analyses will be used to inform decision-making about alternative approaches and technologies.
6. ***Promoting excellence.*** Continuous improvement through investment in recruitment, mentoring, training, education and bushfire research is essential. Young people need constantly to be brought into bushfire operations, absorbing appropriate culture and gaining practical experience and an understanding of bushfire science.