



## Western Australian Forest Alliance Inc. (Wafa)

### Submission to the Royal Commission into National Natural Disaster Arrangements (Bushfires Royal Commission) 2020

Commissioners

Royal Commission into National Natural Disaster Arrangements

By email: [rcnda.submissions@royalcommission.gov.au](mailto:rcnda.submissions@royalcommission.gov.au)

Dear Commissioners,

Please accept this submission from the WA Forest Alliance Inc. (Wafa). Wafa is the umbrella forest conservation group in WA.

Wafa has been researching and documenting the impacts of threatening processes in Western Australia's south-west forests, and leading the campaign for native forest conservation, since it was formed in 1990. We have a collective wealth of experience and knowledge regarding WA's South West forest ecology; biodiversity; water and climate interactions; disease and introduced pests that impact on forests, their flora and fauna; and threatening processes in the forests, including inappropriate fire being justified by entrenched organisational practices.

We recognise that the Commission will examine coordination, preparedness for, response to and recovery from, disasters; improving resilience and adapting to changing climatic conditions; mitigating the impacts of natural disasters; as well as the legal framework for Commonwealth involvement in responding to national emergencies.

In our submission we focus on these matters with an emphasis on bushfires in WA's south-west forests region. In particular our submission relates to planned burning and associated ecological consequences, the annual planned burning targets, independent auditing, accountability, the need for scientific oversight, and the need for a renewed emphasis on rapid detection and suppression.

### **Context for Wafa's recommendations:**

We make our recommendations in the following context:

***Native forests play a major role in maintaining a safe and stable climate, and in building local resilience to climate change. They need to be protected from threatening processes to maximise their critical role in the climate system, and to give them the best opportunity to adapt to and survive the changing climate.***

***For many decades fire management in Western Australia has focused on fuel reduction – aiming to reduce 'fuel levels' in the forests to reduce the number and extent of wildfires. This approach is having negative impacts on wildlife, biodiversity and forest health. It results in***

*huge volumes of carbon emissions every year and it does not prevent catastrophic fires from spreading through the landscape.*

*We need a major re-think and to remember that the forests have their own well established systems for reducing flammability that we would benefit from supporting.*

**Fire management in the natural environment has three objectives:**

- No one is killed or injured, neither community member nor firefighter, by fire.
- No home, infrastructure or asset (such as crops) is destroyed or damaged by fire.
- In the use and management of fire, biodiversity is maintained and protected.

## **Main Recommendations**

- 1. Abandon annual area burning targets and broad scale incendiary burning.** These targets are simplistic measures that can hold political and popular appeal because the number of hectares burnt is relatively easy to calculate but it tells us little about risk reduction. Furthermore, they result in large areas being burnt far from towns or infrastructure, with little or no strategic benefit, using resources that would be better used in rapid suppression, having negative impacts on forest health, wildlife and biodiversity and releasing large amounts of stored carbon into the atmosphere.
- 2. Maintain, protect and promote long unburned forests** and study flammability and declining fuel loads over time, including plant heights, canopy cover, tree spacing and the decomposing understorey. The definition of 'fuel loads' must be broadened to include plant species and traits (volume, height and spacing), as well as surface leaf litter in determining likely flame heights.
- 3. Develop a zoning approach for planned hazard reduction burns** as recommended by the 2004 COAG, carrying out small-scale, seasonally appropriate strategic planned burns around towns and infrastructure, only when other mitigation strategies such as well resourced detection and suppression systems and appropriate protective measures have been fully considered, and allowing for the development and maintenance of long-unburnt forests and other ecosystems in outer zones.
- 4. Focus on avoiding wildfire disasters by radically improving detection and response times:** get to fires early, minus bureaucratic delays, before small fires develop into wildfires, using vastly improved and immediately available suppression equipment - both land and aerial, large and small - specific to the task at hand.
- 5. Get to know Country with support from First Nations people and organisations and independent ecology experts, and ensure that any planned burns are ecologically appropriate.** Properly resource and empower First Nations fire practitioners and accredited fire behaviour specialists and ecologists, working together, to inform and oversee planned burn programs. Recognise that different ecosystems respond differently to fire; and give the maintenance of endemic biodiversity the first priority in the planning and carrying out of planned fires. For each planned burn, the timing, extent, intensity and frequency of fire should be determined by the ecology of the ecosystems, taking into account flowering and nesting seasons, obligate seeders' and resprouters' timeframes and other factors relevant to the particular site.

# Further recommendations

## 6 Science

- 6.1 Respect the huge volume of peer reviewed research into the long-term effects of planned burning on forest ecology. Compare repeatedly burnt forests with long unburnt forests in order to achieve accurate and ongoing records of the relationship between current fire regimes and their impact on threatened and endangered species - plants and animals - including those that have been lost or are bordering on extinction.
- 6.2 Conduct further independent research into the relationship between planned burning and subsequent high fuel levels; avoid conflicts of interest by paying due attention to peer reviewed research by fire behaviour scientists and ecologists, including scientists who are working closely with Indigenous elders in studying traditional cool burning practices - timing, size, purpose, location, forest type and methods of ignition and control.
- 6.3 Encourage and fund research into flammability of native vegetation.
- 6.4 In the planning and conduct of prescribed burn programs, ensure that independent experts in fire ecology and risk management, including academics, participate on an equal footing with public servants who may have serious conflicts of interest.  
Play close attention to the research and field work of:  
Emeritus Prof/Senior Hon Research Fellow Don Bradshaw (UWA),  
Prof Kingsley Dixon (Curtin Uni),  
Prof Stephen Hopper (UWA),  
Prof David Lindenmayer (ANU) and  
Hon Fellow/Assoc Prof Philip Zylstra (UOW & Curtin Uni).

Other respected and peer reviewed scientists to consult include:

Prof David Bowman (UTAS)  
Prof Ross Bradstock (UOW)  
Emeritus Prof Neal Enright (Murdoch Uni)  
James Furlaud (PhD Candidate, UTAS)  
Dr Joe Fontaine (Murdoch Uni)  
Prof Philip Gibbons (ANU)  
Assoc Prof Fay Johnston (Menzies Institute for Medical Research UTAS)  
Lynette Knapp (elder Aunty Lyn) & Dr Alison Lullfitz (UWA)  
Hon Fellow Helen Langley (UWA)  
Prof John Woinarski (Charles Darwin Uni)  
Dr Joanna Young (Denmark Fire Study Group, Denmark Environment Centre WA)

## 7 First Nations Fire Practitioners

- 7.1 Resource and empower local Aboriginal and Torres Strait Islander people to be fully and meaningfully involved in the development of strategies, programs, planning and carrying out of any planned burns.
- 7.2 Be fully aware of information from reports such as that initiated by Les Schultz of Ngadju Conservation that show that Ngadju Country, which covers a large part of the 16 million hectare Great Western Woodlands, was burnt selectively and only occasionally at a small

scale by planned fire. The report's key findings and a link to the full report are in the references at the end of this submission.

7.3 Encourage collaborative research (evidence based research and practice) between academic researchers and First Nations fire practitioners, Elders and Traditional Owners.

7.4 Interrogate the myth that current fire management is replicating techniques as practiced by First Nations people in pre European times, particularly in the context of the wide variety of ecosystems and the different ways Aboriginal people in different Nations used fire in these different ecosystems; the damage caused by the use of aerial burning over vast areas; and the impacts of the changing climate. Fund independent research studies (free from conflict of interest) to investigate landscape and cultural evidence of the history of the use of fire across Australia.

## **8 Records and Accountability**

8.1 Fully resource and require routine independent assessments of fire management by a competent authority such as the WA Conservation and Parks Commission, and immediate publication of the results on finalisation.

8.2 Keep transparent, ongoing and accurate records of planned burns including detailed information on ecosystem impacts; planned burn escapes; cool burns that develop into hot burns; instances of planned burning conducted in forecast risky weather conditions; delays in detection and suppression; total area burnt, including back burns; when a fire is classified as 'out of control'; incidence of insufficient or inadequate resources and equipment; and estimated carbon emissions.

8.3 Record and publicise air pollution, smoke levels and the impacts of smoke from planned burns and wildfires on communities including impacts on viticulture, apiculture, horticulture and tourism, and health impacts, particularly hospital admissions and deaths.

8.4 Record and publicise the greenhouse gas emissions from planned burns and wildfires.

8.5 Keep ongoing, accurate, detailed and transparent records of time taken to detect and attack wildfires, delays (including bureaucratic delays) and equipment used or lack thereof (both aerial and ground resources).

## **9 Planning and Infrastructure**

9.1 Discourage construction of homes and infrastructure in high fire-risk areas by regulation and scaled insurance premiums.

9.2 In fire risk areas, ensure effective protection for built assets and infrastructure with appropriate building codes for all new buildings and structures introduced and enforced, and retro-fit requirements and compliance periods for protecting existing structures.

9.3 In fire risk areas, concentrate protective measures close to places in need of protection (< 500 metres) using as much as possible means other than burning (pruning, raking,

mulching and planting fire-retardant species).

9.4 In fire risk areas, have fire breaks (access tracks) for fire-fighting vehicles with appropriate location, widths and construction that minimise the potential for erosion, weed invasion and loss of native vegetation.

## **10 Biodiversity conservation**

10.1 Recognise that mature, intact native forests are less flammable than logged, degraded forests; play a vital role in mitigating and improving local resilience to climate change; provide critical habitat for endemic species and myriad ecosystem services; and protect endemic species from threatening processes.

10.2 End all logging of native forests, whether clearfelling, selective logging, thinning, restoration logging, salvage logging or mechanical 'fuel load' reduction, and retain and protect all old trees.

10.3 Protect remaining long-unburnt forest from fire, and transition more forest to long unburnt. Long unburnt forest is less flammable than recently burnt forest (>30 years) and is essential habitat for a wide range of fauna species.

10.4 In the planning and conduct of prescribed burn programs, give full consideration to the fire requirements for biodiversity outcomes.

10.5 Greatly increase the efforts to reduce the range and numbers of foxes, cats and rabbits and encourage an increase in the range and numbers of bioperturbers (potoroos, quendas, woylies, malleefowl and lyrebirds) that make country less flammable.

10.6 After planned burns and wildfires, ensure that weed invasion is quickly and adequately controlled.

10.7 Protect very old trees; peats; wetlands; Threatened Ecological Communities; habitat for threatened flora and fauna; and other vulnerable ecosystems and ecosystem constituents from fire.

10.8 Disallow broad scale burning, particularly aerial incendiary operations and ground-based bushland fire-bombing that indiscriminately covers large areas, often carried out in the name of cost reduction.

## **11 Rapid response**

11.2 Greatly increase the resources and efforts to ensure rapid detection and immediate attack before small fires escalate into wildfires. This includes designing and building a network of automatic remote sensors for early detection of ignition sources, and permanently locating aerial firefighting equipment in six strategic towns in WA's South West throughout the fire season.

11.3 Redirect funding from an over reliance on prescribed burning as the primary focus for mitigation, to funding new generation heavy duty fire trucks that can traverse difficult country. Also vastly increase funding for both large and small aerial water tankers.

Emergency Services Minister Fran Logan has recently emphasised the importance of “a multifaceted aerial fire-fighting fleet” that includes heavy duty Large Air Tankers, as well as helicopters and light planes that can get to fires fast (reported in *The West Australian*, 21/1/20). Since time is crucial, immediate access to both land and air equipment, and trained personnel, is vital.

- 11.4 Increase penalties for arson and educate the community about the impacts of fires including the real risk of arson leading to deaths. Stop using the term ‘fire-bug’ when referring to arsonists.

## Conclusion

Fire policy and planning is complex and it is being made more complex by the fact that the fire season is getting longer and fires more intense as a result of climate change.

Wafa submits that it is critical for this Royal Commission, and for inquiries and policy reviews in general, to be guided by the best science and a commitment to long-term strategic thinking, rather than knee-jerk, fear based reactions.

In doing so, we believe that there needs to be a change in how we approach fire from broad scale burning as the major “mitigation” strategy, to a focus on fast and accurate detection and immediate, fully resourced response - aiming for suppression while fires are small, and before they escalate to wildfire status. This will require a cultural shift in organisational processes. 'Fighting fire with fire' is currently a firmly entrenched practice, such that calls to "burn more" have become a common response to wildfire disasters, despite accredited scientific evidence that planned burning, as currently practised, has little impact on future wildfires.

Australia, internationally recognised as a fire prone country (particularly following the 2019 – 2020 extended and disastrous fire season) must become a world leader in fast detection and rapid suppression, a protector of long unburnt country, rather than continue to accept its current status as a leader in the planned ignition of fires.

Wafa is grateful to the commissioners for your consideration of our submission and we wish you all the best with the inquiry.

Sincerely,



Dr Carole Peters (PhD)  
Research and Communications  
WA Forest Alliance



Jess Beckerling  
Convener  
WA Forest Alliance

## References

**Key findings from *Ngadju kala: Ngadju fire knowledge and contemporary fire management in the Great Western Woodlands*** (Prober SM, Yuen E, O'Connor MH, Schultz L (2013). *Ngadju kala: Ngadju fire knowledge and contemporary fire management in the Great Western Woodlands*. CSIRO Ecosystem Sciences, Floreat, WA):

“· Extensive old growth woodlands were rarely burnt deliberately, because they take hundreds of years to recover.

· Extensive sandplain shrublands were only occasionally burnt with planned fire. Mostly they burned naturally by wildfires that were allowed to take their course.

· Ngadju used fire as a cultural tool for keeping the country clear around rockholes, for encouraging grasses in open grasslands and mallee, and to smoke out animals when hunting. These fires were often small, around 1 ha.

· The Ngadju also used fire to protect important cultural sites and special plants such as water trees; and to maintain access along walking tracks and in coastal shrublands.

· Other activities such as firewood collecting around the edges of woodlands and rockholes, and sweeping and scraping up litter around individual trees, were undertaken to help control wildfire.

· These practices would have led to a fine-scale fire ‘mosaic’ over the top of the natural vegetation mosaic.”

## Further References used to prepare this submission

Arriagada BN, Palmer AJ, Bowman DMJS, Johnston FH (2020) Exceedances of national air quality standards for particulate matter in Western Australia: sources and health related impacts. *Medical Journal of Australia* **11**, doi.org/10.5694/mja2.50547.

Bowd, E.J., Banks, S.C., Strong, C.L. and Lindenmayer, D.B. (2019). Long-term impacts of wildfire and logging on forest soils. *Nature Geoscience*, Vol .12, 113–118 <https://doi.org/10.1038/s41561-018-0294-2>

Bradshaw, SD, Dixon KW (2019) Biodiversity and ecological impacts of prescribed burning in the south-west biodiversity hotspot. Paper presented at the Prescribed Burning Conference 2019, UWA. [email: [don.bradshaw@uwa.edu.au](mailto:don.bradshaw@uwa.edu.au); [kingsley.dixon@curtin.edu.au](mailto:kingsley.dixon@curtin.edu.au)]

Bradshaw SD, Dixon KW, Lambers H, Cross AT, Bailey J, Hopper SD (2018) Understanding the long-term impact of prescribed burning in Mediterranean-climate biodiversity hotspots, with a focus on south-western Australia. *International Journal of Wildland Fire* **27**, 643-657. doi.org/10.1071/WF18067 [email: don.bradshaw@uwa.edu.au]

Furlaud JM, Williamson G, Bowman DMJS (2017) Simulating the effectiveness of prescribed burning at altering wildfire behaviour in Tasmania, Australia. *International Journal of Wildland Fire* **27**(1), 15-28. doi.org/10.1071/WF17061

Johnston FH (2017) Understanding and managing the health impacts of poor air quality from landscape fires. *Medical Journal of Australia* **207**(6), 229-230. doi.org/10.5694/mja17.00072. [email: [fay.johnston@utas.edu.au](mailto:fay.johnston@utas.edu.au)]

Johnston FH Bushfires and human health in a changing environment (2009) *Australian Family Physician* **38**(9).

Taylor C, McCarthy MA, Lindenmayer DB (2014) Nonlinear effects of stand age on fire severity. *Conservation Letters* 7(4) *Society for Conservation Biology*. doi.org/10.1111/conl.12122 [email: [david.lindenmeyer@anu.edu.au](mailto:david.lindenmeyer@anu.edu.au)]

Zylstra P, Bradstock R, Bedward M Penman TD, Doherty MD (2016) Biophysical mechanistic modelling quantifies the effects of plant traits on fire severity: species, not surface fuel loads determine flame dimensions in eucalypt forests. *PLoS ONE* **11**, e0160715.

Zylstra P (2018) Flammability dynamics in the Australian Alps. *Austral Ecology* **43**, 578-591.