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Department of Agriculture, Water, Environment (DAWE)

Proposed listing of ‘Fire regimes that cause biodiversity decline’ as a Key Threatening Process (KTP) under the *Environmental Protection and Biodiversity Conservation (EPBC) Act*.

The Urban Bushland Council WA Inc. (UBC) is the peak community organisation in WA for urban bushland recognition and protection. It is an association of 82 community member groups (mostly ‘Friends of ...’ groups), as well as more than 100 individual supporters, with a common interest in promoting and caring for areas of urban bushland.

The UBC makes the following submission.

In summary

1. The Urban Bushland Council WA Inc. (UBC) welcomes and strongly supports the advice by the Threatened Species Scientific Committee to list ‘Fire regimes that cause biodiversity decline’ as a **Key Threatening Process (KTP)** under the *EPBC Act*. This listing is long overdue.
2. The advice provides a comprehensive review and analysis of fire regimes that cause biodiversity decline as a KTP that meets all 3 criteria of s. 188(4) of the *EPBC Act*. Indeed the advice overwhelmingly supports the listing.
3. We strongly support development and introduction of a **Threat Abatement Plan (TAP)** under the *EPBC Act* to improve conservation outcomes for species and ecological communities threatened by ‘Fire regimes that cause biodiversity decline’. This is a mechanism to control inappropriate fire regimes (including prescribed burns) which is a significant issue in the south west of WA.
4. Many current fire regimes in the south west of WA, which is a globally recognised biodiversity hotspot, are inappropriate and are causing increased biodiversity decline for threatened species and communities.

Specific comments on the advice document

- The **Executive summary on page iv** is very clear and is commended and supported. It explains that inappropriate fire regimes have been identified as a threat to more than 800 threatened native species and to 65 listed Threatened Ecological Communities (TECs) (DAWE).

Recent fires 2019-2020-2021 will likely increase these numbers, making inappropriate fire regimes one of the most pervasive threats to biodiversity.

In WA, there are at least 672 threatened species and 66 listed threatened ecological communities (WA Auditor General Report 16: September 2017). These are very high numbers. There are many examples of species and communities at risk. For example the MNES Banksia Woodlands of the Swan Coastal Plain TEC and Tuart Forests and Woodlands of the Swan Coastal Plain TEC are increasingly at risk of biodiversity decline from fire.

Some fire regimes in WA are not consistent with Indigenous practices. This was explained by Indigenous elders at the Fire and Biodiversity Forum held in Margaret River WA in June 2021. The canopy was *never* burned, only slow burns on small, wet patches were lit and actively managed in winter.

Many impacts of fire regimes in WA are indirect or exacerbate impacts of other threats such as invasive flora and fauna which dominate after fire. Grassy weed invasion after fire is now a serious problem in native vegetation on the Swan Coastal Plain and especially in the Perth region. Our Friends groups spend much time hand weeding and controlling weeds in their bushland.

- The **Introduction on page 1** is commended and applies to WA and especially WA's south west biodiversity hotspot which is so declared '*for conservation priority because it is under threat*'.
- **1 Name and description of the threatening process on pages 2-3:** Is well described and is supported.
- **2 The changing fire landscape on pages 4-8:** This section well describes the fire regimes past, present and future. Here in WA, there has been increasingly widespread prescribed burning in conservation areas and forests. This has exacerbated biodiversity decline, as well as having significant human health impacts from smoke. With large widespread burns, thousands of fauna are killed as they cannot escape to safe habitat. Even the State's fauna emblem the Numbat has been affected, with many killed, injured and/or displaced. Also, prescribed burns have been introduced into some long unburnt ecosystems with consequent altered and reduced biodiversity. Burning of peat swamps near Denmark in WA has completely destroyed them and their biodiversity. As you are aware, peat swamps must never be burned. Climate change has also already caused changes in fire weather, with normally unburned areas burned, and other areas rendered increasingly susceptible to burning.
- **3 Mechanisms of biodiversity loss on pages 9-34:** This very comprehensive section well describes the various fire regimes and impacts on biodiversity. It gives site examples of specific impacts on biodiversity decline.

Two affected Matters of National Environmental Significance (MNES) on the Swan Coastal Plain in the south west of WA are:

(i) EPBC Endangered Banksia Woodlands of the Swan Coastal Plain TEC:

In the south west of WA, altered and higher frequency fire regimes has affected *EPBC Act* listed TECs including the **endangered Banksia Woodlands of the Swan Coastal Plain**. Its Approved Conservation Advice (26 August 2016) on page 92 lists 5 changes from increased fire: *quote:*

- 'Structural change, eg reduction in canopy cover, loss of native resprouting shrub cover;
- A shift from native species to introduced species, notably increased weed abundance and diversity;
- Decrease in native plant cover, richness and diversity;
- Changes in the ecological function of Banksia Woodlands; and,
- Feedback loops that promote weed species at the expense of native plants e.g. Perennial Veldt Grass *Ehrharta calycina* is highly flammable and infestations promote further fires. Higher fire frequencies, in turn, reduce the cover and regeneration capacity of many native plants.' (*end of quote*).

Small isolated areas of Banksia Woodlands are especially sensitive to fire. After fire, they suffer a greatly increased invasion of grassy weeds, especially Veldt Grass, which in turn increases flammability and fire risk, and causes biodiversity decline. Invertebrates and other fauna lack linkage to refugia because of the fragmentation. Spring burns kill the microfauna as they cannot escape (David Knowles *pers. comm.* 2021). Also spring and early summer burns are inappropriate, causing flora seedling loss, and reduced regeneration.

There are many examples of this experienced by our Friends groups in the biodiverse Perth region. For example, the City of Wanneroo has started frequent prescribe burning in its local reserves which have endangered species and TECs. This is killing thousands of fauna and Banksia trees are unable to recover in the short fire free intervals.

In addition, both prescribed burns and arson lit fires are detrimental to biodiversity on the Swan Coastal Plain as grassy weed invasion post fire dominates regrowth and smothers and/or prevents regrowth of local native species, and then results in *increased* fire risk.

Thus fire is certainly a Key Threatening Process in the endangered Banksia Woodlands and deserves to be formally recognised as such under the EPBC Act.

(ii) EPBC Critically Endangered Tuart Forests and Woodlands of the Swan Coastal Plain of WA:

In the Approved Conservation Advice for this TEC (page 37, 2019), primary threats to this ecological community include: 'Altered fire regimes' and also 'Climate change', 'Clearing and fragmentation of vegetation'.

Frequent fire has resulted in the loss of the extent of Tuart. This is another important example showing that fire is certainly a Key Threatening Process causing decline in this critically endangered ecological community and deserves to be listed as a KTP under the EPBC Act. It also needs a Threat Abatement Plan.

- **4 How judged by the Committee in relation to EPBC Act criteria on pages 35-40.**

This section and its Conclusion are strongly supported.

Thus, we agree that (*quote*):

'The threatening process meets s188 (4) (a) (b) and (c) of the EPBC Act and is therefore eligible to be listed as a key threatening process.' (*end of quote*).

- **5 Threat Abatement Plan (TAP) on pages 41-43.**

5.1 Degree of Threat on page 41: This gives overwhelming evidence that *'inappropriate fire regimes are one of the most pervasive threats to Australia's biodiversity'*.

This is certainly the situation in WA's south west biodiversity hotspot which has only 10.8% native vegetation uncleared. In addition, on the fragmented Swan Coastal Plain, fire increases grassy weed invasion resulting in decline in bushland condition and biodiversity.

The WA State fauna emblem, the Numbat is at increased risk of extinction as burning of huge areas of its habitat is killing much of its population. This demise is documented by Prof. Don Bradshaw (*pers.comm.*).

5.2 Current threat abatement actions: In WA's south west, the target to burn 200,000 ha/year is an inappropriate action, does not prevent wildfire, and causes a decline in MNES and biodiversity, and thus should be abandoned and reviewed. Prescribed burning is now considered the second most threatening process in the south west of WA for threatened species.

***Please see the ATTACHMENT below for further comments on prescribed burning practices.**

The UBC commends to you the detailed submission with information and advice on current prescribed burning practices in the south west of WA by The Leeuwin Group of Concerned Scientists. It includes abatement actions that are needed.

A national Threat Abatement Plan under the *EPBC Act* based on science is a much needed priority. This mechanism can help control fire.

Thus, we endorse the KTP as the basis for a Threat Abatement Plan under the *EPBC Act*. This (as stated in 5.3 Conclusion) ‘could improve conservation outcomes for species and ecological communities threatened by Fire regimes that cause biodiversity decline’.

CONCLUSION

- 1. Listing of ‘Fire regimes that cause biodiversity decline’ as a Key Threatening Process under the *EPBC Act* is strongly supported.**
- 2. Development of a Threat Abatement Plan under the *EPBC Act* is strongly supported and much needed especially for the south west of WA.**

REFERENCES

Bradshaw, Don (*pers.comm.* 2019)

David Knowles, Spineless Wonders (*pers. comm.* 2021) WA, West Perth.

Fire and Biodiversity, WA (2021) Proceedings: Fire and Biodiversity Forum. Held in Margaret River, Western Australia. (4-5 June 2021), <https://vimeo.com/channels/fabforum>

WA Auditor General Report (2017) Rich and Rare: Conservation of Threatened Species Follow-up Audit (Report 16: September 2017), Office of the Auditor General Western Australia.

(Approved 2016) *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* (s 266B) Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community.

(Approved 2019) *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* (s266B) Approved Conservation Advice (incorporating listing advice) for the Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain ecological community.

*ATTACHMENT

Further support for listing of ‘Fire regimes that cause biodiversity decline’ as a Key Threatening Process under the *EPBC Act 1999*

Prescribed Burning is a threat to biodiversity in the south west of WA

In WA, there are serious concerns about [WA’s Fire Management Strategy](#)

Burns are too extensive and too frequent

The WA Department of Biodiversity, Conservation and Attractions (DBCA) carries out a burning program every year. DBCA’s goal is to significantly reduce the frequency and size of wildfires in

the forests and woodlands of south west WA. It is claimed that 45 per cent of the fuel across the forest landscape must be maintained at less than six years since last burnt. This equates to achieving approximately 200,000 hectares of prescribed burning in the south west forests on an annual basis. There is a lack of evidence to support this high target which has been questioned by many botanists and ecologists in WA.

The frequency of these prescribed burns is very concerning. At a recent conference in Margaret River: The **Fire and Biodiversity Forum June 2021**, Professor Kingsley Dixon (<https://vimeo.com/channels/fabforum/page:2>) pointed out how the increase in prescribed burning has instead increased the natural frequencies of fires by up to ten times. Prescribed burning is now considered the second most threatening process in the south west for threatened species.

Impacts on Threatened (and other) Species and Ecological Communities

One of the key problems when examining the impacts of prescribed burns on biodiversity is that only a handful of key species tend to be scrutinised. Of much greater concern is the fact that entire categories of fauna, such as the macro-invertebrates, have not been considered. The impact of spring burning on these creatures has been described as ‘ecocide’ by David Knowles, (Spineless Wonders) (<https://vimeo.com/channels/fabforum/page:3>). Spring coincides with peak flowering periods, hence peak activity by pollinators.

Mr Knowles has been studying insects for over four decades. Macro-invertebrates are leaf decomposers so help to reduce leaf litter and hence bushfire risk. Prescribed burns in large areas in spring kill massive numbers of insects and there is a lack of refugia for them to escape to and then recover from. While speaking at the Fire and Biodiversity Forum in Margaret River June 2021 he also quoted two insect specialists:

- “There have been no adequate studies on the effect of controlled burning on macro-invertebrate biodiversity.” (Dr Ted Edwards, Retired Curator of Lepidoptera CSIRO Canberra).
- “...there is an aspect which most Australians still do not know, and is not known sufficiently: it’s that one large group of moths in Australia, has 5,000 species. Their caterpillars largely feed on eucalypt and other myrtaceous leaf litter. They recycle the nutrients and they are very threatened by controlled burning in the winter (and spring *sic*), which means the leaf litter builds up even quicker after that.” (Dr Marianne Horak, Lepidoptera Taxonomist CSIRO Canberra).

Prescribed burning can have immediate and devastating impacts on all insects, not just those that are Matters of National Significance (MNES). What will be the short-term and long-term effects on the insects, other species and ecosystems that depend on them? These issues and questions must be addressed in reviewing prescribed burning.

Other examples of TEC and MNES that are threatened by prescribed burning in the south west of WA

There are many (thousands of) species and ecological communities, threatened or otherwise, that can be affected by prescribed burning in the south west of WA especially because it is a global biodiversity hotspot. If the current frequency and scale of prescribed burns continue, there is a great risk that many vulnerable or common species will be elevated to the threatened list. Currently there

are insufficient resources to identify, document and list species and communities that sadly may qualify to be added to the threatened list and MNES.

We acknowledge the risks of fire to Banksia Woodlands of the Swan Coastal Plain (TEC) included in the Committee's advice to the Minister.

Listed below are other examples of threatened species and communities that are at risk in WA by changing fire regimes.

1. Only 14 - 20% of the *EPBC Act* listed *critically endangered* Tuart Woodlands and Forests of the Swan Coastal Plain now remain. Threats include land clearing, climate change, weeds and frequent fire. Changing fire patterns pose significant ongoing risk to the integrity of the ecological community. (Commonwealth of Australia 2019)
2. All 3 species of black cockatoos endemic to the south west are listed as threatened species: Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii*); Carnaby's Cockatoo (*Calyptorhynchus latirostris*); and Baudin's Cockatoo (*Calyptorhynchus baudinii*). The latter two are both endangered white-tailed black cockatoos. Populations of all 3 species continue to decline because of continued habitat loss. Burns in autumn and spring nesting times are threats for Baudin's and Forest Red-tailed Black Cockatoos. High intensity fires can kill nestlings, destroy the hollows and trees they are in, destroy foraging habitat near the nesting sites as well as insects that might provide food. According to the Carnaby's Cockatoo Recovery Plan (Department of Parks and Wildlife 2013) <https://www.awe.gov.au/sites/default/files/documents/carnabys-cockatoo-recovery-plan.pdf> all vegetation that provides food sources in the non-breeding season is critical for the birds' survival.
3. Banksia Woodlands on the Swan Coastal Plain (TEC) are also important food sources for the endangered Carnaby's Cockatoo. Long unburnt habitat is critical for many plant and animal species. Prof. Dixon (Fire and Biodiversity Forum 2021) notes that fire sensitive plants include many Banksia species which need at least 20 year fire free intervals. Currently burns are too frequent for such high-risk species and associated biodiversity.

"In establishing a national precedent, for the State of Western Australia, Howard et al. (2020) describe the development of a comprehensive adaptive management and monitoring framework, **albeit untested**, for prioritising prescribed burning targets and indicators on public lands throughout that vast state".

Threat Abatement Plan - Further Planning and Management Action

Threat Abatement Plans (TAP) will be crucial to manage changing fire regimes. There should be a required priority for rapid response to identify and extinguish unplanned fires to preserve biodiversity (and assets) rather than prioritising the practice of widespread prescribed burning.

An immediate moratorium should be placed on the practice of the target to burn 200,000 ha/year which is having a negative impact on the biodiversity in the south west of WA (a global biodiversity hotspot).

The following findings of the Royal Commission into National Natural Disaster Arrangements 2020 (<https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20-%20%5Baccessible%5D.pdf>) should be implemented:

1. Recommendation 17.1 Public availability of fuel load management strategies:
Public land managers should clearly convey and make available to the public their fuel load management strategies, including the rationale behind them, as well as report annually on the implementation and outcomes of those strategies.”
2. Recommendation 17.2 Assessment and approval processes for vegetation management, bushfire mitigation and hazard reduction:
Australian, state and territory governments should review the assessment and approval processes relating to vegetation management, bushfire mitigation and hazard reduction to:
(1) ensure that there is clarity about the requirements and scope for landholders and land managers to undertake bushfire hazard reduction activities, and (2) minimise the time taken to undertake assessments and obtain approvals.
3. Recommendation 17.3 Classification, Recording and sharing of fuel load data:
Australian, state and territory governments should develop consistent processes for the classification, recording and sharing of fuel load data.
4. Recommendation 18.1 Indigenous land and fire management and natural disaster resilience:
Australian, state, territory and local governments should engage further with Traditional Owners to explore the relationship between Indigenous land and fire management and natural disaster resilience.
5. Recommendation 18.2 Indigenous land and fire management and public land management:
Australian, state, territory and local governments should explore further opportunities to leverage Indigenous land and fire management insights in the development, planning and execution of public land management activities.

Any fire abatement plan for the south west of WA must also consider and include the recommendations and conclusions from the many experts that presented at the **Fire and Biodiversity Forum** in Margaret River in June 2021 (<https://vimeo.com/channels/fabforum>), and also at the **Prescribed Burning Conference 2019** presented by the Conservation Council of WA (CCWA) at UWA.

- Abandon the DBCA target of prescribed burning of 200,000 ha per year to manage south west forests and bushlands. This target has no scientific evidence basis, is contrary to indigenous practices, and destroys biodiversity.
- Fire is the second most threatening process in the south west for threatened species.
- Focus slow, cool, patchy prescribed burns only in winter in understorey only in areas around infrastructure. Indigenous burning does not burn the tree canopy.
- Never burn in spring, early summer or autumn.
- Abandon aerial ignition of prescribed burns.
- Retain long unburnt areas, as they are best for biodiversity protection and wildfire mitigation, and are critical for many plant and animal species.
- After 12 years of no fire, flammability of undergrowth declines.
- Abandon the target of prescribed burning areas every 6-10 years. This frequency impacts on the known breeding cycles of forest dependent animals and plants.
- Provide much increased capacity for rapid detection and at-source suppression of ignitions before they become wildfires.

- Ensure critical habitats are protected from fire. For example peat lands, wetlands, and granite outcrops must *never* be burnt.
- Protect long unburnt habitats with no prescribed burning. For example for Numbats and Honey Possums.
- Long unburnt areas are needed for Honey Possums.

The practice of wide scale prescribed burning in the south west must stop or we are at extreme risk of 'burning up', *i.e.* losing the biodiversity that we are trying to save.

References

Commonwealth of Australia (2019) [Tuart Woodlands and Forests of the Swan Coastal Plain: A Nationally Significant Ecological Community](#), Canberra.

Commonwealth of Australia (2020) [Royal Commission into National Natural Disaster Arrangements](#), Canberra.

Department of Parks and Wildlife (2013), [Carnaby's Cockatoo \(*Calyptorhynchus latirostris*\) Recovery Plan](#), The Australian Government, Canberra.

[Fire and Biodiversity Forum, Margaret River June 2021.](#) Program and details of speakers.

WA Department of Biodiversity, Conservation and Attractions (2019) [WA's Fire Management Strategy](#), Government of WA, Kensington.