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Submission to the Inspector General for Emergency Management on Current Prescribed Burning Practices

Friends of the Gippsland Lakes (FoGL) would like to congratulate the Minister for Environment, Climate Change and Water for calling this Review of current prescribed burning practices and we welcome the opportunity to have input to the review process. FoGL is a broad-based moderate environment group which has as its focus the protection and enhancement of the environment and biodiversity of the Gippsland Lakes area, including the hinterland.

As with all FoGL submissions, we have looked to the best available scientific evidence when preparing this submission. Therefore, despite finding evidence of serious environmental damage from current burn practices, FoGL would not be categorically opposed to all prescribed burning in all instances, as there is good scientific evidence indicating there are some species, both fauna and flora, which, in our currently changed environment, need targeted burning or exclusion of all burning to optimize survival (1,2,3).

Negative Impact of Inappropriate fire regimes on Biodiversity: FoGL welcomes the recognition that we need to examine the evidence and look carefully at what our current prescribed burning practices are actually doing to our biodiversity, our ecosystems. Burning and bushfire are, indeed, emotive topics, but our policies need to be based not on emotion, but on the best-available science. And *the science does not support this 5% hectare-based legislation.*

The 5% burn target was a reaction by the government which, understandably, following the devastating Black Saturday fires, needed to be seen to be doing 'something' to reduce the effects of wildfire. There is increasing scientific evidence that this 5% target is not only unachievable, but does *not* protect communities (4). Instead, there is increasing evidence and acknowledgment that current inappropriate and planned fire regimes threaten flora and fauna in Australia (5,6,7,8,9) resulting in serious loss of habitat and biodiversity (8,9,10,11,12,13,14,15,16), release of carbon into the atmosphere and in many cases cause devastation to plant and animal communities that will take decades to recover (17,18).

Community Response to the 5% target: The destructive aspects of inappropriate fire regimes are being increasingly recognized by the community (4) and a growing voice is calling for the 5% burn target to be re-considered. Lindenmayer and Bergen (1) have stated: "*..inappropriate fire regimes have contributed to the extinction of several species of plants and animals and threaten the long-term persistence of many others*" (p316).

The Australian Wildlife Protection Council has called for a 'Pause and Review' of all prescribed burning (19) stating that broad-scale burning to achieve the 5% target will reduce the availability of key habitat for native fauna. Dr Hans Brunner, renowned zoologist and animal forensic scientist is quoted thus: *"wildfires are horrendous enough but to deliberately burn bush where native animals find refuge is absolutely criminal"* (Nov 9, 2014).

Prescribed fire can select for fire-prone flora species, making some types of vegetation more flammable than they otherwise might have been (1, p298). While Crockford and Richardson(20) note that decomposition of the litter layer may make fuel reduction burning unnecessary, frequent burning can destroy the organisms that decompose that litter, resulting in rapid accumulation of new growth and litter requiring further burning, thus perpetuating a dangerous cycle(1).

In 2010, Birds Australia (now Birdlife Australia) petitioned the Federal government to list 'Fire regimes that cause biodiversity decline' as a Key Threatening Process under the *Environmental Protection and Biodiversity Conservation Act 1999* (16). Fire regimes that cause biodiversity decline are already listed as Key Threatening Processes by the Queensland and New South Wales governments.

Researchers Nimmo, Bennett and Clarke from Deakin and LaTrobe Universities have said, following years of research, that burnoff policies could be damaging habitats for 100 years (18). It should be noted their seminal research on fire and biodiversity was nominated for the Eureka Science Prize for Environmental Science in 2014.

Neil Comrie, in his role as Bushfire Royal Commission Implementation Monitor, called in his 2012 Report (21) to replace the 5% target with a risk-based approach. In 2013 (22) he again called for reconsideration of the 5% planned burning. His 2014 Report (10) again calls for a reconsideration of the 5% target and clearly states that planned burns may have adverse environmental outcomes.

Burning the bush does not protect built assets: While it is recognized that reconciling the urban-bush interface with regard to planned burning is not easy, there appears to be much ignorance with regard to members of the public believing fuel-reduction burns protect built assets (15,23,25). There is, nonetheless, overwhelming evidence that burning bushland any distance from built assets will *not* protect these assets in a wildfire (4,10,21,22,23,24,25,26,27). There is increasing evidence that the idea that we can protect built assets from wildfire is doubtful at best, but that burning directly around those assets may provide some protection if it is done immediately prior to the wildfire coming through (23). Therefore, the scientific data suggest if residents want 'protection' from wildfire, perhaps they ought to be encouraged to have little or no garden around their homes or plant only fire-retardant species or live in a less fire-prone area.

Evidence-based risk-management approach: An alternative to the 5% burn target has been proposed and has wide support within the scientific community. This alternative approach proposes evidence-based risk-management which targets specific species or ecological communities only as needed for their optimal survival (1,2,3, 6,16,28).

RECOMMENDATIONS:

Public-awareness campaign: FoGL calls for a public-awareness campaign to make the community aware of the evidence about two important facts: 1) Burning the bush will *not* protect their homes in case of a wildfire and 2) Current burning regimes are seriously damaging our environment and biodiversity.

Monitoring burn sites for their impact on wildlife and biodiversity: There is scant evidence that burn sites are monitored long-term for their impact on biodiversity. This is likely due to lack of resources; however, along with other organizations and scientists (16,28,29), FoGL highlights the importance of short- and long-term monitoring in evaluating the impact of prescribed burns on our wildlife and biodiversity. There is evidence that many animals that initially survive a fire subsequently die because of limited food and shelter or by increased predation due to lack of vegetation (6,16,30,31,32,33).

Establish Databases: There need to be state-wide and National databases where data from short- and longer-term monitoring of fire regimes can be stored and accessed by decision-makers, researchers and the community. Protocols for the long-term monitoring of fire regimes need to be developed and implemented (16,28,29).

Ecological burns: The scientific evidence that a particular burn is necessary, or recommended, for a particular species should be made public. The parameters of the particular burn need to be made explicit, as well as the scientific evidence that this particular burn is expected to improve biodiversity while doing no harm to wildlife. Indicator species, focal species, thresholds in levels of native vegetation and how they were measured all need to be routinely made available to the public.

While recognizing the complexity of the issues, FoGL feels the community has a right to know what is (presumably) being gained and what is being lost in every prescribed burn**.** A prescribed burn might be hugely beneficial for one species but put another at risk. The community has a right to know how these competing values are prioritized (6,7) and we must be willing to acknowledge the trade-offs (34).

A comprehensive understanding of fauna responses to fire regimes is generally lacking and since much more is known about plant responses to fire, often plants are used as surrogates in planning fires (14). This is acknowledged by the scientific community as having unknown (6,33,35) and sometimes devastating consequences (14,32,36). FoGL calls for more resources to research fauna responses to fire regimes.

Fuel-reduction burns: If the reason for a planned burn is fuel-reduction, then the plant species targeted as needing to be reduced need to be made public. There is evidence that not all plants act as significant fire fuel. Dr Malcolm Gill, an eminent scientist from the Australian National Herbarium, states: "*While all plants may be said to produce fuel, only a small proportion contribute significantly to the fuel which carries the fires. Removal of the fuel contribution of most species will make no difference to fire spread"* (3,p1).

So-called "fuel" is also habitat which should not be burned unnecessarily (11,12,13) Habitat should not be burned simply because some residents mistakenly believe that burning it will protect their homes.

Selection of burn sites: Many burn sites are not individually surveyed prior to selection for burning; instead are selected on the basis of a desktop analysis of an 'indicator' plot of the same EVC elsewhere. This is likely because of shortage of resources, but it must be noted, there is evidence that these management 'shortcuts' are deeply flawed and of limited generic value (37) and may, therefore, violate accepted scientific principles for managing biodiversity, which include maintenance of structural complexity and maintenance of landscape heterogeneity (37). In addition, it is recognized by experts that all fires require an awareness of local conditions (10).

Precautionary Principle: It would seem appropriate to note that the Precautionary Principle, designed to protect our environment and biodiversity, is legislated *explicitly* within the following environmental legislation:

- Environmental Protection and Biodiversity Conservation Act 1991
- Environmental Protection and Biodiversity Conservation Regulations 2000
- Environmental Planning and Assessment Regulations 2000

Concluding Comments: FoGL stresses a fire ecology strategy needs to be developed and implemented that protects and enhances our biodiversity and is based on the best-available scientific evidence. We need to aim for Best Practice protocols. We feel there is a need to publicly address the misconception that fuel-reduction burns protect built assets, as overwhelmingly, the scientific evidence does not support this. FoGL feels the government needs to be open and honest with the public and communicate in ways that will replace ignorance and fear with understanding. We feel that a public awareness campaign needs to be mounted that challenges, with scientific evidence, the belief that planned burns protect communities and do no harm to wildlife and biodiversity.

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