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**City West Lotteries House, 2 Delhi St, West Perth, WA 6005**

Phone: **9420 7265** Fax: **9420 7273**

Email: [wafa@conservationwa.asn.au](mailto:wafa@conservationwa.asn.au)

Web: [www.wafa.org.au](http://www.wafa.org.au)

20 October 2003

## **Submission to the COAG Inquiry into Bushfire Mitigation and Management**

### **The myths of prescribed burning**

A concerted campaign across Australia is pressuring governments to approve and fund increased burning of our natural environment. This burning, variously called "prescribed", "fuel reduction" or "controlled" burning, is promoted as satisfying two objectives: to protect life and property and to maintain biodiversity.

The dangerous campaign for more burning relies on six myths.

The **first** myth says that our flora and fauna are adapted to fire. Our ancient continent contains tens of thousands of native species right down to microorganisms we never see, all connected through complex relationships in ecosystems we know little about.

Rather than being "adapted" to fire, all native species and ecological communities can be seriously harmed, and even made extinct, by fire, depending on its frequency, intensity and extent. While they can recover after fire, many recover slowly and may not survive two or more fires in quick succession, especially when followed by drought.

CALM foresters exclude fire from post-logging jarrah and karri regrowth for at least 15 years because young jarrah and karri trees are fire sensitive. This raises two interesting points. First, when the vegetation is young commercial tree species, no expense is spared to protect it from fire, despite the claim that everything is adapted to frequent fires. If young jarrah and karri are fire sensitive, what about the thousands of other species that make up a forest? Second, how could the jarrah forest have regenerated and flourished if, over thousands of years, Aboriginal people burnt the entire forest every three or four years, as the burning lobby claims?

The **second** myth says our biodiversity depends on fire, without specifying which species or how often fire is needed. CALM scientists say that the shortest interval between burns should be double the time to flowering of the slowest obligate seeder (a plant that can only reproduce from seed). This could be 12 years or more, which contradicts current targets of forest burns every five to seven years. If biodiversity conservation is the aim, current prescribed burning frequencies don't measure up.

While some species germinate well in response to smoke, this does not mean they need fire. They can reproduce without fire, and smoke covers a much larger area than actual burning.

The **third** myth says Aboriginal people burnt country frequently. Certainly the Nyoongar people used fire in the South West for various reasons, but many species of flora in this biodiversity treasure house would not be here today if burning by Aboriginal people was as frequent and extensive as the burning lobby claims.

While the frequency and extent of Aboriginal burning is uncertain, Nyoongahs did not burn the way we do today. One Nyoongah person described Aboriginal fire practice as “walking the fire through the bush”. Today incendiaries are dropped from aircraft over thousands of hectares in a few hours.

Furthermore, we now live in a vastly different environment to theirs. Natural vegetation has been cleared or fragmented; we have built in and adjacent to bushland; logging has changed the structure of our forests (and left huge volumes of debris on the ground); we have introduced weeds and dieback; we have pushed many species to the brink of extinction (and beyond). And with climate change the South West is becoming drier. This results in less vegetation, but it is more flammable.

The **fourth** myth says prescribed burning is essential for community protection. But do the benefits of frequent broadscale prescribed burning outweigh the risks and costs? In what ways are we increasing our exposure to the threat of wildfire by building poorly located and designed communities, promoting fire-prone species by repeated burning, and failing to tackle climate change?

Published scientific research such as the recent paper by Williams, Karoly and Tapper (2001), clearly sets out how global climate change is “likely to have a significant effect on biosphere-atmosphere interactions, including bushfire regimes...by increasing the number of days of very high and extreme fire danger.” Resorting to more burning in the face of such changes is simplistic and irresponsible.

Fire research shows that prescribed burns would have to be conducted every couple of years to provide a high degree of community protection, but even then under severe conditions wildfires will occur and in the meantime, the biodiversity we love and need will be destroyed.

Myth **five** says we aren't doing enough prescribed burning (because of “city-based greenies”). Every year CALM has a target of burning over 200,000 ha of forest and associated ecosystems across the South West, including national parks and nature reserves. This figure is based on simplistic “fuel accumulation” tables. Burning on this scale does not allow for the niceties of the professed fine scale mosaic burning involving low intensity burns. Instead, tens of thousands of hectares of remote forest and other ecosystems are ignited from aircraft dropping incendiaries resulting in large virtual blanket burns.

Last year in the South West alone, CALM burnt about 120,000 ha of forest, heathland and woodland at a cost of more than \$2.3 million. A further 150,000 hectares were burnt by a combination of local fire authorities, wildfires from arson and lightning, and escapes from CALM burns.

Proponents of more burning never discuss the assumptions, drawbacks, limitations and trade-offs involved with such a heavy focus on prescribed burning.

The **sixth** myth deals with the 1961 Dwellingup wildfires. Contrary to popular perceptions cultivated by the burning lobby, there was extensive prescribed burning in WA's forests prior to those fires.

The Royal Commission into the 1960-61 wildfires reported: “...most of the forest in the Dwellingup division had been controlled burnt in recent years, and the litter on various parts of the forest represented accumulations generally speaking of from 0 to 8 years...Statements that the Forests Department does not carry out controlled burning in the Dwellingup forests are entirely without justification. The Department has control burnt extensive areas each year for the last 40 years and more than ever at the present day.” (Report of the Royal Commission, 1961, pp. 15, 21.)

Clearly such burning did not save Dwellingup.

Contrary to the misinformation put about by the burning lobby, no one to our knowledge opposes all prescribed burning. Rather, conservationists want a much more rigorous public examination of the costs and benefits of, and alternatives to, more and more burning. If, for example, the community can be better protected by a different, safer mix of planning, design, prevention, targeted reduction of flammable vegetation and early suppression, then that is surely the way to go.

### **Recent pre-emptive burning extent in south west WA**

1992-93: 120,000 ha

1995-96: 200,000 ha

1997-98: 125,000 ha

2000-01: 80,000 ha

2002-03: 120,000 ha [CALM Annual Reports; Hansard]

### **“The greens are stopping CALM burning.”**

Contrary to claims that conservationists are stopping CALM from burning, CALM Annual Reports state that less prescribed burning has been done because of: continuing reductions in burn size; the increasing complexity of burns; the need to protect increasing areas of fire sensitive forest regeneration; efforts to minimise smoke haze over Perth; and the risk of severe fire behaviour and possible escapes.

### **The pre-emptive burn ‘target’**

CALM still maintains an annual ‘target’ of 250,000 ha of pre-emptive burning in the South West. Not only is this target ecologically, financially and operationally unsustainable; the attempt to reach it involves considerable risk and damage while the consistent ‘failure’ to reach the target is then used by the proponents of more burning to claim that the community is in danger of “another Dwellingup”. This is a no-win situation for the whole community.

### **Fire and science (1)**

“Frequent fires can reduce the native fauna species diversity of an area and the habitat availability...There is increasing evidence in the [scientific] literature, and via personal communications from experts in their fields, that frequent fires have a disastrous effect on many species of flora and fauna and their habitat structure.” [Kings Park Bushland Management Plan, 1995-2005]

“Species of fungi that require the conditions associated with a litter layer will not be favoured by a fire regime where the litter layer is frequently removed by burning.” [EPA, 1992]

“What fire control and land management authorities describe as ‘fuel’ and a ‘hazard’, I prefer to think of as the food and the energy that keeps our ecosystems functioning.” [Professor Harry Recher, Edith Cowan University]

This is just a small sample of the scientific research and expert opinion that contradict claims that frequent burning is harmless and effective (see over for more). Numerous peer-reviewed and published scientific papers setting out the risks and impacts of frequent repetitive burning are available from the WA Forest Alliance/Conservation Council office.

What scientific research indicates again and again is that many components of our natural environment are in fact fire sensitive, and not, as the proponents of more burning claim, uniformly adapted to frequent repetitive burning. If WA’s environment was as fire-prone, as fire-adapted, and as frequently burnt as the proponents of more burning claim, there would no longer be any fire-sensitive species or ecological communities left: they would have been burnt into oblivion thousands of years ago, and south west WA would be one vast, biologically simplified and homogenized environment.

Attempts have also been made to construct a version of Aboriginal fire use in south west WA that justifies frequent repetitive burning. The proponents of more burning now claim that the

Noongar people of south west WA burnt the entire jarrah forest (about four million hectares pre-European extent) every four years, which means a million hectares of burning per year. The only way such a massive annual burning program could have been achieved is by vast uncontrolled wildfires that would have destroyed wildlife, habitat, and everything else the Noongar people needed and valued.

**Whatever burning the Noongar people may have done, it was done in a very different manner compared to modern burning, for very different reasons and in a very different environment.**

### **The D'Entrecasteaux National Park fire**

The 2002 wildfire in D'Entrecasteaux National Park has been used to target conservationists and promote more burning. In fact, as is so often the case, this fire could have been suppressed before it became a wildfire if appropriate resources had been used when the fire was first detected. A series of recent fires in conservation reserves seems to indicate a policy of allowing small fires to turn into wildfires, which are then used to justify more pre-emptive burning.

### **The Dwellingup wildfire – example of what?**

The reason the oft-cited Dwellingup wildfire was so severe was not the lack of pre-emptive burning. The 1961 Royal Commission report says:

*“Statements that the Forests Department does not carry out controlled burning in the Dwellingup forests are entirely without justification. The Department has control burnt extensive areas each year for the last 40 years and more than ever at the present day.”*

Rather, logging operations, which had opened up the forest canopy and created vast amounts of logging debris, were a major cause.

### **The NSW wildfires**

Responding to the chorus of calls for more and bigger prescribed burns in NSW, Rural Fire Service Chief Commissioner Phil Koperberg warned: ***“The previous practice of broad acre burns runs the risk of permanently changing the balance among the plants and animals which make our landscape unique and attract millions of tourists each year.... The prospect of regular, comprehensive prescribed burning to convert the entire 5.4 million hectares of national parks into a garden landscape is, however, out of the question... Strategic fuel reduction, not widespread burning, is central to protect lives and property.”*** [Sydney Morning Herald, 7 January 2002; full article available from WAFA]

### **Fire and the greenhouse effect**

*“On the other side of the issue, fire has short-term potential feedback effect into the greenhouse effect. N. Burrows (pers comm.) has calculated that the present fuel reduction burning program throughout State forests produces annually about 46,000 tonnes of particulate matter and 4.14 million tonnes of CO<sub>2</sub>.”* [The Greenhouse Effect and Western Australian forests. CALM, unpublished (suppressed), 1991.]

Not only does pre-emptive burning contribute to WA's massive annual greenhouse emissions, but the already apparent climate change occurring in the South West (e.g. the 20% decline in rainfall over the past 25 years) has significant implications for fire management, e.g. the ability of ecosystems to cope with repeated burning. It is increasingly apparent that fire can no longer be considered in isolation: the cumulative impacts of, and interactions between, climate change, fire, pests and diseases (and a range of other factors) can no longer be ignored.

### **Facts about pre-emptive burning**

There are five facts that must be explicitly taken into account in the formulation of fire policy:

- frequent burning does have harmful ecological impacts;
- doing less pre-emptive burning but targeting it more carefully will produce better results than increased broadscale burning;

- pre-emptive burning is of limited effectiveness under severe conditions, while other strategies may be more effective;
- CALM's risk assessment and fuel accumulation methodologies are crude and outdated;
- frequent burning can make us more vulnerable to fire, not less, by promoting fire-prone species and conditions.

### **Fire policy is slowly evolving**

Traditionally, land and resource 'management' has meant high-impact intervention and heavy-handed manipulation of natural systems. This outdated approach is gradually being replaced by a new understanding of the values and sensitivities of natural systems. In the area of fire management there are moves to modernise approaches to pre-emptive burning (by reducing and varying the size, intensity and frequency of burns and varying their season) and to adopt more rational, effective and sustainable strategies for community protection.

The WA EPA has recently commenced a public review of fire and CALM's fire management, to be completed in 2004.

### **A rational approach**

Pre-emptive burning at the scale and frequency proposed by the proponents of more burning will impoverish our natural environment and leave our community just as, or even more, vulnerable to fire.

The rational response to fire risk is more investment in a sophisticated, multi-faceted approach to fire management and protection, which includes limited and carefully targeted pre-emptive burning, but does not rely upon it. We need four things:

1. More focus on preventing fires, including arson. There is a risk that constant talk of the need for more burning, and of how much our environment likes fire, will encourage arson;
2. More investment in our capacity to detect fires soon after they start, and our capacity to put fires out before they become wildfires. This means better aerial fire fighting capacity and also ground-based rapid response teams;
3. More care in where we allow settlements to occur, discouraging building in areas at risk from wildfires. If people choose to live in such places they must accept the risk of wildfire;
4. More focus on improved strategic firebreaks and buffers around vulnerable communities and assets, as opposed to frequent broadscale burning of remote bushland.

### **Fire and science (2): a sample of recent scientific concern over prescribed burning**

"Detrimental fire regimes contributed to the extinction of two of the three bird species, and three of the four sub-species [including two WA sub-species: Rufous Bristlebird and Lewin's Rail] which have disappeared from Australia since European colonisation. Inappropriate fire management is now a factor in the threatened status of at least 51 nationally recognised threatened bird taxa.... Of the threatened [bird] species whose relationships with fire regime has been comparatively well documented, almost all show clear preference for much less frequent fire than that currently prevailing. The long-unburnt vegetation favoured by these species is becoming disappearingly rare, and will require concerted management effort to maintain or increase. Most fire-sensitive threatened birds have low reproductive output and limited dispersal ability. The persistence of these species is further jeopardized by habitat fragmentation, which accentuates the handicap of these traits for recolonisation following fire....[In temperate eucalypt forests] the most detailed long-term study suggests that frequent mild fires will lead to the decline and loss of some species which are now perceived as common and little affected by mild fires."

"Too frequent burning has endangered species such as Noisy Scrub-bird, Western Bristlebird, Malleefowl and Ground Parrot. The old growth (or mid to late seral) vegetation that these species require, or are most abundant in, is now becoming disappearingly rare.... The endangerment of so many species reliant on relatively old vegetation is a clear indication that land managers are generally burning far more extensively or frequently than prior to European settlement, or that fires now are generally more destructive. The very low fire frequency, or fire

exclusion, required by many of these species (e.g. preferred intervals of at least 20 years for most threatened heathland birds, or at least 60 years for Malleefowl) will pose serious management problems....”

**Woinarski J.C.Z., Fire and Australian Birds: A Review, in Australia’s Biodiversity – Responses to Fire; Environment Australia Technical Paper No. 1, 1999, pp. 57, 83**

“This research indicated that frequent burning resulted in a simplification of large-scale spatial patterning in the litter (fine -fuel) environment. The components (leaves, twigs, bark etc) that give the leaf litter its physical structure changed with regard to their relative abundance and spatial distribution.... Top-soil moisture levels were, on average, 18% lower following 20 years of frequent burning.... These shifts in [invertebrate] community composition were substantial and suggested that the extensive and frequent application of fuel-reduction burning could result in a reduction in terrestrial invertebrate biodiversity at a regional scale, with this decrease potentially as high as 50%.... [T]here remains a need to establish secure refuges for species with specialist requirements and limited dispersal abilities, and provide links (i.e. corridors) between habitat patches to facilitate recolonisation.... Realistically, the conservation of biodiversity cannot be achieved without consideration of the important role that invertebrates play.... [S]ubstantial measured changes in the structure of invertebrate assemblages and the loss of species associated with the decomposer cycle implies frequent burning may be impacting upon nutrient cycling and transfer within these forests. If this is the case, it would have serious implications with regard to the maintenance of ecological sustainability.”

**York, A., Long-term effects of repeated prescribed burning on forest invertebrates: management implications for the conservation of biodiversity, in Australia’s Biodiversity – Responses to Fire; Environment Australia Technical Paper No. 1, 1999, pp. 183-4**

“Historically, many plant species have become locally extinct due to too-frequent fires. Typically, these species have fire-sensitive adults and rely on seed for their re-establishment after fire (“obligate seeder species”). Fire-sensitive species may become rare and become confined to “fire shadows” in the landscape.... Fires are easy to ignite and can spread widely. They can be a cheap management tool and a costly reality.... Examples of fire-induced local extinctions of native plants in Australia span the continent.... Leigh and Briggs (1992) list 19 species as being threatened with extinction at state or federal level due to the inappropriateness of current fire regimes.”

**Gill A.M. and Bradstock R., Extinction of biota by fires, in Conserving biodiversity: threats and solutions, Surrey Beatty & Sons, 1995, pp. 309-311.**

**WAFA  
October 2003**