



Submission No.305

13 May 2003

Committee Secretary
House Select Committee on the Recent Australian Bushfires
Department of the House of Representatives
Parliament House
Canberra ACT 2600

Submitted by email to bushfires.reps@aph.gov.au

Dear Madam/Sir,

Please accept the attached document as a submission to the House Select Committee Inquiry on the Recent Australian Bushfires.

A representative of the Society would be happy to expand on this submission personally if the Committee wishes.

Yours sincerely

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The Wilderness Society

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Submission to the House Select Committee Inquiry on the recent Australian bushfires by The Wilderness Society Inc

Background

The Wilderness Society has been seriously concerned with the human and environmental impacts of the 2002/03 bushfires in south-eastern Australia. Many of our members and some staff live in the areas that were affected by fire, and have been actively involved in their suppression and the support of local communities.

As an organisation we are committed to the conservation of Australia's biodiversity and believe that this is achievable without compromising human safety and well-being. In this submission we will address the Terms of Reference most pertinent to this goal.

Terms of Reference

- *the causes of and risk factors contributing to the impact and severity of the bushfires, including land management practices and policies in national parks, state forests, other Crown land and private property.*
- *the adequacy and economic and environmental impact of hazard reduction and other strategies for bushfire prevention, suppression and control*
- *appropriate land management policies and practices to mitigate the damage caused by bushfires to the environment, property, community facilities and infrastructure and the potential environmental impact of such policies and practices.*
- *any alternative or developmental bushfire mitigation and prevention approaches, and the appropriate direction of research into bushfire mitigation.*

Fuel-reduction burning as a fire prevention method

Fuel-reduction burning is the main tool used by government departments to reduce the potential severity of wildfire on public land. The effectiveness of fuel-reduction burning in the control of wildfire has been a key issue in the public discussions leading up to this Inquiry. Its application needs to be scientifically based if it is to be a useful tool.

Fuel-reduction burning is also used by some private landholders, particularly on land bordering national parks. The extent of this burning is not large but a proportion of

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these fires get out of control and burn into parks, often burning substantial areas. This has been noted particularly in NSW.

The following is a summary of the application of fuel-reduction burning on public land in each state affected by the 2002-03 bushfires on mainland Australia. Following this is a discussion of the physical and ecological information that we need, to achieve fuel-reduction burns that will protect human life and property and the biodiversity of our natural systems.

Victorian management

In Victoria a plan for fuel-reduction burning on all public land is developed by the Department of Sustainability and Environment (DSE) annually. Parks Victoria (PV) have input on burning in parks but the primary responsibility for finalising and implementing the plan lies with DSE. The plan is advertised in regional newspapers and the public is invited to view it and make comment on the plan.

From our observations, fuel-reduction burning is sometimes carried out more frequently and extensively in National Parks in Victoria than in State Forests, possibly because more resources are available for management of this land tenure. For example, the Chiltern National Park in north-east Vic. has been fuel-reduced every autumn since it was proclaimed in 1996. In the same district the Killawarra State Forest that has very similar vegetation communities, has not been burnt since 1991 when a small area was burnt on the northern boundary (DSE records).

New South Wales management

In NSW each National Parks and Wildlife Service district submits proposed fuel-reduction programs to the relevant District Fire Committee for endorsement prior to burning operations being undertaken. This allows for integration with other fuel management burning plans intended by State Forests and other agencies throughout each local government area. It also ensures that approval is reached with all these agencies that are represented on the committee. The burns are carried out cooperatively between agencies and are aimed at strategic zones such as bushland adjacent to urban and other settled areas.

Australian Capital Territory management

In the ACT, land managers (Parks & Conservation Service, Forests, Canberra Urban Parks & Places) and the Bushfire Council, develop a bushfire fuel management plan on a biennial basis. They seek input from other government agencies such as Environment ACT and the Emergency Services Bureau. Public input is then sought through advertisement in the media.

Land managers will then put up a prescribed burning plan for specific burns and seek approval from Environment ACT, and the Emergency Services Bureau which issues

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the permit. Land management agencies usually conduct the burns with the assistance of the voluntary fire brigades.

Fulfilment of fuel-reduction burning plans

The key issue in fulfilling plans for fuel-reduction burns in all states is the window of opportunity for undertaking burns. Fuel must be dry enough to burn, usually at the autumn break, but not so tinder dry that it will potentially send flames into the canopy and create an uncontrolled wildfire. The weather must be relatively calm with moderate air temperature and relative humidity. Often there is only a handful of days in the year when all these factors coincide, simply because the end of summer is frequently marked by a major rainfall event and rapidly decreasing day length and temperatures which ensure that what is soaked remains damp.

The risk of erring towards earlier, drier conditions for starting the burning program is that the fire is hard to control and there are many instances in each state where these burns have become uncontrolled wildfires. This is obviously unacceptable to the community. The risk of this is particularly high in drought years such as those experienced in south-eastern Australia in the past few years.

Parks agencies in all states tend to be blamed for the spread of fires on the assumption that they do not set fuel-reduction burning as a priority. We have already discussed the fuel-reduction planning processes above and noted that other agencies such as State Forests are involved with the development of fuel-reduction plans and are required to give their approval to any proposals put forward by Parks.

On the ground we see that the fires that occurred in north-east Victoria/Gippsland in the summer of 2002/03 burnt through approximately 500,000 ha of national park and conservation areas and 600,000ha of state forest. This does not indicate that parks are especially susceptible to fire when compared with other land tenure, suggesting that equivalent fuel-reduction practices are carried out by these agencies, or that management did not affect fire outcomes in the extreme conditions present at that fire..

A similar example can be seen in the 1983 East Gippsland fires in Victoria. The fire began in a state forest on the west side of the Cann River, two weeks before the Ash Wednesday fires. It moved eastward, partly burning some national parks but largely burning through state forest right to the NSW border. It finished two weeks after the Ash Wednesday fires. This fire showed very similar characteristics to the 2002/03 fires and does not support the idea that parks are somehow negligent in their fire prevention efforts compared with other agencies. Whether a different method of fuel-reduction burning should be employed by agencies is a separate question and will be considered in the next section.

In each state, the planning processes for fuel-reduction burning on all land tenures including parks, require the participation and approval of most relevant state and local government agencies as well as varying levels of public consultation. Most

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agencies say that the only factors preventing them from fulfilling fuel-reduction burning plans are the weather and fuel moisture levels.

Information required to develop an effective strategic fuel-reduction burning strategy

The 2002-03 fires resulted in serious damage to life, property and some threatened species. The key question is, can fuel-reduction burning moderate these effects to an acceptable level in the extreme type of fire season we have just experienced i.e. three years of very dry conditions preceding the season, sustained high temperatures, high wind speeds, low relative humidity, an unusually high number of lightning strikes which were not followed by rain, and a number of accidental and arson fire ignitions?

To answer this question we need sound scientific information, not just subjective comments.

We know that climate change and Aboriginal burning practices led to increasingly flammable vegetation types in Australia. This was possibly exacerbated by a major increase in fire activity after the arrival of European settlers and has probably been to the detriment of fire sensitive vegetation and associated fauna. In addition, vast areas of south-eastern Australia have been cleared and what remains is fragmented, reducing suitable habitat for many species and creating a barrier to recolonisation when fragments are completely burnt out by fire. The interface between private property and public bushland is extensive.

For all these reasons we can't, in many circumstances, let fires run their course when they are ignited by events such as lightning strikes. But how can we use controlled burning to protect human life and assets and our biodiversity? Research currently underway is providing more guidance on the particular needs of vegetation communities and fauna in regard to frequency, intensity, patchiness and timing of fires. From this information, ecological burning practices are being implemented in many conservation reserves.

The advantage of incorporating this knowledge into our fire prevention strategies is that fire sensitive vegetation types which occur in moister environments and are of low flammability, are naturally fire suppressive. If such vegetation types are constantly exposed to fuel-reduction burns, they will dry out and burn. Being poorly adapted to regeneration after fire these moist vegetation zones will be eliminated and replaced by more fire-adaptive vegetation that is also more flammable. In the long term this will create a more fire prone environment.

It must also be recognised that in forests, fuel-reduction burns reduce fuels to low levels for a short period of only 1-3 years after a burn. This may appear to recommend high frequencies of burning but this practice is generally detrimental to both biodiversity and to the goal of reducing fuel load. Even the hardiest fire-adaptive plants require more than one season's growth to set seed or resprout after a fire and

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few animals will become established in a high frequency burn site. Frequent burns also result in the loss of invertebrates, fungi and bacteria in the soil that are essential for breaking down the leaf and bark litter into soil and providing nutrients for other plants. Thus the natural fuel degraders are put out of action.

In a situation where hazard reduction must be used, in order to protect biodiversity and sustain low fuel levels that will retard a wildfire's progress, burning in a low frequency mosaic fashion across a wide area is probably the most effective approach. Such burning still needs to avoid particularly fire sensitive environments such as rainforests.

Wilderness areas that by their very nature tend to be large, remote and inaccessible, should be excluded from controlled burns. These areas are generally far removed from human assets, and controlling fuel-reduction burns in such low access areas would prove extremely difficult and likely to impact severely on the wilderness nature of the area. Inevitably wildfires will pass through such remote country from time to time, providing a mechanism for fuel-reduction and ecological burning.

Fuel management in wilderness areas is unnecessary, as well as unconstructive. Fires in wilderness areas under non-extreme fire conditions are unlikely to be devastating, nor move from wilderness areas into either urban areas or areas with human resources (eg plantations, stock or isolated houses). During extreme fire conditions, any fuel management will be basically irrelevant; fire will burn through any vegetation.

Even if we ignored the biodiversity values and natural fuel degrading properties of the forest, the resources and logistics required to sustain high frequency burns across vast areas would be prohibitive. However, there may be a case for high frequency burning in limited strategic sites adjacent to towns and private assets.

Whether fuel-reduction burning of any intensity, frequency or extent could temper the fires that burnt under the extreme conditions experienced in 2002/03 is questionable. Some experts suggest that weather has a greater influence than fuel loads on the behaviour of fires burning under these conditions. This view is supported by the fact that recently fuel-reduced areas and areas such as granitic hill tops with virtually no fuel, still carried intense fires during this season.

It is critical that any revised approach to fuel-reduction burning is devised in the light of the complexities briefly outlined above. It must be scientifically based, drawing on the expertise and further research of fire ecologists and fire behaviour scientists. The goal must be to produce a sustainable strategy for fuel-reduction management that will protect biodiversity and wilderness values and moderate the effects of wildfire to an acceptable level for protection of people and assets. If fuel-reduction burning is found to be an inadequate tool in moderating fires under conditions equivalent to the 2002/03 season, then it should be employed to deal with more temperate seasons, and other methods sought to reduce risk to people, property and biodiversity in extreme years.

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Softwood plantations as a fire hazard

The fire hazard presented by softwood plantations requires careful investigation. Local communities throughout south-eastern Australia share fears of the potential risks associated with living in close proximity to these plantations. This perceived risk was clearly brought to life when pine plantations near Canberra contributed to the fire effects experienced by suburban communities in the city.

The early research undertaken by CSIRO scientists after the Canberra fires indicated that as a 1.5m fire front in the native forest moved into pine plantation, the fire quickly reached the tops of these pine trees. The high temperatures generated led to a massive windstorm that flattened hundreds of mature pine trees and raced towards Canberra. These extremely strong winds carried very large embers into the suburbs causing spot fires which led to the loss of property and human life. Radiant heat from the fire did not contribute to the destruction.

Further research should be undertaken into the risk posed by softwood plantations and recommendations made regarding their configuration in respect to communities and public and private assets. The responsibilities of plantation managers in preventing and suppressing fire should also be determined.

Clearfell logging as a fire hazard

Clearfell logging can contribute to a more fire prone environment by removing the moist fire-suppressive elements of an old multi-aged forest, drying out soil and litter layers, and replacing this forest with dense stands of wattle and regenerating eucalypts which are highly flammable. Extensive roading associated with clearfell operations also opens up a moist forest to the drying effects of sunlight and wind as well as stimulating dense flammable regeneration along the edges of the road. This contributes further to creating a more fire-prone environment.

A transition to managed eucalypt plantations outside native forests would significantly reduce the fire hazard posed by current logging operations in state forests.

Cattle grazing as a fire hazard

Cattle grazing on public land now occurs predominantly in national parks on the Victorian high plains. Research has been carried out in this region since the 1940's when exclusion plots were set up to study the effects of grazing. This has shown that cattle change the composition of ground cover by creating bare ground in grass areas and consequently providing opportunities for shrubs to establish. Shrubs and heath are the most flammable materials in the alpine environment and they are not grazed by

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cattle. The grasses are less aerated and often moister so they are less likely to burn. It should also be recognised that native herbivores such as wombats graze the grass areas.

Cattle grazing should be withdrawn from the high plains to reduce fire hazard and protect the particularly sensitive alpine vegetation.

Arson

Arson can potentially be prevented, unlike lightning strikes. It should be treated with the same level of seriousness that is currently being applied to fuel-reduction burning.

Experts in the area of arson should be consulted to recommend a strategy for deterring would-be arsonists. This may require contact between these experts and local communities to identify the factors that could contribute to arson.

Accidental fires

Accidental fires could largely be averted with adequate public education regarding use of fire, machinery etc. during fire restriction periods. Utilities such as electricity companies must also be made aware of their maintenance obligations particularly during the fire season.

A strategy should be developed to educate the community and utilities about how to avoid fire risk activities and circumstances.

Fire prevention and suppression by property owners

Many communities in south-east Australia learnt a lot about preparing themselves for a fire front or ember attack, in the wake of the disastrous Canberra fires. Fire authorities performed an excellent role in alerting local communities to the relative danger posed by a regional fire at any point in time. Property owners were also given good information on how to reduce the chances of their property burning out, and measures for suppressing spot fires resulting from ember attack, if they chose to stay in their home when the fire approached.

Given that most buildings are lost to fire as a result of ember attack rather than the radiant heat of a fire front, it is critical that all communities in Australia are well educated about how to make their property fire-safe and how to defend their property if they choose to remain when a fire approaches.

Maintaining tracks for fire access

Some tracks must be maintained for access of fire fighting vehicles. However, the presence of tracks can counter fire-prevention efforts by drying out adjacent forest and stimulating dense regeneration of wattles and other flammable shrubs along roadsides. Tracks also provide greater opportunity for careless bush users to cause fires inside forest areas.

In some areas with a history of selective logging, gold-mining and similar activities, a vast network of occasionally used tracks are still open despite the cessation of these activities. Land management agencies are usually unable to resource the maintenance of the rarely used tracks, creating a potentially dangerous situation for fire fighting vehicles that may not be able to continue for the whole length of the track or turn around.

Biodiversity is also affected by roading. Weeds are introduced on vehicles and not only establish on roadsides but also invade surrounding bush. Broad tracks create a barrier to small vertebrates and increase their vulnerability to predation. Tracks also provide a passage to feral animals such as foxes and cats.

Wilderness zones in particular owe their special remoteness values to the relatively low number of tracks in their vicinity, and biodiversity benefits from this situation. Large wilderness areas can be regarded as robust enough to tolerate wildfires i.e. under most wildfire conditions some areas will remain unburnt from which necessary recolonisation of native plants and animals can occur. Containment measures are not necessary in these zones, and in the fire season that we have just experienced, probably unachievable. This approach would release more resources for control measures in more accessible forest proximal to private assets.

Only tracks regarded as essential for fire-fighting purposes should be maintained. The potential fire hazards provided by tracks and the negative impacts on biodiversity should be taken into account when determining which tracks are essential. Non-essential tracks should be closed and vegetation rehabilitated, both for the safety of fire crews and the enhancement of biodiversity. Wilderness areas should be regarded as no-track zones.

Terms of Reference

- *The adequacy of current response arrangements for fire-fighting*

All fire-fighting services made a remarkable effort to control the severe fires in the 2002/03 fire season and certainly achieved a high level of property protection compared with similar fires in previous decades. The coincidence of a large number

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of lightning strikes in remote terrain where little road access was possible, provided extremely challenging conditions. Perhaps the greatest lessons to be learnt are the imperative for excellent communications between agencies and the rapid development of strategy in these extreme situations.

There were some tensions between agencies and between professional and volunteer fire-fighters. Although some of this may be unavoidable in such high stress circumstances, the fire containment outcomes will always be aided by good team work where all participants feel that their expertise is taken into account.

To achieve optimal working relationships in fire fighting settings, there is a need for increased dialogue on fire suppression strategies to occur between agencies, and between professionals and volunteers. Prior to a fire season, a series of potential fire scenarios and responses should be considered by all agencies and voluntary groups, on the basis of the likely risk presented in that fire season. This should happen at a statewide and regional level.

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