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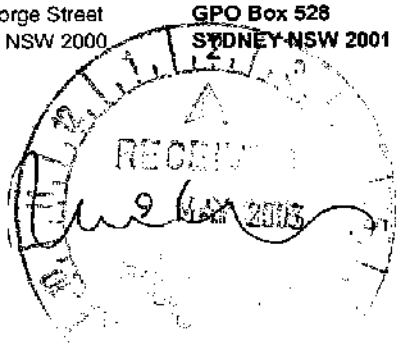

Secretary
House Select Committee on the Recent Australian Bushfires
Parliament House
Canberra ACT 2600

9 May 2003

Submission No.199

Dear Secretary

Enclosed please find the submission by WWF Australia to the House Select Committee on Recent Australian Bushfires.

Please direct any enquiries to Andreas Glanznig, Biodiversity Policy Manager, (02) 8202 1228.

Yours faithfully

Dr Ray Nias
Director - Conservation

Submission to the House Select Committee on the Recent Australian Bushfires

WWF Australia

9 May 2003

1. Introduction to WWF Australia

For nearly 25 years WWF Australia (World Wide Fund for Nature Australia) has worked as an independent force to protect Australia's natural environment – working across economic, political and cultural boundaries. During this time we have gained over 40,000 supporters across the country and achieved solutions for the environment through an approach that is rational, practical and science based.

In Australia, as internationally, WWF works through collaboration rather than confrontation, in the belief that industry, people and nature can, and must, co-exist in harmony. WWF Australia operates from 6 offices and a host of regional outposts around the country, with more than 180 projects across Australia and Oceania, investing nearly $10 million directly in conservation programs.

Introduction

Fire, like drought, is an inherent part of the Australian landscape. Much of our native flora and fauna has evolved with fire and relies on certain fire regimes for continued survival. Australia can be neither drought-proofed nor fire-proofed.

Inappropriate fire hazard regimes can damage biodiversity leading to the loss of native species, communities and ecosystems. Biodiversity conservation requirements need to be central to any fire management policy and practice, as reflected in the National Strategy for the Conservation of Australia's Biological Diversity, adopted by the Commonwealth and all States and Territories. The precarious state of Australia's biodiversity has most recently been highlighted in the National Land and Water Resources Audit *Terrestrial Biodiversity Assessment*. The Assessment highlighted that 2891 threatened ecosystems are threatened across Australia and that establishing a national reserve system of protected areas is the premier means to conserve biodiversity.

A sensible discussion needs to occur to reconcile human oriented fire protection and fire management to achieve biodiversity conservation objectives. Biodiversity conservation in Australia's present landscape requires a diversity of fire regimes, and that these must be flexible. Fire management regimes need to be local to succeed, and fire management for protection of human

lives and assets needs to be better integrated with management for biodiversity conservation. Identification of key zones for fire protection can allow separation of areas where human oriented fire protection is of the greatest priority from areas where biodiversity maintenance is the main aim. This is turn can allow different fire regimes to be developed for different purposes in different areas, and allows some, with some compromises, the achievement of dual objectives.

WWF Australia hopes the Committee will use this Inquiry to further understanding of the role of fire in biodiversity conservation and how these needs can be better integrated into human oriented fire protection.

Summary of Recommendations

Recommendation 1
That the Committee examine the extent to which human-induced global warming exacerbated the severity of the drought, and contributed to the severity of the 2002-2003 bushfires, and recommend policies and strategies to reduce the level of Australian greenhouse emissions.

Recommendation 2
That the Committee examine and report on the historical correlation between major bushfires and national parks, forestry lands, private lands etc, and examine 'hard' evidence that studies the correlation between prescribed burning and major fires.

Recommendation 3
That the Committee examine and report on the impact of inappropriate and inadequate hazard reduction regimes on biodiversity.

Recommendation 4
That the Committee examine and report on the economic costs and benefits of prescribed burning and other fire protection works.

Recommendation 5
That the Committee examine the opportunity for the Commonwealth, through the NRM Ministerial Council, strongly encourage all States and Territories to implement actions under objective 3.5 of the *National Strategy for the Conservation of Australia's Biological Diversity*, which aims to reduce the adverse impacts of altered fire regimes on biological diversity.

Recommendation 6
That the Committee examine and report on the lack of ecological knowledge of volunteer fire fighters and municipal staff, and ways to reverse this situation.

Recommendation 7
That the Committee highlight the opportunity for the Commonwealth, in association with its partners, ensure that the *Bushfire CRC* develop a major research program to investigate the role of fire in the maintenance of biodiversity, and the development of ecologically sustainable prescribed fire regimes that minimise the adverse impact of fire on biodiversity.

Recommendation 8
That the Committee highlight the opportunity for the Commonwealth, in association with its partners, ensure that the *Bushfire CRC* and the CRC for Tropical Savannas Management support and coordinate further research into the role of fire in Australian ecosystems, to further contribute to the implementation of action 3.5.1 of the National Strategy for the Conservation of Australia's Biological Diversity.

Specific Comments

ToR (b) 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

Global Warming Contributes to 2002-03 Drought and Increased Risk of Severe Bushfire Event

The extreme climatic conditions during 2002 and early 2003 were a major factor contributing to the severity of the recent Australian bushfires. These extreme conditions were due to a El Nino induced drought, combined with record high temperatures. These temperatures cannot be totally explained by natural climate variability; recent research shows that global warming contributed to the severity of the drought, and thus the severity of the 2002-2003 bushfires.

This research, summarised in the WWF Australia report entitled, *Global Warming Contributes to Australia's Worst Drought* (Karoly *et al* 2003) (copy enclosed), noted that:

- During 2002, Australia experienced its worst drought since reliable records began in 1910. The average Australian rainfall for the 9 months March-November 2002 was the lowest ever during this period.
- The drought has had a more severe impact than any other drought since at least 1950, because the temperatures in 2002 have also been significantly higher than in other drought years. The higher temperatures caused a marked increase in evaporation rates, which sped up the loss of soil moisture and the drying of vegetation and watercourses.
- The 2002-3 drought was due to natural climate variations associated with El Nino. However, the higher temperatures this year are not attributable to the natural variations on Australian climate

alone. The higher temperatures in the 2002-3 drought are part of the overall warming trend in Australian temperatures over the last 50 years. Australian average surface temperature increased by more than 0.7°C between 1950 and 2001.

- In 2001, the Intergovernmental Panel on Climate Change (a group of thousands of scientists that advise governments and the World Meteorological Organisation about the science of climate change) concluded *"most of the observed (global) warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations"* (IPCC 2001). The warming trend over the last 50 years in Australia cannot be explained by natural climate variability and most of this warming is likely due to the increase in greenhouse gases in the atmosphere. These greenhouse gas increases occurring today are due to human activity, burning fossil fuels for electricity and transport, and land clearing.
- This is the first drought in Australia where the impact of human-induced global warming can be observed.

This evidence strongly suggests that bushfire events will increase in severity until global warming can be stabilised and reversed. As such, it is critical that the Committee examine the relative significance of global warming on this and future bushfire events, and recommend policies and strategies that result in a decrease in the level of Australian greenhouse emissions.

Recommendation 1
That the Committee examine the extent to which human-induced global warming exacerbated the severity of the drought, and contributed to the severity of the 2002-2003 bushfires, and recommend policies and strategies to reduce the level of Australian greenhouse emissions.

False correlation between bushfire risk and national park extent and/or fire management practices

Historical evidence refutes the notion that fire management practices within national parks are the cause of, or a significant contributing factor to, major bushfire events.

The history of fire outbreaks in Victoria demonstrates that no correlation exists between the area devoted to national park (and concomitant fire management practices) and the frequency and extent of fire. Thirteen of Victoria's 19 major fires since 1900 occurred when national parks covered 1% of the State or less (Caulder 1997; Pyne 1991; Vic DSE 2003).

Additionally, there is no statistically verified evidence that prescribed burning is effective against major fires for more than four years after a burn (Meredith 1996:228). In fact, on existing statistics, national parks are four to eight times more effective at reducing fire risk (Meredith 1996:231)

Recommendation 2
That the Committee examine and report on the historical correlation between major bushfires and national parks, forestry lands, private lands etc, and examine 'hard' evidence that studies the correlation between prescribed burning and major fires.

ToR (c) the adequacy and economic and environmental impact of hazard reduction and other strategies for bushfire prevention, suppression and control

Inappropriate hazard reduction regimes are a threat to Australia's biodiversity

The threat of altered fire regimes on Australia's biodiversity is recognised in the National Strategy for the Conservation of Australia's Biological Diversity. Inappropriate fire regimes – for example, fires of high or low intensity that are either too frequent or insufficiently frequent – can lead to loss of species, communities and ecosystems. Burning can also promote the invasion of native vegetation by weeds, sometimes leading to increased fire hazard within a short time, and prescribed fires can escape to become wildfires.

The significant impact of high fire frequency has resulted in this threat being listed as a Key Threatening Process under the *NSW Threatened Species Conservation Act, 1995.*

The NSW Threatened Species Scientific Committe found in its final determination that:

1. Plants and animals have a range of mechanisms to survive individual fires. The long-term survival of plants and animals over repeated fires is dependent upon two key features: i) the ability of species to maintain life cycle processes; and, ii) the maintenance of vegetation structure over time as habitat for animal species. Where fires occur very close together in time (high frequency fire) both these key features can be disrupted.
2. High frequency fire is defined as two or more successive fires close enough together in time to interfere with or limit the ability of plants or animals to recruit new individuals into a population, or for plants to build-up a seedbank sufficient in size to maintain the population through the next fire. Sustained high frequency fire will consequently lead to a loss of plant species, a reduction in vegetation structure and a corresponding loss of animal species. While most communities are likely to have some tolerance to two fires at a high frequency (one short inter-fire interval), what must be avoided is a sustained sequence of such closely spaced fires. Other components of the fire regime (e.g., infrequent fire) may also be a threat in some circumstances, but this determination deals specifically with high frequency fire.
3. The threat of high frequency fire will occur in all fire-prone habitats in New South Wales, although the likelihood of occurrence of high frequency fire is currently greatest in coastal and tableland habitats and in urban areas. No one time limit can be used as an acceptable time between fires for the maintenance of biodiversity across the State of New South Wales; i.e., it is not possible to say all fire intervals should be greater than say 5 years across New

South Wales. This is because in different parts of the State the timing of critical life history processes will be different. The specific frequency of fire that will be detrimental to a species or community will vary from place to place, depending upon the survival mechanisms that the species or community exhibit, and local conditions. The number of fires over any set time period that will constitute a detrimental high fire frequency will therefore be location and community specific

Recommendation 3
That the Committee examine and report on the impact of inappropriate and inadequate hazard reduction regimes on biodiversity.

Uncertain economic benefits of hazard reduction

As of 1996, there are no publicly available cost-benefit study of prescribed burning or other fire protection works. As such, there is no hard evidence to support the contention that prescribed burning results in a net economic benefit. For example, Loane and Gould (1985) found that, in most fires, suppression costs exceed losses and, on average, 85% per cent of the total losses due to fire are caused by less than one fire per year out of an annual total of around a 1,000 fires.

Recommendation 4
That the Committee examine and report on the economic costs and benefits of prescribed burning and other fire protection works.

ToR (d) 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

National Commitments to Fire Management Sympathetic to Biodiversity Conservation Aims

The *National Biodiversity Strategy* adopted by the Commonwealth and all State and Territories in 1996 commits governments to develop and coordinate management policies that seek to minimise the adverse impact of fire on biological diversity (action 3.5.2). This will include:

- Development of prescribed burning practices that take account of the fire responses of different ecosystems, natural patterns of succession, and the role of fire in the maintenance of biological diversity, and
- Promoting awareness on the part of property managers of the impact of fire on biological diversity on lands under their control, including providing extension services to advise on the timing and pattern of fire use to reduce fuel and promote pasture growth on rangelands.

Recommendation 5
That the Committee examine the opportunity for the Commonwealth, through the NRM Ministerial Council, strongly encourage all States and Territories to implement actions under objective 3.5 of the *National Strategy for the Conservation of Australia's Biological Diversity*, which aims to reduce the adverse impacts of altered fire regimes on biological diversity.

Limitations on the use of ecological burning: Ecological knowledge of Volunteer Fire Fighters and Municipal Staff

The recent honours dissertation (Ryan 2001) assessed NSW and Victorian volunteer fire fighter's level of knowledge and awareness of the ecological consequences of fire and fire management. In the report it was noted that for all states and the Australasian Fire Authority Council (AFAC), the major training focus was on *occupational health and safety, fire behavior, use of equipment and specific procedures and techniques to be used in fire suppression and rescue operations.* There was very little training material related to ecological consequences of fire or fire management, the AFAC modules *Prescribed Burning 1 & 2* being the exception. This was confirmed in the survey responses from volunteers. More recently the NSW Bush Fire Coordinating Committee has developed guidelines for Bush Fire Risk Management Planning that incorporates ecological considerations.

The report also noted that few regional or municipal fire management planning committees have the expertise to understand the complex ecological issues involved in the task. While there was increased awareness of the need for ecological consideration in developing such plans, greater access to such expertise and knowledge was required. To achieve meaningful outcomes, better monitoring of the results of fuel reduction burning was required, as well as recording of long term fire histories of the areas involved. This type of work, knowledge and allocation of resources was felt to be outside the scope of the volunteer fire services and deemed to be better handled by council staff.

This distinction between the level of ecological knowledge required by volunteer fire fighters and land managers responsible for development of Fire Management and Prevention Plans was identified. It was noted that while there is a need for some increase in the level of ecological training for volunteer fire fighters, a far greater level of knowledge is required by land managers. In the case of authorities such as State Forests, National Parks and even State Road authorities such centralised expertise is more readily developed and accessible. The critical organisations managing so much public rural land and most of the roadside vegetation are the many rural council staff. It is these organisations and their staff that are the link to improving the ecological management of roadsides and the more sensitive use of fire in their management.

A number of publications have been developed in the various states to provide some of this knowledge:

- *Bush Fire Risk Management Plan – Guidelines* NSW Bush Fire Coordinating Committee

- *Ecological fire management: the future* (Douglas 2000)
- *Management of Fire for the Conservation of Biodiversity* (Friend *et al* 1999)
- *The role of indicators in developing appropriate fire regimes* (Burrows *et al* 1999)
- *Interim Guidelines for Ecological Burning on Public Lands in Victoria 1999* NRE

Recommendation 6
That the Committee examine and report on the lack of ecological knowledge of volunteer fire fighters and municipal staff, and ways to reverse this situation.

ToR (e) any alternative or developmental bushfire mitigation and prevention approaches, and the appropriate direction of research into bushfire mitigation

The Bushfire CRC is a significant new initiative that can undertake critical bushfire related research.

Recommendation 7
That the Committee highlight the opportunity for the Commonwealth, in association with its partners, ensure that the *Bushfire CRC* develop a major research program to investigate the role of fire in the maintenance of biodiversity, and the development of ecologically sustainable prescribed fire regimes that minimise the adverse impact of fire on biodiversity.

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