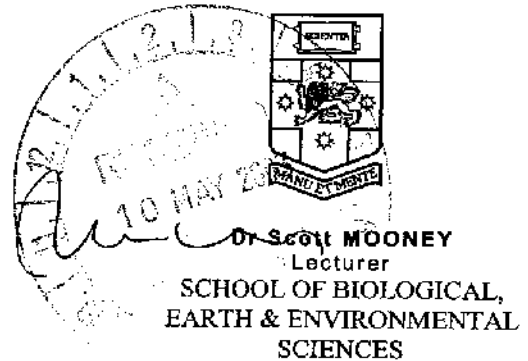


THE UNIVERSITY OF
NEW SOUTH WALES

Submission No. 224



Parliament of the Commonwealth of Australia
House of Representatives
Select Committee on the Recent Australian Bushfires.

Dear Committee Members,

Submission Summary

- In the recent past I have been working on the fire history of south-eastern Australia, focusing on how Aboriginal people used fire and how fire changed with European settlement. This research has resulted in a number of scientific papers.
- I have grave concerns that one outcome of this inquiry will be the call for frequent hazard reduction burning, and that such an outcome will have detrimental impacts on environments and the biodiversity of Australian ecosystems and in our conservation estate.
- There seems to be an underlying assumption in Australia that Aboriginal people burnt *all* landscapes using a fire regime that consisted of frequent fires of low intensity, within the fire season. This assumption is then used as an argument in support of frequent hazard reduction burning. My research has demonstrated that Aboriginal use of fire was not consistent across landscapes and hence this justification is based on a false assumption.

Submission

Your inquiry deals with many sub-components to address the overall aim to minimise the incidence and impact of bushfires: I wish to address the issues raised in subsections (b) and (c) of your inquiry. I should also note that the views expressed in this submission represent my personal views, as a scientist, and not the views of the University of New South Wales.

In Subsection (b) your inquiry has regard for “the causes of and risk factors contributing to the impact and severity of the bushfires, including land management practices and policies

SCHOOL OF BIOLOGICAL, EARTH &
ENVIRONMENTAL SCIENCES
UNIVERSITY OF NSW
SYDNEY NSW 2052 AUSTRALIA

Email: s.mooney@unsw.edu.au
Facsimile: +61 (2) 9385 5935
Telephone: +61 (2) 9385 4389

in national parks, state forests, and other Crown land and private property". Subsection (c) aims to address "the adequacy and economic and environmental impact of hazard reduction and other strategies for bushfire prevention, suppression and control".

A perennial feature of any post-fire debate is a call for greater application of hazard reduction burning. This occurred, for example, after the Sydney fires of 1994 and 2002. (I would also like to draw the attention of the Committee Members to the findings of the NSW Upper House Inquiry into the Sydney fires of 2002.) The assumption is that frequent hazard reduction burning will reduce fuel loads and hence reduce the incidence of these conflagrations. While there is an obvious negative correlation between fire frequency and fuel loads, hazard reduction burning will never completely remove the threat of large conflagrations, as it cannot completely remove all fuel. In fact for hazard reduction burning to be completely effective we would have to remove a significant proportion of above ground biomass (vegetation etc) and this is unlikely to be palatable to the majority of Australian people.

Furthermore, there are likely to be significant environmental consequences of increased firing of our landscapes. Australia is fortunate in that many of our scientists are world leaders in fire ecology and I would hope that your inquiry will seek their advice. I would particularly like to draw your attention to the effects of fire on the diversity of flora and fauna: this has been recognised in NSW, for example, where high frequency fire has been listed as a Key Threatening Process under the *Threatened Species Conservation Act 1995* (<http://www.npws.nsw.gov.au/news/tscdets/f000324b.htm>). A simple summary of these effects is also made in the paper by Keith (1996).

The ecological literature basically shows that burning vegetation in south-eastern Australia more frequently than about every 7 or 8 years (and this timeframe varies between different vegetation communities and with different species compositions) results in changes to the vegetation. This means that floral species richness (the number of different types of plants) and hence biodiversity declines. As Australia is a signatory to international agreements to protect biodiversity, hazard reduction burning more frequently than about every 7 years would negate our international responsibilities. As noted above, burning every 7 or so years is unlikely to halt large and intense hazard fires, unless a fire occurs soon after the hazard reduction burn.

There is also an underlying assumption made by many people in the non-scientific community that Aboriginal people burnt all landscapes frequently. This incorrect view has been popularised, for example, in *The Future Eaters* by Tim Flannery (1995). The views of Flannery (*et al.*) are not shared by the majority of the scientific community (see for example the critique by Benson and Redpath, 1997).

My research has also demonstrated that some Australian vegetation communities were not burnt by Aboriginal people. I have attached a copy of a paper describing this research (Mooney *et al.*, 2001). I have other unpublished research demonstrating that Aboriginal use of fire varied across almost all spatial scales. Research summarised in Dodson *et al.* (1994) demonstrates that fire in the high alpine areas of NSW was an extremely rare event in the pre-European period (once in the last 1600 years). The fires that occurred in 2003

SCHOOL OF BIOLOGICAL, EARTH &
ENVIRONMENTAL SCIENCES
UNIVERSITY OF NSW
SYDNEY NSW 2052 AUSTRALIA

Email: s.mooney@unsw.edu.au
Facsimile: +61 (2) 9385 5935
Telephone: +61 (2) 9385 4389

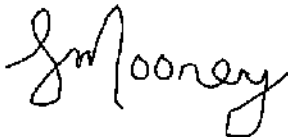
were an extreme event exasperated by the almost unprecedented drought of the previous years.

It is hence not true that introducing high frequency hazard reduction burning is acceptable as it mimics thousands of years of Aboriginal land management. Even if this assertion was correct, Aboriginal people managed fire for specific purposes, notably to manipulate resources for their benefit. In a similar way we have a reason to manage fire, *viz-a-vis* to protect life, property and the environment. Unfortunately, it is overly simplistic to suggest that increased use of hazard reduction burning will reduce the incidence of hazardous fires. In fact, increased hazard reduction burning is more likely to significantly harm our environment and reduce biodiversity.

If hazard reduction burning is not the solution to minimising the *incidence* of bushfires then other measures to reduce the *impact* of them is needed. This suggests that sections (e) to (j) of your inquiry take on more significant roles. I would particularly highlight the need for more scientific research, and this will require time.

I have purposely kept this submission as brief as possible. I would be happy to supply any further details or elaborate on these points if your Committee deems it useful.

Yours faithfully,



Dr Scott Mooney
BSc (Hons) PhD UNSW

Thursday, 8 May 2003.

Att: Mooney *et al.* (2001).

SCHOOL OF BIOLOGICAL, EARTH &
ENVIRONMENTAL SCIENCES
UNIVERSITY OF NSW
SYDNEY NSW 2052 AUSTRALIA
Email s.mooney@unsw.edu.au
Facsimile +61 (2) 9385 5935
Telephone +61 (2) 9385 4389

References Cited:

- Benson, J. S. and Redpath, R. A. (1997) The nature of pre-European native vegetation in south-eastern Australia: a critique of Ryan, D. G., Ryan, J. R. and Starr, B. J. (1995) *The Australian Landscape – Observations of Explorers and Early Settlers. Cunninghamia* 5(2): 285-328.
- Dodson, J. R., deSalis, T., Myers, C. A. and Sharp, A. J. (1994). A thousand years of environmental change and human impact in the alpine zone at Mt Kosciusko, New South Wales. *Australian Geographer* 25: 77-87.
- Keith, D. (1996) Fire-driven extinction of plant populations: A synthesis of theory and review of evidence from Australian vegetation. *Proceedings of the Linnean Society of NSW* 116, 37-78.
- Mooney, S. D., Radford, K. L. & Hancock, G. (2001) Clues to the 'burning question': pre-European fire in the Sydney coastal region from sedimentary charcoal and palynology. *Ecological Management and Restoration* 2(3): 203-12.

SCHOOL OF BIOLOGICAL, EARTH &
ENVIRONMENTAL SCIENCES
UNIVERSITY OF NSW
SYDNEY NSW 2052 AUSTRALIA
Email: s.mooney@unsw.edu.au
Facsimile: +61 (2) 9385 5935
Telephone: +61 (2) 9385 4389