
The Parliament of the Commonwealth of Australia

A Nation Charred: Report on the inquiry into bushfires

House of Representatives
Select Committee into the recent Australian bushfires

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Canberra

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Mr Gavan O'Connor MP

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Foreword

In the areas west of the ACT the forests will ... conservatively ... take more than 200 years to return to anything like their original condition ... Phil Cheney, CSIRO Scientist, *Transcript of Evidence*, 22 August 2003, p. 38.

During the Summer of 2003, a total of almost four million hectares in the Australian Capital Territory and across five Australian states, were severely burned from wildfire.

The devastating loss of stock and property, the heart-breaking loss of bushland and wildlife, together with the tragic loss of confidence suffered by those directly affected by the bushfires, left a nation charred to its physical and spiritual core.

The overwhelming view of the more than five hundred people who presented written and/or oral submissions to the *Inquiry on the Recent Australian Bushfires* was that proper land management, proper fire prevention principles and proper fire suppression strategies could have greatly limited the risk of these high intensity wildfires.

The Committee heard a consistent message right around Australia:-

- there has been grossly inadequate hazard reduction burning on public lands for far too long;
- local knowledge and experience is being ignored by an increasingly top heavy bureaucracy;
- when accessing the source of fires, volunteers are fed up with having their lives put at risk by fire trails that are blocked and left without maintenance;
- there is a reluctance by state agencies to aggressively attack bushfires when they first start, thus enabling the fires to build in intensity and making them harder to control; and

- better communications between and within relevant agencies is long overdue.

Most of the evidence presented came from citizens who rolled up their sleeves and physically fought the fires. The volunteer fire fighters. The landholders. People at the fire front. We also heard from many retired people who had years of fire-fighting experience with various state agencies behind them. And we heard from the scientists. The people who lost their homes and their livelihood also told their stories. In addition, the Committee undertook extensive site inspections to fire devastated areas.

The Committee's conclusions and recommendations are based on the evidence and deliberations from a very exhaustive process and reflect very much the views of those people with the generations of experience and knowledge of managing our land. The report is one that should be owned by those people.

I recognise and thank the many people who contributed to this inquiry. The five hundred plus people and organisations who provided submissions. Those who appeared at public hearings are particularly acknowledged. In many cases, it was personally very difficult for them and I admired their courage.

Thanks go also to my Committee colleagues and to staff of the Committee secretariat, all of whom were presented with a substantial workload and tight timeframe throughout the inquiry. The level of commitment to the inquiry was exemplary.

Given the devastation of the Summer 2003 wildfires in New South Wales, Victoria and the Australian Capital Territory, it is regrettable that we did not hear from the agencies with responsibilities for land management, fire prevention and fire suppression in those states and territory. Their respective political leaderships chose not to contribute to the inquiry, claiming a lack of resources.

It was noted however, by Committee members and witnesses to the inquiry, that resources were available from many of those agencies to attend and take notes at much of the public hearings.

One can only hope that those notes accurately captured and recorded the anger, frustration and sense of betrayal felt by so many people in affected communities.

And of course, if those very same notes are not considered and acted upon by the policy makers and decision takers of the various non-participating state agencies, that would indeed be the greatest tragedy of all.

The devastation to property, wildlife and ecology that occurred over such a large part of our country in the Summer of 2003 can only be described as a national disaster.

It is my view that there must be serious and sincere recognition of the need to change the culture and practices within many of our public land managers and fire fighting agencies.

For never again can we afford to be *A Nation Charred*.

I commend this report to you.

Mr Gary Nairn MP
Chair



Membership of the Committee

Chair	Mr Gary Nairn MP	
Deputy Chair	Hon Dick Adams MP	
Members	Mr Kerry Bartlett MP	Mr Stewart McArthur MP
	Hon Ian Causley MP	Mr Frank Mossfield MP
	Ms Annette Ellis MP	Mr Gavan O'Connor MP
	Mrs Joanna Gash MP	Mr Michael Organ MP
	Mr Steve Gibbons MP	Ms Sophie Panopoulos MP
	Mr David Hawker MP	Mr Alby Schultz MP

Committee Secretariat

Secretary	Mr Ian Dundas
Inquiry Secretary	Dr Glenn Worthington
Senior Researchers	Ms Sarah Fielder
	Mrs Rebecca Gordon (until 22/08/03)
Administrative Officers	Mrs Marlene Dundas
	Ms Jeannie Brookes



Terms of reference

The House of Representatives has appointed a Select Committee on the Recent Australian Bushfires to identify measures that can be implemented by governments, industry and the community to minimise the incidence of, and impact of bushfires on, life, property and the environment.

In investigating these matters the Committee will have specific regard to:

- (a) the extent and impact of the bushfires on the environment, private and public assets and local communities;
- (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;
- (c) the adequacy and economic and environmental impact of hazard reduction and other strategies for bushfire prevention, suppression and control;
- (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;
- (e) any alternative or developmental bushfire mitigation and prevention approaches, and the appropriate direction of research into bushfire mitigation;
- (f) the appropriateness of existing planning and building codes, particularly with respect to urban design and land use planning, in protecting life and property from bushfires;
- (g) the adequacy of current response arrangements for firefighting;
- (h) the adequacy of deployment of firefighting resources, including an examination of the efficiency and effectiveness of resource sharing between agencies and jurisdictions;

- (i) liability, insurance coverage and related matters; and
- (j) the roles and contributions of volunteers, including current management practices and future trends, taking into account changing social and economic factors.



List of abbreviations

AAAA	Aerial Agricultural Association of Australia
AAVFBA	Australasian Assembly of Volunteer Fire Brigades Association
ABCB	Australian Building Codes Board
ACA	Australian Communications Authority
AFAC	Australasian Fire Authorities Council
AIIMS	Australian Inter-agency Incident Management System
AS	Australian Standards
ASIBA	Australian Spatial Information Business Association
BCA	Building Code of Australia
BMCC	Blue Mountains City Council
CALM	Department of Conservation and Land Management
BMCS	Blue Mountains Conservation Society
CCWA	Conservation Council of Western Australia
CFA	Country Fire Authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCP	Development Control Plan
DoTARS	Department of Transport and Regional Services
DSE	Department of Sustainability and Environment

EMA	Emergency Management Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
FESA	Fire and Emergency Services Authority
FOC	Forest Owners Conference
GST	Goods and Services Tax
HVP	Hancock Victorian Plantations
IAG	Insurance Australia Group
ICA	Insurance Council of Australia
IFA	Institute of Foresters of Australia
ICC	Incident Control Centre
IDRO	Insurance Disaster Response Organisation
IEC	Insurance Enquiries and Complaints Ltd
IPA	Inner Protection Area
MCAV	Mountain Cattlemen's Association of Victoria
NAFI	National Association of Forest Industries
NAS	National Air Support
NHT	National Heritage Trust
NPWS	National Parks and Wildlife Service
NRDA	National Disaster Relief Arrangements
OPA	Outer Protection Area
REF	Review of Environmental Factors
RFS	Rural Fire Service
RFSA	Rural Fire Service Association
SCC	Shoalhaven City Council

TCA	Timber Communities Australia
VAFI	Victorian Association of Forest Industries
VFBV	The Volunteer Fire Brigades Victoria
VFF	Victorian Farmers Federation
VNPA	Victorian National Parks Association



List of recommendations

2 Land management factors contributing to the severity of recent bushfire damage

Recommendation 1

The Committee recommends that the Bushfire Cooperative Research Centre establish, as part of its program to implement a single fuel classification system, a national database that provides information on current levels and rates of accumulation of fuel loads that takes into account vegetation type and climate across all tenures of land, including private land where data is available.

Recommendation 2

The Committee recommends that the Commonwealth through the Council of Australian Governments ensure that states and territories have adequate controls to ensure that local governments implement required fuel management standards on private property and land under their control.

Recommendation 3

The Committee recommends that the Bushfire Cooperative Research Centre establish, as part of its program to implement a single fuel classification system, standards which take into account local conditions including topography and vegetation type, for determining appropriate dimensions for asset protection zones.

Recommendation 4

The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments resolve when asset protection zones will be located on private land and when on public land and gain assurances that adequate maintenance of zones will be enforced.

Recommendation 5

The Committee recommends that the Bushfire Cooperative Research Centre determine a minimum national standard, taking into account topography and vegetation type, for adequate access to all public lands including wilderness areas of national parks for the purpose of effective fire prevention and suppression.

Recommendation 6

The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments implements to a minimum national standard adequate access to all public lands including wilderness areas of national parks.

Recommendation 7

The Committee recommends that the Commonwealth through the National Heritage Trust assist the states and territories in the construction, maintenance and signage of fire trail networks.

Recommendation 8

The Committee recommends that the Bushfire Cooperative Research Centre establish a minimum national standard that is common across all tenures of land for water access and availability for bushfire fighting.

Recommendation 9

The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments resolve to increase water access points for bushfire fighting on public land to the minimum national standard.

Recommendation 10

The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments initiate consideration of the relaxation of restrictions on the movement of fire fighting equipment during declared emergencies.

Recommendation 11

The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments implements arrangements in which greater flexibility is devolved to local brigade captains in the issuing of permits to burn for fuel reduction and other purposes in the context of local fire management plans.

3 Fuel reduction and fire management

Recommendation 12

The Committee recommends that the Commonwealth through the National Heritage Trust, offer assistance to the states and the Australian Capital Territory to develop specific prescribed burning guides, at least to the quality of Western Australia, for national parks and state forests through out the mainland of south eastern Australia.

Recommendation 13

The Committee recommends that the Commonwealth seek to ensure that the Council of Australian Governments seek agreement from the states and territories on the optimisation and implementation of prescribed burning targets and programs to a degree that is recognised as adequate for the protection of life, property and the environment. The prescribed burning programs should include strategic evaluation of fuel management at the regional level and the results of annual fuel management in each state should be publicly reported and audited.

Recommendation 14

The Committee recommends that, as part of its study into improving the effectiveness of prescribed burning, the Bushfire Cooperative Research Centre establish a national database that includes areas targeted for fuel reduction, the area of fuel reduction achieved based on a specified standard of on ground verification and the season in which the reduction was achieved. The Committee also recommends that in developing this database the Cooperative Research Centre develop a national standard of fire mapping, which accurately maps the extent, intensity, spread and overall pattern of prescribed and wildfires in Australia.

Recommendation 15

The Committee acknowledges community concerns about smoke pollution as a result of prescribed burning and recommends that the Bushfire Cooperative Research Centre pursue its proposed study into smoke modelling.

Recommendation 16

The Committee recommends that the Bushfire Cooperative Research Centre monitor the effect of grazing on mitigating the return of woody weeds to recently fire effected areas across various landscapes including alpine and subalpine.

Recommendation 17

The Committee recommends that the Bushfire Cooperative Research Centre conduct further research into the long term effects and effectiveness of grazing as a fire mitigation practice.

Recommendation 18

The Committee recommends that the Bushfire Cooperative Research Centre conduct further research on the impact of weeds on the flammability of land and the most economically and environmentally appropriate way to remove weeds after fire events.

Recommendation 19

The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments develop a mechanism that ensures that appropriate measures are taken by public and private land managers for the eradication of weeds following a bushfire event.

4 The approach to the 2003 fires - delays and caution**Recommendation 20**

The Committee recommends that the Commonwealth work with the states and territories through the proposed Council of Australian Governments to review the response to bushfires to ensure that principles of fire prevention and rapid and effective initial attack are adopted and implemented by all rural fire authorities and public land managers

Recommendation 21

The Committee recommends that the Commonwealth seeks to ensure that the proposed Council of Australian Governments review of the bushfire management initiate with the states, as a priority, a review of the responsibilities and potential liabilities of fire controllers with a view to developing principles of indemnification for reasonable, responsible and informed decision making. This review should extend to defining responsibility for occupational health and safety requirements in a way which allows practicable compliance where a reasonable degree of risk taking is urgently required to prevent the loss of life, property and environmental amenity from wildfire

Recommendation 22

The Committee recommends that the Commonwealth Attorney-General engage the Commonwealth, states and territories in a review of occupational health and safety legislation as it affects the proper and effective functioning of bush fire services.

5 Management and coordination of fire suppression**Recommendation 23**

The Committee recommends that the Commonwealth, through the Council of Australian Governments and the Australasian Fire Authorities Council, initiate an overhaul of the incident management systems used by bush fire agencies in Australia to better incorporate local knowledge and expertise and better understanding of the needs and circumstances of local rural communities in the management of major fire events.

The Committee also recommends that this overhaul should aim to:

- refine the system to facilitate setting up simple command and control structures, closer to the fire ground, in tune with the ever changing local fire ground conditions and needs of local communities;
- include training of incident management personnel on how to engage and involve local people in planning and management of fires.
- establish national models for community fire planning and provide for the integration of community fire plans into incident management; and
- include national reporting of the success of incident management of fires as a means of auditing the cost effectiveness or incident operations.

Recommendation 24

The Committee recommends that the state and territory bushfire agencies ensure that, on a district basis, communications are addressed within the district operations plans and that the plans are capable of easy adoption to incident action plans.

Recommendation 25

The Committee recommends that the Commonwealth seek to ensure that the Council of Australian Governments seek the adoption by all states and territories of multi-agency protocols and agreements for fire management, similar to those in force in Tasmania.

Recommendation 26

The Committee recommends that Emergency Management Australia initiate a process involving Australasian Fire Authorities Council and the Australian Assembly of Volunteer Fire Brigades Association to review the coordination of cross border fire fighting arrangements and inter-state deployment of fire fighting resources. The review should specifically consider training on the full range of equipment and procedures likely to be encountered, standardisation of equipment and procedures, communication and the provision of information about local characteristics such as access to water.

6 Fire fighting resources and technology**Recommendation 27**

The Committee recommends that

- the Commonwealth implement a program similar to the Army Reservist Employer Support Program for the re-imbursment of costs incurred by employers of volunteer fire fighters when attending bush fires for a period exceeding five days in any month; and
- the Commonwealth consult with the states and territories through Council of Australian Governments to develop a range of measures related to local government rates, state government charges and insurance costs to provide rebates for registered volunteer fire fighters.
- the Commonwealth consider the feasibility of taxation relief on costs incurred by registered fire fighting volunteers in the line of duty.

Recommendation 28

The Committee recommends that the Commonwealth Government work with Australasian Fire Authorities Council to review the insurance cover provided to volunteer fire fighters in all states and territories and ensure that cover is adequate for loss of life or injury and related loss of income and property lost in the line of duty.

Recommendation 29

The Committee recommends that the Commonwealth should commit funding for aerial fire fighting beyond the 2003–04 season on the proviso that the Australasian Fire Authorities Council and the state and territory governments make a commitment to:

- Rapid initial attack of all wildfires during the bush fire season regardless of tenure.
- Deployment on long term contracts of a mix of aircraft, including fixed wing.
- Deployment of aircraft on a nationally coordinated risk analysis basis to be updated as each fire season unfolds.
- Provision of nationally coordinated full ground support.
- Development of training arrangements for air crews, ground support crews, incident management teams and fire fighters to a national standard.
- Development of systems of effective aerial control of fire bombing operations.

Recommendation 30

The Committee recommends that in changing the incident management systems as proposed in recommendation 23 above all bush fire agencies review concerns about difficulties in communicating operational information from the fire front to air operations.

Recommendation 31

The Committee recommends that Geoscience Australia take responsibility, in conjunction with Emergency Management Australia, for developing a national spatial data policy to coordinate the development of data systems, the collection of data and the sharing of data between all the emergency response agencies across Australia, and that both agencies participate in the development and delivery of spatial information systems as part of a national approach to emergency planning and management data. The first priority in policy development and of systems should be related to bushfire hazards.

Recommendation 32

The Committee recommends that Emergency Management Australia be required to participate in the development and delivery of spatial information systems as part of a national approach to emergency planning and management data. The first priority in policy development and of systems should be related to bushfire hazards.

Recommendation 33

The Committee recommends that the 1:100,000 national mapping program be accelerated to achieve an average life of no greater than 10 years with priority given to those areas most susceptible to national disasters.

Recommendation 34

The Committee recommends that Emergency Management Australia and the Australian Communications Authority jointly with the Australasian Fire Authorities Council:

- Initiate an urgent review on a district basis, of the suitability of the current allocated radio spectrum to ensure that as far as possible, fire fighter safety is not being compromised through inadequate communications.
- Commit to the development, in conjunction with representative bodies of all emergency services, to a National Strategic Radio System.
- That the coordination of the deliberations be assigned to Emergency Management Australia.

Recommendation 35

The Committee recommends that:

- As a short term objective, the use of '40' channel UHF CB equipment be adopted for coordination and interoperability of communications at fire ground level.
- As a longer term objective a national communications plan be developed and incorporate the provision of low powered VHF channel allocations for the purpose of ensuring compatible fire ground communications between all agencies on a national basis.
- That the use of UHF CB between units on the fire ground be included in communications planning for intra-state and interstate deployments.

Recommendation 36

The Committee recommends that Emergency Management Australia and the Australian Communications Authority work with state and territory bush fire authorities to ensure that that district communication plans have regard for the amount of radio traffic that may be generated under the most severe conditions.

Recommendation 37

The Committee recommends that Emergency Management Australia work through the Australasian Fire Authorities Council to ensure that:

- A greater emphasis be placed on pre-incident and incident preparation of communication plans as a means of ensuring effective interoperability between agencies at command and tactical levels.
- That the speed of transfer of operational information between agencies at command level be regularly monitored to ensure that operational objectives are not being compromised.

Recommendation 38

The Committee recommends that Emergency Management Australia and the Australian Communications Authority, in conjunction with the respective state and territory governments, ensure the survivability of essential communication installations during fire incidents by strategic fuel management around the assets.

Recommendation 39

The Committee recommends that the Commonwealth investigate, and where necessary, require the urgent enhancement of the provision of emergency power and telecommunications services for the purpose of restoring essential services expeditiously in areas affected by fire or other natural disaster and where necessary to place licence requirements on telecommunication providers to do so.

Recommendation 40

The Committee recommends that, for the purpose of communications for the police, ambulance and fire brigades, any rental costs associated with the use of radio sites under the care, control or management of the Commonwealth, state, territory or local government be waived, other than for the ongoing cost associated with the use of power at the site.

Recommendation 41

The Committee recommends that Emergency Management Australia request the Australasian Fire Authorities Council to:

- Determine protocols and standards on a national basis for the adoption and implementation of mobile data services by all fire fighting agencies with a view to ensuring national compatibility.
- Consider the development of a 'closed user group', utilising satellite telephony, as an interim measure for achieving interoperability between member agencies on a national level.

7 Fire protection**Recommendation 42**

The Committee strongly recommends that the New South Wales, Victorian and Tasmanian Governments abolish the Fire Levy tax they impose on home and business insurance premiums (wherever applicable), making it payable through household rates instead.

Any cost savings gained by the insurance industry through relief from collecting Fire Levies should be passed on to policyholders through reduced premiums. At the same time the Committee urges the Insurance Council of Australia to run ongoing education campaigns to increase public awareness on bushfire preparedness, including the need for insurance.

Recommendation 43

The Committee recommends that taxes on insurance premiums be calculated only on the premium in order to eliminate the current cascading cost.

Recommendation 44

The Committee suggests that registered volunteer fire fighters be exempt from paying Fire Levy tax to help offset some of the expense they incur during active duty. The exemption could be for a period of 12 months following each bushfire season in which they are proven to have fought fires.

Recommendation 45

The Committee recommends that the Insurance Council of Australia coordinates a public education campaign aimed at illustrating the importance of asset protection and how this can be achieved (that is, insurance products).

Recommendation 46

The Committee recommends that insurance companies ensure that potential and existing policyholders are aware of the need to regularly review their insurance policies to prevent undervaluing. This could be done through renewal notices and quarterly reminders. This should include a list of bushfire risk reduction measures that policyholders can implement to decrease the cost of their premium.

Recommendation 47

The Committee recommends that Standards Australia incorporate building maintenance into AS3959–1999: Construction of buildings in Bushfire Prone Areas, perhaps renaming it as AS3959–1999: Construction and maintenance of buildings in Bushfire Prone Areas.

Recommendation 48

The Committee recommends that state and territory governments be required to regularly performs risk assessments to the land within their jurisdictions to ensure that bushfire prone areas are accurately identified and can be appropriately managed. This should include possibly prohibiting, or at least limiting, reticulated development in these areas. If building is effectively prohibited on land previously zoned for residential or commercial building, state and territory governments, in conjunction with local councils, should adequately compensate the affected landholders.

Recommendation 49

The Committee recommends that Standards Australia review the clarity of AS3959–1999: Construction of buildings in Bushfire Prone Areas to ensure that all relevant stakeholders can interpret and apply the Standard in the way it is intended.

Recommendation 50

The Committee recommends that Program D of the Commonwealth Bushfire Cooperative Research Centre examines the (pending) outcome of the ABCB's review of the existing Building Code of Australia bushfire provisions (including Standard AS3959–1999) to determine their adequacy and the ways in which compliance can be better managed. This should include extending its scope to cover existing buildings and those that are not in areas declared as bushfire prone, yet still on the urban-rural interface and therefore, potentially at risk.

Recommendation 51

The Committee recommends that (under Programs C and E) the Bushfire Cooperative Research Centre considers the following items as part of a national education program.

- Introducing bushfire skills training to schools and libraries.
- Training various categories of emergency services personnel on their specific role in the event of a bushfire.
- Ensuring that those in the fields of building, engineering, urban planning, forestry and science have a clear understanding of bushfire risk management including current related regulatory codes and legislation.
- Counselling prospective land developers in bushfire prone areas on the risks and necessary protective planning.
- Running adult education courses on protective planning (including insurance, building design and maintenance and defence techniques) in the context of bushfires.
- Broadcasting protective planning issues through the media, television, Internet, radio and publications.
- Structuring the community into groups and providing them with guidelines for launching an initial attack on a bushfire.
- Enclosing brochures about bushfire protection with rates notices.

-
- Having a Bushfire Awareness and Preparedness Day (similar to Clean Up Australia Day) where the community is encouraged to undertake risk reduction with local governments coordinating the disposal of hazardous material.

Recommendation 52

The Committee recommends that the Australasian Fire Authorities Council's suggested evacuation protocol be adopted by all of the Australian States and Territories.

Recommendation 53

The Committee recommends that the Commonwealth Bushfire Cooperative Research Centre's research and recommend property protection products and programs under Program D.

Recommendation 54

Further to recommendation 21 in chapter 4, the Committee recommends that the Commonwealth seeks to ensure that the proposed Council of Australian Governments review of the bushfire management, initiate with the states and territories, as a priority, a review of the duty of care of public and private landowners and their potential liability. This should be done with a view to developing clear and consistent principles that cover (but are not limited to) the following:

- Timely replacement/ repair of loss/damage (including to fences) resulting from fire fighting operations, suppression activities or wildfires.
- The liability of councils that imprudently approve the sale of land.
- The responsibilities and potential liabilities of fire controllers with a view to developing principles of indemnification for reasonable, responsible and informed decision making (including occupational health and safety).

8 Future directions for the Commonwealth: toward a national bushfire policy

Recommendation 55

The Committee recommends that the functions and administration of Emergency Management Australia be reviewed to develop an organisation that is proactive and involved in the development and implementation of national policy on emergency response.

Recommendation 56

The Committee recommends in acknowledgement of the expertise that the Commonwealth can bring to the Australasian Fire Authorities Council and of funding already supplied to the Council for the development of a National Aerial Firefighting Strategy, that the current status of Emergency Management Australia on AFAC as an associate member be upgraded to full membership and that full membership also be extended to the Department of Defence.

Recommendation 57

The Committee recommends that the Department of Transport and Regional Services review its record keeping practices to show the type of emergency for which assistance is provided through the Natural Disaster Relief Arrangements.

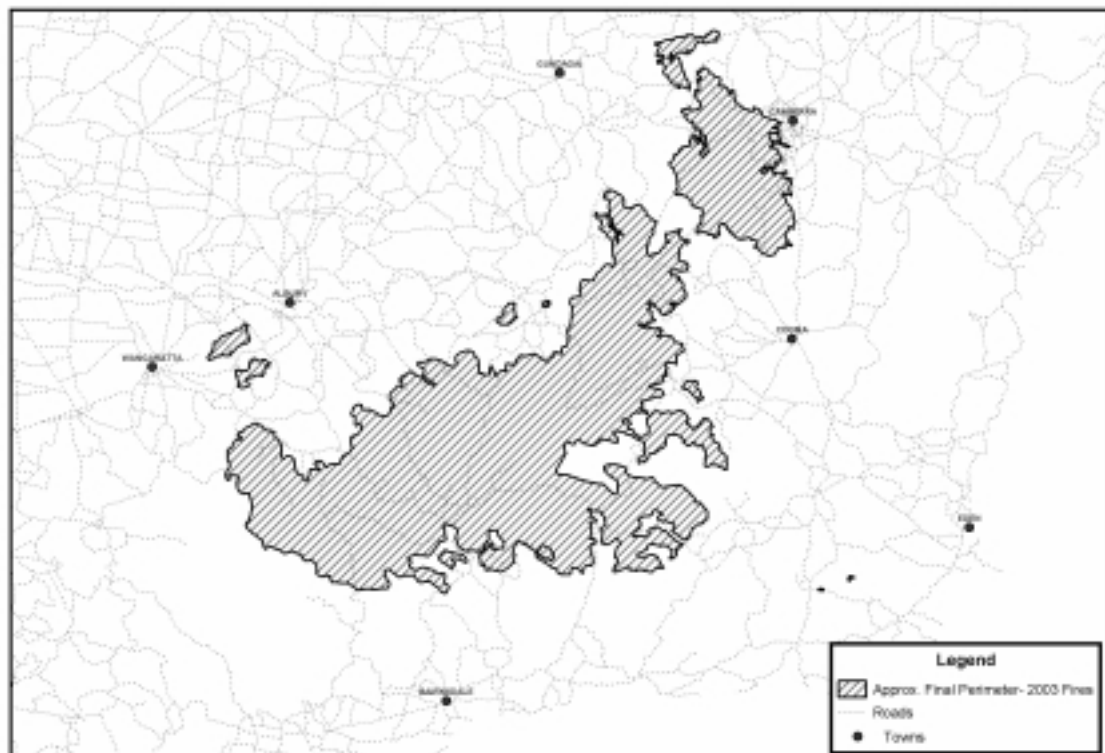
Recommendation 58

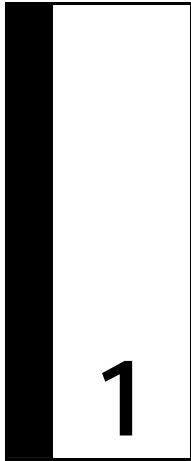
The Committee recommends that the Commonwealth require state and territory governments to have in place comprehensive bush fire management plans as a pre-requisite for accessing funding from the National Heritage Trust and like programs.

Recommendation 59

The Committee recommends that Program E of the Bushfire Cooperative Centre, which is tasked with the development of the next generation of fire researchers and dissemination of the Centre's work, be tasked further to collect and respond to feedback, particularly from the on ground volunteer levels of fire brigades, on the practicality of its outputs and their future requirements.

The fires in south east Australia – January 2003





Introduction

Overview

- 1.1 The severity of the 2002-03 fires shocked the Australian community. While the loss of life was small in comparison with previous severe fire seasons such as 1938-39, 1967 and 1982-83, the loss of property and livelihood as well as the damage to the environment was immense. As with previous extreme fire seasons, climatic patterns of low rainfall and high temperatures were significant contributors to the severity of the 2002-03 fire season. Climatic patterns leading up to the 2002-03 fire season are discussed in greater detail at appendix A. However, the Committee notes that weather conditions in the week following the dry lightning strikes that ignited many of the January 2003 fires in New South Wales, Victoria and the Australian Capital Territory were often conducive to the conduct of effective fire fighting operations.
- 1.2 The Committee received a massive response to its call for submissions from individuals and organisations some with great practical knowledge and others with experience in research into fire behaviour. Over 500 submissions were received. The overwhelming body of this evidence focused on factors within human control, such as the implementation of land management and fire suppression policies and practices that would mitigate the severity of damage by bushfire. Whilst significant evidence was also received covering natural factors, such as climate and prevailing weather, the report reflects the focus arising from the majority of evidence submitted to the Committee.

- 1.3 The evidence has lead the Committee to draw the following broad observations:
- The fire suppression effort was hampered by lack of prior fuel reduction burning, closure and lack of maintenance of tracks, historical loss of resources from land management agencies (particularly the forest industry), and a reliance on suppression rather than prevention.
 - More fuel management is possible – a coordinated and planned scientifically based regional approach across all tenures could be achieved.
 - In some cases there was a lack of effective early rapid response, and opportunities to contain some of the fires were available but not taken.
 - Ground attack and aerial units were, in some cases, held back and not properly utilised – for a variety of reasons, including liability and occupational health and safety issues.
 - Local knowledge and experience was ignored or not sought. Volunteers are feeling marginalised (and in some cases taking direct action).
 - Some landholders and residents felt abandoned and the concept of asset protection is not sufficiently relevant to locals. The emphasis on asset protection probably contributed to the spread of fires.
 - Incident control systems did not effectively utilise local knowledge or respond to local conditions.
 - Taxation on insurance, legal provisions related to liability, and lack of standardisation all contributed to insufficient property protection.
 - There are calls for a national response to bushfires and an extension of the Commonwealth's role beyond simply providing funding. The National Aerial Fire Fighting Strategy is a matter of concern particularly if it fails to utilise an appropriate diversity of aircraft types and a national system of deployment for rapid attack.
- 1.4 The Committee is aware that several other inquiries and coronial inquests have looked and are looking at various parts of the overall picture and at the specific fire fighting situation in New South Wales, Victoria and the Australian Capital Territory. The Committee is not going to second guess these inquiries. They have access to records

and people that the Committee cannot reach. The Committee is looking at these matters in a broader national context. The Committee notes that much of the evidence it has received from senior experienced volunteer fire fighters who were directly involved in the fires and from landholders who were severely affected by those fires is highly relevant to those inquiries. The Committee notes that many of the conclusions of both the McLeod and Esplin inquiries (commissioned by the Government of the Australian Capital Territory and the Government of Victoria respectively) are consistent with the bulk of the evidence received by the Committee. However, the Committee also notes the New South Wales coronial inquiry concluded differently. The Committee urges the state and territory governments that established those other inquiries to also consider the evidence this Committee has received and the recommendations contained in this report.

- 1.5 Agencies responsible for land management and fire suppression in the Australian Capital Territory, New South Wales and Victoria did not provide evidence to the Committee. The lack of involvement of these agencies in the Committee's inquiry has meant that some significant questions cannot be answered; such as why fire suppression responses were not as rapid as local communities expected and why land management practices that mitigate fire damage (particularly management of fuel loads and maintenance of fire trails) were not implemented to more effective standards. However, there was a very large body of evidence received from former employees of state forestry agencies, volunteer fire fighters, local landholders, local governments, community and industry organisations and some statutory authorities from New South Wales and Victoria as well as the cooperation and participation of public land managers and fires services in Tasmania and Western Australia. The Committee received more written submissions and verbal evidence than the government inquiries in Victoria and the Australian Capital Territory and the New South Wales coronial inquiry combined. Together, the providers of evidence to this inquiry represent a wealth of knowledge and practical experience that, in the Committee's view, was more than adequate for the tasks at hand. That is, to identify factors contributing to the severity of recent bushfires and to present a constructive way forward.

- 1.6 The purpose of the report is, then, two fold. First, the report seeks to convey the concern by local communities in fire prone areas that not enough has been done to mitigate the threat of fire. In so far as this report is critical of land management practices and fire suppression efforts, it reflects the high levels of concern that the Committee encountered through written submissions and during its program of public hearings and inspections in areas that have been badly affected by bushfires in recent years. Second, through the recommendations made in the report the Committee has sought to indicate how a national approach and policy would benefit prevention and management of future bushfire events.

The interests and role of the Commonwealth in emergency response and land management practices

Emergency response

Disaster relief assistance

- 1.7 States and territories are responsible for the management of natural disasters; however, in recent years the Commonwealth has provided significant assistance in the areas of bushfire response, recovery and research.¹
- 1.8 The Department of Transport and Regional Services (DoTARS) administers the National Disaster Relief Arrangements (NDRA) through which:
- States and Territories are partly reimbursed for natural disaster relief once their expenditures on eligible measures exceed a certain threshold.
- Eligible disasters include bushfires but not those where poor environmental planning, commercial development or personal intervention or accident are significant contributing factors to the event.²

1 Department of Transport and Regional Services, *Submission no. 208*, p. 2.

2 Department of Transport and Regional Services, *Submission no. 208*, p. 2.

1.9 Under the NDRA the Commonwealth reimburses 50 per cent of expenditure made by a state or territory in relation to personal hardship and distress payments for each eligible disaster that exceeds \$200,000.

1.10 For other eligible disaster relief measures the Commonwealth will reimburse a state or territory 50 per cent of its expenditure above 0.225 per cent of its revenue. The rate of Commonwealth reimbursement increases to 75 per cent of the expenditure of a state or territory once that expenditure exceeds 1.75 times the financial threshold.³

1.11 DoTARS stated that:

From the data provided to the Commonwealth by the States and Territories, it is not possible to isolate individual natural disaster types and report on the amount of reimbursement a particular event (or series of events) may have attracted ...

No NDRA claims have been lodged yet with the Department for the 2002/03 bushfire events. States and Territories are allowed up to three years after a disaster to claim reimbursements. It is expected that Victoria and NSW will claim substantial reimbursements for a number of separate fires that occurred in 2002/03. In the case of the ACT in 2002/03, all costs relate to a single fire incident.

Based on ACT Budget figures released on 6 May 2003 (\$17.5 million eligible expenditure in 2002/03), DOTARS estimates that the ACT may be eligible for around \$8 million in Commonwealth reimbursements. It is expected that the ACT will expend further funds on relief and recovery in 2003/04. A recent report from Victoria reports that \$86 million has been committed to support community recovery and reinstate fire affected assets such as parks, forests and roads. No similar estimates are yet publicly available for NSW ... NSW Treasury has informally advised the Department that eligible expenditure for bushfires for 2002/03 is estimated to be around \$110 million. This has yet to be verified in a formal claim.⁴

3 Department of Transport and Regional Services, *Submission no. 208*, p. 3.

4 Department of Transport and Regional Services, *Submission no. 208*, p. 4.

- 1.12 The Committee acknowledges the importance of Commonwealth assistance to states and territories in their provision of relief aid to victims of natural disasters. The Committee received extensive evidence that the damage caused by bushfires can be managed to a greater degree than other types of natural disasters, such as flood and storm. The degree of damage caused by bushfire can very much depend on the effectiveness of factors within human control such as preventative practices and suppression efforts. There is much evidence to suggest that inadequacies in land management and fire suppression operations resulted in a greater amount of damage by bushfires than may have otherwise been the case.

Fire fighting assistance

- 1.13 In response to the severity of the 2002-03 fire season, the Commonwealth through the DoTARS provided total funding of \$8.2 million to enable additional aircraft resources to be available to fire fighting agencies.⁵ In addition the Department of Defence provided helicopters, aircraft facilities, fuel and water tankers, earthmoving equipment, generators, chainsaw operators, accommodation and meals to the fire suppression efforts in the Australian Capital Territory, New South Wales and Victoria.⁶
- 1.14 Under some circumstances the Commonwealth can also re-imburse the states and territories for direct fire suppression costs. DoTARS advised the Committee that the NDRA determination makes it clear that re-imbursement cannot be claimed for the normal costs of state or local fire fighting agencies. However there is scope for some extraordinary costs of fire fighting to be included as eligible NDRA expenditure. This could include transport costs, non-capital vehicle and aircraft operating costs, food, fuel and non-standard staffing.⁷ In some cases then the Commonwealth can contribute to the costs of putting out fires.

5 Department of Transport and Regional Services, *Submission no. 208*, p. 8.

6 Department of Defence, *Submission no. 425*, p. 2.

7 Letter from the Department of Transport and Regional Services, 26 September 2003, providing answers to questions taken on notice at the public hearing on 21 August.

- 1.15 The Committee recognises the importance of Commonwealth assistance in aiding state and territory agencies in fire suppression and recovery from bushfire disasters. Given the considerable outlays of Commonwealth funds, the Committee is concerned at the significant evidence of the slow initial response time and lack of overall aggression in efforts to suppress the bushfires and which lead to the fires being more extensive than otherwise could have been the case.

Land management

- 1.16 The Commonwealth does not manage the great proportion of public land, which in Australia lies under the jurisdiction of the states and territories. However, the national government has a responsibility and interest in the implementation of effective and appropriate land management practices on several grounds.
- 1.17 First, the Commonwealth has a significant financial interest through the National Heritage Trust (NHT) program in ensuring that state and territory agencies responsible for the management of land provide adequate measures for the prevention and mitigation of bushfire damage to projects funded by the program.
- 1.18 Through the NHT, the Commonwealth has provided funding totalling \$1.4 billion for projects that aim to conserve the environment and natural resources from 1996-97 to 2001-02.⁸ In 2001 the Commonwealth announced an additional \$1 billion of funding to the NHT to 2006-07.⁹
- 1.19 The NHT provides funding for projects to improve the quality of the environment in protecting biodiversity and natural resources, particularly waterways. Intense bushfire events have a major impact on these values. The Commonwealth has a legitimate interest in ensuring that the projects in which it is currently investing deliver intended outcomes. This can be achieved through the use of NHT funds for the implementation of land management practices that mitigate the intensity and extent of bushfire damage.

8 National Heritage Trust, <http://www.nht.gov.au/extension/index.html>, viewed 21 September 2003.

9 National Heritage Trust, <http://www.nht.gov.au/extension/index.html>, viewed 21 September 2003.

- 1.20 Second, the Commonwealth has an interest in relation to fire and land management because of its obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

the Commonwealth Government has a responsibility to protect nationally listed threatened species and ecological communities, and to ensure the development of recovery plans for these species and communities.¹⁰

- 1.21 At a public hearing in Canberra, an officer with the Department of Environment and Heritage expanded on the Commonwealth's responsibilities under the Act:

the primary responsibility for the management of threatened species and ecological communities on state managed lands is with state and territory agencies ...

[However] It would be illegal for any person to take an action that could have a significant impact on the listed values of that particular site for that particular species. In that event, the EPBC Act would be triggered. The minister is empowered by that act to call for an assessment of that development and to make a determination whether to modify the development or prohibit it outright. If the minister does not do that, any interested person can apply to the Federal Court to ensure that those provisions are adhered to. That is under the current operation of that act.¹¹

- 1.22 Whilst the Committee heard some evidence to suggest that the Commonwealth could do more to meet its obligations under the EPBC Act, the point relevant to the inquiry, as far as the Commonwealth interest is concerned, is that the Commonwealth has a statutory obligation in the protection of threatened species.

- 1.23 The EPBC Act includes a list of key processes that pose a threat to threatened and endangered species. The environmental consequences of intense wildfire events were acknowledged in the suggestion made by a landholder in the Brindabella area that 'large area severe fire ... be nominated as one of the key threatening processes' for the purposes of the Act.¹²

10 Environment Australia, *Submission no. 347*, p. 1.

11 Stewart Noble *Transcript of Evidence*, 22 August 2003, p. 42

12 Noelene Franklin, *Transcript of Evidence*, 14 July 2003, p. 28.

- 1.24 Third, the Commonwealth is directly responsible for the management of a number of reserves. These include the Booderee National Park (Jervis Bay, New South Wales), the Australian National Botanic Gardens (Australian Capital Territory), Kakadu National Park and Uluru – Kata Tjuta National Park (Northern Territory).¹³ None of the reserves managed by the Commonwealth were affected by the January 2003 bushfires with only the Booderee National Park and the Australian National Botanical Gardens located in south eastern Australia.¹⁴ The Department of Defence also has significant landholdings across Australia.
- 1.25 Fourth, the Commonwealth has responsibilities as a signatory to international instruments for areas occurring on the World Heritage List (such as the Tasmanian Wilderness and the Blue Mountains¹⁵) and the Ramsar Convention (such as the Ginnini Flats Wetlands in the Australian Capital Territory).¹⁶
- 1.26 Fifth, the Commonwealth has an interest under the *Australian Heritage Commission Act 1975* in protecting against damage to historic sites, such as the cattlemen's huts in the alpine and subalpine areas of New South Wales and Victoria.¹⁷

A national issue

- 1.27 In addition to the Commonwealth financial interests and legal responsibilities in areas that are affected by bushfires, the Committee believes that as the national government, the Commonwealth is best placed to address a number of specific areas where shortcomings are evident. These include improved research into fire behaviour and management, the implementation of uniform data and mapping systems, and the implementation of a national emergency radio communication system.
- 1.28 The need for a national approach in bushfire matters is already evident in processes such as the National Aerial Fire Fighting Strategy (to which the Commonwealth is already making a contribution) and the increasing trend toward the inter-state deployment of fire fighting elements.

13 Environment Australia, *Submission no. 347*, p. 8.

14 Environment Australia, *Submission no. 347*, p. 6.

15 Environment Australia, *Submission no. 347*, pp. 3–4.

16 Environment Australia, *Submission no. 347*, pp. 6–7.

17 Environment Australia, *Submission no. 347*, p. 5.

Conduct of the inquiry

- 1.29 On 26 March 2003 the House of Representatives resolved to conduct an inquiry into the recent Australian bushfires.¹⁸ The members of the Select Committee on the Recent Australian Bushfires were appointed and met for the first time on 27 March 2003.
- 1.30 The Committee's terms of reference were advertised widely and written submissions invited through metropolitan and regional media in March and April.
- 1.31 The Committee received 507 written submissions,¹⁹ as well as 55 exhibits²⁰ and other correspondence.
- 1.32 The Committee held inspections in areas of the Kosciuszko National Park, areas of north eastern Victoria and the Gippsland, the Shoalhaven, the Australian Capital Territory, Ballarat, the Mount Dromedary area (in Tasmania) and the Manjimup area. The Committee also held public hearings in Nowra, Katoomba, Richmond, Cooma, Canberra, Wodonga, Omeo, Buchan, Ballarat, Hobart, Manjimup and Perth.²¹

Scope and structure of the report

- 1.33 The Committee received an enormous amount of evidence particularly from areas in south eastern Australia that have been severely affected by recent bushfires, particularly the Blue Mountains, the Shoalhaven and the Snowy Mountains in New South Wales, the north east and Gippsland areas of Victoria and the Australian Capital Territory. The majority of evidence from these areas focused on shortcomings in land management, fire suppression and fire protection policies and practices.

18 *Votes and Proceedings*, 26 March 2003, p. 833.

19 Listed at Appendix B

20 Listed at Appendix C

21 Details listed at Appendix D

- 1.34 On a more positive note, the evidence received from Tasmania and Western Australia tended to focus on significant achievements in the management of bushfires. The ongoing development of knowledge on fire management means that agencies responsible for land management and fire suppression in these states are not without their problems (as acknowledged in evidence). However, the level of cooperation between land management and fire suppression agencies, as well as the level of knowledge on fire management they have achieved provides a way forward.
- 1.35 Specific concerns were consistently raised across all areas that have suffered loss of life, property and environmental damage in recent bushfire seasons. However, the levels of concern on each issue varied from area to area and across jurisdictions. This variation, no doubt reflects the diverse land management and fire suppression arrangements both within and across jurisdictions as well as the variety of experiences of those who provided evidence.
- 1.36 Concerns that were consistently raised in evidence from fire affected areas can be summarised as the:
- build up of fuel loads on public lands;
 - decline of fuel reduction programs on public and private lands;
 - inadequate access into national parks;
 - disregard and exclusion of local knowledge in land management agencies and fire suppression operations;
 - slowness of response and lack of aggression by management responsible for fire suppression activities;
 - mismanagement of fire suppression operations; and
 - failure of radio-communication systems and equipment.
- 1.37 These concerns fall into three broad areas covered by the Committee's terms of reference. The first area relates to practices that can prevent and mitigate the severity of damage by bushfire before the event. The inadequate implementation of policies and practices that mitigate the effects of fire are dealt with in chapter 2. The adequacy of fuel management particularly through prescribed burning and grazing for the mitigation of the severity of bushfire is examined in chapter 3.

- 1.38 The second area refers to management of the fire suppression effort during the event. Issues of the lack of rapid initial response and aggression in managing the fire suppression effort are dealt with in chapter 4. Broader issues of current administrative arrangements and organisation of the fire suppression effort are examined in chapter 5. Chapter 6 explores the available fire fighting resources and technology including the role of volunteer fire fighters and aircraft in fire suppression efforts.
- 1.39 The third area concerns fire protection of property before the event and recovery after the event. Chapter 7 refers to the part played by insurance in recovery from fire as well as the relation of insurance to levels of preparedness for bushfire.
- 1.40 Chapter 8 sets out some of the future directions and steps the Committee sees as desirable for the Commonwealth to take in setting a clearer national approach and direction to fire fighting.



2

Land management factors contributing to the severity of recent bushfire damage

- 2.1 The Committee received a large body of evidence criticising the failure of land management practices and policies to prevent severe bushfire damage across all tenures of land. Among the factors most commonly cited as contributing to the severity of recent bushfires were:
- A move in attitude in fire management from practices that mitigate the threat posed by fire to suppression of fire events.
 - High fuel loads.
 - Inadequate buffer zones protecting assets.
 - Inadequate access to fires.
- 2.2 Criticisms of land management practices and policies were received from representatives of volunteer fire brigades, individuals and organisations with experience in public and private forestry industries and land holders from bushfire affected areas. These criticisms focused primarily on national parks but included reference to state forests and private property.

Fire suppression instead of land management

- 2.3 The Committee received repeated claims that the whole approach to the management of bushfires appears to have shifted. One experienced fire fighter told the Committee that there has been:

a gradual but radical shift in the policy of fighting bushfires in NSW over the last few years ... The change in policy I refer to is from (1) the protective stance of reducing the amount of fuel which could be a danger in the fire season *as the traditional first priority* to (2) that of the confronting stance of putting fires out when they occur *as the new first priority*.¹

- 2.4 The events of January 2003 and the preceding fire seasons need to be seen in the light of this shift. This change in emphasis is not confined just to New South Wales but can be seen across the Australian community. The Institute of Foresters of Australia (IFA) commented that:

we see the community divided over fire management and the divide (especially between urban and rural communities) deepening. Familiar position-taking is occurring. On one side of the divide are some influential environmentalists and academics, supported by inner-city residents not threatened by bushfires, and not responsible for bushfire management. These people in general advocate a hands-off approach to land management, where 'natural' events like bushfires are allowed to run free. On the other side are rural people, fire fighters, foresters and land managers who are responsible for values threatened by bushfires. The latter tend to advocate an interventionist approach, where steps are taken to minimise risks before fires start, as well as having in place a well-equipped rapid-response fire fighting force.

This divide is becoming institutionalised, and reflected in policy positions adopted by different agencies and political organisations. To add to the problem, responsibility for fire management is increasingly being taken out of the hands of land managers (who are trained to minimise threats and

1 Brian Hungerford, *Submission no. 32*, p. 1.

hazards) and placed in the hands of emergency services (people trained to respond to a disaster after it occurs).²

2.5 The IFA is clear on where they think this might lead: 'In the long run, this will ensure that wildfire disasters will continue, as the emphasis is on fire suppression, not prevention.'³

2.6 Mr Phil Cheney of the Commonwealth Scientific and Industrial Research Organisation (CSIRO), who is generally regarded as one of Australia's foremost experts on bushfire management, told the Committee that:

there has been a shift from fire management by land management agencies to emergency response agencies ... The whole business of managing fires has shifted towards a more suppression oriented approach by the amalgamation of emergency services operations rather than putting the primary response back on the land manager and having the emergency service operations coordinate that response when it is needed.⁴

2.7 Significant passages of evidence received by the Committee debated and suggested the appropriate agency, whether land management or fire suppression, which should be responsible for implementing land management practices, such as fuel reduction and fire trail maintenance, that will mitigate the severity of bushfires.

2.8 Many volunteer fire fighters and brigades who provided evidence called for responsibility for implementation of fire mitigation measures to be placed in the hands of fire suppression agencies. Typical of this position was the Wilberforce Rural Fire Brigade:

The National Parks and Wildlife Service manages fire for conservation purposes, whilst the RFS manages fire to protect life and property. Therefore the RFS is the most appropriate agency to manage bushfire emergencies.⁵

2 Institute of Foresters of Australia, *Submission no. 295*, p. 6.

3 Institute of Foresters of Australia, *Submission no. 295*, p. 6.

4 Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 37.

5 Wilberforce Rural Fire Brigade, *Submission no. 204*, p. 1.

- 2.9 The Committee is aware that volunteers and landholders with holdings in close proximity to public lands hold concerns about the threats to life and property posed by the inadequate implementation of land management practices. These views are understandable in light of the poor track record of some land managers over the previous decades and outlined below. However, the Committee believes that responsibility for the implementation of measures for the mitigation of the threat posed by bushfire should be placed upon land managers.
- 2.10 The fact that there is a debate over which agencies should be responsible for fire management reveals serious shortcomings in the jurisdictions in which the debate has arisen. The Committee was pleased to find little evidence of this debate in Tasmania and Western Australia. In the view of the Committee, Tasmania and Western Australia provide constructive models on which to base arrangements in other jurisdictions.
- 2.11 Mr Evan Rolley, the Managing Director of Forestry Tasmania, a government business enterprise responsible for the multiple use management of 1.502 million hectares of public forest in Tasmania, stated that responsibility for the implementation of land management practices for the mitigation of bushfire damage were shared across three government agencies:

The operating managers in the Fire Service, Parks and Forestry work together seamlessly on a whole range of these projects. The big thing that has to happen in this country is that we have to separate the political decision making about land use, which is, rightfully, for politicians to decide, because it is about values that should be there. When that decision is made, the issue is how to most efficiently manage land. You do not want agencies playing war games that are about political decisions that should be made on land use.⁶

6 Evan Rolley, *Transcript of Evidence*, 1 August 2003, p. 12.

- 2.12 An officer of the Fire and Emergency Services Authority (FESA) in Western Australia provided an example of the closeness of the working relationship between the Department of Conservation and Land Management (CALM) and FESA in preparing risk management analyses for bushfire events and referred to Commonwealth involvement in this:

CALM and FESA have joined together to undertake research on a standard wildfire threat analysis through the state so that we are both operating off the same data set and can make value judgments that are consistent throughout the state. We have sought research funds through the Department of Transport and Regional Services research grants proposal. That has only just recently been approved and that will be created over the next two years.⁷

- 2.13 The Committee takes the view that the rivalries between agencies responsible for the management of public lands and those responsible for fire suppression in some jurisdictions has severely hindered the implementation of adequate and responsible land management practices on these lands. This matter is discussed in greater detail in chapter 5.
- 2.14 The lack of adequate land management practices for the mitigation of the threat of bushfire goes straight to the heart of the matter raised in many of the submissions received by the Committee. The Committee notes the evidence and concludes that this change in approach from land management to fire suppression is not sustainable nor acceptable to communities in fire prone areas, particularly when the suppression effort itself is not always maximised.

7 Ralph Smith, *Transcript of Evidence*, 6 August 2003, p. 65.

High fuel loads

- 2.15 The amount, type, structure and moisture content of available fuel have a significant impact on the behaviour of bushfire. A more complete discussion of the significance of fuel management in the mitigation of bushfire damage occurs in chapter 3. Much of the evidence on the inadequacy of current land management practices in providing effective mitigation of the severity of recent bushfires cited increased fuel loads in national parks as a significant, if not the primary, contributing factor. These increased fuel loads were said to be the result of a decline in the implementation of fuel reduction programs.
- 2.16 An indication of the levels of decline in fuel reduction practices and the consequent rise in accumulated fuel loads across land tenures in many jurisdictions was provided by Forestry Tasmania: 'We are doing probably 50 per cent less [burns] than we were doing 10 years ago; that is in aggregate now between parks and forestry ...'⁸

National parks

- 2.17 The report by Ron McLeod on the *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT* commissioned by the Australian Capital Territory Government stated that:
- It is generally accepted that fuel loads in the Brindabella Range, while variable in different parts of the hills, were very high and very dry in January 2003.⁹
- 2.18 An experienced bushfire Captain in Tharwa and former Chair of the ACT Bushfire Council, Mr Val Jeffery, observed that the area to the west of the Australian Capital Territory in which the fires that burnt into Canberra began:
- had been previously leased to ACT Bush Fire Council for bush fire management because it was recognised as the big danger area for damage by bush fires to Canberra. Regular hazard reduction was carried out by BFC ... [The] ACT ...

8 Evan Rolley, *Transcript of Evidence*, 1 August 2003, p. 11.

9 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 84.

relinquished the lease in the mid nineties and the fuel loadings were allowed to escalate dramatically.¹⁰

2.19 A landholder to the west of the Australian Capital Territory explained that the leasing arrangement between the Bushfire Council and New South Wales ceased when the Brindabella National Park was established in 1996; After six years the National Parks and Wildlife Service still have not established a bushfire management plan, only a working draft ...¹¹

2.20 The McLeod Report stated that:

In the 2002-03 season, fuel loads in smoke areas were estimated at between 35 and 40 tonnes per hectare, described by some as the maximum available fuel load ...¹²

2.21 Another past member of the ACT Bushfire Council and former Captain of the Fairlight Bushfire Brigade, Mr Peter Webb, stated that:

The fires in [the ACT] local area around Christmas 2002 and to the east of the Braidwood area in 2002 demonstrated that there was a massive problem with high-fuel levels. I knew for a fact that there were high-fuel levels in the Brindabella area.¹³

2.22 The Captain of the Brindabella Rural Fire Brigade, Mr Peter Smith, suggested that high fuel loads when combined with particular topographies and extreme fire weather are capable of generating the type of fire storm event that burnt into Canberra on 18 January 2003:

We normally say that the only thing we can control is the fuel. I believe that to be true. You certainly cannot control the temperature or the oxygen. We normally argue that the supply of oxygen is unlimited. It is my observation – and it is certainly yet to be tested – that, when there is such an amount of fuel, the situation on steep slopes on high terrain ... mean that the intensity of the fire is such that there is not enough oxygen to actually burn everything.

10 Val Jeffery, *Submission no. 16*, p. 2.

11 Wayne West, *Transcript of Evidence*, 14 July 2003, p. 32.

12 McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 89.

13 Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 3.

The unburnt fuels that we are looking at are the volatile gases, the oils and, from the heating of the wood, pulverised carbon, which, in the immense turbulence which happened here – we were looking at 100 metres of turbulence – meant that there was not enough oxygen to burn all that fuel, and so it was rapidly propelled upwards by the heat energy from the fire ...

There would be many tonnes of unburnt fuel mixed up with this. It is clearly much denser than air. When it gets high into the atmosphere it cools and it then collapses back down, and you have a huge volume of gaseous fuel with particulate matter in it which descends with enormous force ...

If those large volume masses of higher density air with fuel came down with an almighty rush, you would get enormous winds created just by that alone, plus we also had strong winds that day. The observation in the field was that these fires were not burning on the ground. You will have seen on your travels that these fires travelled over kilometres of ground that was like this with the odd tree. In watching this actually happen, as it did at Brindabella, the fire was not burning on the ground; it was burning on top of the gas. Wherever that interface hit anything that was combustible, it simply literally exploded.¹⁴

2.23 Mr Smith suggested that high fuel loads in national parks and plantations may have been responsible for the intensity of the wildfire that burnt across land, which would not normally be capable of sustaining such intensities.

2.24 An experienced volunteer in the Blue Mountains fire services and member of the District Committee recounted how high fuel loads hindered a fire containment operation for which he was responsible:

Houses were at risk and some houses were damaged because the fuel levels were so high. They were so high simply because inadequate hazard reduction had been carried out.¹⁵

¹⁴ Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 12.

¹⁵ Don Nott, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 30.

- 2.25 The Kioloa Rural Fire Brigade stated that 'lack of hazard reduction [resulting in high fuel loads] has been a major contributor to the disastrous fires of recent years.'¹⁶
- 2.26 A submission from four Group Captains of the Snowy River Rural Fire District and the Chair of the Bush Fire Management Committee cited 'fuel build up [and] lack of hazard reduction on a regular basis' in the Kosciuszko National Park as a major contributor to the impact and severity of the 2003 bushfires.¹⁷
- 2.27 At a public hearing in Cooma, an experienced volunteer fire fighter and Group Captain in the Snowy River Shire, stated that during fire fighting operations:
- We were sent first up onto Round Mountain [fire] trail [in Kosciuszko National Park] to burn off there to contain the fire ... The fuel loading was just too great so we just had to abandon that; we could not do it; and that was just through the lack of hazard reduction.¹⁸
- 2.28 The General Manager of Kosciuszko Thredbo, the corporation responsible for managing the Thredbo resort, stated that 'There had been very little back burning in the Thredbo Valley for the last 30 or 40 years ...'¹⁹ Perhaps more disturbingly the Committee learnt that while the New South Wales National Parks and Wildlife Service (NPWS) accepted responsibility for fire management in the Thredbo area, to the knowledge of corporation managers, no plan had been forthcoming.²⁰
- 2.29 Evidence from Victoria related a similar state of affairs. The Captain of the Dartmouth Rural Fire Brigade, Mr John Scales, stated of the 2003 Razorback fire, which burnt through the Alpine National Park between Omeo and Mitta Mitta, that: 'The build up of fuel was the most significant additive to this fire.'²¹

16 Kioloa Volunteer Rural Fire Brigade, *Submission no. 242*, p. 1.

17 Philip Reid, *Submission no. 76*, p. 2.

18 Darvall Dixon, *Transcript of Evidence*, 10 July 2003, p. 4.

19 Kim Clifford, *Transcript of Evidence*, 10 July 2003, p. 74.

20 Garry Huggett, *Transcript of Evidence*, 10 July 2003, pp. 73–74.

21 John Scales, *Submission no. 162*, p. 5.

- 2.30 The Alpine Shire reported comments at a public meeting criticising the:

Lack of fuel reduction burning by government authorities in the years leading up to the fire. This had increased the fuel load in national parks, thus exacerbating the fire risk already heightened by drought and low humidity.²²

- 2.31 Submissions from Western Australia claimed that fuel loads in the national parks of the south west had increased over the recent decades. A forestry consultant with many years of employment in state government land management agencies, Mr Don Spriggins, typified concerns: 'fuels have built up to extraordinary levels in much of the south west with potential for a serious wildfire(s)'.²³

State forests

- 2.32 The Committee received evidence that some land management practices in state forests, such as clear felling, create conditions that are conducive to the accumulation of high fuel loads after logging. Evidence suggested that recent changes to land management practices have been responsible for increased loads in state forests by limiting the removal of debris.

- 2.33 The Victorian National Parks Association (VNPA) stated that:

The dense regrowth that occurs after clear felling will if anything add to fuel loads. Where these regrowth forests are thinned, extreme difficulty has been experienced in conducting fuel reduction burning within them because of the high levels of debris that results from thinning operations.²⁴

- 2.34 Ms Susie Duncan, a woodland ecologist with the Wilderness Society expanded on the causes of increased flammability after clear felling operations:

The process of clear felling is complete felling of trees within, say, a 40 hectare coupe. That area has a post-logging burn put through it. This is to create an ash bed for seedling establishment, which occurs initially with acacias or wattles.

22 Alpine Shire, *Submission no. 240*, p. 2.

23 Don Spriggins, *Submission no. 159*, p. 1.

24 Victorian National Parks Association, *Submission no. 176*, p. 11.

This is gradually replaced by eucalypts, which are the key species intended to regenerate for future timber utilisation purposes. At the time of both the wattle – which is highly flammable – and the eucalypt regeneration, these are very dense stands but over time will thin out naturally. They do provide a high hazard. ... a dense number of trees with very high flammable qualities, including a lot of oil in the eucalypt leaves.²⁵

- 2.35 A resident of the Canberran suburb of Duffy, which suffered large losses of houses in the 2003 fires and lies at the interface of urban development and the Stromlo Pine Forest, stated that:

There was significant hazard all around the Forestry area on Cotter Road where Eucumbene Drive meets it. On both sides there was blackberry and there were fallen trees. It was a disaster waiting to happen and that was just beside the Forestry headquarters.²⁶

- 2.36 Another resident stated that:

The forest behind Eucumbene Drive had been felled a year previously but the detritus from that operation had not been cleared and the grass was at least a metre high and extremely dry.²⁷

- 2.37 The accumulation of debris in the Stromlo Pine Forest was not the sole cause but a significant factor in the damage caused to adjacent developments in two regards. First, it contributed fuel to an already ferocious fire storm that swept into suburban Canberra. Second, it provided material for the ember attacks that were largely responsible for damage to private and community assets during the fire event.

- 2.38 The Committee received evidence suggesting that state forests were subject to far more rigorous regimes of fuel management than national parks:

in 2001/2002, the NSW National Parks and Wildlife Service (NPWS) had about 5.4 million hectares under management or 6.76% of the total area of NSW, performed prescribed burns on only 31,703 hectares (0.58% of its holding) but burnt 595

25 Susie Duncan, *Transcript of Evidence*, 25 July 2003, p.p 71–72.

26 Mark Douglas, *Transcript of Evidence*, 15 July 2003, p. 59.

27 Paul Garret, *Submission no. 8*, p. 6.

388 hectares (11.04% of its holding) in 'on park' fires. Contrast this with similar figures for NSW State Forests, where, in the same year it had 2 295 548 hectares under management, 24% of which was subject to fuel management strategies that included hazard reduction and selective grazing.²⁸

- 2.39 Over recent years, however, changes in land management practices in state forests were reported to have increased the level of fuel loads. A retired forester with extensive employment experience in the state forests of New South Wales, Mr Graham Gray, stated that:

State Forests has a positive attitude to hazard reduction as it is seen as an essential tool to protect the valuable forest asset however the quite stringent controls external regulators have introduced ... have severely restricted burning as a tool.²⁹

- 2.40 Forestry Tasmania stated that since the 1980s the fuel reduction programs in forests under its control have decreased:

principally, [because] the increasing complexity of fire management due to constraints on forest burning. A simplistic broad area burning regime has been replaced by more strategic fuel management, with target areas identified in Fire Management Plans, taking greater account of habitat management and biodiversity issues. Even under this regime, there has been localised community opposition to burning and the consultative and planning requirements are exhausting of both time and resources.³⁰

Private property

- 2.41 An experienced volunteer and senior office holder with the Berridale Brigade stated that 'We had enormous difficulty protecting houses that had absolutely no hazard reduction done around them ...'³¹
- 2.42 The Committee took evidence from an array of local councils in New South Wales, Victoria, and Western Australia on the removal of hazardous fuel on private property. The Councils that provided evidence exhibited a strong awareness and willingness to enforce fuel reduction requirements on private landholders.

28 Access for All, *Submission no. 104*, p. 3

29 Graham Gray, *Submission no. 97*, p. 4.

30 Forestry Tasmania, *Submission no. 173*, p. 4.

31 John King, *Transcript of Evidence*, 10 July 2003, p. 11.

- 2.43 The Shoalhaven City Council (SCC) acknowledged the importance of fuel reduction on private land and had responded by establishing a working party:

One of the key issues is the consideration that our tree preservation orders were too tight and too prohibitive, and that the community should be given a greater opportunity to remove vegetation from their own properties. Council is now about three weeks away from adopting a policy which would free up the ability of the local community to remove vegetation from around their properties. Once that policy is adopted, it is the council's intention to put that on public exhibition. We would see a significant reduction in council intervention in approving vegetation removal from private properties through that new policy.³²

- 2.44 The Blue Mountains City Council (BMCC) stated that: 'The tree preservation order does not apply to trees which are assessed as being a fire hazard or a threat to an asset.'³³

- 2.45 The Deputy Chief Fire Control Officer of the Kojonup Bushfire Advisory Committee indicated the lengths to which the Council went to enforce required asset protection zones of 60 to 70 metres around buildings:

at the closing date, which is 15 December, all firebreaks have to be in place. We put an aeroplane in the air on 16 December and overfly the whole district. Anybody whose breaks do not meet the standards are fined and forced to comply with firebreak rules. We have a similar operation happening in our local town where we attempt to reduce the level of fuel hazard within the town so that, should a wildfire approach, we have our best chance of protecting the town and stopping fires escaping from the town.³⁴

- 2.46 There appeared to be an increasing problem of enforcing fuel reduction notices on absentee landowners – particularly in areas surrounding major metropolitan areas that were used as holiday locations such as the Shoalhaven and Blue Mountains.

32 Barry Russell, *Transcript of Evidence*, 8 July 2003, p. 9.

33 Christopher West, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 5.

34 Timothy Johnston, *Transcript of Evidence*, 5 August 2003, p. 17.

- 2.47 The Committee was informed that not all shire councils exhibited an awareness of the danger of high fuel loads. At a public hearing in Manjimup Mr Spriggins stated:

There are a lot of local authorities in the south west that are very casual about fire control of private property and other lands ... Denmark would probably be top of the list, I think, followed by places such as Margaret River and Busselton Shire. They are not anti-fire but they are not pro-fire either. When you put in an application for a building, in many cases you are only allowed to clear the building envelope. The build-up surrounding scrub and forest in some cases is absolutely horrific. You can go to places in Denmark and see probably 20 to 30 tonnes per hectare on some of the private properties where people live. I have seen chalets where there are leaves on top of the roofs that would be probably about a foot thick. It is a disaster waiting to happen.³⁵

- 2.48 At a public hearing in Cooma Mr Gray stated:

There is a much higher incidence of absentee landowners on smaller holdings, many of whom are not from a rural environment and who are unfamiliar with the use of fire for hazard reduction and in any case are often not able to undertake the work when conditions are suitable. ... If one landholder declines to participate in a planned hazard reduction burn the work necessary to isolate that one property can make the operation impossible. Whilst there are provisions in place to overcome such behaviour, in practice there is no time and few resources to pursue non-complying landholders.³⁶

- 2.49 A Director of the Cooma Rural Lands Protection Board indicated the potential for increased tension within rural communities because of increased absentee landowners:

Cooma Rural Land Board has approximately 2,300 ratepayers, of which only 700 have a sheep flock of more than 50. So roughly two-thirds of our ratepayers live on what we would probably call lifestyle blocks. They are rough figures – you could probably challenge them – but about two-thirds of

35 Don Spriggins, *Transcript of Evidence*, 5 August 2003, pp. 10–11.

36 Graham Gray, *Submission no. 97*, p. 4.

our ratepayers live on lifestyle blocks. We have what you might call 1,400 absentee landholders ...³⁷

Fuel load monitoring

2.50 The Committee accepts that fuel loads have reached unacceptably high levels on certain public lands and some private landholdings. To attempt a simplistic finger pointing exercise of comparing the fire proneness of one tenure with others is not helpful as vegetation type, topography, local prevailing weather conditions and other contributing factors are complex. However, it is evident that information on the current level of fuel loads, rates of accumulation and strategies to maintain these loads at manageable levels is urgently required.

2.51 Agrecon, a company committed to the commercialisation of spatial information technology, specified the knowledge requirements in bushfire management information systems:

querying and modelling functionality for monitoring and rating fuel loads and moisture status throughout each season. It should enable season specific fire risk for every individual land parcel to be assessed by considering its position in the landscape, seasonal weather conditions, fuel load and condition, fire scar history, adjacent land use, flammability and relative value of structures and materials contained therein.³⁸

2.52 The Committee notes evidence that knowledge on the flammability and bushfire risk management are being compiled in some jurisdictions. Mr Evan Rolley of Forestry Tasmania stated:

we are each year making pretty good progress, particularly with the GIS stuff, mapping past fire history, where the resources are, where the risks are and having that available now. That is getting to an online position.³⁹

³⁷ Michael Green, *Transcript of Evidence*, 10 July 2003, p. 105.

³⁸ Agrecon, *Submission no. 462*, p. 3.

³⁹ Evan Rolley, *Transcript of Evidence*, 1 August 2003, p. 15.

- 2.53 However, a greater degree of commitment to the collection and availability of fuel load levels is required throughout Australia. The Dry Plains Rural Fire Service raised concerns that this data is not readily available in suggesting the implementation of:

An audit process ... to be developed between agencies in control of state lands and the RFS on the regularity, extent and success of hazard reduction burns.⁴⁰

Recommendation 1

- 2.54 **The Committee recommends that the Bushfire Cooperative Research Centre establish, as part of its program to implement a single fuel classification system, a national database that provides information on current levels and rates of accumulation of fuel loads that takes into account vegetation type and climate across all tenures of land, including private land where data is available.**

Recommendation 2

- 2.55 **The Committee recommends that the Commonwealth through the Council of Australian Governments ensure that states and territories have adequate controls to ensure that local governments implement required fuel management standards on private property and land under their control.**

Inadequate asset protection zones

- 2.56 The interface between different land tenures raises the question of asset protection zones. Asset protection zones refer to fuel reduced areas between bushland and assets to be protected including private and community property and areas of high environmental and cultural significance.

⁴⁰ Dry Plains Rural Fire Service, *Submission no. 106*, p. 1.

- 2.57 The issue of maintaining adequate asset protection zones particularly between public and private land has a significant bearing upon liability for loss of fencing caused by back burning operations as well as preventing the movement of fire from one tenure to another. Issues concerning liability are considered in greater detail in chapter 7.
- 2.58 Passages of evidence referred to difficulties in gaining agreement on the location of asset protection zones, that is, whether zones were appropriately located on private or public land.
- 2.59 Cr John Anderson of the SCC, appearing in a private capacity at a public hearing in Nowra, provided an example of a commonly held view of agencies responsible for the management of national parks in some jurisdictions. He related his impression of the attitude of the NPWS to asset protection zones:
- ‘why should we provide the buffer when it is private land?’
and that the property owner should provide the buffer. That
is why we [the Council] now require the buffer to be on
private land ... But where the development has already taken
place there is ... a difficulty.⁴¹
- 2.60 A resident of Huskisson for 27 years indicated the levels of ill feeling between some private land holders and national parks. Mr Thomas McManus had regularly mowed a patch of national park at the back of his property for 20 years. Mr McManus reported that after a fire consumed his house he was told by NPWS personnel that: ‘If you mow that in the future, you’ll be fined.’⁴²
- 2.61 The situation is not always one of private developments being built in close proximity to existing national parks. According to Mr McManus the land tenure changed from well managed state forest to unmanaged national park in the mid-nineties.⁴³
- 2.62 The Committee observed the absence of an adequate asset protection zone between Callala Street in Huskisson, the location of Mr McManus’ property, and the national park during its inspection of the Nowra region on 7 July 2003. The absence of adequate asset protection between private and public lands was also evident during

41 John Anderson, *Transcript of Evidence*, 8 July 2003, p. 57.

42 Thomas McManus, *Transcript of Evidence*, 8 July 2003, p. 58.

43 Thomas McManus, *Transcript of Evidence*, 8 July 2003, pp. 59–60.

the Committee's inspection of the southern suburbs of Canberra and the northern suburbs of Hobart on 11 July and 31 July respectively.

2.63 Of particular concern to the Committee are cases where buildings are already established: 'on steep slopes you need a protection zone, which is not possible inside a small block of land.'⁴⁴

2.64 Representatives of Access for All, an organisation of over 450 members suggested that private land holders neighbouring national parks had become increasingly reluctant to establish fuel reduced asset protection zones by burning because of the threat of litigation from public land managers.⁴⁵

2.65 The Captain of the Mitta Country Fire Authority (CFA), Mr John Cardwell, whose property at Granite Flat shares a 10 kilometre boundary with crown land commented on the higher quality of protection provided by fuel reduction burning as opposed to mineral earth fire breaks and on his frustration at implementing the superior regime:

I like to see [the interface] burnt every few years for protection against bushfires. In recent years I have been increasingly frustrated [the Department of Natural Resources and Environment] in doing this ...

I saw first hand the folly of having a mineral earth break next to tree trunks ... as trees were continually falling across the ... break and consequently the fire was able to breach the control line⁴⁶

2.66 Residents of Uriarra confirmed for the public record the Committee's observations during its inspections of the Canberra region on 11 July 2003 that the Territory pine plantation had been planted to within an unsafe distance of the school and houses.⁴⁷

44 Kevin Browne, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 31.

45 Terrence Hart, *Transcript of Evidence*, 10 July 2003, pp. 44–45.

46 John Cardwell, *Submission no. 178*, p. 1.

47 Bill Bates, *Transcript of Evidence*, 15 July 2003, p. 46. The Committee also heard that the community at the Uriarra forestry settlement was under-equipped to fight the fire. Issues of inadequate resources are considered in greater detail in chapter 4.

Recommendation 3

- 2.67 **The Committee recommends that the Bushfire Cooperative Research Centre establish, as part of its program to implement a single fuel classification system, standards which take into account local conditions including topography and vegetation type, for determining appropriate dimensions for asset protection zones.**

Recommendation 4

- 2.68 **The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments resolve when asset protection zones will be located on private land and when on public land and gain assurances that adequate maintenance of zones will be enforced.**

Access

- 2.69 Maintaining an effective fire trail network is an important factor in determining the:
- Safety of fire fighting personnel involved in a fire suppression effort.
 - Rapidity with which fire suppression agencies are able to access a fire.
 - Type of resources that can safely be made available to a fire suppression effort.

- 2.70 The Committee received evidence that agencies responsible for the management of national parks in New South Wales and Victoria had either through neglect or deliberate acts had compromised the effectiveness of existing fire trail networks. The CSIRO stated that:

Changes in land management policy (particularly to establish wilderness areas), for at least some parts of the land area burnt, have resulted in reduced accessibility [and a] reduced response time ...⁴⁸

- 2.71 The Committee witnessed the poor state of fire trails in the Kosciuszko National Park where it inspected a section of the Grey Mare fire trail on 21 May 2003 in the company of Rural Fire Service (RFS) Group Captains, the Fire Control Officer and his Deputy from the region. During this inspection the Committee experienced the great difficulty of travelling over deep channels, or 'tank traps' as they are known locally, that were deliberately built into the trails after the fires to discourage access.

Inadequate maintenance of fire trails

- 2.72 The Committee received evidence where the poor or uncertain state of fire trails had caused them not to be used because of the threat it might pose to the life of fire fighters. A Group Captain in the Snowy River Shire, stated that:

Major time was lost on the reconstruction ... and ... reopening of old fire trails ... Fire fighting strategies had to be changed because the existing fire trails were not suitable for back burning.⁴⁹

- 2.73 The Captain of the Rocky Plain Brigade indicated the level of work required to bring tracks into working condition:

Nine days were spent on the Grey Mare trail alone in getting that to a state where we could get along it. We could not even drive along it to look at fires. That was time spent when we had benign weather and when it was critical to control fires in their early stages. Both these trails lacked turning bays and refuges.⁵⁰

48 CSIRO, *Submission no. 434*, p. 6.

49 Peter Bottom, *Transcript of Evidence*, 10 July 2003, p. 6.

50 David Fletcher, *Transcript of Evidence*, 10 July 2003, p. 7.

- 2.74 The McLeod report observed that 'track access in Namadgi National Park has not been managed with fire access in mind.'⁵¹
- 2.75 The Captain of the Wilberforce Brigade stated that in the Hawkesbury:
- some trails are managed quite well and others are managed quite poorly. There are no clear standards to which trails must be maintained at present ...⁵²
- 2.76 A representative of the Central East Regional Conference of the Rural Fire Service Association (RFSA) and Captain of the Round Corner Bushfire Brigade in Baulkham Hills, Mr Ross Jones, stated that:
- I have personally refused to go down trails because I believed them to be unsafe ... especially with regard to the fire behaviour that could be expected to impact on us.⁵³
- 2.77 A representative of the Alpine Shire Council stated that Council is 'aware of a number of fire trails which were not properly maintained.'⁵⁴ The Captain of the Dederang Fire Brigade specified the shortcomings: 'The fire access tracks are only a third of the width and are overgrown if they are open at all.'⁵⁵
- 2.78 The Director of the Victorian Association of Forest Industries (VAFI) explained the significance of maintaining fire trails to adequate specifications:
- the difference between one bulldozer width and three ... [is] that ... (1) you cannot turn a fire truck around as easily, (2) you are still going to have the overstorey touching and the fire can move across there and (3) you cannot start a back-burning operation safely.⁵⁶

51 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 95.

52 Michael Scholz, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 11.

53 Ross Jones, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 32.

54 Ian Nicholls, *Transcript of Evidence*, 24 July 2003, p. 51.

55 Jack Hicks, *Transcript of Evidence*, 24 July 2003, p. 73.

56 Patrick Wilson, *Transcript of Evidence*, 30 July 2003, p. 6.

- 2.79 The Dederang Fire Brigade Management Team reported the poor condition of other equally important features of an effective fire trail network:

The access bridge across House Creek ... has not been maintained and our tanker was forced to turn around and travel 20km ... in order to gain access to the Mount Jack fire.⁵⁷

- 2.80 National parks was not the only class of land tenure on which the Committee heard evidence of inadequate access. The Captain of the Mitta CFA stated that:

The Government ... several years ago bought a private property and planted it to pines, only leaving a very narrow corridor for the main road into several properties including mine. During the fires ... CFA tankers refused to drive through this pine plantation as they felt it too dangerous because of the narrow cleared area.⁵⁸

Blocking of fire trails

- 2.81 The Committee received evidence to indicate that the practice of land management agencies deliberately blocked or applied a low standard of maintenance to trails. This might be done for a variety of reasons such as preventing arson, the dumping of rubbish, restricting access to vehicles that would damage access trails or the protection of sensitive areas. However, the practice of restricting access also contributes to delays in bringing suppression efforts to fires and the uncertain safety of fire trails.

- 2.82 The Rocky Plains Brigade operating in the Kosciuszko National Park reported that the NPWS decommissioned existing fire trails in national parks and removed tactical fire trails (constructed during a fire event).⁵⁹

- 2.83 A retired Captain of the Nimmitabel Brigade stated that:

Because [fire fighters] are locked out of the national park, in a lot of cases we had no idea of the terrain until a bulldozer made a track. If we cannot get in there and have a look before a fire occurs it is more dangerous during a fire.⁶⁰

57 Dederang Fire Brigade Management Team, *Submission no. 152*, p. 2.

58 John Cardwell, *Submission no. 178*, p. 3.

59 Rocky Plains Brigade, *Submission no. 94*, p. 4.

60 Richard Blyton, *Transcript of Evidence*, 10 July 2003, p. 19.

- 2.84 In 2001 Mr Ian Haynes, a bush walker with extensive experience of the Kosciuszko National Park, observed and photographed 'large logs across the Leura Gap fire trail as there had been for many years.' He also reported the blocking over an extensive period of the Grey Mare, Mosquito Creek and Murray's Gap trails in the park.⁶¹
- 2.85 Mr Kevin Browne, who has been involved in matters relating to fire fighting in the Blue Mountains for over 50 years, estimated the magnitude of trail closures in the area:
- Five hundred kilometres of fire trails were put in on the Blue Mountains, and National Parks have closed probably a third of them.⁶²
- 2.86 Mr Jones indicated the degree of enthusiasm with which the NPWS implemented its policy of blocking fire trails: 'Trails have been rehabilitated whilst the emergency was still on and without reference to the District or Rural Fire Service manager.'⁶³
- 2.87 Another experienced volunteer fire fighter from the area stated:
- National Parks hired a friend of mine, who is a bulldozer driver, to make [a fire trail on the eastern side of Mountain Lagoon] impossible to use ... When the fire was in operation, because the Mountain Lagoon Fire Brigade had the authority they hired my mate with the bulldozer to clean [the trail] up. Before he had even moved away again, National Parks hired the same man to go back and rip it all up again.⁶⁴
- 2.88 A former member of the Advisory Committee of Kosciuszko National Park and experienced RFS volunteer stated: 'there is another fire trail in our area – at Colo – which has been opened in every fire that we have had there and then been closed again.'⁶⁵

61 Ian Haynes, *Transcript of Evidence*, 14 July 2003, p. 60.

62 Kevin Browne, *Transcript of Evidence*, 9 July 2003 (Katoomba), pp. 35–36.

63 Brian McKinlay, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 32.

64 Brian Hungerford, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 46.

65 Kurt Lance, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 49.

- 2.89 A forester with experience in management of state forests in New South Wales, Mr Vic Jurskis, stated that:

There are roads and fire trails that were maintained on state forests that have been deliberately ripped up and blocked off in some of the state forest areas that have been transferred [to national parks] ... insufficient access is maintained in areas that have gone over to enable quick response and effective suppression when bad conditions are approaching.⁶⁶

- 2.90 In the recently declared Chiltern Box-Ironbark National Park:

the entrance at one end of [a] track was deep ripped and a huge tree pushed over it ... a few hundred metres from the entrance ...⁶⁷

The necessity of adequate access

- 2.91 A fire trail network that is to a standard that allows a reasonable level of safety in conveying personnel and equipment to and from a fire, particularly in extreme fire weather conditions when fires are at their most unpredictable, is a vital plank in land management practices that aim to mitigate the effects of bushfires.
- 2.92 The Committee was appalled at the obvious threat to the lives of fire fighters because of the inadequately maintained and uncertain state of fire trails. The Committee believes that the local knowledge of volunteers in the placement and determination of a minimum required standard of trails must be taken into account to reduce this threat.
- 2.93 The Committee acknowledges that in large scale fires where out of area resources are necessary a maximum level of certainty about the location and condition of fire trails must be afforded personnel who do not have knowledge of the area. To this end it acknowledges and encourages the initiatives and efforts of the Snowy River District Bushfire Committee in attempting to standardise among other things the classification and signage on fire trails.⁶⁸

⁶⁶ Vic Jurskis, *Transcript of Evidence*, 10 July 2003, p. 63.

⁶⁷ Win Morgan, *Submission no. 261*, pp. 3–4.

⁶⁸ Peter Bottom, *Transcript of Evidence*, 10 July 2003, pp. 6.

2.94 The Committee received evidence that standards of land management practices for fire management not only differed significantly across jurisdictions, but within jurisdictions. Hancock Victorian Plantations (HVP), a company responsible for the management of 230,000 hectares across Victoria stated that:

In Victoria, all land managers have varying responsibility to ensure appropriate planning and management of their estate will result in effective and rapid fire suppression. This may involve the provision of appropriate access track, firebreaks and water supplies [as] well as the management of fuel ...⁶⁹

2.95 The Committee acknowledges that different land tenures, such as national parks, state forests and private plantations have qualitatively different assets that require different fire management strategies. However, in the interests of good neighbourliness and avoiding the potential for costly litigation all land managers must be responsible for fire mitigation measures to a minimum standard – particularly in areas where properties interface.

2.96 The Committee is of the view that accurate maps showing the location and condition of fire trails are urgently needed. This is something that should be carried through at all three levels of government as it will depend on the particular circumstances as to what scale of mapping is being used. The issue of maps is considered in greater detail in chapter 6 where the Committee's deliberations, conclusions and recommendation on mapping scale, which is a Commonwealth responsibility, are provided.

Recommendation 5

2.97 **The Committee recommends that the Bushfire Cooperative Research Centre determine a minimum national standard, taking into account topography and vegetation type, for adequate access to all public lands including wilderness areas of national parks for the purpose of effective fire prevention and suppression.**

⁶⁹ Hancock Victorian Plantations Pty Ltd, *Submission no. 358*, p. 5.

Recommendation 6

- 2.98 **The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments implements to a minimum national standard adequate access to all public lands including wilderness areas of national parks.**

Recommendation 7

- 2.99 **The Committee recommends that the Commonwealth through the National Heritage Trust assist the states and territories in the construction, maintenance and signage of fire trail networks.**

Restricted access to water

- 2.100 A Deputy Captain of the Wagra Rural Fire Brigade who fought fires around Wee Jasper stated that the practice of taking water from private dams over a number of days, from which most of the water was taken, scared stock away and that 'the one water point available within the state forest area was in a position of severe risk to fire fighters ...'.⁷⁰
- 2.101 Besides concerns about inadequate access to fires, the Committee heard claims that water access points in Kosciuszko National Park in New South Wales and the Towong Shire in Victoria had been deliberately filled in and decommissioned.⁷¹ The Towong Shire Council stated that the lack of access to water 'lead to significant delays ... due to long haul distances and difficult terrain.'⁷²

70 Ken Drane, *Submission no. 3*, p. 2.

71 James Litchfield, *Transcript of Evidence*, 10 July 2003, p. 93 and Victorian Farmers Federation, *Submission no. 423*, p. 7.

72 Towong Shire Council, *Submission no. 457*, p. 1.

- 2.102 At a public hearing in Wodonga a representative of the Towong Shire Council referred to the difficulty of providing water access points at locations outside national parks:

The problem we have with dams is that it is one thing having one and it is another thing being able to put something in it. From the legislation that is going through, it looks like we would have to buy the water to put in the dams. That is probably of more concern than the dam itself.⁷³

- 2.103 The Wilberforce Brigade referred to the need to map all strategic water supplies for their fire fighting capabilities.⁷⁴ An example of the detail that can be achieved in mapping of fire suppression resources can be found in the report by Mr Nic Gellie, a consultant commissioned by the Committee. The report outlines the results of a mapping exercise conducted by Mr Gellie, when he was a fire management officer with the NPWS, with the Mount Tomah and Kurrajong Heights brigades and can be found at appendix E.⁷⁵

Recommendation 8

- 2.104 **The Committee recommends that the Bushfire Cooperative Research Centre establish a minimum national standard that is common across all tenures of land for water access and availability for bushfire fighting.**

Recommendation 9

- 2.105 **The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments resolve to increase water access points for bushfire fighting on public land to the minimum national standard.**

⁷³ Peter Lenaghan, *Transcript of Evidence*, 24 July 2003, p. 44.

⁷⁴ Wilberforce Rural Fire Brigade, *Submission no. 204*, p. 5.

⁷⁵ Nic Gellie, *Report on: Causal Factors, Fuel Management including Grazing and the Application of the Australian Incident Management System*, p. 33

Restricted access for heavy equipment in national parks

- 2.106 Access problems through the uncertain and poor physical condition of the trails were exacerbated by restrictions imposed upon the entry of equipment into national parks by land management agencies.
- 2.107 The Dederang Fire Brigade Management Team stated that:
- A request was put in for the bulldozer at the Mt Jack fire to be sent to the Gluepot fire (only 10km away) but the request was refused as the bulldozer had to be washed and decontaminated. In our opinion and under the circumstances this was completely unnecessary as tankers are sent into fires from different locations and are not decontaminated between emergency fire events.⁷⁶
- 2.108 A Group Captain with the Snowy River Shire stated:
- National Parks were reluctant to put large earthmoving machinery onto construction of the trails during the fires.⁷⁷
- 2.109 A farmer from Callaghan's Creek related an incident where a bulldozer operator's offer of services and equipment was refused because of inappropriate blade width.⁷⁸

Recommendation 10

- 2.110 **The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments initiate consideration of the relaxation of restrictions on the movement of fire fighting equipment during declared emergencies.**

Inadequate access and the environment

- 2.111 Besides concerns about blocked and poorly maintained fire trails endangering the lives of fire fighters and hindering fire suppression efforts, the Committee heard evidence that significant environmental damage is caused by the reopening and urgent upgrading of fire trails in emergency situations.

⁷⁶ Dederang Fire Brigade Management Team, *Submission no. 152*, p. 2.

⁷⁷ Peter Bottom, *Transcript of Evidence*, 10 July 2003, p. 6.

⁷⁸ Simon Paton, *Transcript of Evidence*, 25 July 2003, pp. 45–46.

- 2.112 A representative of the Blue Mountains Conservation Society (BMCS) who also represents the Nature Conservation Council of New South Wales on the District Bushfire Management Committee in the Blue Mountains and is Deputy Captain of a brigade in the area stated that after the Mount Hall fire:

It was heartbreaking ... to see that residents' property – their land, not their buildings – had been damaged by bulldozers driving down very steep gullies and causing masses of erosion. Those things would not have happened if it [interface control line] had been planned in advance ...⁷⁹

- 2.113 In 1985 a buffer zone was made around a property that abuts the Chiltern Box-Ironbark National Park. The fire trail/asset protection zone was not maintained and had to be re-cleared in 2003:

If fire tracks were kept open and maintained specifically around properties ... unnecessary environmental impact would be eliminated.⁸⁰

- 2.114 A Group Captain from the Snowy River District stated that the amount of time lost because of the poor quality of access meant that:

new trails had to be moved further away from major fire fronts to allow construction time. This ... meant that when we did back burns, huge areas of the park had to be burned because of that distance.⁸¹

Factors underlying inadequate land management practices

- 2.115 Reasons offered for the inadequate implementation of land management practices that would provide effective mitigation of bushfire damage coalesced under three broad areas:

- Inadequacy of resources available to agencies responsible for the management of public lands, particularly national parks.

79 Hugh Paterson, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 25.

80 Win Morgan, *Submission no. 261*, p. 3.

81 Peter Bottom, *Transcript of Evidence*, 10 July 2003, p. 6.

- Increased legislative and administrative requirements in implementing fuel reduction on public and private land.
 - A cultural change in agencies responsible for management of public lands from an emphasis on fire mitigation and prevention to fire suppression and asset protection.
- 2.116 Evidence concerning the inadequacy of resources available to agencies responsible for the management of public lands will be considered in detail in chapter 6.

Increased legislative and administrative requirements

- 2.117 The Committee received evidence that increased legislative and administrative requirements particularly in the implementation of fuel reduction burns has been responsible for the build up of fuel on both public and private lands.

Public land

- 2.118 A common perception of the manner in which volunteer fire fighters have been excluded from a partnership with public land managers has been through increased legislative and administrative requirements.
- 2.119 A Group Captain in the Snowy River Shire inquired:
- How do you set a date for a burn next year in July this year?
If the date is set to do a burn on a particular day and it is raining that day, it is off for another 12 months. We have been trying to do a burn in the Denison area at Adaminaby since 1981 ...⁸²
- 2.120 A senior officer with the Carboor Brigade, Mr Robin Box, referred to difficulties in obtaining permits to reduce fuel:
- it tends to be listed to be done in a one-year, two year or three-year time frame. You get very narrow windows of opportunity for that to be done, and it does not always occur in the year in which it was listed to be done, so it goes off the agenda until you lobby again. I attended a meeting with them yesterday and it is still on the agenda. But this has been going on for nearly 10 years.⁸³

82 Darvall Dixon, *Transcript of Evidence*, 10 July 2003, p. 4.

83 Robin Box, *Transcript of Evidence*, 24 July 2003, p. 65.

- 2.121 The Wilberforce Brigade stated that the primary reason for the lack of fuel reduction burning:

is the result of a complex approval process and the plethora of environmental legislation, planning instruments, policies and plans that serve to inhibit hazard reduction by Rural Fire Brigades in NSW on public and private lands.⁸⁴

- 2.122 The Kurrajong Heights Rural Fire Brigade stated that:

A proposal for a strategy can take up to six years to get through the bureaucracy (as has been the experience of our brigade). The approval procedures are expensive to implement.⁸⁵

- 2.123 The Colo Heights Rural Fire Brigade stated that:

Recent problems associated with obtaining Environmental Impact Statements prior to hazard reduction activities have ... reduced the hazard reduction undertaken by rural fire brigades.⁸⁶

- 2.124 Review of Environmental Factors (REFs) requirements were identified as particularly prohibitive requirements in gaining permission to conduct fuel reduction:

it gets down to the REF, when we are in the hands of the land manager. We cannot proceed until we get the REF ... All sorts of excuses can be used, such as restraints on money. REFs are extremely expensive to prepare and they have a budget to work to.⁸⁷

- 2.125 The prohibitive costs of preparing an REF were detailed:

The REF that I did for that last fire control cost me \$1,600. After I gave him a flora and fauna report, which I paid \$21,000 for, he used that to do this and I paid \$1,600 for it.⁸⁸

84 Wilberforce Rural Fire Brigade, *Submission no. 204*, p. 2.

85 Kurrajong Heights Rural Fire Brigade, *Submission no. 158*, p. 9.

86 Colo Heights Rural Fire Brigade, *Submission no. 154*, pp. 1–2.

87 Brian Williams, *Transcript of Evidence*, 9 July 2003 (Richmond), pp. 24–25.

88 Kurt Lance, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 47.

- 2.126 Contributing to the high costs of REFs was the unnecessary unwieldiness of a one size fits all approach:

There is a recent one here done by ... people at Comleroy for a current hazard reduction. Tabled at the back you have a list: 'Schedule 1, Threatened species listed under the Environment Protection Biodiversity Conservation Act within a 10 kilometre radius of the proposed burn area'. That is Comleroy Road. When you look at that you have got sea birds, whales and everything under the bloody sun listed in here, and that cost an arm and a leg to get. So the whole thing is a joke. Mr Williams pointed out to you that there were two REFs done on the same area by mistake and they differed. Here you have got this sort of thing – whales, grey nurse sharks, and all sorts of other things. This is at Comleroy, 150 miles from the sea, and that is what people pay money for.⁸⁹

Private land

- 2.127 High fuel loads on private property were attributed to increased administrative and legislative prohibitions on fuel reduction activities. For instance, the Kurrajong Heights Brigade stated that tighter legislative requirements hindered the removal of fuel on private property:

Under the 1949 Act residents were allowed to remove small piles of refuse by fire between the hours of 7pm and 7am without seeking approval of the relevant bush fire brigade, during the bush fire season

Currently under the 1997 Rural Fires Act and during the bush fire season, landowners have to obtain a permit 24 hours a day prior to removal by burning. Also under the Environmental Protection Act they have to obtain permission from Council 24 hours a day for the entire year.⁹⁰

- 2.128 The Captain of the Brindabella Brigade contrasted the situation confronting persons authorised to issue permits to burn off:

a whole wad of environmental legislation was passed that actually became part of the permit issuing procedure and it made the issuing of permits quite difficult. There is now a raft

⁸⁹ Kurt Lance, *Transcript of Evidence*, 9 July 2003 (Richmond), pp. 47–48.

⁹⁰ Kurrajong Heights Rural Fire Brigade, *Submission no. 158*, p. 17.

... of orders coming out ... I used to be able to issue a permit to someone in my area if I thought it was okay for them to do a particular burn. It was fairly simple: they could ring me up; I could write a permit. I know the country. If there was a problem, I would pass it on. I cannot do that any more.⁹¹

- 2.129 The Committee acknowledges that the Commonwealth is not in a position to determine the legislative or administrative requirements on land management issues and thus leaves this issue to the parliaments and assemblies of the states and territories. It notes, however, that one way of achieving these goals is to set in place arrangements that facilitate rather than inhibit the participation of individuals who wish to take responsible action on fuel loads to do so.

Increasing centralisation of land management

- 2.130 The Committee received evidence that one of the changes in the administrative culture that has impeded the implementation of land management practices for the mitigation of bushfire was increased centralisation.
- 2.131 Mr Smith demonstrated the problems of centralisation in the inappropriate micromanaging of day to day functions such as the issue of permits to burn off:

We are now in a position in the Yarrowlumla Shire where all hazard reductions have to be approved by the fire control officer or the deputy fire control officer [in Queanbeyan] ... We are back to doing it from 50 kilometres away. How could that person know what the conditions are like out there?

I cannot write a permit any more. Under the new regulations, an environmental impact statement would be required each year for a land-holder, whereas we know that the window of opportunity to burn off some bracken, a bit of tea-tree, some cuttings or to clear some stubble is on a daily or an hourly basis. You cannot predict when to do that.⁹²

91 Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 18.

92 Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 18.

- 2.132 Appearing in a private capacity at a public hearing in Cooma the Chair of the Snowy River Bush Fire Management Committee, Mr David Glasson, suggested that the centralisation of policy making may be responsible for oversight and inappropriate allocation of resources. In the case of inadequate funding for fire trails in the Kosciuszko National Park:

This is partly a result of New South Wales coordinating committee Policy 2-01: Fire Mitigation Works Funding. This coordinating committee seems to be out of touch with many issues relating to fire suppression and mitigation in this area. Basically, a lot of the policies they bring down are for the whole state of New South Wales and, as you can appreciate, there are major differences from the sandstone escarpments around Sydney to the alpine areas that we have. I might add that the coordinating committee were invited down to Jindabyne after the fires to inspect the area and to see the problems with fire trails and solve the funding problems. They declined, due to their funding being granted at the discretion of the commissioner. That is really an intolerable situation.⁹³

- 2.133 The Captain of the Kurrajong Heights Brigade suggested a further disadvantageous effect of the encroachment of a centralised bureaucratic process was its inability to utilise local knowledge and a resulting irresponsibility in land management decisions:

The problem for National Parks is that seven or eight years is a long time for a district manager to stay in one area. They do not see the long term consequences of what happens [with the build up of fuel loads].⁹⁴

Recommendation 11

- 2.134 **The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments implements arrangements in which greater flexibility is devolved to local brigade captains in the issuing of permits to burn for fuel reduction and other purposes in the context of local fire management plans.**

⁹³ David Glasson, *Transcript of Evidence*, 10 July 2003, p. 24.

⁹⁴ Brian Williams, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 23.

Fuel reduction and fire management

- 3.1 Three elements determine the intensity of a fire: fuel, oxygen and heat. Of these the amount of available fuel is the only factor that can be controlled.

Mitigation rather than prevention

- 3.2 The Fire Mitigation Officer with the BMCC stated that fuel reduction seeks to remove fine fuels that occur in the suspended layer of forest between 50 millimetres and three metres from the ground.¹ The CSIRO specified the 'fuel that contributes most to the dimensions of the flame front, and thereby contributes to the heat flux that ignites new fuel are the available fuels [less than] 6 [millimetres in] diameter.'²
- 3.3 Thus, the objective of fuel reduction strategies is not a scorched earth bereft of vegetation, but rather the alteration of 'the structure of the fuel bed and the load of the available fuel to make fire fighting safer and easier.'³
- 3.4 Just as fuel reduction strategies do not eliminate all vegetation, they cannot and should not be seen as a means to the complete prevention of wildfire.⁴

1 Christopher West, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 11.

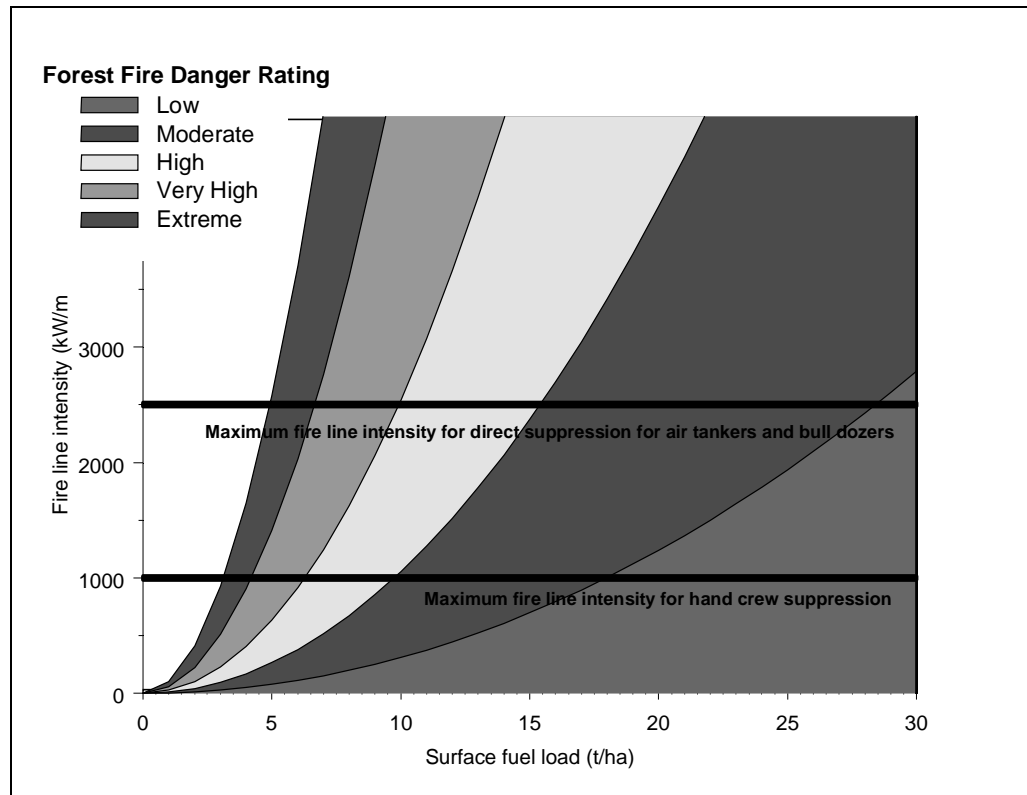
2 CSIRO, *Submission no. 434*, p. 38.

3 CSIRO, *Submission no. 434*, p. 49.

4 Victorian National Parks Association, *Submission no. 176*, p. 6.

- 3.5 The objective of fuel reduction practices is to increase the controllability of a fire event within a greater range of adverse weather conditions than would be the case had reduction not been carried out. This is demonstrated in the following figure.

Figure 3.1 Effect of reducing fuel on the efficiency of direct suppression



Source: CSIRO, Submission no. 450, p. 51

- 3.6 Hand crews can suppress a fire up to a maximum intensity of 1000 kilowatts per metre. If the fuel load is less than 15 tonnes per hectare this intensity will be exceeded under low to moderate fire danger conditions. If fuels are reduced to 10 tonnes per hectare fires will not develop an intensity of 1000 kilowatts per metre until fire danger gets into the moderate to high range.⁵

⁵ CSIRO, Submission no. 434, pp. 50–51.

- 3.7 In 2003 fires burning in extreme weather conditions were reported to be uncontrollable even where fuel levels were low. The VNPA referred to fuel reduced areas that were not protected from severe fire damage. These included:
- Areas south of Mount Buffalo that were regularly fuel reduced, some within the previous three years.
 - A hillside east of Swindlers Valley at Mount Hotham that was severely burnt twice on successive days.
 - Some areas of Kosciuszko National Park that had been subject to prescribed burning only eight months previously yet they experienced crown fires.⁶
- 3.8 However, Mr Vic Jurskis, an experienced forester, maintained the importance of fuel reduction for effective fire management:
- if it is harder to control a fire in moderate conditions, it will still be going when the bad conditions arrive, when you can do nothing about it.⁷
- 3.9 The purpose of fuel reduction, then, is not to prevent wildfires but rather to mitigate the potential of their threat to life, property and the environment. The restriction of the level of available fuel, decreases the:
- intensity at which the fire burns;
 - flame heights and depths; and
 - rate of spread of the fire;⁸
- from what they would otherwise be in the same conditions.
- 3.10 Fuel reduction can be implemented in two distinct but certainly not incompatible ways. First, fuel reduction strategies may be employed to reduce fuel loads over broad expanses of land. Second, fuel reduction strategies may be used to create specific strategically placed fuel reduced areas around assets and through known fire paths.

6 Victorian National Parks Association, *Submission no. 176*, p. 6.

7 Vic Jurskis, *Transcript of Evidence*, 10 July 2003, p. 68.

8 CSIRO, *Submission no. 434*, pp. 49–50.

- 3.11 The Committee received a considerable body of evidence outlining the advantages and disadvantages associated with the implementation of broad scale fuel reduction as part of an effective fire mitigation program in forests. While all evidence on fire mitigation endorsed the implementation of strategic fuel reduction there was disagreement on the effectiveness and desirability of broad scale fuel reduction as a fire mitigation measure.

Broad scale fuel reduction

- 3.12 The two methods of implementing broad scale fuel reduction most commonly referred to in evidence were the implementation of regimes of prescribed burning and grazing by livestock. A wide range of views was expressed on the effectiveness in mitigating wildfire damage and the economic and environmental advantages and disadvantages of these methods.

Prescribed burning

- 3.13 The Committee received a significant body of evidence on the place of fire in the Australian landscape, for instance, the extent and frequency of Aboriginal burning practices in various areas of the continent. Views and arguments diverged on this subject. It is a debate that has a way to run before practical conclusions, if any, can be drawn from it, at least in the south east and south west areas of the country.
- 3.14 The Committee notes the CSIRO's acknowledgment that:
- A complete fire history of Australia is not available and hence it is difficult to assess how human intervention (pre and post European) impacts on 'natural' fire regimes (season, frequency and intensity).⁹
- 3.15 While the Committee is not in a position to make definitive conclusions based on suggested methods of Aboriginal burning practices, the debate does bear out that fire, and its absence, is a significant factor in all the varied ecological communities and that fire regimes (including the exclusion of fire from sensitive areas) is a land management consideration of primary importance.

⁹ CSIRO, *Submission no. 434*, p. 15.

- 3.16 The CSIRO stated that ‘The cheapest and most ecologically sound way to [manage fuel] is by prescribed burning.’¹⁰ Prescribed burning is:

The controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity and rate of spread required to attain planned resource management objectives.¹¹

- 3.17 To be effective, broad scale management of fuel by prescribed burning requires a program or regime of burns be implemented. A burning regime refers to ‘three main components [of fire events in an area]: intensity, frequency and season ...’¹² Regimes of prescribed burning seek to decrease the intensity of fire events by increasing their frequency. Some evidence received by the Committee contested the effectiveness of a regime of broad scale prescribed burning in protecting life and property. Professor Robert Whelan, Dean of Science at the University of Wollongong, raised three orders of concern about the effectiveness of broad scale burning in protecting assets:

- Whether a regime of broad scale burning could be implemented with a high enough frequency to provide the desired protection.
- Whether land managers could obtain the resources to apply the regime.
- Whether it would actually protect property and life in a high intensity wildfire.¹³

10 CSIRO, *Submission no. 434*, p. 49.

11 Australasian Fire Authorities Council, *Glossary of Rural Fire Terminology*, March 1996, p. 22.

12 CSIRO, *Submission no. 434*, p. 16.

13 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 44.

Effects of broad scale burning on life and property

- 3.18 The Committee received a considerable body of evidence arguing that a regime of broad scale prescribed burning is both successful and necessary in protecting life and property. Regimes of broad scale prescribed burns were recommended as increasing the security of personnel involved in fighting fires on the ground through a number of means. Mr Athol Hodgson, one of the most knowledgeable and experienced forest fire fighters in Australia, stated that through broad scale burns:

The height of the scrub layer is lowered ... Visibility is increased and fire fighters can work closer to the edge of the fire and in greater safety.¹⁴

- 3.19 Furthermore, a regime of prescribed burning reduces the possibility of wildfires crowning because:

A canopy (crown) fire occurs when heat from a very intense ground fire raises the temperature of the leaves in the tree canopy to ignition point and burning embers from the ground fire are lifted into the canopy by the convection plume and ignite the leaves. A tree canopy cannot, on its own, support a fire. In the absence of an intense ground fire, crown fires do not occur.¹⁵

- 3.20 At a public hearing in Ballarat Mr Hodgson qualified and amplified this comment:

The distance to which a crown fire will advance ahead of the ground fire can increase if it is going uphill, because the convection column and the heat is going up there, and the crowns are up there instead of vertically above. But it is still a matter of, I do not know, a few hundred metres – it is not a long way.¹⁶

14 Athol Hodgson, *Submission no. 450*, p. 3.

15 Athol Hodgson, *Submission no. 450*, p. 4.

16 Athol Hodgson, *Transcript of Evidence*, 30 July 2003, p. 84.

- 3.21 On level ground a crown fire will not move ahead of an understorey fire beyond one and a half times the height of the trees.¹⁷
- 3.22 Fires that enter the crown or canopy of a forest are of great concern because they:
- Escalate the level of damage, especially in wet sclerophyll forest.
 - Threaten the safety of fire fighters below.¹⁸
- 3.23 Broad scale prescribed burning also restricts the rate of spread of a bushfire by other means. An additional advantage of eliminating the fire brands that are capable of being carried on convection currents from the suspended layer into the crown is the limiting of the potential for a wildfire to spot out in front of itself in extreme fire weather. Broad scale burning eliminates the hanging eucalypt bark which in the windy conditions that accompany extreme fire weather conditions can act as firebrands spotting a fire several kilometres beyond the actual front.¹⁹
- 3.24 The Mountain Cattlemen's Association of Victoria (MCAV), many members of which were involved in fighting the 2003 fires, argued that if an adequate program of prescribed burning had been implemented by land managers, 'the fire would not have spotted so far and frequently in front of itself.'²⁰
- 3.25 The IFA confirmed the significance of fire brands throughout the areas affected by the 2003 fires:
- in the mountain forests of the ACT, southern NSW and Victoria, spot fires were a significant factor in the breaching of containment lines during an unprecedented summer period of 10 days of mild weather with easterly winds. These fires would have been effectively contained, and firebrand spotting reduced had strategic hazard reduction burning been routinely carried out in previous years.²¹

17 Athol Hodgson, *Transcript of Evidence*, 30 July 2003, p. 84.

18 Institute of Foresters of Australia, *Submission no. 295*, p. 12.

19 CSIRO, *Submission no. 434*, p. 49.

20 Mountain Cattlemen's Association of Victoria, *Submission no. 424*, p. 2.

21 Institute of Foresters of Australia, *Submission no. 295*, p. 12.

- 3.26 The IFA argued that a refusal to implement a regime of broad scale prescribed burns posed a threat to life and property even when a bushfire occurred in a remote area:

Under bad fire weather conditions, fires in remote wilderness areas can become very large very quickly, can coalesce and can result in massive fires driving out into state forests, plantations, country towns and even suburbia.²²

- 3.27 The McLeod Report stated that:

fuel reduction burning – although it is the only element in the ‘fire triangle that can be manipulated – is never going to be a fail-safe remedy for bushfire risk in all circumstances.

In relation to the January 2003 fires, the real significance of fuel reduction rests with the potential to control fires immediately after the lightning strikes on 8 January.²³

Environmental consequences

- 3.28 The Committee received a wide range of views on the environmental effects of implementing regimes of prescribed burning. At a public hearing in Ballarat Dr Peter Attiwill, current Principal Fellow and Associate Professor in Botany at University of Melbourne, appearing on behalf the Institute of Public Affairs estimated the balance of academic opinion for and against prescribed burning for ecological reasons in the following proportions:

If we are talking about the management of low heath lands like those we have at Wilson’s Promontory, I think every ecologist would agree that they have to be burnt every 10 years. I think the Shea-Tolhurst group would be 90 per cent in favour and maybe 10 per cent against. When it comes to forests, again there is ideological opposition to burning – even among ecologists. But I would think that they would represent – I would have to guess – about a 75 per cent view.²⁴

22 Institute of Foresters of Australia, *Submission no. 295*, p. 15.

23 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, pp. 84-5.

24 Peter Attiwill, *Transcript of Evidence*, 30 July 2003, p. 47

- 3.29 Those passages of evidence which challenged the effectiveness and feasibility of broad scale prescribed burning suggested that increased frequency of burns in large areas could have deleterious effects on the environment through loss of biodiversity. They suggested that a regime of too frequent burning could alter the constitution of an existing ecological community increasing its flammability.

Effect on biodiversity

- 3.30 Professor Whelan suggested that the question of whether or not to implement a regime of broad scale prescribed burning, particularly in national parks, 'ought to be looked at as an issue of conflicting assets.'²⁵

- 3.31 If a regime of burning to a single frequency was applied across the landscape biodiversity values would suffer:

if a particular fire regime were uniformly applied across the landscape one particular group of species would be favoured. ... Among those [species] that are lost are [those] listed as rare and endangered.'²⁶

- 3.32 Concerns that a high frequency, low intensity fire regime would lead to a uniform ecological community were summed up by Professor Whelan in specifying different meanings of the phrase 'mosaic burning':

This term 'mosaic burning' has been used colloquially to have two separate meanings. In discussions with the state government in New South Wales after the 2001 fires, evidence was given in the Blue Mountains using the term mosaic burning to mean that across the landscape we will have some patches of vegetation that are burned frequently and within the mosaic other patches that are burned infrequently.

'Mosaic burning' is more commonly used to describe a situation in which every patch in the landscape gets burnt ... [for instance] every five years but not the whole landscape in any one year; so it is rotational.

The consequence of that, if it were effectively applied across the landscape, is that after your first cycle of five years when the next fire was applied, no patch in the landscape would be

25 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 35.

26 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 37.

older than five years – which is, after all, the intention of an effective hazard reduction program. The consequence of that is a change in the habitat to eliminate dense shrubs from the mid-storey, probably remove shrubs from the understorey, and therefore eliminate species like the long-nosed potoroo and the eastern bristlebird, which are common in [the Shoalhaven] region. It is not even an issue of their being able to escape the patch where the fire has burned now and then recolonise some other patch. Fire at that frequency changes the structure of the whole landscape.²⁷

- 3.33 He contrasted the emergence of a less diverse ecological community that accompanies the implementation of a regular prescribed fire regime with the results of occasional high intensity wildfires:

we always hear in news reports after big fires ... that the landscape, the vegetation or the ecological community are destroyed. Even in the most intense fires, this is not the case. Individual organisms die in fires ... but populations of organisms survive even high-intensity fires because they are able to recover afterwards, given enough time.²⁸

- 3.34 However, he acknowledged the possibility that a regime of frequent low intensity fire may serve to protect environmental assets by reducing the possibility of a high intensity bushfire event:

if it is indeed shown that high-intensity fire has caused the sort of damage from which species in the Snowy ... will not recover, then obviously it is a fire regime that needs to be prevented in those areas.²⁹

- 3.35 The BMCS specified some of the local fire sensitive species that had survived the effects of infrequent high intensity wildfire but may be threatened by regimes of more frequent low intensity fire:

the Wollemi Pine and the dwarf creeping pine ... are fire-sensitive species which live in restricted areas where they are protected from fire ... They predated Aboriginal people ... It would seem that in the absence of human management these species have survived.³⁰

27 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 41.

28 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 36.

29 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 42.

30 Hugh Paterson, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 22.

- 3.36 The BMCS related how populations of mountain ash, brown barrels and black ash could be killed by a high intensity wildfire but, on maturity, can withstand low intensity fires. A high fire frequency when a population is younger could lead to the forest being killed and not replaced because there would not be any seed available. A very aged forest could be replaced by other species if a high intensity fire didn't occur before the trees stopped producing seed:

Their natural fire regime is probably similar to the mountain ash forests in Victoria. They are forests that tend to be killed by very hot fire and then regenerate. There is seed release from the canopy and seedling recruitment ... If there is a second burn when the forest is very young, those species will be lost.³¹

- 3.37 However, at a public hearing in Richmond an experienced fire fighter suggested that, in fact, there is evidence that intense wildfires rather than high frequency burning regimes are altering the structure of ecological communities. The:

area west of Mount Tomah is now a completely different place from what it was before it was made a dedicated park ...

I believe that it is entirely due to National Parks and Wildlife doing no hazard reduction here. The only fires in this area since that time have been monster, out-of-control wildfires. I strongly believe that, unless in the unlikely event that National Parks and Wildlife completely change direction in their hazard reduction policy, it can never recover. This also applies to other national parks – for instance, the Royal in Sydney. This park has had a succession of enormous fires which are quite unnatural in this area. The proof they are unnatural can be seen by the size of the trees that have been killed. They have been there all that time and withstood thousands of low-intensity fires which have contributed to their growth. They did not evolve to withstand these monster fires ...³²

31 Hugh Paterson, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 22.

32 Brian Hungerford, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 45.

- 3.38 Dr Peter Attiwill acknowledged the possibility of losing species locally in any fire regime but he set local losses in a broader context:

When you go into the high country and see large bare patches within a forested area, that is undoubtedly where there has been a second fire after a previous one and the second fire has come too early for the community to have set seed. [However] that is a component of biodiversity itself. The idea that we should have all of this area entirely covered with 10 points of biodiversity is wrong because a major component of biodiversity is the difference between this bit of land on this ridge, that bit of land on the northern ridge and the other bit of land in the gully.³³

- 3.39 The CSIRO stated that:

Alpine Ash (*Eucalyptus delegatensis*) ... do not resprout after crown scorch but will regenerate en masse from canopy stored seed released from capsules after a hot fire. However, this species can withstand very low intensity burns if there is no canopy scorch. This contrasts with other high altitude dominant species such as Snow Gum (*Eucalyptus pauciflora*), Mountain Gum (*E. dalrympleana*) and Broad-leaved Peppermint (*E. dives*) which will resprout from epicormics and lignotubers ... Stands of Alpine Ash are therefore found in more protected situations ... where the frequency and intensity of intense fires is low and stands tend to be even aged ... catastrophic fires may be necessary for stand replacement. However, the long term effects of hazard reduction burns are not known.³⁴

- 3.40 During its inspections through the Omeo area on 22 May 2003 the Committee witnessed the wide ranging devastation of Alpine Ash forests. The Committee was concerned that, in fact, infrequent high intensity fire storms are more likely to devastate these forests than a carefully researched and applied regime of low intensity frequent burns which takes into account regeneration of juvenile populations after a high intensity fire.

33 Peter Attiwill, *Transcript of Evidence*, 30 July 2003, p. 50.

34 CSIRO, *Submission no. 434*, p. 29.

3.41 Mr Cheney of the CSIRO stated that:

There were certainly areas, burnt under the extreme conditions, which not only suffered a fire effect, but where extraordinarily strong winds moved a lot of material off the surface to the degree that the bark on certain species had been sandblasted off by the moving soil. ... In those areas, a certain amount of the seed that was in the topmost layer of the soil will disappear. Other seeds, deposited lower in the profile, will undoubtedly regenerate. It is difficult to generalise, but probably there will be strong legume regeneration through a lot of those areas.

Whether the ash forests regenerate will depend a bit on whether they were carrying seed at the time and then what happens to it. In the areas west of the ACT the forest will ... conservatively ... take more than 200 years to return to anything like their original condition because many of the trees have not shot; only the largest have shot from the base. That means you will have a coppice forest ... in that area. It will be a long time before it comes back to a single-stemmed forest.³⁵

3.42 Dr Kevin Tolhurst, a senior lecturer in Fire Ecology at the University of Melbourne, stated:

The fire that we had this summer did not, in a lot of areas including the Big Desert and eastern Victoria, leave ... unburnt patches. The time of recovery in some of those areas is going to be enormous. Up on some of the high plains it is not too bad, but down in some of the foothill country it has been quite comprehensive in the way it has burnt those areas. What I am suggesting is that if we have more prescribed fires across the landscape, not only does it provide opportunities to suppress fires, it provides refuge for plants and animals during the fire event and provides boundaries from which you can actually help suppress fires. There have been quite a few examples over the summer of where prescribed burns were quite useful in the suppression operation.³⁶

35 Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 38.

36 Kevin Tolhurst, *Transcript of Evidence*, 30 July 2003, p. 60.

3.43 This view was supported by Mr Cheney:

if there is a frequent fire regime which is applied basically under moderate weather conditions, these niches [rocky outcrops, deep valleys and deep gullies] are more likely to be left behind. As these recent fires showed, when you get extensive fires under drought conditions, the burning is also very uniform. It goes into just about every niche. It is only very remote niches that miss out.³⁷

3.44 Mr Peter Bentley, a consultant in natural resources management, specified time periods for recovery of some of the fire affected ecological communities:

Some of those plant associations ... will probably start to recover within one to three years. For some of the older classes – for instance, *Eucalyptus delegatensis* – you are looking at recovery time frames of 15 to 25 years. For some of the snow gum country you are probably looking at in excess of 50 to 75 years before you will see full recruitment and composition of those communities that existed before.³⁸

Effect on flammability

3.45 Ms Susie Duncan of the Wilderness Society referred to the possibility of prescribed burning increasing fuel loads:

In our local Chiltern-Pilot area, we have dry forests that merge into woodlands. They tend to have a very rapid leaf drop afterwards [a fire]. Some of the moister forest types have some resilience to fire and may be less inclined to drop as much, unless they have a particularly large amount of bark that will fall.³⁹

37 Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 33.

38 Peter Bentley, *Transcript of Evidence*, 30 July 2003, p. 54.

39 Susie Duncan, *Transcript of Evidence*, 25 July 2003, p. 69.

- 3.46 Mr Evan Rolley of Forestry Tasmania acknowledged the possibility that the implementation of a too frequent regime of prescribed burning could have the undesirable consequences of increasing the flammability of the landscape through changes of species from those that are non flammable fire intolerant, such as those for instance that are found in rain forests, to those that are flammable fire tolerant:

Too frequent a burning will just produce more flammable material on a regular basis, so you lock yourself in to having to burn every couple of years.⁴⁰

- 3.47 The VNPA provided an example of a regime of prescribed burns increasing the flammability of an area by altering the constitution of the ecological community to increase its flammability:

The alpine and sub-alpine area is one of these [environments where prescribed burning will actually increase rather than reduce fuel loads]. The removal of grass cover encourages the germination of shrub seedlings and regular fire will favour those species that can take advantage of the bare ground ... Some of these shrubs such as *Bossia foliosa* and *Ozothamnus hookeri* can increase rapidly after fire and will burn fiercely in any subsequent fire.⁴¹

- 3.48 Obversely, the CSIRO stated that in alpine and subalpine environments the long term absence of fire appears to encourage ecological communities that are fire resistant:

In the absence of fire in the longer term, the shrub layer senesces and becomes replaced by snow grass and herbaceous species.⁴²

- 3.49 Mr Ian Haynes confirmed the resistance to fire of grassland as opposed to heathland:

I walked through Kosciuszko after the fire ... As the ember storm went through it started fires anywhere the plant communities were slightly open, wherever there were some woody plants.

40 Evan Rolley, *Transcript of Evidence*, 1 August 2003, p. 3.

41 Victorian National Parks Association, *Submission no. 176*, p. 8.

42 CSIRO, *Submission no. 434*, pp. 29–30.

If the grass thatch was very tight and close there was hardly a mark on the grass. You might find a piece the size of these coasters where the fire was starting to go out. In other places it roared straight through. Anywhere amongst the trees where there was woody material it would burn straight through.⁴³

- 3.50 The Committee also received suggestions that with a regime of frequent fire:

There is ... a possible impact on soil invertebrates ... that may result in the rate of breakdown of leaf litter being reduced.⁴⁴

- 3.51 The Convenor of the Albury-Wodonga Environmental Centre and lecturer with the Department of Environmental Management and Ecology at La Trobe University expressed concern that:

there is a danger that future fuel reduction programs might become a bit overzealous, in an attempt to compensate for alleged deficiencies in previous management approaches. I think that this could be extremely ecologically harmful, if it occurs. The soil and litter organisms ... are really critical aspects of the health of forest ecosystems ... They are critically involved in the decompositional and nutrient recycling processes.⁴⁵

- 3.52 However, Dr Attiwill claimed that:

there is no doubt that we should prescribe burn under most conditions – the situation is the same the world over, not just in Australia – otherwise organic matter builds up. This organic matter eventually locks up nutrients, and ecosystems become less productive. This was the experience in Yellowstone. The fire rejuvenated not just the plants and animals but the ecological processes on which sustainability depends.⁴⁶

43 Ian Haynes, *Transcript of Evidence*, 14 July 2003, p. 52.

44 Victorian National Parks Association, *Submission no. 176*, p. 8.

45 Dennis Black, *Transcript of Evidence*, 25 July 2003, pp. 63–64.

46 Peter Attiwill, *Transcript of Evidence*, 30 July 2003, pp. 50–51.

- 3.53 The General Manager of the Snowy River Shire Council, Mr Ross McKinney, who has extensive experience in land and fire management emphasised the paucity of knowledge on the effect of invertebrates on fuel loads:

if you want to ask someone, 'What is the number of insects per square metre in leaf litter and what contribution does that make to the overall ecology?' you will not get an answer. The reason you will not get an answer is that the work is not being done. There is no real definitive research being conducted here which would lead anyone to a scientific direction on the role, the use or the frequency of fire in that area.⁴⁷

- 3.54 Claims of prescribed burning increasing the flammability of an ecological community by compromising the rates of breakdown of fuels were countered by claims that high intensity wildfires, which eliminated forest canopy, increased the flammability of ecological communities. The Kurrajong Heights Brigade stated that in implementing a regime of prescribed burning:

we have encouraged the big trees at Kurrajong Heights – the canopies tend to interlock. That suppresses the sunlight, retains the moisture in the ground and the humus rots down quicker. If you get a wildfire through, it kills your big trees. Once you kill your big trees off, it is a whole different process, because it then tends to come back as scrub. The scrub burns hotter next time because the fuels are more compacted ...⁴⁸

Weeds and fire

- 3.55 The relationship between weeds and fire is mutually beneficial. Weeds accumulate quickly seizing opportunities in open ground following high intensity fire. They dramatically increase fuel loads and thus the intensity as well as the rate of spread of any fire subsequent to the infestation.

47 Ross McKinney, *Transcript of Evidence*, 10 July 2003, p. 53.

48 Brian Williams, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 22.

- 3.56 Typical of evidence received on the effect of weeds on fire was the observation of the Captain of the Dartmouth Rural Fire Brigade:

noxious weeds along streams and throughout the bush ...
were the greatest heat zones in the fire due to the amount of
fuel they created.⁴⁹

- 3.57 In addition to evidence of the contribution made by weeds to fire intensity, the Committee heard that weeds reduced the effectiveness of rivers as fire breaks. A land holder in the area to the west of the Australian Capital Territory stated that:

The black berries in the park are incredibly invasive and border all along the Goodradigbee River. They are ... of considerable threat to neighbouring property owners because of their volatile nature in the event of a fire in the summer.

The river is not a firebreak in any sense. There is a canopy over the entire river, and the park side is very dense – in some areas, up to 200 metres thick – with blackberries.⁵⁰

- 3.58 Another landholder from the area described explicitly how blackberry infestation made obsolete expectations that the Goodradigbee River would operate as a fire containment line:

They may say that they put firebreaks in on the western front, but that was only for a very short distance. The majority was left unprotected. I believe the river was thought of as a containment line. Having numerous trees across it and blackberry infested riverbanks in some areas spanning less than two metres apart, it made an ineffective containment line.⁵¹

- 3.59 However, fire also aids the spread of weeds. The National Association of Forest Industries (NAFI) referred to the effect of bushfire on weeds:

All that is happening [in the wake of the 2003 fires] is that blackberries are taking over in those areas that have been burnt. You can see them to the south of Canberra ... [and] as you move through Kosciuszko National Park ...⁵²

49 John Scales, *Submission no. 162*, p. 6.

50 Katja Mikhailovich, *Transcript of Evidence*, 14 July 2003, pp. 85–86.

51 Wayne West, *Transcript of Evidence*, 14 July 2003, p. 32.

52 Phil Townsend, *Transcript of Evidence*, 14 July 2003, p. 15.

- 3.60 The significance of some weeds for the implementation of regimes of prescribed burning was explained by Mr Donald Matthews with reference to the life cycles of Blackberry (*Rubus fruticosus*) and Bracken Fern (*Pteridium aquilinum*):

Both are perennials with biannual foliage, [that is] the first years growth is lush vegetation which in the second year becomes hardened and highly flammable and then dies...⁵³

- 3.61 The germination of Blackberry seed is stimulated by heat. Bracken Fern has an extensive underground rhizome system and its foliage is allopathic, that is it inhibits the growth of other species, thus ensuring it out competes them after a fire. Mr Matthews' submission stresses the importance of applying herbicide to these weeds within the first year of a fire in reducing fuel.

- 3.62 Fuel reduction of weeds through the application of herbicide was supported by the Conservation Council of Western Australia (CCWA):

there are different ways of reducing the flammable vegetation and it is not necessarily through fire, because you get this immediate response from the fire weeds, whether it is exotic weeds or our plants, which respond massively to fire. You get a very quick build-up so that the protection offered by this burning reduction is very short-lived.⁵⁴

- 3.63 Mr Alan Walker, the Director of Regional Services with CALM indicated that the impact of fire regimes on levels of weeds was an important consideration of the implementation of prescribed burns in Western Australia:

On the Swan coastal plain, where there are mostly woodland species – banksia woodlands and tuart woodlands – we recognise that frequent fire will increase the risk of weed invasion and other threatening processes associated with frequent disturbance, so we adopt a very different regime for fire on the Swan coastal plain ...⁵⁵

53 Donald Matthews, *Submission no. 43*, p. 1.

54 Beth Schultz, *Transcript of Evidence*, 6 August 2003, p. 35.

55 Alan Walker, *Transcript of Evidence*, 6 August 2003, p. 79.

Effect on soil erosion and water siltation

- 3.64 Advocates of broad scale prescribed burning referred to the environmental damage following a high intensity wildfire:

Major intensity wild fires ... create conditions for an enormous loss of topsoil and humus due to erosion and with it the resultant loss of nutrients. The silt run off after rain finds its way into all the gullies, creeks and rivers, adding to the environmental damage⁵⁶

- 3.65 The Department of Environment and Heritage recalled the reason for the institution of many national parks was the maintenance of good quality catchment areas:

The area that is now Namadgi National Park was included in the Australian Capital Territory to provide catchment for Canberra's water supply. Kosciuszko National Park was established in 1944 to protect the catchments.⁵⁷

- 3.66 Mr Bentley reported that in the wake of the fires in north eastern Victoria that the health of the catchments had been compromised:

You are ... seeing effects where you will get excessive nutrient sediment run-off. You will see changes in hydrology: certainly the streams will take one to five years to recover, particularly after flash flooding events. There are myriad effects that come to the community downstream.⁵⁸

- 3.67 A manager of the North East Catchment Management Authority, a Victorian statutory authority which manages the Upper Murray, Mitta, Kiewa, Ovens and Kings Rivers, confirmed an increase of silt in water ways:

The initial monitoring events ... were indicating that the turbidity readings were at about 50 NTU—NTU being the measurement unit. Normally we would expect that to be in the tens.⁵⁹

56 Kurrajong Heights Rural Fire Brigade, *Submission no. 158*, p. 7.

57 Bruce Leaver, *Transcript of Evidence*, 22 August 2003, p. 40.

58 Peter Bentley, *Transcript of Evidence*, 30 July 2003, p. 54.

59 Geoff Robinson, *Transcript of Evidence*, 25 July 2003, pp. 81–82.

- 3.68 The Committee observed first hand the graphic effect of soil erosion and siltation of waterways at Junction Shaft during its inspection in Kosciuszko National Park on 21 May 2003. The surrounding area was observed as having been clearly subjected to an intensely hot fire and the subsequent affect on the water storage was depicted by a red 'oily' sludge.
- 3.69 A landholder in the Naas district of the Australian Capital Territory described the effects of siltation following the bushfire:

We have two creeks [on our property]... Before the fire, they were typical mountain streams. They had rocky holes and everything else. At the top of our place, adjoining the National Park, it looks like somebody has poured concrete there. The creek is now two or three inches deep and there is just silt and gravel. It is like somebody has got concrete and poured it there. You can just see it and screed it off. All of the holes have filled up. We had people clearing the trees and excavating down to the hole that we pump from below the house. They pulled out roughly 40 cubic metres of soil, they estimated.⁶⁰

Grazing

- 3.70 An alternative method of broad scale fuel reduction is through the implementation of grazing. Grazing leases were not renewed in the Kosciuszko National Park from 1969 with 'Permissive occupancies allowed to run their term to 1975'.⁶¹ Pastoral activities are allowed, but at a much diminished level, in Victorian national parks.
- 3.71 Evidence from the Gippsland and north east regions of Victoria and the south east region of New South Wales, included calls for the reintroduction and expansion of grazing in national parks as a fire mitigation strategy.

⁶⁰ Stephen Angus, *Transcript of Evidence*, 15 July 2003, p. 83.

⁶¹ Robert Maguire, *Transcript of Evidence*, 10 July 2003, p. 95. The Department of Environment and Heritage, stated that permissive occupancies expired in New South Wales in 1972.

3.72 The MCAV made two general observations on the effect of grazing on the 2003 fires:

- grassed and grazed areas of members' licences did not burn; and
- former licence areas that have been excluded from grazing, especially in areas where heath has flourished since the removal of grazing, did burn.⁶²

3.73 As with fuel reduction strategies in general, 'The cattlemen do not claim that grazing prevents fire, only that it reduces fire.'⁶³ A member of the MCAV, suggested that grazing played an important role in preventing the emergence of a fire tolerant, flammable ecological community immediately following a wild fire event:

Directly after the '39 fires ... vast numbers of sheep and cattle were grazed on the Bogong High Plains. This post fire grazing helped to control an explosion of woody species thus preserving these highly sought after alpine meadows ...⁶⁴

3.74 The importance of grazing immediately after fire as a control of woody weeds was emphasised:

I do not believe cattle have a direct impact on weeds ... blackberry, broom, or whatever it is in that area—cattle grazing probably would not have had a big impact on them until after the fire. As for the short new growth of those weeds, the cattle will graze them. Prior to the fire, the cattle would not go near them.⁶⁵

3.75 It was also suggested that an explosion of woody weeds and the loss of grassland would result in a:

loss of water quality, as woody species can't hold back soil as effectively as grass during the torrential downpours commonly experienced in the high country.⁶⁶

62 Mountain Cattlemen's Association of Victoria, *Submission no. 424*, p. 2.

63 Mountain Cattlemen's Association of Victoria, *Submission no. 424*, p. 2.

64 Mountain Cattlemen's Association of Victoria, *Submission no. 424*, p. 9.

65 Jack Hicks, *Transcript of Evidence*, 24 July 2003, p. 66.

66 Mountain Cattlemen's Association of Victoria, *Submission no. 424*, p. 10.

3.76 A landholder and Group Captain in the Snowy River area stated that:

The Gungahlin River ... and I have land there – has been grazed ... We stopped the fire on that particular front. The Gungahlin River is the only river in the Snowy catchment area that was not affected by fire ... There is a piece taken over by the national park ... that burnt.⁶⁷

3.77 The New South Wales Manager of Timber Communities Australia (TCA), Mr Peter Cochran stated:

In these recent fires the only area that was not burnt to any extent was the area where the brumbies run in the northern end of the Kosciuszko National Park. The fact that brumbies graze the areas up there unquestionably prevented the area from being burnt out.⁶⁸

3.78 The effectiveness of grazing in reducing fuel was not simply limited to the action of livestock on the biomass of an area. A landholder explained that the land management practices of graziers also contributed to the mitigation of fire:

From 1972 to 1988 there was a 16-year fuel build-up in Byadbo, with the only successful hazard reduction burn in Jerrys Flat area – approximately 350 hectares. From January 1998 to December 2002 very little success with the autumn burns resulted in another wildfire. I believe the significance of these two periods relates to the lack of burns – which had been conducted by local graziers from Tingaringy Mountain to the south-west and Kangaroo Ground Creek to the north prior to 1972 – and the fact that, up until this time, cattle grazing was permitted.⁶⁹

3.79 The VNPA rejected calls for an increase of grazing in national parks pointing out that:

Of the 62 grazing licences in the Alpine National Park 42 were burnt or partly burnt. In the surrounding state forests, 92 licences were burnt out of a total of 129. A total of 240,000ha under grazing licences within the Park that was burnt

⁶⁷ Darvall Dixon, *Transcript of Evidence*, 10 July 2003, p. 5.

⁶⁸ Peter Cochran, *Transcript of Evidence*, 14 July 2003, p. 29.

⁶⁹ Clive Cottrell, *Transcript of Evidence*, 10 July 2003, p. 4.

amounting to approximately 93 percent of the area of all national park grazing licences within the fire area.⁷⁰

3.80 In the 2003 fires on the Bogong High Plains of north east Victoria:

The most flammable parts of the alpine/treeless subalpine landscape are the heathlands ... because of fuel architecture. The closed heathlands also occur on the steeper slopes and intensity and rate of spread increase with increased slopes.

Grasslands, on the other hand, occur on the gentle slopes, and the grass fuels are less flammable than the shrub fuels ...

There are even examples on steep slopes, where 0.2-1 ha areas of snow patch herbfield/grassland were unburnt, even though the surrounding heath was severely burnt.

Cattle prefer the open grassy communities, where there is the greatest abundance of palatable species.⁷¹

3.81 In response to claims that grazed areas had allowed bushfires to be brought under control and extinguished the Centre Director of Asset Protection, Forestry and Forest Products of the CSIRO, Mr Tim Vercoe stated:

Without looking at the particular cases, the comments I would have would be that it is possible that those areas would have stopped the fire anyway in the absence of grazing – the issue being that grazing normally occurs on the wetter and bogger areas. The other thing that grazing can do is increase accessibility to some of the areas, and accessibility is certainly a factor in tackling the fires.⁷²

3.82 The CSIRO qualified many of its statements on grazing as a successful fire mitigation strategy by stating that more research was needed in this area. However, as an example of the apparent ineffectiveness of grazed land in stopping wildfire, the CSIRO cited the fire event:

from Spion Kopje of the unburnt snow patch herbfields on steep slopes surrounded by severely burnt heath was from country that had been ungrazed for 12 years.⁷³

70 Victorian National Parks Association, *Submission no. 176*, p. 9.

71 CSIRO, *Submission no. 434*, pp. 22–23.

72 Tim Vercoe, *Transcript of Evidence*, 14 July 2003, p. 65.

73 CSIRO, *Submission no. 434*, p. 23.

- 3.83 On the issue of cattle grazing in national parks, the CSIRO concluded its consideration in the following terms:

Stock reduce the rate of recovery of vegetation, at least in the early recovery phases of regeneration ... It will be impossible to keep stock out of burnt bogs and off steep, burnt slopes – areas that will be particularly susceptible to trampling. Thus, continued grazing post-fire is a threat to both catchment and biodiversity values.⁷⁴

- 3.84 During a public hearing at Wodonga the ongoing status of the CSIRO's conclusions was emphasised:

Like all scientific work, [CSIRO research] is ongoing, and to have a straight conclusion from that is very unlikely ... I believe the CSIRO will go back now and probably include this in their studies on from here. The fact is that CSIRO did not do studies straight after 1939. There has not been a wildfire in a grazed area of the Bogong High Plains since then, so I think they are going to learn a lot from the grazing of the alpine area.⁷⁵

- 3.85 Dr Kevin Tolhurst summed up the contradictory evidence of the impact on grazing on mitigation of bushfire damage:

I do not think there is any definitive answer to that. A few months ago I saw some ... plots up on the Bogong High Plains. You can go to one plot which has been a grazing exclusion plot ... I think they were established in about 1944 so they have been ungrazed a long period of time – and see that inside the fence area has been burnt and it has not been burnt outside. You go to the next plot and you can see the reverse: it has burnt up to the fence and gone out.

I guess for a bigger contrast you can compare the fire that burnt in Caledonia in the 1997 which burnt through an area that had been under grazing and which burnt very intensely. Looking at the area that was grazed this year, it was quite patchy. It was more about how the fire got to those areas and how it burnt. In the Caledonia fire it ran up from a low valley up and across the high country and out. Whereas the fires

⁷⁴ CSIRO, *Submission no. 434*, p. 24.

⁷⁵ Jack Hicks, *Transcript of Evidence*, 25 July 2003, p. 3.

that started this year basically started in the high country and burnt down ... I do not think that grazing can clearly be defined as being massively helpful or massively unhelpful from a fire suppression point of view.⁷⁶

- 3.86 Clearly, a great deal more research is required on the effects of grazing on the environment and as a land management practice that mitigates the bushfire damage, both immediately following a fire event and in the long term.

Strategic fuel reduction

- 3.87 Passages of evidence that raised concerns about the environmental impact of regimes of broad scale prescribed burning on the environment offered an alternative strategic fuel reduction program of mitigating wildfire damage. This involves the implementation of fuel reduced asset protection zones through known fire paths and around assets to be protected.

- 3.88 Professor Whelan stated:

Hazard reduction, including hazard reduction by frequent burning, has its place. It is very important in protecting lives and property and should be used that way. It should not be used as a technique uncritically applied right across the landscape, because we would then undermine all the things we have tried to achieve in the area to protect other assets.⁷⁷

- 3.89 The VNPA stated that: 'In general for fuel reduced areas to be useful, they need to be near to the assets to be protected ...'⁷⁸
- 3.90 Because of the smaller area and greater accessibility of such zones fuel reduction could be implemented through an array of methods including burning, grazing, the application of herbicide, mowing and slashing.

76 Kevin Tolhurst, *Transcript of Evidence*, 30 July 2003, p. 64.

77 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 44.

78 Victorian National Parks Association, *Submission no. 176*, p. 8.

- 3.91 The Manager of the Fire Services Branch in CALM indicated the maximum frequency of burning required for effective asset protection zones in Western Australia:

In the last 10 years, the shortest would be about five or six years. There are very few cases, but they would be particularly around high-value town sites.⁷⁹

- 3.92 A representative of the Alpine Shire Council alluded to an understanding of strategic fuel reduction in its most comprehensive sense as a strategy that goes beyond the establishment of protection zones immediately adjacent to assets:

we have had a history of fires in certain locations where, strategically, areas should be perhaps maintained to a higher standard ... strategically you should look at some of your key assets to prevent it spreading to other areas of the national park or to towns and population centres. We believe there could be improvements to a strategic plan – trying to improve those containment lines or containment areas more so than containment lines.⁸⁰

- 3.93 Dr Tolhurst referred to a study into the effectiveness of strategic burning:

The result of that work basically showed that the burning in the fuel management's zone ones – the areas closest to private property or high value assets – was good value for money in that the fires were running into those zones and were actively helping fire suppression efforts more than would have been expected just on the basis of chance. Zone ones represent somewhere between three percent and five percent of the parks and forests, a pretty small and very localised area – up against people's back fences, effectively. So that is good value for money. We did not address whether enough of that was being done but what was being done was effective.

Similarly, in fuel management zone twos, which are strategic corridors, it was good value for money in the sense that it was assisting in the suppression effort. Fuel management zone two might represent up to 20 percent of the estate, so that

79 Rick Sneeuwjagt, *Transcript of Evidence*, 6 August 2003, p. 80.

80 Ian Nicholls, *Transcript of Evidence*, 24 July 2003, p. 51.

leaves us with about 80 percent of the public land. But the issue for protection is less clear there. We found that there is an even chance as to whether a fire would run into a prescribed fire across that other 80 per cent of the landscape. We were getting benefits from those fires in the landscape but only in proportion to the number that had been done.⁸¹

- 3.94 The CSIRO questioned the effectiveness of fuel reduced asset protection zones as, by themselves, providing an adequate level of protection:

Grazing by livestock, either present (Victoria and areas close to Canberra) or absent (much of the Kosciusko area), made little difference to the spread or intensity through alpine (high altitude treeless) regions.

Certain parts of Canberra received substantial ember attack where hundreds of meters of well grazed paddocks existed between them and the forest fuels.⁸²

- 3.95 The implementation of protection zones, like fuel reduction strategies more generally, do not aim at creating a desert area devoid of vegetation: 'Overclearing can result in serious erosion issues.'⁸³ Further advantages of maintaining some vegetation in fuel reduced asset protection zones were pointed out by the BMCS:

It is not good to remove every tree around the house ... because some trees ... can reduce wind speed and can intercept ember attack and provide some protection for the house. So it is not necessarily appropriate to remove every tree... but it is certainly not appropriate to have a continuous canopy of trees from the bush right up to the house and overhanging it.⁸⁴

- 3.96 The Committee received evidence referring to areas where regimes of strategic prescribed burning have been successfully implemented. The Kurrajong Heights Brigade outlined details of its Strategy of a Zoned Approach to Hazard Reduction that it has developed over the last 25 years.

81 Kevin Tolhurst, *Transcript of Evidence*, 30 July 2003, p. 59.

82 CSIRO, *Submission no. 434*, pp. 7–8.

83 Frank Garofalow, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 2.

84 Hugh Paterson, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 24.

- 3.97 The strategy involves conducting burns of 500 to 1000 hectare through 18 designated blocks on different years through a seven to 15 year cycle in an interlocking mosaic pattern.⁸⁵ The Brigade stated that within this regime there is further variation of fire frequency:

Our main fire paths are from the north north westerly direction. we burn areas on the eastern side of the mountain a lot less frequently, because on the eastern side of the mountain the moisture is contained more, it is not exposed to the same winds, the build up on the forest floor rots down quicker ...⁸⁶

- 3.98 The Kurrajong Heights Brigade suggested that asset protection zones consist of three blocks, burnt in different years, lying between bushland and the assets to be protected. An effective system of asset protection zones involves significant maintenance and involves more than maintaining a narrow deforested area of 30 or even 100 metres around assets. It requires the implementation of a carefully planned strategy over many years and significant areas of land.

- 3.99 The Program Leader in Natural Systems with the BMCC stated that the Council's long term fuel reduction plan involves attempting to:

hazard reduce everything between a set period. That period ranges, depending on the severity of the location, between once every 10 years and once every 20 years ...⁸⁷

- 3.100 According to Professor Whelan, a regime such as that proposed by the BMCC is environmentally sustainable:

a fire every 10 years on the ridge tops in the Hawkesbury sandstone – and by the Hawkesbury sandstone I mean the plateau vegetation surrounding Sydney and surrounding this region ... at that frequency is at the lower end but it is within the realms of survivability, if you like, for most of the species we know about.⁸⁸

85 Kurrajong Heights Rural Fire Brigade, *Submission no. 158*, p. 11 and Brian Williams *Transcript of Evidence*, 9 July 2003 (Richmond), p. 17.

86 Brian Williams, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 22.

87 Frank Garofalow, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 18.

88 Robert Whelan, *Transcript of Evidence*, 8 July 2003, p. 38.

A comprehensive strategy of fuel management

The implementation of a program of prescribed burns in south western Australia

3.101 Mr Alan Walker of CALM acknowledged the importance of tailoring regimes of prescribed burning to local requirements:

In terms of some of the species that occur in wetlands and in areas where there are deep peat deposits, we need to adopt a more precautionary approach in ensuring that those habitats are afforded proper protection, for fairly obvious reasons. Similarly, where there are species known to us that have longer periods of time to first flowering, and there is the need to take those life attributes into account in the interval between fires, that is part of the biodiversity project that we are building at the moment, which will take into account the special needs of particular species.

I would also have to say, though – and this is a generalisation – that many of the species that require the longer intervals between fires occur in riverine areas or riparian areas – moister areas in the landscape – around rock outcrops and so on. We would not aim to burn those every time the area is burnt. We would plan for a longer interval in those parts of the landscape in a prescribed burning regime. That is very much a generalisation and a simplification of what happens, but where we understand and know that there are special needs of species or ecological communities we are building that into the fire regime.⁸⁹

3.102 The Committee was informed that CALM had;

left a couple of areas for more than 60 years, because it is very important for research. We have a significant number of designated areas, where we have planned not to burn in the foreseeable future.⁹⁰

89 Alan Walker, *Transcript of Evidence*, 6 August 2003, p. 78.

90 Rick Sneeuwjaagt, *Transcript of Evidence*, 6 August 2003, p. 81.

- 3.103 The development of prescribed burning plans needs to be flexible, taking particular account of the impact of other unprescribed fire events:

It makes no sense ... with the limited opportunities we have, to reburn something right next to it, after a wildfire. It is an automatic part of our review and future planning that we take account of past fires, current fires and our achievements in that prescribed burning program.⁹¹

- 3.104 The Executive Chair of the Division of Environment and Natural Resources of the CSIRO, Dr Stephen Morton, referred to specific burning guides that had been developed with CALM:

These burning guides attempt to show what sorts of outcomes you might achieve under different burning regimes, both on the biodiversity side and on the hazard reduction side.⁹²

- 3.105 Mr Walker stated that:

to some extent the scientific underpinning of the planning and implementation of a managed fire regime in the south-west is still a work in progress. We have settled on the principles and the objectives for how we are going to manage biodiversity and other values through our fire management program, but the proper underpinning of that, the scientific underpinning for what happens in practice, is still to be written up and peer reviewed. The form that will take was subject to discussions earlier today about the importance of having the proper scientific peer review of the methods that are going to be applied. To that extent we have not got to that point yet, so we are not at a point where we can communicate with confidence the full extent of the way we are going to go about implementing this planning and management approach.⁹³

91 Rick Sneeuwjagt, *Transcript of Evidence*, 6 August 2003, p. 81.

92 Stephen Morton, *Transcript of Evidence*, 22 August 2003, p. 32.

93 Alan Walker, *Transcript of Evidence*, 6 August 2003, p. 69.

- 3.106 The Committee was impressed at the level of detail and accuracy in reporting and mapping of achieved areas of prescribed burns during a presentation by officers from CALM on its inspections of the Manjimup area on 5 August 2003. At a public hearing in Perth on the following day the acting Executive Director of CALM explained in greater detail the status of and relation between areas affected by prescribed burning and wildfires:

We reached about 150,000 hectares in round figures of prescribed burning in the area in question, and wildfires burnt – and the figure is in our submission – 133,000 hectares. I just comment, though, that while future planning will certainly take account of what has been burnt by wildfire, we do not see the two figures as adding up to exceeding the prescribed burn target, because the wildfires are not in a pattern or in locations equivalent to what we would plan.⁹⁴

The implementation of a program of prescribed burns in south eastern Australia

- 3.107 The level of endeavour apparent in the cooperation between the CSIRO and CALM and the accumulated knowledge of fire behaviour in specific locations was starkly contrasted with the situation in mainland eastern states:

In Western Australia, the Department of Conservation and Land Management has been conducting prescribed burning to meet fire protection, forestry and ecological objectives in a scientific way since the mid-1960s. The planning process starts seven years in advance of each prescribed burn. Individual burning guides have been developed through empirical research for all their major fuel types including dry Jarrah, to tall wet Karri forest, conifer plantations and Mallee shrublands.

In the eastern states prescribed burning is largely carried out using rules of thumb based on a MacArthur's original burning guide for dry eucalypt forests produced in the 1960s.

⁹⁴ Keiran McNamara, *Transcript of Evidence*, 6 August 2003, p. 75.

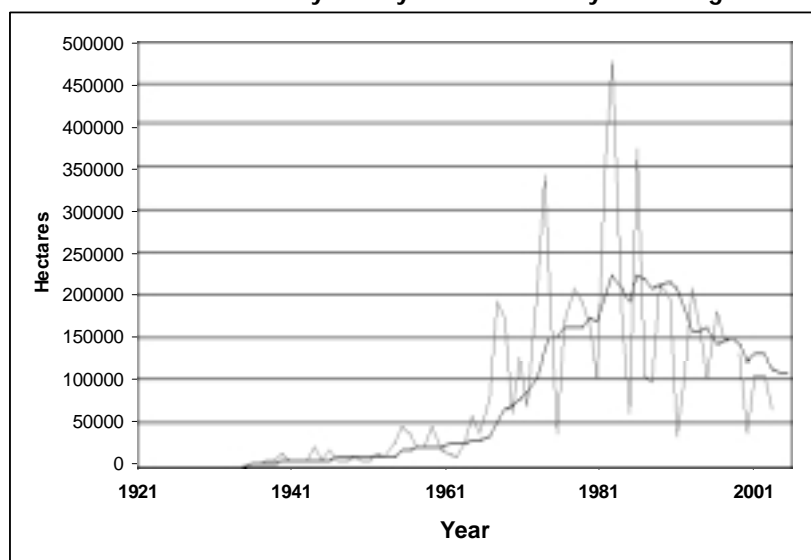
Only one specific new burning guide has been developed and that was for burning under young regeneration of silver top ash in New South Wales State Forests. Clearly, if prescribed burning is to be conducted in a more professional way in New South Wales there is an urgent need for new and better burning guides that can be applied to a whole range of different fuel types.⁹⁵

3.108 This state of affairs was echoed by the IFA:

the states are more or less advanced in the development of basic fire behaviour information. In some states, principally WA, there are excellent fire behaviour models that allow precision burning to be controlled.⁹⁶

3.109 The Committee received a considerable body of evidence claiming that prescribed burning programs across all jurisdictions had declined. Of particular concern was the decline of the programs in Victoria.

Figure 3.2 Area of fuel reduction by prescribed burning on public land in Victoria from year to year and as a 10 year average



Source: Athol Hodgson, *Submission no. 450*, p. 5. Cited from K. Tolhurst, 'Prescribed Burning in Victoria: Practice and Policy', *Bushfires Conference, Institute of Public Affairs, Melbourne 11 March 2003*. The paper is available at <http://www.ipa.org.au/pubs/special/bushfires/tolhurst.pdf>.

⁹⁵ CSIRO, *Submission no. 434*, p. 52.

⁹⁶ Institute of Foresters of Australia, *Submission no. 295*, p. 14.

- 3.110 The Committee received evidence that, in some jurisdictions, the reporting of the success of a prescribed burn in terms of area burnt was inflated beyond the areas actually burnt. The Captain of the Mitta CFA alluded to the problem of over-reporting in Victoria:

When a fire has been started as part of a reduction burn but it does not 'take', the area cannot be set aside as 'burnt'. It can be classified as burnt only if, in fact, the fuel has been burnt effectively.⁹⁷

- 3.111 The situation appeared to be no better in New South Wales where Mr David Glasson reported: 'In a recent situation National Parks claimed an 80 percent burn and a local volunteer claimed that 20 percent was burnt.'⁹⁸
- 3.112 Besides constituting a significant problem in gauging the effectiveness of particular prescribed burns in mitigating the threat of future bushfires to life and property, inaccurate reporting of achieved areas means that no steps towards an environmentally sustainable program have been taken.

The way forward

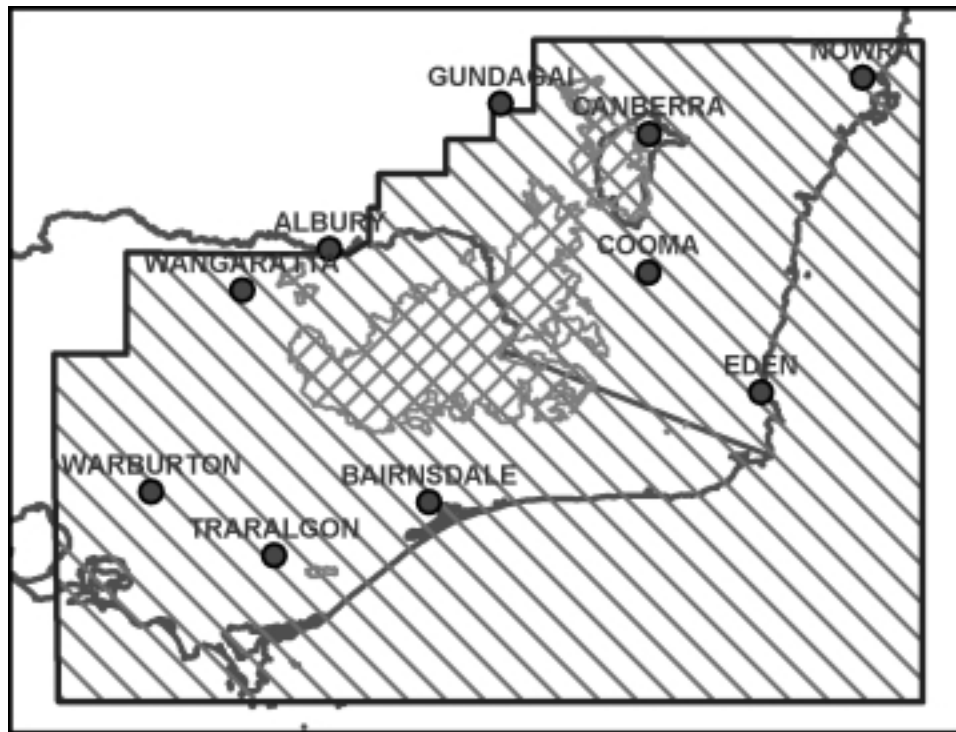
- 3.113 The Committee commissioned a consultant with 20 years of practical experience in fire ecology, management and planning and an extensive knowledge of vegetation in south eastern Australia, Mr Nic Gellie, to report on what might reasonably be achieved in fuel reduction programs through prescribed burning. The area covered by the survey was encompassed by a line drawn from Nowra on the south coast of New South Wales inland to Gundagai and then along the Hume Highway to Melbourne. Data to complete the study was available only for the New South Wales section of the study area. The results of Mr Gellie's inquiries are contained in appendix E of the Committee's report.
- 3.114 The consultant's analysis identified significant variations across the region in determining the possible application of fire regimes. For instance, coastal vegetation and climate requires different burning regimes to alpine vegetation. Furthermore, a change in vegetation associated with geological factors means that the prescriptions that can be applied in the Shoalhaven to the south of Nowra are different

⁹⁷ John Cardwell, *Transcript of Evidence*, 24 July 2003, p. 24.

⁹⁸ David Glasson, *Transcript of Evidence*, 10 July 2003, p. 27.

to those that can be used for the sandstone areas of the Blue Mountains and Hawkesbury surrounding the Sydney basin.

Figure 3.3 Analysis area for estimation of fuel management targets



Source: Nic Gellie, Report on: Causal Factors, Fuel Management including Grazing and the Application of the Australian Incident Management System, p. 16.

3.115 There were also constraints on what could be done, including weather conditions and ecological considerations. The consultant's analysis takes into account the:

- Type of fuel treatment.
- Amount of treatable vegetation.
- Past fire history.
- Number of suitable days on which to conduct prescribed burns.
- Complexity of land tenure.
- Capacity of land management agencies to do the work.
- Political and community will to undertake prescribed burning.

- 3.116 An analysis of the vegetation in the study area found that 70 per cent of the vegetation (by area) could be classed as potentially treatable by fuel management burning. The study assumed that within the area of potentially treatable vegetation a fuel management program would be broken down into asset protection, strategic fuel reduction and broad scale fuel reduction in the following proportion:
- Five per cent of the area could be targeted as asset protection zones.
 - 15 per cent as strategic fuel reduction zones.
 - 40 per cent of the area could be subject to broad scale fuel reduction programs.
- 3.117 This means that overall 60 per cent of the treatable vegetation would be subject to fuel reduction regimes of varying intensity. Areas subject to asset protection and strategic burns require fuel reduction more frequently than those targeted for broad scale fuel reduction.
- 3.118 The above figures leave 40 per cent of the treatable area not included in such a program. The consultant explained that:
- The non treatment category recognises that there will be areas of each vegetation type in a reserve which will have special management requirements, threatened species or could be burnt by summer wildfires of moderate to high intensity, without much damage to soils , fauna habitat or vegetation structure.⁹⁹
- 3.119 Within the study area, the 30 per cent of the vegetation deemed not suited to inclusion in regimes of prescription burning include:
- Rainforest.
 - Moist montane forest.
 - Fire sensitive callitris, acacia or casuarina forests.
 - Regrowth forest regenerating after wildfire or harvesting.
 - Riparian vegetation.
 - Pine or eucalypt plantations except when mature or thinned.¹⁰⁰

⁹⁹ Nic Gellie, *Report on: Causal Factors, Fuel Management including Grazing and the Application of the Australian Incident Management System*, p. 18.

¹⁰⁰ Nic Gellie, *Report on: Causal Factors, Fuel Management including Grazing and the Application of the Australian Incident Management System*, p. 18.

3.120 The IFA summarised the types of vegetation in which regimes of prescribed burning are not appropriate:

in some wet sclerophyll forest types hazard reduction burning is not appropriate ... Some forests, such as cypress pine, some inland eucalypt woodlands and rain forests should not be burned ... [as well as regenerating forests].¹⁰¹

3.121 The consultant's analysis concluded that in south eastern New South Wales on a 10 year cycle, the annual target for asset protection would be 13,000 hectares, strategic burning would be 38,850 hectares and broad scale burning 96,278 hectares (see Table 3.1).

Table 3.1 Broad setting of fuel management targets in south eastern New South Wales

Category	Overall Area	Annual Target (10 Year Period)	Annual Target (15 Year Period)
Asset Protection	130,000	13,000	8,667
Strategic Wildfire	388,500	38,850	25,900
Broad Area Ecological Burning	962,776	96,278	64,185
Sub-Total	1,481,276	148,128	98,752
% of Total Vegetation	42%	4%	3%
Non-Treated	2,007,900		
Total	3,489,176		

Source: Report on: Causal Factors, Fuel Management including Grazing and the Application of the Australian Incident Management System, p. 20.

3.122 However this is only part of the analysis. Climatic factors and the capacity of agencies to actually carry out fuel reduction burning programs were also considered. The report utilised data from Bureau of Meteorology weather stations reflecting the diversity of conditions throughout the study area to obtain averages for suitable days on which prescribed burns could be conducted. The results varied from an average of three suitable burning days in sub alpine areas such as Falls Creek to an average of 23 suitable days in the coastal areas and Eastern Gippsland as indicated by the figures from Combienbar (see Table 3.2 below).

101 Institute of Foresters of Australia, *Submission no. 295*, p. 14.

Table 3.2 Number of Burning Days in Spring and Autumn

	Falls Creek		Combienbar		Omeo		Canberra	
Burning Day Parameter	Autumn	Spring	Autumn	Spring	Autumn	Spring	Autumn	Spring
No of Years of Records	8		8		42		47	
Average Number of Burning Days	3	0	11	12	18	3	13	5
Predominant Months			March, April	Sep, Oct	March, April	Sep, Oct	March, April	Sep, Oct

Source: Report on: Causal Factors, Fuel Management including Grazing and the Application of the Australian Incident Management System, p. 23.

- 3.123 In comparison to the average of 18 days per annum identified for Canberra, the McLeod report stated that when weather conditions are taken into account 'as few as 25 to 30 days a year (including weekends) might be assessed as suitable in eastern Australia.'¹⁰²
- 3.124 Agency capability was also considered along with the different conditions required for different types of burning. The final result shows that over a 15 year period that some 655,000 hectares could be treated, amounting to about 44,000 hectares of public land on average each year in the study area in New South Wales. In addition some areas of private land could also be treated.

¹⁰² Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 87.

- 3.125 In discussing the effectiveness of fuel management on the intensity of wildfire the consultant considered a range of studies and observations that indicated fire behaviour under extreme conditions is less likely to be moderated by fuel reduction programs but that even under very high fire danger conditions hazard reduction can have an effect:

As the forest fire danger rating subsides to values between 40 and 50, recently burnt fuels start having an effect on lowering the rate of spread and intensity of fires on their flanks. Several well documented studies in Victoria demonstrate the effectiveness of recently burnt areas, generally than 5 years of age (Rawson et al 1985) have on the overall behaviour of a wildfire at this range of forest fire danger ratings. Long distance spotting potential is also reduced.

As the fire danger rating further drops to between 20 and 30, some further effect on the flame height and rate of spread occurs, in situations where fuels are between 3 and 5 years of age. Some breaking up of the head-fire can occur.

At forest fire danger indices less than 20, which either occurs on mild days with little wind, mild temperatures, and moderate relative humidity, vegetation with low fuels less than 12 tonnes per hectare can be worked on safely.¹⁰³

- 3.126 The conclusion drawn from this information is that for fuel management to work during the management of a major wildfire, there needs to be periods when the forest fire danger rating drops below 20 for a sufficiently long enough period for crews to work safely along a fire-trail, or on a constructed rake-hoe line. The diurnal pattern of forest fire danger rating usually shows an increase in fire danger rating till mid evening and then there is a rapid fall after about 9pm. The period between 9pm and 9am the following day is when fires can be worked on safely. Lower fuel loads in forest will considerable help to reduce spread and intensity while working on fires during this overnight period. As discussed in chapter 4 there were long periods during the January fires when such conditions did occur.

¹⁰³ Nic, *Report on: Causal and Risk Factors, Fuel Management, including Grazing and the Application of the Australian Incident Management System*, p. 26.

- 3.127 A further conclusion to be drawn from this is that lower fuel loads in strategic zones could have enabled fire fighters during the January fires to work on fire flanks in slightly worse conditions during the middle of the day when fire danger usually peaks and enable some strategic flanking of fires to limit the sideways growth of some of the fires. This tactical flanking could have deferred the possible coalescence of fires on the peak days of 17, 18, 26, and 30 January. Between 16 and 18 January there would have been limited opportunity to work in the forest at lower elevations. At higher elevations, fire were observed going out between 9pm and midnight, once the air moisture started being adsorbed by fine fuels on the forest, woodland, or grassy plains.¹⁰⁴
- 3.128 The Committee believes that this type of analysis taking into account vegetation types, weather, agency capability and management objectives could be undertaken for other parts of south east Australia and would probably lead to similar results. The Committee concludes that increased prescribed burning throughout south east Australia to reduce fuel and achieve acceptable ecological outcomes is achievable. The consultant's report taken together with consistent evidence throughout the area that prescribed burning is not taking place shows that within the study area fuel reduction through prescribed burning could be increased significantly. This would require a planned scientific approach on a regional scale, taking consideration of vegetation types, hazard reduction needs and ecological effects. It would require much greater levels of inter-agency cooperation and commitment, and would play a considerable role in mitigating the threat posed by bushfire.
- 3.129 Besides the limits imposed by natural conditions, prescribed burns have been subject to a number of limits stemming from community concerns about the impact of smoke on health and tourism.

¹⁰⁴ Nic Gellie, *Report on: Causal and Risk Factors, Fuel Management, including Grazing and the Application of the Australian Incident Management System*, p. 27.

- 3.130 Mr Peter Webb stated that one of the reasons for not conducting prescribed burning was 'in fact smoke pollution of an urban area.'¹⁰⁵ A forester with thirty five years experience in New South Wales forests recounted an occasion:

in 1952 ... we covered Eden with smoke. The tourist operators and everyone else were up in arms, saying that we should not do it. It was only hazard reduction burning. Even people who lived in Eden said, 'You can't do it now; we don't like it.' So we now dodge Easter and the school holidays, even if they are ideal times to burn.¹⁰⁶

- 3.131 A more contemporary example of the way in which tourist and ceremonial occasions can limit available days on which to conduct prescribed burns was provided in Canberra:

No burns could occur [in September/October 2000] because of concern about the image of Canberra during the Olympics ...

[On another occasion in 2002] ACT Forests were very keen to conduct burns of heaped windrows in the Stromlo forest ... However, it took much negotiation to find any time in the diary of the then Governor-General – when he did not have some form of function at Government House...¹⁰⁷

- 3.132 Smoke emission from prescribed burning are likely to be greater in the Autumn (when most prescribed burning occurs in Australia) during which there is an increased probability of:

the onset of the inversion layers. So, rather than smoke dispersing, it will sit under cold layers and linger for quite some time.¹⁰⁸

- 3.133 The Vice President of the CCWA said there may be considerable environmental and practical liabilities in moving prescribed burns to the Spring:

In Western Australia 60 percent of the burning occurs in spring, which is the worst time for most species of flora and fauna ... Serious effects on fauna might be expected from

105 Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 6.

106 George Dobbins, *Transcript of Evidence*, 10 July 2003, p. 65.

107 *Exhibit 55*, p. 3.

108 Bruce Leaver, *Transcript of Evidence*, 22 August 2003, p. 46.

burning in spring which, as it is when most of the birds are nesting, is the worst time for birds in Western Australia.¹⁰⁹

- 3.134 An officer from the Bureau of Meteorology informed the Committee of the Bureau's efforts to address the problem of smoke pollution from prescribed burns:

we have developed, in collaboration with the fire agencies, some smoke dispersion forecasting capability. This is to forecast, using our numerical models, the direction in which smoke will flow, and of course that has environmental concerns for the community if agencies are to manage prescribed burning.¹¹⁰

- 3.135 The Committee accepts the almost unanimous testimony affirming the desirability of implementing fuel reduced asset protection zones and endorses the idea of strategic fuel reduced zones along known fire paths. However, it accepts that the strategic implementation of regimes of prescribed burning in designated asset protection zones and along known fire paths are not, particularly in conditions of extreme fire weather, of themselves capable of providing the most effective mitigation of threat by bushfire.
- 3.136 Based on the evidence, the Committee has concluded that the implementation of regimes of prescribed burning is the most environmentally and economically effective method of fuel reduction. To be effective the planning and implementation of prescribed fire regimes require the highest possible level of detail concerning the location and extent of past prescribed and unprescribed burns. The Committee is aware of the possibility of counter-productive consequences flowing from the implementation of an ill conceived regime in which burns are either too frequent, thus increasing the flammability of the environment and degrading local biodiversity, or too infrequent, thus being ineffectual.

109 Beth Schultz, *Transcript of Evidence*, 6 August 2003, p. 25.

110 Kevin O'Loughlin *Transcript of Evidence*, 21 August 2003, p. 31.

Recommendation 12

- 3.137 **The Committee recommends that the Commonwealth through the National Heritage Trust, offer assistance to the states and the Australian Capital Territory to develop specific prescribed burning guides, at least to the quality of Western Australia, for national parks and state forests through out the mainland of south eastern Australia.**
- 3.138 The Committee is of the view that the implementation of prescribed burning has fallen significantly behind the levels that are possible and required for the maximum possible protection of life, property and the environment in all areas affected by recent bushfires. It notes that although Tasmania and Western Australia have sustained significant damage through bushfires over recent years,¹¹¹ neither state has been subject to a repetition of the catastrophes of their worst fire years, 1967 and 1961 respectively, in more recent experience. This situation stands in stark contrast to the areas burnt out in recent fires that effected the Australian Capital Territory, New South Wales and Victoria.

Recommendation 13

- 3.139 **The Committee recommends that the Commonwealth seek to ensure that the Council of Australian Governments seek agreement from the states and territories on the optimisation and implementation of prescribed burning targets and programs to a degree that is recognised as adequate for the protection of life, property and the environment. The prescribed burning programs should include strategic evaluation of fuel management at the regional level and the results of annual fuel management in each state should be publicly reported and audited.**

¹¹¹ The 2003 fire season in Western Australia was 'one of the heaviest or worst in the last 40 or so years.' Keiran McNamara, *Transcript of Evidence*, 6 August 2003, p. 82.

- 3.140 The Committee notes evidence of a significant range in the standard of reporting of the results of prescribed and unprescribed burns across jurisdictions. It views the upgrading of standards of verification of areas burnt as a matter of utmost urgency. Without accurate information on the location and extent of burns a program of prescription burning will fail to operate to the highest possible effectiveness.

Recommendation 14

- 3.141 **The Committee recommends that, as part of its study into improving the effectiveness of prescribed burning, the Bushfire Cooperative Research Centre establish a national database that includes areas targeted for fuel reduction, the area of fuel reduction achieved based on a specified standard of on ground verification and the season in which the reduction was achieved. The Committee also recommends that in developing this database the Cooperative Research Centre develop a national standard of fire mapping, which accurately maps the extent, intensity, spread and overall pattern of prescribed and wildfires in Australia.**
- 3.142 The Committee supports the inclusion of studies into the prediction of behaviour of smoke plumes and hazes in Program B of the Bushfire Cooperative Research Centre.

Recommendation 15

- 3.143 **The Committee acknowledges community concerns about smoke pollution as a result of prescribed burning and recommends that the Bushfire Cooperative Research Centre pursue its proposed study into smoke modelling.**
- 3.144 Clearly, not enough research has been undertaken to draw any conclusions about the effect of grazing on the flammability of landscapes both immediately after a bushfire event and in the long term.

Recommendation 16

- 3.145 **The Committee recommends that the Bushfire Cooperative Research Centre monitor the effect of grazing on mitigating the return of woody weeds to recently fire effected areas across various landscapes including alpine and subalpine.**

Recommendation 17

- 3.146 **The Committee recommends that the Bushfire Cooperative Research Centre conduct further research into the long term effects and effectiveness of grazing as a fire mitigation practice.**
- 3.147 The Committee is cognisant of the possible undesirable consequence of weed infestations following a fire event. It accepts that in some areas the removal of weeds by fire may not be the most environmentally sensitive procedure because of other biodiversity concerns.

Recommendation 18

- 3.148 **The Committee recommends that the Bushfire Cooperative Research Centre conduct further research on the impact of weeds on the flammability of land and the most economically and environmentally appropriate way to remove weeds after fire events.**

Recommendation 19

- 3.149 **The Committee recommends that the Commonwealth seeks to ensure that the Council of Australian Governments develop a mechanism that ensures that appropriate measures are taken by public and private land managers for the eradication of weeds following a bushfire event.**

The approach to the 2003 fires - delays and caution

- 4.1 The Captain of a volunteer brigade called out early in the development of the fires that devastated Canberra encapsulated much of the evidence received by the Committee in a submission that said:

it is disturbing that a lightening strike on 8th January can develop into such a destructive blaze and destroy so much over a week later when you consider the knowledge and resources available for its control.¹

- 4.2 Many of the submissions received by the Committee made it clear that there was an initial failure to control or extinguish fires in the first few hours even though there was reasonable access and comparatively benign conditions.

- 4.3 It was no comfort to the Committee when the McLeod report came to a conclusion that was consistent with the picture being formed by the evidence to the Committee:

I am not convinced that the ACT Authorities' response during the first two days ... when the fires were most amenable to extinguishment reflected the sense of urgency that in my opinion should have prevailed ...

¹ Tim Webb, *Submission no. 179*, p. 2.

the ACT authorities did not respond as aggressively in this vital period as they should have ... the responses to all the fires in the first few days present a picture of a measured approach to a threat that was growing on a daily basis – as opposed to an all-out attempt to beat the fires from the outset.²

- 4.4 McLeod notes that the ‘commitment and personal endeavours of the fire fighters and others supporting them in the field ... deserve the highest praise’. Similar comments about lack of aggression in the command and control of the fire fighting response coupled with unqualified praise for the fire fighters on the fire line were repeated in many submissions and much of the evidence taken by the Committee throughout the areas affected by fires in recent years.

- 4.5 The same comments can be made in relation to Victoria. Mr Athol Hodgson told the Committee that:

I would say to anyone that the fires in the north-east of Victoria in the mountain areas this year, despite the lack of fuel management, could and should have been put out in the first two weeks. I have no doubt about that ... They were ideal firefighting conditions, because there was no wind.³

- 4.6 It has to be acknowledged that there were many instances where rapid initial attack was successful in limiting the spread and subsequent damage. Numerous fires were started by lightning in the south east of New South Wales and the north east of Victoria in early January and quickly extinguished. A Brindabella landholder told the Committee that:

the Forestry people – with some help from the Brindabella bushfire brigade – did pounce on some of the fires very quickly ... and got them under control.⁴

- 4.7 Mr Peter Webb commented on the delays in responding to some, but not all, of the fires in New South Wales:

I suppose the delays appear to relate back to a philosophy of the National Parks and Wildlife Service. Some fires started at the same time on private property or in New South Wales state forests, and they were extinguished and contained and controlled within a day or two – and that is usually the case

2 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, pp. 57 and 60–61.

3 Athol Hodgson, *Transcript of Evidence*, 30 July 2003, pp. 80 and 83.

4 David Menzel, *Transcript of Evidence*, 15 July 2003, p. 28.

on private property. What happened here was that these fires started within the National Parks and Wildlife Service area. I think there was a desire to retain control of them or to not relinquish control to the Rural Fire Service ...⁵

4.8 Another Brindabella landholder, Mr Wayne West, put a similar view to the Committee;

On 8 January there was a prime example of fire management policy by two New South Wales government bodies, being National Parks and State Forests, with conflicting results. Tumut forestry had 12 lightning strikes and one of these was directly to our west. Mr Don Hobson, the Tumut forestry officer in charge, has informed me that they contained 11 of the 12 fires within 48 hours and only one fire was not contained. These fires caused no property loss, no loss of homes or lives. On the other hand, National Parks failed to contain or control any of their fires within 48 hours. We all know the damage caused by the McIntyre's Hut fire. The management policy of State Forests is working, whereas we hear every year at least once, if not on numerous occasions, of major bushfires in national parks causing grief and loss of property.⁶

4.9 This view was supported by an experienced volunteer fire fighter from the Snowy Mountains region and Chair of the Snowy River Bushfire Management Committee who, in a personal capacity, told the Committee that:

On 8 January 2003 there were some 50 lightning strikes in the alpine areas from the Victorian border to the ACT. Approximately 30 of these strikes were in national parks, and the remainder were on private property. Within 24 hours, all the fires on private land were either extinguished or contained. As we all know, the section 44 on the Kosciuszko South complex of fires was revoked at 10 a.m. on Monday, 24 February 2003 – some 47 days later. ⁷

5 Peter Webb, *Transcript of Evidence*, 14 July 2003, pp. 5–6.

6 Wayne West, *Transcript of Evidence*, 14 July 2003, p. 33.

7 David Glasson, *Transcript of Evidence*, 10 July 2003, p. 24.

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- 4.10 Not all of the recent fires started on public land, for example the Committee was told during its inspections in north east Victoria that at least one of the fires in the Beechworth area started on private land. Not all fires on public lands got out of hand.
- 4.11 The Captain of the Licola Bush Fire Brigade provided an example from his area where there was 'anywhere up to 20 lightning strikes around the Licola area' that were all extinguished within 48 hours with the assistance of his brigade, despite being on crown land.⁸
- 4.12 In the Omeo area some fires on public land were also quickly attended to. One senior bushfire control officer came forward at the public hearing in Omeo and told the Committee that:
- All the fires that started in the Swifts Creek fire district were contained out of that same lightning strike that started the ones from the north-east that were not contained. In evidence of that we had fires on Mount Ned ... [where] ... There were two lightning strikes there. They ended up burning – and I can be corrected here – about half a hectare to a hectare. Both of those fires were contained with the use of DSE personnel and the Omeo fire brigade plus locals on the ground.⁹
- 4.13 However, much of the evidence points to different outcomes with some other fires and this evidence from Omeo does not contradict the more general view, as put by the MCAV that their members were totally dismayed by the way that agencies failed to tackle the fires aggressively in the initial period when the fires were small and the weather was relatively benign. The submission from the Association included a comment from their President that it took too long for the fire agencies to get serious about the fires in the Victorian high country. Their submission cites failure to properly deploy aircraft and a reliance on fall back positions (rather than suppression). It is suggested that concerns of possible litigation overshadowed decision making.¹⁰
- 4.14 As noted by Mr Webb above, many, but not all, fires were quickly contained because public land managers and rural fire authorities made concerted efforts to locate and attack the fires. The Committee is concerned about where and why this failed to occur or was not successful. The Committee noted for example, the comments of Dr Kevin Tolhurst who told the Committee that in Victoria all except
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8 Lindsay (Ralph) Barraclough, *Submission no. 407*, p. 49.

9 Kevin Symons, *Transcript of Evidence*, 28 July 2003, p. 75.

10 Mountain Cattlemen's Association of Victoria, *Submission no. 424*, p. 8.

eight out of 90 fires caused by lightning strikes were contained before the weather deteriorated but those remaining eight uncontained fires burnt about 1.1 million hectares.¹¹

- 4.15 Mr Webb's explanation, at least in part, for the delays was included in his written submission:

Weather conditions in the week from the 8 January to 15 January provided ideal control and back burning conditions. The mild easterly weather was not really capitalised on. Ironically, these mild easterly weather patterns may have acted to negate warnings to Canberrans. Since the wind prevailed from the east for this crucial period, many people, and indeed even the authorities, were almost unaware that there were several large fires burning between 30 to 50 km to the west of the capital in very high fuel loads. No smoke was coming over the city, no heavy smoky mornings, no wind, firebrands or charred embers to warn people.¹²

- 4.16 The Committee has endeavoured to understand why the initial response was inadequate in some cases. From the evidence outlined above it appears that there may be a variety of reasons and that circumstances varied from one area to another. Some of the fires that were quickly contained were on land managed by national parks agencies. However, much of the criticism by experienced fire fighters and landholders of the failure to respond quickly and aggressively was related to fires that started in, or rapidly spread to, national parks.

Lack of aggression in responding to fires

- 4.17 The Committee heard evidence about the lack of aggression in the initial response to fires in all of the areas badly affected during the January 2003 fires. The evidence suggests that some of these fires need never have been as damaging as events turned out.

11 Kevin Tolhurst, *Submission no. 210*, p. 3.

12 Peter Webb, *Submission no. 317*, pp. 4–5.

4.18 Mr Webb told the Committee that:

The lightning strikes there, down through Kosciuszko and into Victoria on 8 January should have been controlled within two or three days. The capacity was there for us to get into those areas using RAFT – remote area fire fighting teams – and other control methods and hit those fires within two or three days. We have done that in the past and we should have done that again then.

A lot of questioning is needed about those delays. They were a major factor that allowed those fires to grow quite rapidly over 10 days and then, in the case of the Canberra fires, to allow three fire fronts to combine and cause a massive loss of property and, in fact, life. A similar effect was had down south, although the fires were contained before a lot of property damage was done. But, because of the delays and the magnitude of the fires in the Kosciuszko area, there was a very high financial impact on business, including tourism, throughout that whole region. That probably would have been in the order of \$50 million to \$100 million; it is very difficult to quantify.¹³

4.19 The current Captain of the Fairlight Brigade agreed, in a written submission, that valuable time and advantageous weather conditions were lost in relation to the McIntryes Hut fire.¹⁴ This fire was identified in the McLeod inquiry as being responsible for a major contribution to the impact on Canberra and rural areas of the Australian Capital Territory. The Committee heard other evidence of serious delays in the response to this fire. Mr West outlined what happened after lightning ignited the McIntryes Hut fire:

the actions that were taken by the Rural Fire Service and the National Parks in the very early stages leave a lot to be desired. On Wednesday I rang the Rural Fire Service ... and spoke to them about the fire. The impression that I received from the control centre was that there was just a fire up there of no significance.'

I ... made a phone call to fire control (at Queanbeyan), who said to me, 'We have a unit on patrol and the fire has travelled seven kilometres.' ... I asked the question, 'Was there only one unit on patrol? What were they doing?' The

¹³ Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 3.

¹⁴ Tim Webb, *Submission no. 179*, p. 2.

answer was, 'Yes.' Fire control closed down that night. The fire controller went home to bed. The office closed for the night.¹⁵

- 4.20 When asked if the fire could have been suppressed soon after it started Mr West said that after the lightning strike on Wednesday 8 January that:

The fire on Wednesday night-early Thursday morning died. It flared up again at around 12 o'clock, when we got a gust of wind. The fire then died during the early hours. On Thursday, Friday and Saturday the fire burned at a very slow rate ...

[By] Friday ... The fire, in relation to the ignition point, had crept only slowly down the hill and may have crept a distance as little as 400 metres in that time. The fire did not flare at all on Thursday, and throughout the day the fire was a cold burn with very little smoke. The evidence on the ground when you go back over there and see where the fire burnt for the first four, five, six, seven or eight days indicates that they were all slow burns.

In the adjacent area to the ignition point there was evidence of the fire where it ripped up the ridge face to Webbs Spur on Wednesday afternoon, and there were another four small locations where the fire ripped up some ridges in strips when the wind blew up. Those winds blew up for five or 10 minutes and mostly in the afternoon. Just after dark the wind blew up and the flame at that stage grew, whereas during the day time the flame was very small. So there was no evidence from my observations to show that the fire travelled at any speed at all for nine days. From the 8th to the afternoon of the 17th, when the fire jumped the river, we are talking about a distance from the ignition point to the river of one kilometre. We are not talking about 30 kilometres, which it was from Canberra. So the fire in our area was not an active fire. It was a very slow cold fire.¹⁶

15 Wayne West, *Transcript of Evidence*, 14 July 2003, p. 31.

16 Wayne West, *Transcript of Evidence*, 14 July 2003, pp. 35–36.

- 4.21 These views of fires in the Brindabellas are confirmed by Mr Peter Smith, the Captain of the Brindabella Brigade, one of the first persons to attend the various fires started by lightning on 8 January. Mr Smith told the Committee that, like Mr West, he believed the McIntryes Hut fire could have been contained soon after it started.¹⁷ He submitted that there was a good chance of extinguishing the McIntryes Hut fire in the period 8–10 January if resources were available. He said also that if it and the Broken Cart fire had been suppressed the spread to Brindabella and Canberra would not have happened.¹⁸ Mr Smith specifically refuted the comment that the *Canberra Times* attributed to the Commissioner of the RFS that the fire was too dangerous to deal with. Mr Smith suggested that controllers with insufficient information or understanding might make a more cautious assessment:

It is a difficult decision to make. A person who is in charge of an incident must have paramount in his mind the safety of people – lives first. I can understand that people who are not familiar with and are not used to the behaviour of fire in our terrain could come to the conclusion that they thought it would be too dangerous to send people in to fight a fire there.¹⁹

- 4.22 More specifically, Mr Smith detailed the conditions that made an early attack on the fires possible:

For a start, when you are at 6,000 feet you are at the top of a hill. Lightning generally strikes at or near the top of the ranges, and it is a frequent occurrence in the mountains. The typical behaviour of fires in the mountains – and we have seen plenty of them – is that at night they ‘trickle’ around, as I call it. Their flame heights are very low. ... Because we had easterly air coming in over that period, at altitude we had high levels of moisture and cool temperatures at night. Under those conditions, fire behaviour is very benign. Let us face it: although we said it was too dangerous then for the rest of the campaign, we sent people in at night to burn off. I suppose what it boils down to is that, had the local knowledge of fire behaviour been used, I believe we would have attacked those fires ...

17 Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 11.

18 Peter Smith, *Submission no. 378, Attachment A Report on aspects of the McIntyre and Bendora fires*.

19 Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 13.

the Bendora fire and the Stockyard fire were addressed on the 8th. One of them had a hose line and a rake trail right around it. The other was 50 metres by 70 metres, but the people were pulled off them. From where I sit, that seems to be an outrageous decision, but if you are sitting in Queanbeyan and you are looking at a map and you know that these people are in forests it is not, so I can appreciate very easily how the commissioner or a fire incident manager who was unfamiliar with the terrain would come to the conclusion that it was too dangerous to send people in there.²⁰

4.23 In response to a question from the Committee Mr Smith confirmed that he had fire units and plant fully crewed and ready to respond by 4.30pm on the day of the lightning strikes, but the brigade was not tasked by Yarrawlumla fire head quarters. They then stood down until the following day, and therefore there were resources doing nothing when the fires were small.²¹

4.24 A report on the fires by Mr Smith states that:

It has been stated publicly that a response was made within two hours but it must be asked if that was a firefighting response or a reconnaissance response. I understand that at least one NPWS vehicle observed the McIntyre fire on the afternoon of the 8th and that the Baldy Range fire was so small that a NPWS ranger actually walked around the fire (this fire was not engaged until 10 Jan and later joined with the McIntyre fire). An RFS unit from Fairlight was sent on reconnaissance that evening.

The following day Mr Wayne West actually went to the toe of the fire and has reported that the fire was limited in extent and exhibiting benign behaviour.²²

4.25 Mr Smith makes it quite clear that there were serious delays in the response to the fires in the Brindabellas, not just on the first day but subsequently when strategic back burning was not initiated even though the conditions were most suitable. The back burns were therefore incomplete when the fire weather deteriorated. These delays affected attempts to suppress the McIntyres Hut fire and others in the area which eventually merged on Saturday 18 January and ran into Canberra. Mr Smith's view is that delays in the commencement of

20 Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 14.

21 Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 18.

22 Peter Smith, *Submission no. 378, Attachment A Report on aspects of the McIntyre and Bendora Fires*.

critical strategic back burns were a major contributor to the failure to suppress the McIntyre and Brindabella fires.²³ He cites withholding of permission to begin operations and the withdrawal of resources, specifically:

- A back burn on the critical sector of the McIntyres Hut fire was not started until 11 January despite unusually good conditions on 9 and 10 January.
- Critical back burning to help contain the development of the Bendora fire into the Brindabella area did not commence until three days after the fire spotted into this area and other back burns were not completed before conditions became uncontrollable on 18 January.

4.26 Mr Bill Bates a, former fire fighter from the Uriarra forestry settlement that was subsequently devastated by the fire also told the Committee that, based on his considerable experience in managing fires in the Brindabellas, the situation could have been given more attention overnight:

I do not believe (that it would have been too dangerous to send a fire crew in to attack the fire, even within a couple of hours of it starting). I have fought fires out there since back in the fifties. We had the big fire of '52. We fought that with hoses and rakes. We did get a couple of dozers in there towards the finish, and we put in trails ... [the fire] ... would die down in the night-time. They always die down in the night-time, particularly if there is no continuous wind.²⁴

4.27 Mr Bates was speaking from a position of considerable experience and knowledge of fires and fire fighting in this area. In his contribution to the written submission from the Uriarra Community Association Mr Bates outlined the initial response to the three main fires to the west of Canberra, those at McIntyres Hut, Stockyard Spur and Bendora:

For 6 days following, the wind came from the east blowing the fire back towards Brindabella. After this the wind changed direction and blew from the north west. I believe that the fire could have been stopped during the first 6 days whilst the weather conditions were favourable. In the Uriarra Forest area, no firebreaks had been maintained for the past

23 Peter Smith, *Submission no. 378, Attachment A Report on aspects of the McIntyre and Bendora Fires*.

24 Bill Bates, *Transcript of Evidence*, 15 July 2003, p. 45.

10-15 years, nor had any hazard reduction been carried out during that time. Further to that I also believe that there were no experienced leaders who knew the country and tracks.

[In relation to the] Stockyard Spur fire –

On 8 January 2003, the 10 person crew sent out to fight the Stockyard Spur fire noted that it was about 50 by 70 metres. The track to get to the fire was over grown. The crew was keen to walk in and stay overnight and put the fire out – it was about 9pm. After radioing it's intentions into Emergency Services Bureau, the crew was told that the track was too dangerous and to go home. Conditions were mild enough at this time to have stood a good chance of putting the fire out.

[In relation to the] Bendora fire -

On 8 January 2003 a 12 person crew had raked a trail around the fire and maintained a hose line around fire. They had arrived between 5-6pm and wanted to stay the night and continue fire fighting efforts to contain the fire but were told to go home. When they returned the following day the fire had jumped containment lines and was out of control. This fire burnt for several days before crews were sent in to work around the clock to try to bring fire under control.²⁵

- 4.28 Mr Val Jeffery, a very experienced fire fighter and former Chairman of the ACT Bushfire Council, told the Committee that:

When those fires started with lightning strikes on 8 January, they should have been attacked immediately, hard and heavily with everything we could have thrown at them. That is the way we would have done it in the past. We never lost a lightning strike in my experience since the 1939 fire, so why did we lose them on 8 January? We did not try, frankly, as sad as it seems, to put those fires out. They could have been put out. Those fires were virtually all accessible by vehicle. They were not like some of the lightning strikes that I have fought over the years where you would have to walk for two or three hours to get to them, carrying knapsacks, chainsaws and everything you could get there or be dropped in by a helicopter onto a flat granite rock or ride a horse for a couple of hours ...

25 Uriarra Community Association, *Submission no. 392*, p. 6.

Part of bushfire fighting culture is that you control lightning strikes by 10 o'clock the next morning or you are in trouble. We have done that over the years and we have done it successfully. We had not lost them before. But nobody seemed to want to put these out. I do not know why. I keep asking myself why, in the middle of January, in the middle of a drought and with the highest fuel loads ever, nobody seemed to want to put those fires out. It is just sickening.²⁶

- 4.29 The McLeod report provides further details of the situation confronting the crew assigned to fight the Stockyard Spur fire:

The crew ... was able to drive to within 4 kilometres of the fire; crew members began walking but, because of overgrowth, were unable to locate a track leading to the site. The incident controller was in contact with an observation helicopter, which informed him that he was about an hour's walk from the seat of the fire. After reporting back to headquarters, the incident controller was advised to return to Canberra.²⁷

- 4.30 Commissioner McLeod also reported on the initial response to the Bendora fire:

When the crew arrived at the site of the Bendora fire, at about 6.00 pm, efforts were made to put the fire out with the assistance of water bombing by the Snowy Hydro Southcare helicopter, but as evening approached the incident controller concluded it was not advisable to continue fighting the fire overnight ... the incident controller's judgement was influenced by the possible danger to the crew, the unfamiliar terrain, potential fatigue of the crew and doubt about adequate rotating.²⁸

- 4.31 The Committee shares the concerns of Commissioner McLeod when he questioned why the crew initially committed to the Stockyard Spur fire and withdrawn was not redeployed to either the Bendora fire:

which they passed on their return journey ... to double the numbers on the fire ground. Alternatively, the Stockyard

26 Val Jeffrey, *Transcript of Evidence*, 15 July 2003, pp. 67–68.

27 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 58.

28 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 58.

Spur crew could have attempted to deal with the Gingera fire, which was burning about 6 kilometres further south.²⁹

- 4.32 The Committee notes with concern observations offered by Commissioner McLeod in relation to the standard procedure of fighting bushfires in the conditions that were present at the Stockyard Spur and Bendora fires:

It is common practice to fight bushfires in mountain country overnight, when in some respects conditions are often easier than during the day. Wind strength and temperature are invariably lower, the moisture content of the air is usually higher, and it is easier to see where the fire is burning. Firefighting in rough country often involves arduous physical effort, particularly when hand tools are needed to clear and build firebreaks. At night conditions are often more comfortable than during the day for this work. These factors offset to some degree the difficulties created by lack of light.³⁰

- 4.33 Most telling, the CSIRO's Mr Phil Cheney told the Committee that he agreed that weather conditions, in his opinion, were receptive to very early aggressive suppression of the fires in the initial stages.³¹

- 4.34 The Committee was also told that there were fire fighting aircraft available but not deployed and that they could have had a significant impact on aiding ground attack. The use of aircraft for fire fighting is discussed in detail in chapter 6. One excerpt from the evidence is particularly telling in relation to the fires in the Brindabellas. Mr Phil Hurst, the Executive Officer of the Aerial Agricultural Association of Australia (AAAA) told the Committee that:

the ACT fire should never have happened. If aggressive initial attack had been the commitment by the fire authority in that state and the aircraft available had been tasked, that fire, in my view, would have been able to have been at least slowed down enough so that the ground crews could do a more controlled job.

29 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 58

30 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, pp. 58-9.

31 Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 29.

In fact, on the Thursday before I happened to be flying in Canberra and I had direct vision of the fire seat from Canberra Airport at 1,000 feet. That is a distance of some 25 miles, which is very good visibility when you are talking about firefighting. The fire had just crested the Brindabellas and was burning downhill, which slowed it up. It was burning into an easterly, which was pushing all of the ash back onto the already burnt out area. It was a good opportunity to get stuck in. My understanding is that at that stage there were approximately three aircraft at Tumut that were not tasked and, in addition to that, there were approximately another 10, or perhaps more, aircraft around the state that could have been tasked but were not.³²

- 4.35 The Committee has given careful consideration to this evidence. It has been provided by experts and experienced fire fighters with particular knowledge of the conditions in the mountains to the west of Canberra. Mr Smith tried to understand the actions of incident controllers by referring to their need to make decisions from the remote incident centre and without local knowledge of the conditions in the mountains. However, this does not explain the apparent failure for whatever reason to make use of the extensive local knowledge and experience which was available and offered. From the evidence before the Committee those people well placed to offer sound advice based on practical experience of the field conditions were not utilised. The overwhelming evidence to this effect makes it difficult for the Committee not to conclude that opportunities to control the fires that ultimately contributed to the devastation of those parts of the Australian Capital Territory were not taken. The evidence also shows that resources were available, including experienced local ground crews and aircraft, and in the first week following the initial outbreak, the conditions were suitable for fire fighting. As Mr Smith and others submit, the fire could have been suppressed. The majority of the Committee agrees.
- 4.36 It was put to the Committee that perhaps those with responsibility for managing the fires were complacent or disinclined to believe that a major disaster was possible, as illustrated by the apparent lack of concern early on in the fires in the Brindabellas.³³ It was also alleged that the fire controllers were out of touch, lacking information and

32 Phil Hurst, *Transcript of Evidence*, 30 July 2003, p. 20.

33 Val Jeffrey, *Submission no. 16*, pp. 3-6

disinclined to listen to local advice.³⁴ Possibly it was a combination of all these things, and perhaps others, as indicated by one of the submissions from the Brindabellas:

Wayne rang fire control, was assured that if the fire crossed the river they would put it out.' He rang them at 10.26 p.m. on Friday night and said that the fire was on Tommy's Flat, which is across the river from McIntyre's Hut. He was basically told that no, the fire was not there, it was behind containment lines, and not to worry. It was more or less, 'Go to bed, we've got it under control.' As people who were watching the fire happening and who were where the fire was, we found that remote authority laughable – that would be a kind word to use. The fire, as I said, had crossed the river and it burnt a lot of property, including Wayne's house, effects and machinery, on that Saturday.³⁵

- 4.37 This comment refers to the incident management by the New South Wales RFS. A similar response was shown by authorities in the Australian Capital Territory:

the Bendora Dam fire (in the mountains to the west of Canberra) had a hose line right around it and that the Stockyard fire was quite small but there was a team there which wanted to fight it. This has been a bit of a common story, because on the Friday evening before the disastrous fires here on the Saturday people were pulled off the mountain too. The fire fighters themselves wished to stay to complete the back-burn but, if you are an officer responsible for your crew and you have been given an order to withdraw, you are bound by it because you have to take on board that that order has been given by someone with information that you do not have.³⁶

- 4.38 The Committee can only surmise on the evidence available to it that the initial delays outlined in the evidence and the failure of New South Wales and Australian Capital Territory authorities to take decisive and effective action in the first few days following the lightning strikes in the Brindabellas lead to the devastation of urban edge and a large part of the rural areas of the Australian Capital Territory.

34 Val Jeffrey, *Submission no. 16*, pp. 3-6.

35 David Menzel, *Transcript of Evidence*, 15 July 2003, p. 28.

36 Peter Smith, *Transcript of Evidence*, July 15 2003, p. 24.

- 4.39 Similar problems were reported to the Committee in relation to the fires in north east Victoria. Numerous submissions referred to a lack of interest in dealing aggressively with some fires while they were still relatively small and easily contained. It appears that this lack of response reflected a policy of caution in attacking fires rather than lack of information, resources or ability. One landholder submitted that:

The first few days after ignition these fires were relatively small fires, but were not aggressively fought with traditional proven methods of containment lines and back burning. The two fires that started near Bogong Village were in the Bogong National Park, were not contained within the Park ...

The authorities were extremely lucky that there were only about four days of wind during the first three weeks of the fires in 2003. In fact in this area, they had eight days without strong winds to contain the fires. Further, the eucalypt leaves had only reached the gaseous stage on the higher and drier ridges where the firestorms did occur. Largely the fires in our area were cool to medium hot burns and should have been contained in the early stages.³⁷

- 4.40 Another landholder who was burnt out by the fires and spent many hours, as the Captain of the Dartmouth Brigade, working to contain the fires provided a more detailed account:

Only very limited D.S.E. and Parks Victoria resources were mobilised into the Razorback in the first 6 days ... When the local Parks Victoria Officer requested additional recourses, he was refused assistance. The fire expanded from Day 4 onwards with no resources allocated to suppress it. By Day 6 the fire had reached Sheever's Point and local farmers and CFA captains became concerned, and drove in to assess the problem. ... Contact was made with Parks Victoria representatives ... offering the services of a dozer and C.F.A. crews to help suppress the Fire ... he [stated he] didn't need help, he had dozers and resources to deploy. There was a failure to recognise the problem early and deploy adequate resources. It was two days later that the proposed local plan was activated.

Resources did not start to arrive till Day 8 on the Razorback Fire. The slow response and delay of 2 days cost the Mitta

37 Allan Mull, *Submission no. 120*, p. 1-2.

Valley community valuable farming land. 'The 2 day delay' meant the containment line and back burning plan eventually adopted in the Razorback, was not completed on time. The fire jumped the line near Begg's property, at the uncompleted section of the plan, and crossed into the Bogong National Park. Time delays in decision-making exacerbated the spread of fire and meant fire plans put into action were doomed to failure.³⁸

4.41 Other landholders and fire fighters put similar views. The Dederang Fire Brigade Management Team submitted that:

In our opinion the initial response by the Department of Sustainability and Environment (DSE) was not aggressive enough. Back burning was not allowed in the first instance and when back burning was allowed, the procedure followed by the DSE was more in the nature of a 'controlled fuel bum', that is allowing the fire to come to the control lines, as opposed to correct procedure where staggered lighting of undergrowth and fine fuels would be undertaken to burn up to the fire from the control line.³⁹

4.42 The submission from the Carboor Rural Fire Brigade details two examples of crews that were turned out to attend active fires but spent most of their time waiting, driving around or observing:

When there was something that they could see needed doing they were not allowed to do it, by orders of someone who wasn't even there.⁴⁰

4.43 These volunteer crews put in a lot of time but did only a very small amount of fire fighting. Similarly, the Noorongong Rural Fire Brigade commented on how it took nearly three days to get effective direction from the Incident Control Centre.⁴¹

4.44 The timber industry and farmers also put similar views to the Committee. The VAFI submitted that:

It was evident that an extremely cautious approach was taken throughout the entire fire effort and brings into question the level of experience and confidence of our fire fighting personnel.

38 John and Robyn Scales, *Submission no. 161*, pp. 1–2.

39 Dederang Fire Brigade Management Team, *Submission no. 152*, p. 1.

40 Carboor Rural Fire Brigade, *Submission no. 264, Attachment*, p. 2.

41 Noorongong Rural Fire Brigade, *Submission no. 301*, p. 1.

While VAFI appreciates and fully supports concerns about safety—and the Linton inquiry has highlighted the responsibility of decision makers in this regard - it is deeply concerned that for reasons of lack of experience, senior fire personnel may lack the necessary confidence and experience to make appropriate decisions regarding crew deployment. The media has suggested this lack of aggression is linked to the focus of the fire fighting effort, which was to protect private property assets. VAFI is disappointed that the focus on private property assets appears to have led to a markedly reduced willingness to devote resources to protect the valuable commercial alpine ash forest assets. In excess of 20,000 ha of production alpine ash forest was burnt, possibly significantly affecting the supply of sawlogs for the next 80 years.⁴²

4.45 The Victorian Farmers Federation (VFF) view was that:

The apparent reluctance of Parks Victoria and DSE to tackle the fires quickly, when they are small and conditions are right has drawn repeated criticism from our members.

During the recent fires, too much emphasis was put on asset protection kilometres away from the fire front, instead of attacking the fire at the front. As a result, fires got out of control and escaped from public lands with such violent intensity that no amount of resources could stop them.⁴³

4.46 Mr John Cardwell who attended fires in the north east noted that that was little pro-active response from fire controllers:

Early on in the fire the people in control seemed very reluctant to be pro-active to the fire. Most noticeable, was the fire on the south side of the Mitta River from McDonald's to Dartmouth, which was just watched for over a week in calm conditions. It was that cold at night fire-fighters were lighting fires to keep warm. Why was that small unburnt area not burnt out! On Australia Day when the strong winds blew up that small area spotted into Springpole, burnt Dartmouth, Callaghan Creek and part of Tallangatta Valley as well as thousands of hectares of bushland. Were the people in charge more obsessed with having an injury free fire, rather than extinguishing the fire! Did OH&S mean more attention was

42 Victorian Forest Industries Association, *Submission no. 212*, p. 9.

43 Victorian Farmers Federation, *Submission no. 423*, p. 10.

given to meal breaks and time on duty rather than extinguishing the fire!⁴⁴

- 4.47 Mr Cardwell raised some questions to ascertain why this approach was taken. He said:

the Razorback fire ... seems to be the one that threatened us the most, but there was never much action on it. It started on 8 January 2003 due to lightning strikes, but it was not until Sunday, 12 January at a meeting at my house of four local captains that some action was finally taken on this fire. ...

In the light of the resulting concerns and questions, we now realise that this fire could have been put out in the early stages. The local DSE rep on the fire line asked for resources and was refused. Why weren't the local CFA crews, such as Mitta, Eskdale, Dartmouth or Noorongong, contacted and used to control this fire on 8 January by helping to support the DSE?⁴⁵

- 4.48 Further evidence from Mr Cardwell indicated the difficulty in getting an active response from the fire control authorities:

We had a meeting and could not seem to get any recognition of the size or the concern of the fires. At that time, a report to John Scales made by Mrs Anne Walsh of live embers falling on Granite Flat altered the agenda of that meeting. We did realise then that there were concerns that this fire was a lot bigger than we were led to believe. We wanted it noted that we had expressed our concerns. This was the trouble: it took four hours of phone calls to DSE and CFA to establish any details of the fire. We were assured by DSE that the controller had flown over and it was of no concern. We were also assured by the controller at Corryong that there were no worries with the fire – that was on the Sunday. But Mrs Anne Walsh reported to John Scales that live embers were falling at her house.⁴⁶

44 John Cardwell, *Submission no. 178*, p. 3.

45 John Cardwell, *Transcript of Evidence*, 24 July 2003, p. 24.

46 John Cardwell, *Transcript of Evidence*, 24 July 2003, p. 33.

- 4.49 Another experienced fire fighter who was involved in the north east fires commented on the delays: 'My biggest criticism of the way the Bogong complex of fires was managed were the lost opportunities to reduce the impact of the fires. Lack of decision making was a serious impediment to action.'⁴⁷ He went on to suggest why this occurred:

It is my firm belief that since the Linton Fire tragedy and the subsequent outcome of the Coronial Inquest, fire managers and crew leaders have become so paranoid about safety and litigation no one wants to make a decision and initiative is stifled.

Decisions were having to follow the chain of command back to head office for consideration and debate, instead of crews on the fire line making the judgement. A number of times I was pulled out or stood down because managers from afar deemed my situation either "unsafe," or everything was "under control"! Usually this meant that one could not take the initiative. As a result back burn decisions and actions were painfully slow. Either, events overran the proposed control lines or back burns did not happen at all!⁴⁸

- 4.50 Many submissions alluded to this restraint on aggressive fire fighting and proposed similar explanations, at least in relation to Victoria, for example one brigade Captain submitted that:

Since Linton the CFA hierarchy went into crisis management mode ... The hierarchy of the DSE and CFA are paranoid of safety issues. They have this perception that the fire crews have been working unsafely in the past and they have to change the management of fire suppression to make it safer. But this is not so. Our record shows we have been safety conscious all through these fire seasons.

They have pushed themselves into doing nothing or very little to lower the risk of litigation. There comes a time when it is a bigger risk of litigation when nothing or little is done.⁴⁹

47 Chris Commins, *Submission no. 337*, p. 2.

48 Chris Commins, *Submission no. 337*, p. 2.

49 Maurice Killeen, *Submission no. 371*, pp. 5–6.

- 4.51 At the Committee's public hearing in Wodonga a group of brigade captains and senior experienced fire fighters from north east Victoria agreed that an over-cautious approach now prevailed. One senior brigade member explained how concerns about liability affected decisions about fire fighting:

The coroner's findings in the Linton fire have made everybody very nervous ... That has affected the effectiveness of brigades getting in and doing their job. We tend to be told, 'If in doubt, get out.' We have better resources, much more expensive equipment and more training and yet our ability to get water onto a fire has deteriorated because people are worried about the liability. If you say, 'Go in and do it' and something happens, they do not want it on their neck.⁵⁰

- 4.52 A rural fire brigade Captain told the Committee

I agree wholeheartedly that the Linton inquiry has definitely put the wind into everybody. Unfortunately, the way the law operates today, if you do something and it goes wrong, you know you are going to cop it – so you don't do it. People have got the wind up.⁵¹

- 4.53 This view was expanded by a fellow brigade Captain:

As regards the liability, strike team leaders have five trucks and many a time you hear of those trucks parked out on asphalt watching the farmers putting out their own fires with slip-on units. They make those decisions because of the liability. They have at the back of their mind, 'If I take those five trucks in there and something goes wrong, I'm at fault.' There is a fine line between safety and getting water on fire. With fire fighting you are fighting an unknown enemy. It is an unpredictable enemy. And that is why we had a lot of trouble this year with the strike team leaders with that litigation in the back of their brain, that 'I may be at fault.' ... Five years ago it was not a problem. Since the Linton inquiry, everyone is so frightened to make a decision that we are not getting water on fire quick enough.⁵²

50 Robin Box, *Transcript of Evidence*, 24 July 2003, p. 66.

51 Tony Menz, *Transcript of Evidence*, 24 July 2003, p. 66.

52 Mervyn Holmes, *Transcript of Evidence*, 24 July 2003, p. 67.

4.54 The situation in Victoria was summarised by the Australian Assembly of Volunteer Fire Brigades Association (AAVFBA):

The Gippsland/North-East fires of January and February 2003 mark a watershed in modern Victorian rural fire fighting practice. Instead of adopting a policy of active, aggressive fire fighting the policy which governed the firelight could be identified as safety first and 'built-asset' protection. As a consequence the fires ran for more than 50 days...⁵³

4.55 The AAVFB also went to comment about the reasons why this occurred:

One can trace the genesis of this policy through the experience of the New South Wales Campaigns of 1994, 1997, and especially over the last two years. It is clear that a dedicated "built-asset" protection policy led to fewer losses from fire. The CFA had previously adopted a policy of aggressive fire fighting so much so that in its advice to home owners in high risk areas it told them to make their own preparations to stay and fight (or leave early) because they couldn't rely on the availability of fire trucks that would be fighting the running fire.

There are possibly two key reasons why this policy has been adopted, the first relates to the deaths of fire-fighters at Linton which led to the more cautious, 'safety first' approach and the second is a recognition of fire research evidence that a direct attack is only likely to succeed at very low fire intensities of say 3 MW/m of fire front when the fires concerned were producing intensities of 50 to 100+ MW/m.

The Gippsland/NE fires were both extensive and intense. ... Fire intensities clearly reached the extreme levels on occasion. There were however many times when crews simply sat back and watched when intensities were low and well within the fire fighting capacity of the assembled resources.⁵⁴

53 Australasian Assembly of Volunteer Fire Brigade Association, *Submission no. 399*, p. 12.

54 Australasian Assembly of Volunteer Fire Brigade Association, *Submission no. 399*, p. 12.

- 4.56 The Committee notes the comments of Mr Athol Hodgson who compared the 2003 fires in Victoria to those of the most comparable 1984/85 season.⁵⁵ He pointed out that the 84-85 fires were contained in two weeks and burnt only 150,000 hectares of which only about one third was in alpine. This was compared to the 2003 fires which took seven weeks to contain and burnt out 1.3 million hectares. Mr Hodgson argued that one of the reasons for the difference was that in 84-85 the initial attack by ground crews was faster and more effective – partly because a larger and more experienced workforce was available.
- 4.57 Mr Hodgson suggested that one area where the 2003 response showed a ‘dramatic improvement’ was in the protection of life and private property. This was achieved by concentrating resources at the interface of public and private lands for back burning and protection against ember attacks. The Committee notes particularly the qualifications he put on this conclusion – firstly that this approach is a costly strategy that places enormous burden on volunteers and local communities and secondly, that there was still a need to examine why the fires were allowed to get so large. The Committee is concerned that the approach adopted in 2003 did contribute to the fires being bigger than would have been the case with a more aggressive rather than defensive approach.
- 4.58 At a public hearing in Wodonga Mr Brian Bettles, a forester with considerable experience with the Forestry Commission of Victoria and the State Electricity Commission, cited rapid response to fires and strong inter-agency cooperation between public land managers and fire suppression agencies as preventing major fires in areas that were burnt out in 2003:
- The fire that started at Little Arthur, which I might add I believe with a crew of eight we would have put out in an hour, ended up being one of the major fires that linked up with the Mount Pinnibar section, which went right across the top of Bogong down the other side and just kept going ...
- In the period that we were in charge up there, we never had a major fire in our area, but we did assist Forestry and CFA outside our areas ...

55 Athol Hodgson, *Submission no. 450*, p. 9. The fires in 84/85 were more comparable to the 2003 fires because they also occurred after a long drought, were preceded by sufficient winter and spring rains to promote fuel growth, and arose from numerous lightning strikes.

I believe we had more lightning strikes and hotter weather. With regard to the fire in January this year, I class the weather as reasonably mild, other than on a couple of days. I thought it was very mild.⁵⁶

- 4.59 The disappointment and frustration of fire fighters in Victoria is also reflected in comments made by the Chairman of one of the area conferences of the New South Wales RFSA, Mr Brian McKinlay, at the public hearing in Richmond. The Association believes that that there is reluctance on the part of some land managers to seek the appropriate emergency support in a timely manner.

Our submission really says that there are no black marks on the wall for someone to put up their hand and say, 'Hey, give me a hand as soon as you can.' It is not a political game; it is not an ownership game; it should be a game to put the fire out as soon as possible across all agencies and across all barriers.⁵⁷

- 4.60 Overall, the situation was summed up by Dr Kevin Tolhurst who submitted that:

It seems that both in the case of the Canberra fires and in the Victorian fires, fire suppression resources were not engaged in sufficient numbers enough to control the fires in their early stages. In both Victoria and in the ACT, there were a number of days when little suppression work was undertaken on fires which ultimately burnt significant areas. This is due partly to the priority process and partly to inefficient use of resources. When resources are scarce, fires must be dealt with in priority order. If the resources never match the task at hand (as this year), some fires will remain uncontrolled for too long and become a significant problem. A more realistic assessment of the task at hand would have suggested more resources should have been sought earlier ...

The requirement to work safely when firefighting was emphasized by the Linton Coronial Inquiry. The safety of firefighters must always take the highest priority. However, better systems need to be put in place to reduce the amount of valuable skills and expertise tied up in maintaining the paper trail. Often the most experienced firefighters were involved in an incident management team rather than on the fireline.

56 Brian Bettles, Transcript of Evidence, 25 July 2003, pp. 47-8

57 Brian McKinlay, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 37.

Once the requirements of the Incident Management Teams were satisfied, the rest were left for fireline duty. With the reducing number of experienced firefighters nationally and internationally, this meant that most of the experience was in the office not in the field and this resulted in much lower achievement rates on the fireline and lost opportunities. Whilst I acknowledge the need for experience people in the Incident Management Teams, there needs to be a better balance between field and office. A certain amount of streamlining and centralizing is needed.⁵⁸

Weather during the January fires

4.61 The Bureau of Meteorology presented the Committee with evidence that indicated that the fire authorities were forewarned about the pending fire season, had access to good forecasts and data about lightning strikes and should have been in a position to make informed decisions following the outbreak of fires on 8 January. The Bureau submitted that:

The drought prevailing at the time of the recent fires was one of the most severe in the nation's recorded history. Large areas of the country were experiencing serious or severe rainfall deficiencies. Additionally, atmospheric humidity and cloudiness were below normal and daytime temperatures were at record high levels. This combination of factors led to an early curing of fuels across most of Eastern Australia. Although many of these factors were also present during previous major bushfire events the high temperatures in the lead up to the 2002/03 fire season appear to be unprecedented. The likelihood of conditions conducive to a bad fire season had been identified in seasonal outlooks as early as mid-July 2002.⁵⁹

58 Kevin Tolhurst, *Submission no. 210*, pp. 2–3.

59 Commonwealth Bureau of Meteorology, *Submission no. 369*, p. 4.

4.62 The Bureau's Deputy Director expanded on this in evidence:

What was also very unusual about the season was that the actual dryness, the lack of rain, was not exceptional. It was something like 1938-39 or 1982-83; it was not exceptional in that respect. However, what we did have was higher temperatures. In some cases we had average maximum temperatures which were, for some localities for a month, about three degrees above average. Averaged over a month, that is a large departure. So we had this combination of very dry conditions plus above average temperatures and we feel that certainly made this season quite exceptional. It was a combination of those two things.⁶⁰

4.63 The Bureau also made it clear that this information was available to the fire agencies:

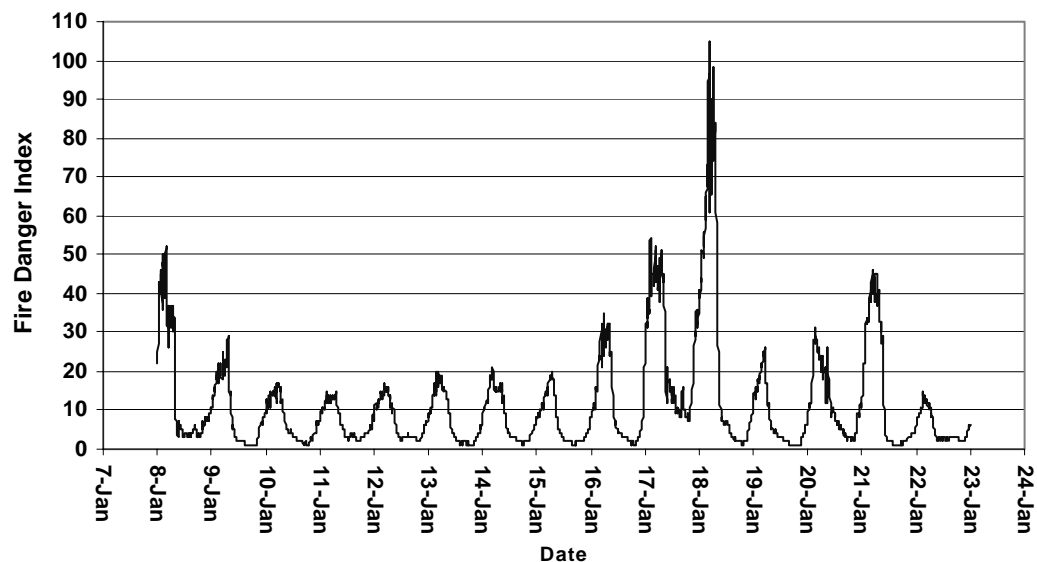
Prior to the 2002–2003 fire season (September/October), senior officers from the Bureau of Meteorology's Victorian Regional Office, the Canberra Meteorological Information Office and the New South Wales Regional Office met with and briefed their respective regional fire services on current rainfall deficiencies and the Seasonal Climate Outlooks for both temperature and rainfall. Agencies briefed included the NSW Regional Fire Service, NSW National Parks and Wildlife Service, State Forests NSW, NSW Fire Brigade, ACT Emergency Services Bureau, the Victorian Department of Natural Resources (now the Department of Sustainability and Environment), and the Victorian Country Fire Authority. The National Climate Centre also invited agencies to its Monthly Climate Meetings, at which seasonal outlook policy for rainfall and temperature is formulated. The Victorian Country Fire Authority and the Victorian Department of Natural Resources and Environment sent representatives to several pre fire season meetings. Further updates were supplied via monthly email documents to NSW and ACT fire agencies, whilst in Victoria, regular updates on seasonal outlooks for rainfall and temperature were provided to fire agencies through direct communication with the Regional Office's severe weather section.⁶¹

⁶⁰ Kevin O'Loughlin, *Transcript of Evidence*, 21 August 2003, p. 33.

⁶¹ Commonwealth Bureau of Meteorology, *Submission no. 369*, p. 15.

- 4.64 This evidence suggests that opportunities were available to make an all out effort to contain fires in initial stages before conditions deteriorated. There was clearly a need for a rapid initial response to stop the fires spreading and joining up.
- 4.65 Data presented by the Bureau also showed that once the lightning storms passed through, the remaining period in which fires ran in south east Australia was characterised by generally benign fire weather, that is conditions were relatively conducive to fire fighting. In the Australian Capital Territory region the fire forest fire danger index on 8 January, when the fires ignited, was in the extreme range but for much of the remainder of the period and leading up to 18 January, it was in the high range. The Bureau's data indicated a similar situation at Mount Hotham and at Hunters Hill in north east Victoria not far from the border with New South Wales. The variation in the fire danger index is shown in Figures 4.1, 4.2 and 4.3.⁶²

Figure 4.1 Forest Fire Danger Index – Canberra



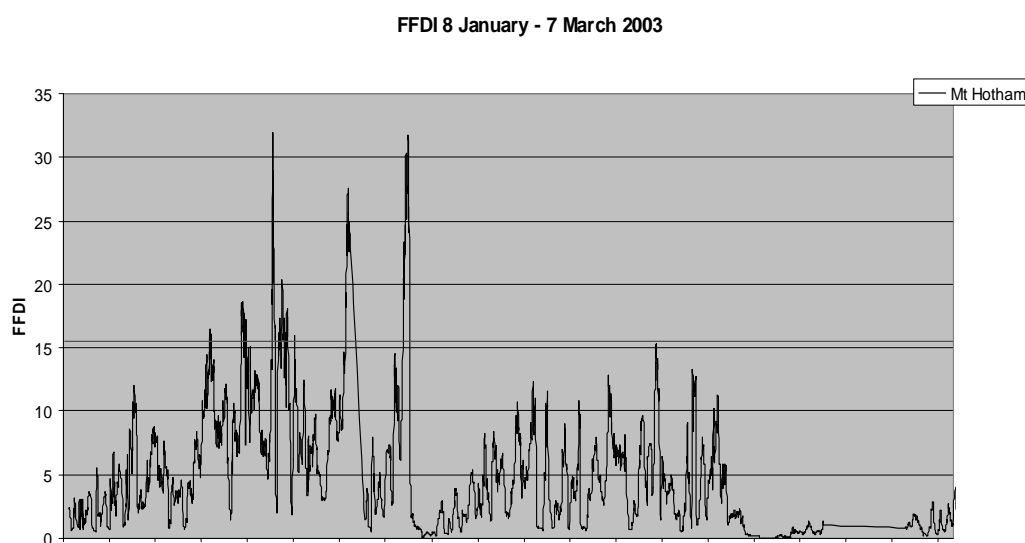
Source: Bureau of Meteorology

⁶² Barry Southern, *Transcript of Evidence*, 21 August 2003, pp. 37–38.

4.66 In relation to the critical period, particularly for the fires in the Australian Capital Territory and to some extent the north east Victoria fires, from 8 January onwards the Bureau said:

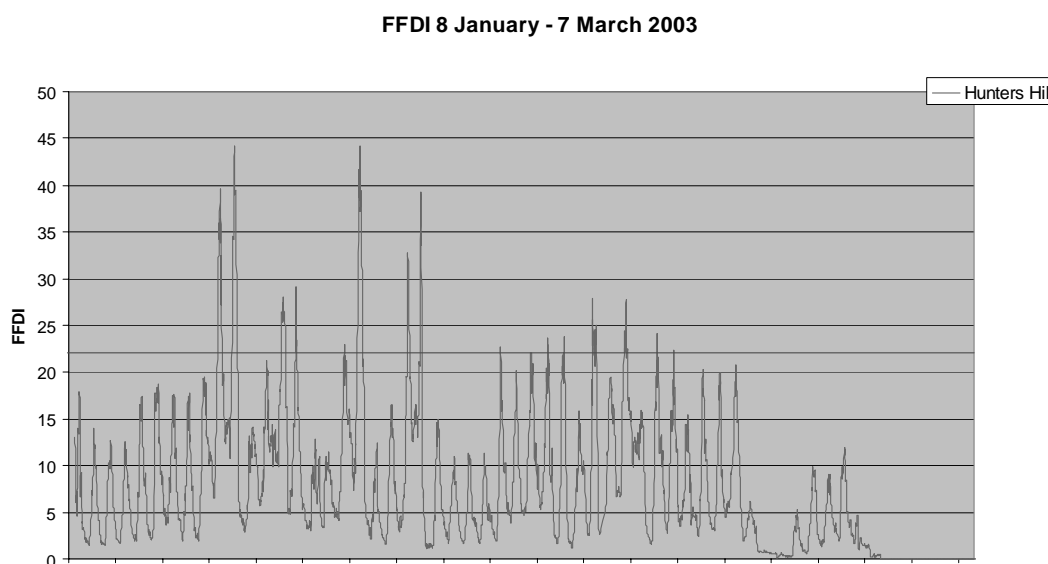
There was certainly a weather event around 8 January and lightning appears to have started the fires. Then there is a relatively benign period after that, until about 17 January when things started to really get quite serious from the weather point of view again. One thing I would point out about that is that, although the actual weather conditions were relatively benign and the fire danger ratings were reduced over that period, there was virtually no rain. In fact some places went for about 50 days with no significant rain.⁶³

Figure 4.2 Forest Fire Danger Index – Mount Hotham



Source: Commonwealth Bureau of Meteorology

63 Kevin O'Loughlin, *Transcript of Evidence*, 21 August 2003, p. 33.

Figure 4.3 Forest Fire Danger Index – Hunters Hill (Victoria)

Source: Commonwealth Bureau of Meteorology

- 4.67 This data supports the views put by experienced and knowledgeable fire fighters who told the Committee that the fires could have been contained before the fire weather deteriorated later in January. This is not to say that the fire fighting task would have been without risk. The Bureau pointed out that there have been incidents in the past that involved danger or deaths where the calculated fire danger was actually quite low.⁶⁴
- 4.68 However the lack of aggression shown in some instances in deploying ground and aerial forces was not warranted based on the data and the direct field observation presented in evidence to the Committee.
- 4.69 Mr Nic Gellie undertook an analysis of the diurnal variation in forest fire danger rating in Canberra during January 2003 which showed that there were about 59 per cent of occasions overnight when the Forest Fire Danger Rating was less than or equal to 10. It was suggested that at higher elevations, this relative frequency of low fire danger ratings would have been closer to 66-70 per cent of occasions.⁶⁵

⁶⁴ Kevin O'Loughlin, *Transcript of Evidence*, 21 August 2003, p. 38.

⁶⁵ Nic Gellie, *Report on: Causal and Risk Factors, Fuel Management, including Grazing and the Application of the Australian Incident Management System*, p. 27.

Underutilisation and withdrawal of fire fighters

- 4.70 Evidence received by the Committee pointed to problems in coordinating and tasking fire fighting assets in the field. This, in part reflected the non-aggressive, cautious approach highlighted above. It also indicates failures in command and control systems. The under-utilisation and, in some cases, withdrawal at critical times, was a matter of considerable concern to people who made submissions. One landholder in east Gippsland explained the situation in his area:

In the Wulgulmerang area there was a fleet of CFA tankers waiting for the fire on the 30th January. However, their control centre with limited local knowledge indicated to the Wulgulmerang CFA fleet that the fire was three days away. Meanwhile, a Wulgulmerang farmer drove a few miles down the Benambra road and determined that the fire would hit Wulgulmerang that day – this farmer's judgement was correct. When the farmer returned, the CFA tankers could not be found. Apparently the tankers had gone for a lunchbreak 30 kilometres away. Farm families protected their lives and property by themselves in Wulgulmerang and Suggan Buggan. They had no assistance from any Government agency.⁶⁶

- 4.71 Similar concerns were expressed from landholders in north east Victoria:

In the evening of 26/1/03 when the fire was very close to hitting us. The Granya tanker was calling over their CFA radio for support but got no reply. I then placed an emergency telephone call to 000 and asked for support, as the fire was imminent.

I then rang Captain John Scales of the Dartmouth brigade to see if he could find out what was going on, as I knew that there was a CFA communications base at Dartmouth. He rang back at around 8:35pm with the news that a CFA strike team would be in the area in approximately 1 hour.

That strike team did not arrive and I understand they were diverted to Mt Beauty, leaving us to burn.⁶⁷

⁶⁶ Nick Margetts, *Submission no. 12*, p. 2.

⁶⁷ Robert Bethune, *Submission no. 124*, p. 3.

- 4.72 Much of the concern about the utilisation of fire crews in Victoria centred on the role of strike teams. Whilst little criticism was made of the commitment and the intention of team members there was a wide spread view that the teams were not properly tasked and were subject to restrictions imposed by remote incident controllers:

spot fires were left unchecked as crews in tankers were instructed that they were not to work on a running firefront so all strike teams became observers of a fire that kept spreading for three days and nights unchecked and was to become a juggernaut that no-one could control ...

Strike teams were not to work on running edges as directed by Incident Control Centre. These instructions resulted on more than one occasion where on request by farmers and local C.F.A battling to control spotovers were told 'no, we can't go in there, it's too hot' and yet they were at the time observing local efforts to contain fires from 100 metres away in their fully-equipped tankers ...

Strike teams were not under the control of the local group officer as they should have been on the fire line, but were controlled by some person at Incident Control Centre 30 kilometres away who did not have a clue what was going on at the fire front. D.N.R.E. Incident Control Centre instruction to crews had to be seen to be believed. They too were under instruction not to work on running edges and in the frustrating position of watching spot fires escape when normally these fires could be easily mopped up. These instructions to CFA and D.N.R. crews all helped to create what we see today as total devastation of our environment and logging areas.⁶⁸

- 4.73 Elsewhere in north east Victoria the situation was repeated:

On 17/1/03 I was on duty on the Dartmouth tanker on the Razorback track ... Conditions were very hot, smoky and dangerous ... We were under resourced for the task at hand. In the end the fire got away from us and we had to evacuate by driving through the fire to a turn around point and then back out through the fire again.

68 Neville Robinson, *Submission no. 119*, p. 2.

We found out later that while we were fire fighting under these arduous conditions a strike team was enjoying a cool swim in the creek half an hour away ... We really could have done with their support ...

The stupid thing is that the CFA controller in charge of that part of the fire that day ... did not even know that the strike team was in the area.⁶⁹

- 4.74 The underutilisation of strike teams in Victoria was severely criticised with much of the criticism coming from brigade captains and fire fighters who looked to the strike teams for assistance. They found that they were unable to work effectively with the strike teams or were disappointed by the limitations apparently put on the tasking of these teams. One brigade Captain and landholder from the Dartmouth region advised the Committee that:

Controllers outside the region controlled C.F.A. Strike Teams. There was no liaison between local or area C.F.A. captains and D.S.E. controllers and Strike Teams. They were controlled outside the fire area – they weren't part of a 'Total Fire Suppression Plan'. The CFA Strike Team resource was a total waste of funds because they didn't contribute to putting out fires ...

C.F.A. Strike Teams were an inappropriate response to controlling the fire. They let fires burn down into farmer's properties before spraying them with water. Strike Teams are not allowed to fight a running fire – too dangerous!⁷⁰

- 4.75 The problem with strike teams was more a matter of how they were directed by incident control centres rather than the commitment of the crews. As a volunteer fire fighter, who was on duty in the Wulgulmerang area, outlined to the Committee:

the firefighters on the ground were as frustrated as what the residents here were. We were prevented from doing things that we wanted to do. We were sitting in trucks and told to wait. This happened to the firefighters that were here that wanted to go up to Wulgulmerang. I know they wanted to go up there, but the hierarchy said we had to sit back and wait.

⁶⁹ Robert Bethune, *Submission no. 124*, p. 5.

⁷⁰ Robyn and John Scales, *Submission no. 161*, pp. 2–3.

The same thing happened at Dinner Plain and Mount Hotham. The same happened with the DNRE on-the-ground workers as well.⁷¹

- 4.76 These sorts of experiences were not confined to Victoria. Volunteer fire fighters In New South Wales advised the Committee of similar concerns about not being actively tasked to fire mitigation activities. One RFS Group Captain made some comments specifically about the lack of urgency in the response to the fires in Canberra, which he contrasted to his more general experience with major fires:

In most of my recent trips to section 44 incidents the deployment of firefighting resources have been good however the Canberra fire was in my view looking at it from a taskforce leaders position disastrous. ...

Why did it take two @ quarter hours from our arrival at Yarrowlumla Fire Control till the taskforce arrived at Fairlight property [?]

Why did the taskforce travel through the suburbs of Holder and Duffy, which were still burning, to a property, which did not need protection?

Why was the Taskforce allowed to wait in the suburb of Holder for one and half hours and not be tasked?⁷²

- 4.77 Observation from the south coast region of New South Wales referred to a similar experience with the deployment of fire fighting resources:

The Eden volunteers got to Michelago, believing that they were desperately needed. They were told to hang about until their orders came through and it was suggested that they might play a game of cricket while they were waiting. A few hours later they were still sitting around waiting, and they said, 'We are going home. Call us when you need us. We are going home to look after our own back doors.' The same thing happened to the Wandandian group. They actually came out. They were to the west of Canberra. They stayed for two days. In those two days, they were not required to help with the hands-on fire fighting that they had the experience and expertise in, so they also went home.⁷³

71 Gina Trotter, *Transcript of Evidence*, 29 July 2003, p. 51.

72 Alan Holding, *Submission no. 28*, p. 3.

73 Jill Lewis, *Transcript of Evidence*, 14 July 2003, p. 21.

- 4.78 Resources within the Australian Capital Territory were also held back. One volunteer fire fighter told the Committee that even after being deployed the fire fighting effort was restrained. Referring to the availability of volunteer based rural fire units he said:

I was in contact with ... [the Captain of the Southern Districts Brigade] ... and ... [he] ... had people there ready to go ... he had people out there that could have left as soon as the calls came to be up there and do something, but nothing happened. Our first real involvement was on Saturday the 11th. I was sent up to one fire at Mount Gingera and told not to do any active fire fighting, just to monitor it and watch it with two fully crewed tankers and that was it, which was what we did. But the fires, even at that stage, were not that dramatic. We could have done something if we had had a go at it. ... If we had had the bulldozers to create some sort of access for tankers on one side of it and if the resources had been put on it, yes. The Stockyard Spur fire was a similar proposition.⁷⁴

- 4.79 The Committee is aware that fire fighters on the fire ground during major, multiple fire situations may not always have a sufficient overview of circumstances to make sound strategic judgements. It is notable, however, that the observations about fire crews being held back when their own observations indicated good opportunities for more aggressive fire fighting were repeated throughout the evidence.⁷⁵

- 4.80 Most disturbingly the evidence includes examples of residents and landholders either being lulled into a false sense of security or being given certain assurance about assistance only to find that they were left to their own devices. In the rural areas of the Australian Capital Territory and the mountains to the west it was reported to the Committee that:

Nobody contacted me, as a property owner, about the danger to my property. Fire control was not aware that I had a house on the property, despite the fact that the fire burnt 200 metres from my house for three days. I watched it from my veranda.

⁷⁴ Stephen Angus, *Transcript of Evidence*, 15 July 2003, p. 80.

⁷⁵ Other submissions from land holders and brigade members, such as 102, 178, 268, 275 and 276 also refer to fire fighting units sitting around waiting to be tasked and not utilised.

While choppers were water bombing, fire control was not aware that there was a house within 200 metres of the front of the fire. It appeared to me as though once the fire was contained, in the view of the National Parks and Wildlife Service, fire services were removed completely from the area ...

I felt abandoned. The fire had seemingly been brought under control in the park, and no fire services or crews were adequately deployed for property protection for private property owners. Brindabella fire brigade were in the area and did do some back-burning, but they were deployed back to Brindabella and we were left on our own to protect our properties. The communication to property owners was minimal, if not absent – in my case, completely – and National Parks made no attempt whatsoever to communicate what sort of strategy or plans they had for containment of the fire. Forestry evacuated us without the option of staying to protect our properties. I believe that, had we been given the option to protect property and the support to protect property, perhaps my neighbour's property would not have been completely destroyed.⁷⁶

- 4.81 In the forestry settlements to the west of Canberra the sense of abandonment was strongly felt following what was perceived to be a deliberate policy of deceit and a lack of intention to protect the settlement houses. During the fires all but six of the 22 houses at the Uriarra settlement were destroyed.⁷⁷ Some settlement residents outlined this position to the Committee:

Ms Murphy – We were used for 10 days as a base for the helicopters ... We were assured that we were safe there and that they would help us if the fire did come, but on the morning of the 18th they all left. They completely left us; fire nozzles were taken and our water was drained by the fire fighters. Obviously it was not their fault; they must have thought they were able to use it, but that was our own water supply, and we were left to fight for ourselves.

Mrs Kavanagh – I asked some fires who were walking up my laneway what the situation was. They assured us that everything was calm and told us to water everything down.

⁷⁶ Katja Mikhailovich, *Transcript of Evidence*, 14 July 2003, p. 86.

⁷⁷ Bill Bates, *Transcript of Evidence*, 15 July 2003, p. 41.

They tested the fire-hose that was near my premises. We were assured that they would be there to help us, but instead we were left there by ourselves. We lost all water pressure and had no nozzle, so we had to go and search for one. We were basically left there.

Mr Anderson – I was just the same as everybody else. We all had a sense of security, with all the action that was going on previous to the Saturday, and it was very disturbing to be left behind – if I could put it like that – to fend for ourselves.⁷⁸

- 4.82 This sense of abandonment was also evident in the urban areas of Canberra affected by the fires, but there was also a recognition that by the afternoon of Saturday 18 January, when the fires had made a major run through the rural areas to the west, that the situation was beyond control. However, in these areas many houses were lost to ember attack several hours after the main fire event had passed, in which case the deployment of even moderate capacity fire suppression assets may have prevented some losses. Some residents of Duffy made a joint submission to the Committee in which the question was asked if when and by whom Eucumbene Drive was given up as a lost cause and why no fire tenders attended the street until about four hours after the fire front passed. One of the residents put it this way:

We had no warning to evacuate, there were no fire appliances, firemen or police visible in our part of the street and, it seems to us, we were apparently left to fend for ourselves ...

There are stories circulating that our end of Eucumbene Drive was given up as a lost cause and that is why there was no line of defence in our street ... We (and our neighbours, who also stayed and fought) would like to know if we were abandoned and, if so, the reasons why.⁷⁹

- 4.83 Landholders and volunteer fire fighters in Victoria also relayed their concerns to the Committee. Landholders from near Omeo told the Committee that:

In our area of the valley there were only the residents—not a single CFA or DSE truck or strike team was at hand to protect our property or that of our neighbours, including 17 houses, thousands of head of stock, two historic wooden bridges and

78 Uriarra Community Association, *Transcript of Evidence*, 15 July 2003, pp. 40–41.

79 Mark Douglas, Paul Garret and Phil Tuckerman, *Submission no. 8*, pp. 6–7.

many hundreds of kilometres of fencing. As such, defense against the fire was handled solely by the residents, with neither professional nor volunteer help or equipment.

At approximately 9:45 am, the DSE phone-tree system out of Swifts Creek alerted the residents to the approaching fire, however the advice was that 'it is still a long way from you yet.' ... At 10:15, (Mrs McCormack) rang back requesting help, which was denied, as the situation in the valley was deemed too dangerous to send a vehicle. Ten minutes later, the fire front swept through the valley, cutting power and telephony, and leaving the valley burnt and completely isolated.

There is an inherent contradiction in the actions of the DSE on that day: first the advice was that the likelihood of the fire reaching the valley was low. Half an hour later, the valley was too dangerous for CFA or DSE crews to enter. The disparity between these two responses is enormous.

Mr and Mrs McCormack and our neighbours felt completely abandoned.⁸⁰

- 4.84 At the public hearing in Omeo the Committee heard evidence that suggested either a lack of understanding of the situation that local landholders faced or the lack of ability to do anything about it:

Fire tankers were familiarising themselves with the area, but the controller at the base camp called all of the fire tankers back to have lunch and be briefed. It must have been a long lunch, because they were still there at 2 o'clock that afternoon. By half past two or quarter to three, spot fires were starting to ignite in our paddocks. At 3 o'clock we got a phone call – the last phone call before the phones went out – to tell us that we were on our own. They said, 'There'll be no fire tankers; we're sorry; good luck.'⁸¹

- 4.85 Some of the landholders in the Wulgulmerang area in east Gippsland had expected a better outcome:

It was re-assuring to see the CFA out and about (Before the fires arrived). They explained that they were volunteers from Queensland and we introduced ourselves and described where our house was. I clearly recall one of the men putting his arm on my husband's shoulder and reassuring him that we were not in it alone and there were over 20 trucks and

80 Margery Scott and Anne Strang, *Submission no. 211*, p. 2.

81 Kevin Rodgers, *Transcript of Evidence*, 28 July 2003, p. 4.

men who would help protect us and our assets....At approximately 1300 hours we noted that the fire trucks (numbering about 12) that we had been told would be staying in the ... district... were heading back down towards their base camp...⁸²

- 4.86 Property and assets, including at least one house, were lost in the area and the landholders were severely impacted by the fire. The lack of assistance was distressing to them and to the fire crews:

A CFA captain attended our property after the fire and apologised for the debacle ... he had resigned as brigade captain ... and felt compelled to tell us face to face that the CFA volunteers wanted to join us in the fire fight but were forced to follow orders from the top.⁸³

- 4.87 The locals in this area were kept in the dark. In another submission from this area some landholders from Gelantipy stated that the red alert that was placed on the strike teams 'was not made by someone who was in the area or who had local knowledge' and that the red alert status was not conveyed to local people:

... local people were out fighting fires and looking for spotfires and assuming the CFA would be there to help them, as conveyed in last communications, but the CFA was not allowed to assist.⁸⁴

- 4.88 Even volunteers working on public land were at times left to carry on without assistance. One example occurred in Kosciuszko National Park:

we were asked to control ... (a fairly small area of grassland within the park) ... so that it did not jump the river. There were only four of us there – that is inclusive of the parks personnel. At 8 p.m. they were very apologetic but they said that they had to go and that their relieving team would be in there within half an hour. They never appeared.⁸⁵

82 Samantha and Robert Stoney, *Submission no. 459*, p. 1.

83 Samantha and Robert Stoney, *Submission no. 459*, p. 2.

84 Heather and Peter Henderson, *Submission no. 464*, p. 1.

85 James Litchfield, *Transcript of Evidence*, 10 July 2003, p. 89.

- 4.89 The position of volunteers who turn out to assist with fires on public lands was put more pointedly in north east Victoria where some of the landholders were themselves burnt out:

Most C.F.A. Captains are farmers. The C.F.A. really needs to re-examine its philosophies if it is to retain members in the future. Your commitment to the C.F.A. is considerably reduced when you fight a State Fire for 3 weeks, only to find out that your own farm is not on the priority list.⁸⁶

- 4.90 The Committee concludes that not only was the initial response in some cases ineffective but that also the ongoing response was, for some fires not sufficiently aggressive to make the best use of the opportunities that were available. It is noted, however, that there is a view that the fires were not as damaging as they might have been. The Committee believes that this view reflects a failure to understand the perspective of the rural communities as to what constitutes effective and appropriate asset protection. Those communities and the people of the Australian Capital Territory were entitled to a better outcome and the Committee believes it is not sufficient to say that things could have been worse. What should be said is that things should not have become as bad as they did.

Asset protection, property loss and the 'success' of 2003 effort

- 4.91 The Committee received a lot of evidence from landholders and volunteer fire fighters that argued against a narrow definition of property and pointed to the very extensive loss of pasture, fencing, buildings and machinery that is vital to the livelihood of farmers. The timber industry also pointed to the loss of assets and many submissions commented on the environmental damage done during and since the fire.
- 4.92 Owners of a property in north east Victoria detailed losses including a hayshed and store fodder, several kilometres of fencing and stock. They also had to sell stock short to the market and the cost of loss of pasture was at least \$2000 per week for fodder to keep core breeding stock alive.⁸⁷ Some of these losses could have been prevented if the fire authorities had reacted differently to their situation:

In the days after the main front passed there was some support occasionally from the CFA however I believe it was only given a low priority because our pasture was probably

⁸⁶ Robyn and John Scales, *Submission no. 161*, p. 3.

⁸⁷ Robert Bethune, *Submission no. 124*, p. 2.

not deemed by authorities to be an asset needing protection. We lost pasture for six consecutive days.

The authorities' definition of an asset to be protected needs to be reviewed. Buildings, bricks and mortar, etc are obvious assets, however a farmer has other assets that also need to be protected. They include pasture, livestock and fences, without which a farmer cannot operate.⁸⁸

- 4.93 Extensive losses were reported from the Gippsland area where, as indicated in the evidence above, the landholders believed they were left to fend for themselves. One submission outlined losses in the order of 90 per cent of the pasture (approximately 4000 of 4500 acres), 150 kilometres of fencing and 12 cattle. The effect of the fire was that the pasture loss 'plunged us immediately into severe total drought conditions'.⁸⁹ Cattle were urgently sold at reduced prices, to purchase extra feed and agistment at high prices, and fodder stored for winter feed was lost. This involved incurring extra transport costs. Extra labour costs were required to provide temporary fencing, immediate stock feeding and cattle work. The view put to the Committee was:

The DSE and the CFA were responsible for the firefighting operation. Fires were left to burn until they were huge and extended out of National Park land causing enormous economic damage to public and private assets. This situation is unacceptable.

There is a belief in the area that there was in place a policy of 'Let it burn; protect lives and assets'. This policy is contradictory. Naturally, lives must be protected above all else. But what is the definition of an asset? In the case of these fires, it seems to be a house, and only a house. In the Omeo valley, each house was protected by its occupants, not the authorities. Of 17, two were lost.

But as primary producers, our asset is our business – pasture, fences and stock. It is our livelihood and adds to that of the local community. A house does not support you.⁹⁰

⁸⁸ Robert Bethune, *Submission no. 124*, pp. 3–4.

⁸⁹ Margery Scott and Anne Strang, *Submission no. 211*, p. 3.

⁹⁰ Margery Scott and Anne Strang, *Submission no. 211*, pp. 3–4.

- 4.94 The Committee notes that in this instance that not only was the policy of the authorities out of touch with local expectations, but that they failed to deliver on that policy in terms of the asset protection. The Committee notes also the distress that this approach caused in other areas:

Throughout the fire, asset protection for a farming community was not defined. Only houses seemed to be an asset. This caused great distress, as livestock in cattle yards were left unprotected and grassland, the cattleman's livelihood, was left to burn. We could not get the message through that grass is the cattleman's asset; that, without grass, you do not have livestock.⁹¹

- 4.95 Another landholder, who was heavily involved in the fire fighting in the north east, explained that farmers were more concerned about assets other than their residences:

The definition of 'asset protection' disadvantages farmers. Asset protection as practised by the D.S.E and the C.F.A. hierarchy is 'owns and family homes, public buildings and structures'. There is no regard to farming land, our fences or our stock. A house is more important than our farming land. This definition needs to be altered. Farmers value their farming land more than their homes – their land is their livelihood.⁹²

- 4.96 It would appear to be the case that some rural fire authorities are indeed out of touch with the people they are supposed to protect. The need for a new perspective was put by a landholder who gave evidence in Omeo:

I think the biggest problem with the CFA is that it has been a bit regimented and a few things like that. The priorities with the farming community are back to front. I have heard on several occasions where they went in and said, 'We are here to save your house.' The house is not an asset to a farmer. His herds, fencing, pastures, machinery sheds and hay are his assets, not the damn house. Yet they were not interested in protecting those assets.⁹³

91 John Cardwell, *Transcript of Evidence*, 24 July 2003, p. 25.

92 Robyn and John Scales, *Submission no. 161*, p. 3.

93 Robert Pendergast, *Transcript of Evidence*, 28 July 2003, p. 45.

- 4.97 None of this discussion about assets takes into account the impact of the fires on the physical health and mental well being of the landholders, residents and fire fighters who went through the experience of the 2003 fires. As the VFF put it:

When reviewing these fires consideration must be given to the emotional damage, not just the damage to assets. The majority of the areas affected by the fires was in its fifth year of below average rainfall. Many farmers and the communities, which, rely upon them were at the end of their tether, then they had to face over a month of 24-hour pressure while the fires raged.⁹⁴

- 4.98 Mr Peter Smith offered the Committee a comment on the trend for fires to be allowed to get bigger and suggested that a more effective early response could save costs and the time of volunteers. He suggested that 'the enforced approach to property protection of sitting and waiting for properties to be over-run then coping with an uncontrolled emergency causes a higher risk of property loss, increased danger to crews and inefficient use of resources'⁹⁵. He argued that:

that the philosophy of initial response be reviewed. There has been a general approach to escalate the fire fighting response behind the escalation of fires. It seems the bigger the response capacity, the bigger the fires we are getting ... so many times I have seen fires escalate to major proportions for want of an adequate early response.⁹⁶

- 4.99 The Committee considers that the people who live in rural areas and on urban-rural interfaces are entitled to a better outcome than they have been provided with in the recent fires. That their expectations have not been fully understood by rural fire agencies was borne out by evidence to the Committee
- 4.100 The Committee concludes that there is a need to redress the imbalance that has crept into the management of wildfire. The emphasis needs to be put back on prevention rather than fire fighting. The emphasis on defence and asset protection also needs to change. It is imperative to protect the life of fire fighters and the community but it is not sufficient to allow fires to develop unnecessarily, given the knowledge and technology available today, and given also that

⁹⁴ Victorian Farmers Federation, *Submission no. 423*, p. 3.

⁹⁵ Peter Smith, *Submission no. 378, Attachment*.

⁹⁶ Peter Smith, *Submission no. 378*, p. 9.

communities have had very effective local volunteer responses in the past. In January 2003 the spread of fires that were not contained had disastrous consequences that far outweighed the cost and potential risk of an effective early response.

Restoring the balance

- 4.101 The Committee notes the views of the IFA about the extent of the 2003 fires. The Institute said that the loss of life in the major bushfires that have affected New South Wales and Victoria in recent summers was much less than in the 1983 Ash Wednesday bushfires. However, the IFA points out a significant difference between these events:

Ash Wednesday was basically a one-day event, which caught people by surprise and gave them no time to marshal resources or retreat to safety. The recent fires in NSW and Victoria on the other hand, and especially the very damaging ACT fires, had been burning for days, in some case weeks, before they threatened towns and settlements. This gave ample time for last minute defenses, and emergency work directed at saving lives, to be mounted. Furthermore, in Canberra there are excellent road systems which allowed rapid egress from the fire.⁹⁷

- 4.102 It can be clearly concluded that the 2003 fires resulted in far more damage than should have been the case. It is also clear that a prime reason for this was the failure of fire authorities and public land managers to quickly contain all the fires even though circumstances allowed them to do so. The Committee notes also the views of the IFA on this matter, especially considering that the Institute represents the profession which, more than any, has had the training and experience appropriate to managing bushfires in many of the areas affected by the 2003 fires. The Institute said in its submission that

Under conditions which occur regularly in Australian forests, and especially where the fuels are long unburnt, bushfires will always occur in the size, number and intensity capable of overwhelming the best equipped firefighters. To give these forces a chance of success, they must have extensive, strategically placed fuel reduced areas, coupled to a rapid fire suppression capability. The 'stand-and-defend at the edge-of-

⁹⁷ Institute of Foresters of Australia, *Submission no. 295*, p. 10.

the-forest' approach will never succeed against high intensity fires driving out of heavy bush.⁹⁸

- 4.103 The whole Australian community can be thankful that the loss of life and property was not worse. However, the community should also be concerned that the fires were as extensive and as damaging as they were. The Commonwealth Government in particular should be concerned because the fires will no doubt result in considerable requests for disaster relief payment. The Committee believes that the Commonwealth should require the states to reverse the suppression-rather-than-prevention approach and the defensive asset protection stand.

Recommendation 20

- 4.104 **The Committee recommends that the Commonwealth work with the states and territories through the proposed Council of Australian Governments to review the response to bushfires to ensure that principles of fire prevention and rapid and effective initial attack are adopted and implemented by all rural fire authorities and public land managers**
- 4.105 The Committee sees this recommendation as being integral to a new national approach to the prevention and management of bushfires in Australia – a matter that is discussed further in chapter 8.

Fear of liability

- 4.106 The evidence before the Committee shows that, in some cases, where fires got away and damaged communities the incident controllers did not listen to locals or lacked sufficient understanding of local conditions. The outcome of this lack of connection with the locals was exacerbated by an unwillingness to take an aggressive approach – possibly because of fear of retribution.

⁹⁸ Institute of Foresters of Australia, *Submission no. 295*, p. 15.

4.107 The Committee was told that fear of adverse repercussions affected many facets of the fire control operation in north east Victoria. This approach was characterised by the VFF as 'If I do nothing, I do nothing wrong'.⁹⁹ A group of senior volunteer brigade representatives appeared at a public hearing in Wodonga where one group officer said that

no matter what area you look at, in any of the points that tended to rise as a concern, you run into a liability. People being concerned about liability is seriously impeding the effectiveness of them doing their job. It does not matter whether it is the training, the fuel reduction burns, the departments or for people making decisions for control burns on the day.¹⁰⁰

4.108 One brigade Captain told the Committee that:

The first thing I saw of it [fear of litigation] ... was when we were heading into the Feathertop fire. The DSE and Parks crews in that area would not go near it because of the situation. They were paid firies. We were local fellows with local crews – Falls Creek, Dederang – with gear going in there, perfectly safe, with a cattleman as a guide. They are going out saying, 'Where are you guys going? You can't do anything in there. Where are you going?' The last thing they told us was, 'Don't do anything.'¹⁰¹

4.109 At the Wodonga hearing it was said that the fear of liability for decisions:

comes in from a whole lot of areas. Doing back-burns during the fire was one thing. The consequences of a back-burn getting out of control tended to make people not go ahead with them, when that should have been done and would certainly have been done in the past. It is very difficult for people to do fuel reduction burns adjoining private property because of the liability and responsibility that the departments wear, should it get out into private property. In regard to doing fire training as part of controlled burns, nobody wants to put the responsibility on somebody's shoulder to say, 'Yes, you can go ahead and do it.' Nobody wants to do that, because of the liability. The coroner's

99 Victorian Farmers Federation, *Submission no. 423*, p. 3.

100 Robin Box, *Transcript of Evidence*, 24 July 2003, p. 63

101 Jack Hicks, *Transcript of Evidence*, 24 July 2003, p. 68.

findings in the Linton fire have made everybody very nervous of even approaching. That has affected the effectiveness of brigades getting in and doing their job. We tend to be told, 'If in doubt, get out.' We have better resources, much more expensive equipment and more training and yet our ability to get water onto a fire has deteriorated because people are worried about the liability. If you say, 'Go in and do it' and something happens, they do not want it on their neck.¹⁰²

4.110 The liability issue was said by the Captain of one brigade to have impacted directly on the fire fighting effort:

As regards the liability, strike team leaders have five trucks and many a time you hear of those trucks parked out on asphalt watching the farmers putting out their own fires with slip-on units. They make those decisions because of the liability. They have at the back of their mind, 'If I take those five trucks in there and something goes wrong, I'm at fault.' There is a fine line between safety and getting water on fire. With firefighting you are fighting an unknown enemy. It is an unpredictable enemy. And that is why we had a lot of trouble this year with the strike team leaders with that litigation in the back of their brain, that 'I may be at fault.'

You will always make mistakes; we are not all perfect. Someone will make mistakes somewhere. But every person that is on a truck has had training; they know the risks—what could happen – before they leave home. Five years ago it was not a problem. Since the Linton inquiry, everyone is so frightened to make a decision that we are not getting water on fire quick enough.¹⁰³

4.111 The evidence given by the Captain of the Mudgegonga brigade suggests that a way forward might be found in resolving some of the doubt surrounding perceptions of liability:

The CFA policy on liability is, as I understand, if you act in good faith you are then covered by insurance. That is the area which can be interpreted in as many ways as there are firefighters, I would think – a bit of a grey area, but that is the terminology that is used.¹⁰⁴

102 Robin Box, *Transcript of Evidence*, 24 July 2003, p. 66.

103 Mervyn Holmes, *Transcript of Evidence*, 24 July 2003, p. 67.

104 David Reeves, *Transcript of Evidence*, 24 July 2003, p. 67.

4.112 There are two issues encompassed by these concerns – fear of liability and litigation for loss of life and property damage, and fear of breaching occupational health and safety provisions in protecting fire fighters.

4.113 A resident from the fire affected area in north east Victoria told the Committee about the impact on volunteer fire fighters of the possibility of being held liable for decisions:

If you have a look at the pressure that the volunteers were put under during the coroner's inquest into Linton—where back-burns were conducted under the authorisation of volunteer officers—you will see why, in this day and age, people out there on the fire ground think twice. Because of the structure of the ICS and its apparent imposition on the activities on the fire ground, where orders have to come from the ICC, the incident control centre ... the people on the fire ground have virtually finished up; they have got to take the action that they have taken.¹⁰⁵

4.114 It was suggested to the Committee that the situation in Victoria has eased somewhat and been clarified by recent amendment to the legislation:

Volunteers have been questioning the Victorian government for quite a number of years regarding section 92 of the CFA Act which provides indemnity protection for volunteers. It is interesting to note that, since the fires and the autumn sitting of parliament, section 92 of the CFA Act has been altered to incorporate 'acting in good faith' rather than the grey area of the interpretation of 'negligence'.¹⁰⁶

4.115 Some evidence the Committee received in Western Australia went to the same concerns about liability:

One of the great fears we are now facing as volunteers is the threat of litigation. I think I can use myself as an example – not that I have ever been sued. I am purely and simply a volunteer. I can volunteer to go and do several other things in my local town if I wish to; I do not have to be a volunteer firefighter. All that really stands between me and being sued by someone are the words 'acting in good faith'. It has never been tested. I could make a huge error of judgment as a senior fire control officer in my office and unwittingly place people

105 Ron Evans, *Transcript of Evidence*, 25 July 2003, p. 43.

106 Ron Evans, *Transcript of Evidence*, 25 July 2003, p. 54.

at risk and then be dragged into the courts if someone were hurt seriously. I could go into a coroner's inquiry. All that is standing between me and any prosecution are the words 'acting in good faith'. That is a lot for a volunteer to hang their hat on. We are all getting very uncomfortable with the fact that we are exposed to more and more litigation and we do not think it is particularly fair on volunteers to place themselves at such risk.¹⁰⁷

- 4.116 In relation to the occupational health and safety issues the Committee believes that the over-riding concern is always going to be to protect life and prevent injury to fire fighters and the public. Fire fighting operations need to be conducted in the safest way possible, but this does not mean an abandonment of aggressive fire fighting when circumstances allow a good probability of success. Fire fighting is a dangerous and inherently risky business but so is standing back at safe havens and letting fires burn through properties where landholders are battling to protect their assets. The obligation on fire management agencies to comply with occupational health and safety requirements has to be understood in such a way that they also meet their obligations to protect life and property.
- 4.117 The states and territories each have their own occupational health and safety legislation and in each case it applies in bush fire fighting situations. This legislation opens up the possibility of fire fighters being prosecuted for breaches of occupational health and safety principles. The agencies have to do what is practicable to protect fire fighters, including volunteers. The Committee does not think it appropriate to seek a general exemption from liability for occupational health and safety obligations for bush fire agencies but there is a need to determine what is practicable and to apply this concept in a way that meets community expectations of what constitutes adequate bush fire fighting. There is also a need to establish some definitions and standards applicable to training and operational management in a way that meets tests of due diligence and practicality. Consideration must be given to the severity of the risk, the state of knowledge and ways of reducing the risk. The fundamentals that may need to be addressed include:
- The provision of adequate training at all levels and in all tasks.
 - Adequate induction of new staff and volunteers.
 - Provision of adequate safety equipment and training in its use.

107 Timothy Johnston, *Transcript of Evidence*, 5 August 2003, p. 18.

- Provision of information to the fire fighters on the fire line.
- Application of sound principles of incident management and communication.
- Adequate planning before and during fire events.
- Hazard mitigation including control burning.
- Provision of safe access to the fire ground.

- 4.118 The days have long gone since, as Mr Peter Smith put it, 'where we jumped on a truck and took the lads and the beaters and went out with a piece of hessian to beat fires out'.¹⁰⁸ It appears from the evidence that the consequence of the modern approach is that volunteers have less flexibility to respond to rapidly developing situations and that incident managers have adopted an overly cautious approach and do not trust the advice from below. In light of recent coroners findings into deaths of fire fighters at Linton in Victoria and Mount Ku-ring-gai in New South Wales and the outcome of the 2003 fire season the Committee concludes therefore that it is now timely to review the implications of occupational health and safety legislation for the proper and effective functioning of bush fire services, especially as they apply to volunteers.
- 4.119 If fire fighting is being restrained by a fear on the part of controllers that they will be found liable or culpable if something goes wrong then the system needs to be changed to protect those individuals when they make decisions that on the basis of the information available to them seem reasonable given the twin objectives of protecting life and limb and of containing the spread of wildfire. It needs to be recognised however that responsible and reasonable decision making depends on good information and that, in wildfire situations, a prime source of such information is going to be the experienced fire captains and senior volunteers on the fire ground.
- 4.120 Evidence to the Committee suggested that some incident control centre staff appear to not understand the culture and needs of the rural communities that they are supposed to protect and some even seem contemptuous of the local knowledge and experience of the volunteer fire fighters. The Committee believes that the shortcomings of the fire response effort is in part due to the reluctance of senior levels in fire control organisations to take risks and to delegate decision making to people on the fire ground. However, these are necessary and unavoidable elements of major fire fighting operations. The whole approach to risk management during fires needs to be

108 Peter Smith, *Transcript of Evidence*, 15 July 2003, p. 13.

reviewed and the question of liability of fire controllers for reasonable and appropriate decision making also needs to be redressed.

Recommendation 21

- 4.121 **The Committee recommends that the Commonwealth seeks to ensure that the proposed Council of Australian Governments review of the bushfire management initiate with the states, as a priority, a review of the responsibilities and potential liabilities of fire controllers with a view to developing principles of indemnification for reasonable, responsible and informed decision making. This review should extend to defining responsibility for occupational health and safety requirements in a way which allows practicable compliance where a reasonable degree of risk taking is urgently required to prevent the loss of life, property and environmental amenity from wildfire**

Recommendation 22

- 4.122 **The Committee recommends that the Commonwealth Attorney-General engage the Commonwealth, states and territories in a review of occupational health and safety legislation as it affects the proper and effective functioning of bush fire services.**

Management and coordination of fire suppression

Incident management – Bureaucratisation of fire fighting and shortcomings in incident control systems

- 5.1 The Committee is concerned that the ineffective response to some of the 2003 fires may indicate systemic problems with incident control systems. This concern is reflected in a considerable body of evidence put to the Committee about the centralisation of decision making within incident control centres established at some distance from the fire ground. Clearly the problems outlined above and in the evidence about incident control did not occur at every stage of every fire but the pattern is such to lead the Committee to consider this matter seriously.

Failure to use local knowledge

- 5.2 The evidence outlined in chapter 4 clearly shows that the initial response to the fires that caused so much damage in January 2003 was neither effective nor in line with the expectations of the affected communities. The Committee considers that the damage that was done by these fires is evidence enough of some degree of failure.¹

¹ The Committee also considers that any view that the fire fighting overall was successful is untenable given the losses that occurred in urban and rural areas of the Australian Capital Territory.

- 5.3 Much of the evidence presented to the Committee points to situations where the advice of local landholders and experienced, knowledgeable volunteer fire fighters was ignored. The outcome in some cases was that running fires caused avoidable and preventable damage.
- 5.4 This can be seen in the evidence from the north east of Victoria, where the Mudgegonga Rural Fire Brigade for example noted that:
- Local knowledge was not utilised enough in nearly every circumstance [that is] it would have been better for a local to have been deployed with each Strike Team and Sector Commanders ...²
- 5.5 The Dederang Rural Fire Brigade submitted that:
- The DSE would not allow competent local CFA crew leaders to take charge of fires. DSE Incident Control Centre (ICC) were using outside personnel with a lack of local knowledge to run the fire operations. In some instances there was blatant disregard of local input and expertise.³
- 5.6 The Carboor Brigade outlined an instance where a crew in consultation with the local brigade Captain devised a plan for a back burn to stop fire burning towards private property in the Buchland Valley. The crews on the fire ground agreed that the plan was 'possible, safe and effective' but it was vetoed by a controller in a distant control centre.⁴ The Carboor Brigade submitted that their crews were poorly utilised by the control centres during the fires in the north east, except for the first crew to attend the Eldorado fire which, at that point, was still being managed from the fire ground.
- 5.7 A fire brigade Captain from the Mount Buffalo area in north east Victoria, in a private submission to the Committee stated that in the 2003 bushfires in his area and in the Gippsland, the operations were run from remote incident control centres, often as far as 100 kilometres back from the fire. He argued that a running fire, especially in mountainous terrain, such as surrounding areas of Mount Buffalo National Park, cannot be commanded from a map and that local area knowledge and experience is essential for both effective control as well as safety. As an example he cited an instance where local CFA members knew a road to be safe to enter with good fall

2 Mudgegonga Rural Fire Brigade, *Submission no. 39*, p. 2.

3 Dederang Fire Brigade management Team, *Submission no. 152*, p. 3.

4 Carboor Rural Fire Brigade, *Submission no. 264, Attachment p. 2*.

back areas (some of these being their own properties) but the incident control command told them not to proceed.⁵

- 5.8 The serious consequences of ignoring local advice was demonstrated in the north east, in the Nariel Valley, where according to a submission from that area, a lack of regard to local advice resulted in a significant area being needlessly burnt:

DSE personnel were asked NOT under any circumstances to burn on the west side of the Nariel Valley, particularly in the Upper Nariel area. However, this was done with the result being a firestorm that blasted through ten properties.⁶

- 5.9 The serious consequences of this approach were also seen in the outcome of the fires that ignited to the west of Canberra on 8 January. One local landholder submitted to the Committee that:

We are also of the opinion that any claims to have ‘contained’ this fire were very ill-conceived; and that any media releases claiming such reflected either amateurism or wishful thinking, or lack of local knowledge. We do not subscribe to the notion that having a bull dozer track around this fire on one side, and having the Goodradigbee River on the other equates to having it ‘contained’. The so-called ‘containment’ lines were not close to the fire front, and represented no more than very small impediments for this fire to jump. I do not believe any of the ‘locals’ considered this fire to be ‘contained’ at any stage.⁷

- 5.10 The fire did cross the Goodradigbee River (on 17 January⁸) and then later, as the locals predicted, burnt back to the east, and subsequently contributed to the major impact on Canberra and rural areas in the Australian Capital Territory on 18 January. The Committee considers that it was a serious error to consider that the fire was contained, especially when sound local advice to the contrary was available.

- 5.11 The failure to heed local advice had serious consequences in the Australian Capital Territory where Mr Val Jeffery had warned authorities over a long period of time and immediately before the fires overran parts of the Australian Capital Territory, but was generally dismissed by those in authority. Just a few days before the fire broke out he circulated a letter warning local residents in and

5 Barry Mapley, *Submission no. 189* p. 1.

6 Johan Kohlman, *Submission no. 432*, p. 2.

7 David Menzel, *Submission no. 343*, p. 2.

8 Wayne West, *Transcript of Evidence*, 14 July 2003, p. 32.

around the rural village of Tharwa to take precautions and he unilaterally took action to establish a protective fire break around the village. His warning was generally heeded by residents and land holders, and loss of private property was minimised. His warning was dismissed by the managers of public land and facilities in the area which eventually suffered significant losses.

- 5.12 On the day that fires burnt the urban edge of Canberra another fire started near Burrinjuck Dam further to the north and west from the Australian Capital Territory. The Captain of the Adjungbilly Rural Fire Brigade that has responsibility for fire fighting in that area submitted to the Committee that his brigade and others contained the fire on the western side of the Murrumbidgee River. Based on their experience of a previous fire he warned authorities that the fire on the eastern side of the river would spread unless back burning was undertaken. He was told that back burning was not a priority. The fire however did spread as the locals had predicted and after some pressure a back burn was carried out a week after the initial advice had been given. By that time the forecast had again deteriorated and, in the view of the locals, the back burn had been lit in the wrong places. The local view was dismissed as 'paranoid', but the fire got away and it took another week of work by the volunteers before it was contained. In concluding his submission the local Captain observed that 'you cannot fight a fire and control it from an office it has to be on the fire ground'.⁹

- 5.13 This was not a problem unique to New South Wales. The same observation was made in relation to fire control in Victoria:

the fires appeared to be controlled from an office away from the fire ground where knowledge of conditions is unknown.¹⁰

- 5.14 Nor was the failure to consider local knowledge a phenomena of the 2003 fires:

I would like to add something similar to that. In the 2001-02 fires, as a part of the brigade, we wanted to do a back-burn around a house to hopefully save the property and requested permission to do it. We radioed the fire control centre in Braidwood and then they had to contact Moruya because the incident controller was there. We had to wait three and a half hours to get permission to put a 600-metre back-burn in. In the end, they flew a helicopter over us to see exactly where

⁹ Bill Kingwill, *Submission no. 175*, pp. 1-5.

¹⁰ Carboor Rural Fire Brigade, *Submission no. 264*, p. 1.

we were. We had two deputy group captains, two or three captains and some deputy captains there ready to go, and in the time it took them to do that the wind had changed and it made our task twice as hard to do.¹¹

- 5.15 Whilst the problem of ignoring local knowledge seems not to be confined to any one area the nature of the knowledge can be very localised. The Captain of the Brindabella Brigade was concerned that the lack of knowledge of the different conditions in the mountains hampered effective decision making by controllers unfamiliar with the those conditions:

Throughout the campaign there was a total lack of understanding by planners and controllers of the daily pattern of fire weather in this part of the mountains. Many windows of opportunity for fire management were lost because burning was undertaken at inappropriate times.¹²

- 5.16 The specific nature of local knowledge was demonstrated in the Nariel Valley where it was submitted that: 'I personally frequently told DSE about our local wind conditions and was not believed ... You can stand in our backyard and have wind coming at you from the North and a few feet higher up the hill it is coming from the South.'¹³ This unwillingness to accept reports of local conditions was repeated in other submissions:

On the day of the fire, we were rung up at a quarter to 10- we usually get our phone call at half past seven or eight o'clock – and I said to them, 'How come it is so late? We have had strong winds since half past seven, coming from the north.' They said, 'Oh, we have got no wind down here.' And I said, 'It is coming from the north,' but every time we told them that they would not listen to us. Within half an hour it was on our back doorstep. I rang up for help and by this time we had a spot fire at the turnoff at the valley and we could not get any help at all. So we – the 17 houses down in the valley – had to defend ourselves.¹⁴

11 Terence Hart, *Transcript of Evidence*, 10 July 2003, pp. 39–40.

12 Peter Smith, *Submission no. 378, Attachment A, p. 20A*.

13 Johan Kohlman, *Submission no. 432, p. 2*.

14 Leanne McCormack, *Transcript of Evidence*, 28 July 2003, p. 15.

- 5.17 It was not just reports of local wind conditions or predictions of fire behaviour that were sometimes ignored. Reports of actual fire were sometimes disputed by remote incident control centres:

When we did actually see spot fires in the area and reported them, it took up to seven hours for them to respond to what we had seen. They told us that we were not seeing spot fires at all, that the planes had not seen it in the morning. The reality was that we were watching them burning probably about one kilometre away from us. This happened a couple of times. The last time it happened I actually lost my cool with them and told them that they were breaching their duty of care and if they did not do something we would sue them if the fire came through these two areas. That is when they decided we had a fire in the area.¹⁵

- 5.18 The establishment of centralised and remote incident management centres was an integral part of the response to the fires, but it came at a cost. The Committee notes the submission by the Captain of the Brindabella Brigade:

The increasing centralisation of Incident Management and the diminishing involvement of local brigades in decision-making have led to a demonstrable decrease in the aggression initial response.

Initial response should not await the formation of Incident Management Teams and the development of long-term strategies and plans. This is where local brigades are best suited to respond to fires in their areas whilst back-up is being organised. They have the local knowledge of terrain, access, fire behaviour ... In many cases the local area has better early intelligence of fire than Fire Control. As the incident develops, Fire managers have a much better overview and the role of brigades changes accordingly ...¹⁶

15 Elizabeth Benton, *Transcript of Evidence*, 29 July 2003, p. 50.

16 Peter Smith, *Submission no. 378*, p. 9.

Incident Control systems

- 5.19 The standard incident management model developed for use in Australia and adopted by the Australasian Fire Authorities Council (AFAC) is the Australian Inter-agency Incident Management System (AIIMS), although as the McLeod inquiry noted its implementation by fire authorities does not always strictly follow the prescribed model.¹⁷ The system is intended to provide clear definition of roles and responsibilities for incidents where the response involves a number of elements and it incorporates identification of a clear incident commander. This approach also involves functional delegation and management by objectives. This system was described by AFAC in the following terms

one of the earliest [significant achievements of AFAC] ... was the development of an incident control system for the command and control of operational incidents. We have a national system now that fire organisations in all states and territories use. It enables us to operate interstate in a cooperative way on incidents – at least in the management of incidents – and even to the extent of operating overseas now, which we have successfully done on a couple of occasions in the US, using the system which is very similar to theirs.¹⁸

- 5.20 An experienced volunteer fire fighter and former brigade Captain outlined the changes that have occurred in New South Wales as incident control systems have been implemented:

Incident Control formally [sic] consisted of an incident controller working from the foreground, liaising with landowners and ground crews directly and by radio and communicating logistical requirements by radio to a base station. This system had the advantage of direct knowledge of the fire situation and being able to plan based on the direct input of brigades and landowners. The disadvantage was the large workload placed on the controller, the lack of phones and office equipment and the large amount of tasks required to be covered by one person. Incident Control Systems were developed to cover the shortcomings of this system and are normally located at control centres remote from the fire ground. While this has improved logistics, there has been a

17 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 119.

18 John Gledhill, *Transcript of Evidence*, 21 August 2003, p. 2.

loss in fire ground awareness and input of local knowledge. Although the use of divisional commanders has attempted to address these shortcomings, in some situations incident controllers are not responding to advice from divisional commanders resulting in ineffective and hazardous fire fighting efforts. Advice from divisional commanders must be acted upon as they are the ones at the scene. An alternate way to address this would be the use of a mobile command centre located at the fire ground for fire command with the remote centre used mainly for logistics.¹⁹

- 5.21 The VFF explained how this situation has developed with the CFA, Parks Victoria and the Department of Sustainability and Environment (DSE) moving to the use of the Incident Control System:

This practice has seen a lessening of the relevance of the operational “chain of command” and the importance of democratically elected leaders, elected in recognition of their experience and skills ...

Insufficient use of local knowledge in the Incident Control Centres (ICC) has been highlighted on many occasions.²⁰

- 5.22 Mr Graham Gray a former forester experienced in bushfire control commented on the changes and the effectiveness of current organisational structures for major fires and noted the demand for additional staffing resources that the incident control centres create:

large fires of the type seen recently are demanding larger and larger management teams, which tend to draw in relatively inexperienced people who assume very significant authority. This resource hungry control set up is not resulting in better fire management. Because the bill is being picked up by someone else (Rural Fire Service) for these emergency events there is little accountability and an incentive to move to this form of management as a costing exercise rather than a fire control imperative. This control structure is built on the Australian Interagency Incident Management System (AIIMS) model that tries to ensure that the fire is managed locally.

As an example of the way incident management teams have become unwieldy at the recent Snowy Mountains fire, the day shift for 16 February at Jindabyne was managing 16 helicopters, 1 Sky crane and 4 fixed wing aircraft. The control

¹⁹ Gary Owers, *Submission no. 81*, p. 1.

²⁰ Victorian Farmers Federation, *Submission no. 423*, p. 10.

centre personnel totalled 37 of which 5 were incident management team, 18 were planners, 14 logistics; in addition there were 5 managing air operations (not pilots) and they were supporting 71 personnel actually on the fire line. All this 16 days after the last day of severe weather and when all fires were at mop-up or patrol stage! All but three of the control centre staff was from National Parks ... relying on drawing fire managers from current staff positions may be putting inappropriate managers in charge because of their seniority within their organisation, rather than because of their fire fighting expertise.²¹

- 5.23 Dr Kevin Tolhurst also commented on the staffing needs of incident control centres:

The requirement to work safely when fire fighting was emphasized by the Linton Coronial Inquiry. The safety of fire fighters must always take the highest priority. However, better systems need to be put in place to reduce the amount of valuable skills and expertise tied up in maintaining the paper trail. Often the most experienced fire fighters were involved in an incident management team rather than on the fireline. Once the requirements of the Incident Management Teams were satisfied, the rest were left for fireline duty. With the reducing number of experienced fire fighters nationally and internationally, this meant that most of the experience was in the office not in the field and this resulted in much lower achievement rates on the fireline and lost opportunities. Whilst I acknowledge the need for experience people in the Incident Management Teams, there needs to be a better balance between field and office. A certain amount of streamlining and centralizing is needed.²²

- 5.24 The views of Mr Gray and Dr Tolhurst are somewhat at odds over the experience and knowledge of incident control centre staff but there is some other evidence to suggest that in some cases the incident management members were not the more experienced or most appropriate personnel:

The 'control' of the fire is in the hands of RFS staff personnel in the IMT, (Incident Management Team) remote from the fire and in most cases staffed by people with little or no on site

21 Graham Gray, *Submission no. 97*, p. 7.

22 Kevin Tolhurst, *Submission no. 210*, p. 3.

fire ground senior management (Divisional) experience.

Indeed it would not be unusual for most members of the IMT to have NO fire ground experience.²³

- 5.25 This view was supported in the Victorian context by a submission from an experienced CFA brigade Captain and Deputy Group Officer in the Gippsland area:

We as CFA volunteers are very concerned of the career officers that are now manning the incident control centres. Since about 1990 CFA stopped sourcing these recruits from volunteer areas who have had previous experience in the rural areas and know the culture of rural communities. There is no doubt with the extra large amount of recruitment the government has implemented through the CFA we will see more of these inexperienced officers impacting on volunteers in Incident Control Centres and general fire suppression. It would have a devastating effect on volunteerism.

It is my feeling these officers will take on a controlling role over volunteers. I strongly suggest that the local volunteers have control alongside these officers who can play very important roles of knowing the culture of the top end of the CFA and could get a much quicker and co-ordinated response for the volunteers at the fire front. It should be noted that the control of a fire is at the fire front not in the Incident Control Room. The ICC responds to the requests of the control point at the fire ground.²⁴

- 5.26 Another CFA Group Captain, making a personal submission, identified a need for improved training and post incident reviews for incident control centre staff:

I do believe however from my direct observations during that time and from more general experience that the training of personnel who manage major fires can be improved.

This is not to say that Australian practices are significantly worse than other countries with similar risks, indeed many of our fire services provide a service equal to any that I have seen in the world. Rather, I believe that we should be constantly improving our systems, training and technology to enable our personnel to function at the highest level.

23 Alan Davison, *Submission no. 69*, p. 1.

24 Maurie Killen, *Submission no. 371*, p. 5.

Australia currently lacks a national level course or program to impart skills to those involved in major fires. By comparison, the USA reaps the benefits of a comprehensive training program which progressively develops skills up to a very high level ... The training curriculum for Australian fire fighters is very good, however there are significant gaps at the higher levels.²⁵

- 5.27 One central point is clear from this evidence. The Incident Control Centre process involves large numbers of personnel who must have experience and knowledge as well as sound leadership, management and communication skills. Within Incident Control Centre personnel there must be people with local knowledge.

Problems with incident control systems in the 2003 fires

Remoteness and lack of local input

- 5.28 A report on the fires in north east Victoria submitted to the Committee and strongly reflective of local views, says that the CFA changed its organisation with an increase in the number of paid staff and a downgrading of the authority and autonomy of local volunteer fire fighters.²⁶ This was accompanied by the introduction of centrally managed incident control systems with fire controllers and bureaucrats from the CFA head office moved in to control fire fighting efforts:

DSE officers and paid CFA officers effectively stripped all autonomy and authority from volunteer Captains and other CFA volunteers who collectively offered literally thousands of years experience in firefighting, and were intimately familiar with the local terrain and the characteristics of its wildfire behaviours.²⁷

- 5.29 The report also outlined what happened during the fires in the north east:

incident control centres were established in locations such as Mt Beauty, Swifts creek, Dartmouth and Corryong with remarkable numbers of bureaucrats and controllers in each. In Corryong for example up to 72 staff were involved in management chain. Even allowing for the usual 'confusion of battle' this approach to emergency response produced

25 Stephen Walls, *Submission no. 249*, p. 2.

26 The Eureka Project, *Submission no. 128, A case of burning neglect*, p. 22.

27 The Eureka Project, *Submission no. 128, A case of burning neglect*, p. 13.

outcomes which might be reasonably be described as a comedy of errors.²⁸

- 5.30 It was explained how this approach was associated with the deployment of strike teams and out of area crews with little knowledge of local conditions and without local supervision. Instead these units were subject to command and control from the Incident Control Centres. One consequence was that:

There appeared to be little or no capacity for central command to differentiate between the contributions which the various categories of fire fighters were able to offer. Consequently the DSE/CFA control appeared to adopt the lowest common denominator in allocating tasks and approaching the issue of occupational health and safety ...

The central command process lacked a conduit for such local information to filter up...²⁹

- 5.31 The problems caused when incident control centres are remote from the fire ground were exemplified in a submission from the Noorongong Rural Fire Brigade. A fire fighting proposal was worked out at the fire ground by locals and DSE personnel from Swifts Creek. The proposal was then relayed in person to the Incident Control Centre at Swifts Creek, which was three hours drive away, but the proposal 'could not be considered'. A local DSE officer experienced in fire fighting then made a round trip to Swifts Creek in the middle of the night to press the case, which on this second attempt was accepted. It is incomprehensible that experienced fire fighters should be required to go to such exhausting lengths and absent themselves from the fire ground to achieve such outcomes. In this case after the plan was agreed to, the local volunteers set about the fire suppression effort but DSE units deployed by the remote Incident Control Centre remained without instruction until the end of their shift.³⁰
- 5.32 In comparison to the situation outlined above the submission from the Noorongong Brigade refers to another situation where an incident control centre was established nearer to the fire ground (30 minutes drive) and manned by a DSE officer advised by locals. The operational directions from this centre were described as effective and within three days a successful containment line was established.³¹

28 The Eureka Project, *Submission no. 128, A case of burning neglect*, p. 22.

29 The Eureka Project, *Submission no. 128, A case of burning neglect*, pp. 23–24.

30 Noorongong Rural Fire Brigade, *Submission no. 301*, p 1

31 Noorongong Rural Fire Brigade, *Submission no. 301*, p. 1.

- 5.33 Similar expressions of concern about attempts to control fires from an office without local input, such as the comment reported above in relation to the Burrinjuck fire, were repeated in relation to the Victorian fires:

[There was] ... lack of management on the fire ground, the fires appeared to be controlled from an office away from the fire ground where knowledge of conditions is unknown. ... We firmly believe that those volunteers such as ourselves now need to be listened to (our brigade has 19 out of 50 members with over 25 years active experience each). Rather than a group of over educated inexperienced people who seem to be the ones who are in control of situations such as occurred this year. Fire fighting happens at the fire front not in an office.³²

- 5.34 In some cases it was not just local volunteers who were ignored by remote commanders. In the Buchan area a Parks Victoria officer concerned about the safety of the site proposed for a base sought to make arrangements to use the local resources centre. The site originally designated was described by locals as the most dangerous place to be in should the fire hit. The proposal to move to a safer location was overruled:

I was a volunteer at the resource centre when ... [a Parks logistics person] ... came in. He was shown what the centre had to offer and offered full use of it. He was impressed by the site position and facilities in place. He requested use of a phone to ring ... (the Parks Victoria Incident Controller) ... who would have to approve the change of site. Permission to change the site was denied.³³

- 5.35 The Committee can see from this evidence how the remote and centralised command systems, as put in place during the fires in New South Wales and Victoria contributed to the failure to utilise local knowledge and to the delays which resulted in the possibly preventable spread of the fires.

32 Carboor Rural Fire Brigade, *Submission no. 264*, pp. 1–2.

33 Kim Van Dyk, *Submission no. 471*, p. 2.

- 5.36 The management of major fires, with the resources that can now be made available needs strong command and control, logistics and, communications support. Some form of centralised incident control is necessary and inevitable, but unless properly managed and implemented there can be real problems, as indicated by the evidence reported above. Proper incident control should include devolution of some tactical decision making to fire fighters on the ground.

Lack of coordination within incident control centres – lack of continuity

- 5.37 A lack of continuity in the staffing of senior control positions was a problem referred to in north east Victoria. For example, there were problems when relief incident controllers were brought in for single shifts and did not develop a full understanding of the local situation. This caused delays in the decision making process:

After several days the Controller at Dartmouth asserted his authority. For several days [he] ... did the day shift. We found him very supportive of our ideas. He required to be informed of our decisions (which is OK) and would usually approve of them immediately and then back us on those decisions. After his shift finished we had a new controller every day for the next 4 days. This was totally unsatisfactory, as the day was usually almost over before they became familiar with the situation and they would approve of any decision. It is absolutely critical a person on the fire front can take a decision and act on it immediately!³⁴

- 5.38 The Committee was advised that one of the major issues with incident management teams is that it takes time to set up properly in a remote location, close to a fire. An incident controller usually has to set up his social networks from scratch, bringing in people from a variety of agencies and backgrounds. Often people are brought in with credentials and accreditation in the key functions of the incident command system, but not necessarily with the local knowledge. Before these formalised incident management teams came along, there used to be rural social networks in place, where people had trust in one another, and knew how to get a response together quickly. These social networks still exist in rural areas and play an important sociological support role in a cohesive rural community, but are not now drawn into the process.³⁵

34 John Cardwell, *Submission no. 178*, p. 3.

35 Nic Gellie, *Report on: Causal and Risk Factors, Fuel Management, including Grazing and the Application of the Australian Incident Management System*, p. 31.

5.39 An analysis of the evidence indicates that incident management teams were not always in contact with local people from the start, and did not always involve local people with local knowledge in an incident management team. There were often cases where highly experienced yet not accredited people were advised that their services were not required. It would appear that training in the incident management system has not always filtered down to a local level, so that in the event of a major fire emergency, these local resources could not be readily drawn into the fire fighting effort. There were plenty of examples of lack of involvement or exclusion of local bushfire brigades who had the social networks, local knowledge of fire behaviour, the fire trail system, and the lessons learnt from previous large fires.³⁶

5.40 Problems with the turn over of staff in the incident control centres and the subsequent lack of continuity were also summarised by Dr Kevin Tolhurst:

Short-tour of duty times for volunteers and for Incident Controllers led to slippage in the understanding of the fire and local conditions. Greater continuity of fire fighters and Incident Controllers is needed to maintain a continuity of philosophy and understanding of local conditions. This can be achieved by employing fast turnover crews in simple environments, and by arranging for a deputy Incident Controller to stand in for the 1C while they rest. On 1C should be given the responsibility for a fire for its duration. This could be achieved provided arrangements are put in place for rest periods and for subordinate ICs when the 1C is not on duty.³⁷

Failure to provide information to locals and other incident control centres

5.41 The Committee has already noted problems that arose because controllers failed to use local knowledge. Another problem that was evident was the failure of incident control centres to communicate decisions to locals and alert them to developments with the fire situation:

Information for Hinnomunjie Station from the DSE control centre in Swifts Creek was, we believe, inadequate. Those in charge were unable to give specific information regarding the

36 Nic Gellie, *Report on: Causal and Risk Factors, Fuel Management, including Grazing and the Application of the Australian Incident Management System*, p. 31.

37 Kevin Tolhurst, *Submission no. 210*, pp. 3-4.

state of the fires endangering us and had extreme difficulty with locations. Useful fire information, critical at the time, came from overhearing the local Benambra CFA leader over the CB radio, rather than through official DSE/CFA Command Centre at Swifts Creek.³⁸

- 5.42 The failure to communicate with locals lead to inefficiencies in the overall fire fighting effort according to a submission from the Kioloa Rural Fire Brigade which turned out to assist with the fires in the Canberra region:

At the recent Canberra fires our brigade experienced numerous communication problems with individual landholders, in that they were not notified or informed regarding proposed fire fighting affecting their properties.³⁹

- 5.43 This evidence is consistent with the views put by landholders in the Australian Capital Territory. The ACT Rural Lessees' Association explained that a briefing on developments with the fires in and around the Territory was provided by Environment ACT but they did not seem to have much information:

they gave us a briefing on Thursday the 16th in relation to the fires in Namadgi. I must admit that I was somewhat dismayed when I asked a question about the McIntyre's Hut fire, which was to the north-west of us and the one threatening Uriarra Station, and they had no information available at that point in time. The CEO of Environment ACT went away and made some phone calls so that we could be brought up to date on the McIntyre's Hut fire.⁴⁰

- 5.44 It is salutary to note that the briefing provided to the Australian Capital Territory landholders was also inadequate. By that time the fires had been going for eight days and would, within the next two days, overrun the rural areas and spread into Canberra. The ACT Rural Lessees' Association stated that the authorities were dismissive:

Many association members are extremely upset at the open ridicule they experienced from ACT government officers in the period between 6 and 18 January, when they expressed the view that the wholly inadequate response would lead to a disaster to landholders and city people alike.⁴¹

38 Margery Scott and Elizabeth Strang, *Submission no. 211*, p. 4.

39 Kioloa Rural Fire Brigade, *Submission no. 242*, p. 2.

40 Tony Griffin, *Transcript of Evidence*, 15 July 2003, p. 85.

41 ACT Rural Lessees' Association, *Submission no. 330*, p. 2.

- 5.45 Mr Wayne West, who tried desperately to alert the New South Wales RFS to the situation in the Brindabellas told the Committee how little contact the RFS initiated:

We had no communications. The Rural Fire Service did not come and see us. They did not send men up to our place to ask us whether we needed assistance or to disagree with my comments that I made to them on the phone. There was no contact from Rural Fire Service to us; it was just one-way traffic. On the only day that we did actually speak to a Rural Fire Service officer, he asked whether we needed any help. ... We never heard from that officer nor received any firefighting equipment or any assistance at all at any time. Even on the night of 17 January, when the fire crossed the Goodradigbee River to the western side, we rang fire control and asked for assistance and we were told to ring Triple 0. That was the 24th phone call.⁴²

- 5.46 The failure to communicate with locals was most dangerously evident where back burns were lit on or adjacent to private property. The VFF, for example, reported instances where back burning operations were commenced on private land with 'complete disregard' for the impact on landholders. It was stated that one farmer saw DSE crews leave a back burn unattended at the end of their shift putting at risk his own property and neighbouring farms.⁴³

- 5.47 Mr Craig Ingram MP, in his submission stated that:

My office has had complaints from a number of farmers that farmland was destroyed in backburning operations. One individual, in the Tubbut area, had his entire property burnt out in a controlled backburn, whilst his stock was still on the property. He was in the area preparing his property, but was not informed of the department's intentions.⁴⁴

- 5.48 One submission from north east Victoria noted that 'D.S.E. carried out back burns within a kilometre of towns without informing local C.F.A. captains or the community.'⁴⁵ A submission from the Kosciuszko area also reported that a back burn was lit on the Crakenback Range without any advice to either landholders or fire fighting groups that were affected.⁴⁶

42 Wayne West, *Transcript of Evidence*, 14 July 2003, p. 35.

43 Victorian Farmers Federation, *Submission no. 423*, p. 12.

44 Craig Ingram, *Submission no. 148*, p. 5.

45 Robyn and John Scales, *Submission no. 161*, p. 3.

46 Peter Rankin, *Supplementary Submission no. 421*, p. 1.

- 5.49 Landholders from Gelantipy in Victoria told the Committee that on their property unnecessary back burns, which were left unextinguished and unattended by strike teams, burnt out their fences.⁴⁷ It was suggested in the report done by the Eureka Foundation that the DSE required containment lines to be constructed on private land because they could not get management approval to build fire breaks on national parks.⁴⁸
- 5.50 There was also evidence from north east Victoria of the failure of an incident control centre to communicate with other incident control centres, as well as ignoring locals:
- In one instance, we had a control-line ... approved by DSE Controller at Dartmouth. We had three bulldozers working at the control line as well as 10-15 personal with rakehoes, only to find out that the Corryong Controller had lit a fire below us. Naturally all our work was in vain.⁴⁹
- 5.51 Command and control problems seem to be an area where things have the potential to go wrong with major multi-agency campaign fires where control is provided from remote centres. With the Brindabella fires to the west of Canberra the local brigade Captain reported that the fires were 'under the control of four Incident Management Centres making coordination a significant cause of delay where different strategies overlapped.'⁵⁰
- 5.52 The owners of Tom Groggin station on the Victorian side of the New South Wales state border and abutting Kosciuszko National Park told the Committee that their knowledge and understanding of the property was dismissed by the fire managers from the NPWS. The park managers lit burns that jumped inadequate control lines and burnt out part of the property, despite objections by the owners who correctly predicted the outcome. The park managers also later lit a major back burn in the Victorian sector negating the fire fighting efforts of the owners who at the stage were waging an unsupported campaign to save the remainder of their property.

47 Heather and Peter Henderson, *Submission no. 464*, p. 4.

48 The Eureka Project, *Submission no. 128* p. 15.

49 John Cardwell, *Submission no. 178*, p. 2.

50 Peter Smith, *Submission no. 378*, p. 10.

- 5.53 The Committee is concerned that the evidence is symptomatic of a greater problem with the breakdown in communication and lack of trust between rural landholders and public land managers. It demonstrates serious failure, at least in some cases, in the conduct of incident control centres. It suggests also that there is a need to review that way the centres work and how AIIMS is applied in Australia.
- 5.54 One explanation for the development of the role of incident control centres is provided by Dr Tolhurst:

The prospect of litigation and the need for information and accountability has blown the size of Incident Management Teams out of proportion. The need for large office space and high-tech facilities such as online computers, faxes, photocopiers, GIS printers, telephones, radio communications, etc. has lead to Incident Management Teams being located a long way from the firefighting crews and the fire. This leads to good communication with Melbourne and the media, but poorer performance and information to the fire fighters. This leads to inefficient firefighting efforts. A review of the functions carried out in the IMT and those that can be carried out regionally or centrally is needed.⁵¹

Proposals for review of incident control systems

- 5.55 The incident control system used in the Australian Capital Territory was closely reviewed by the McLeod inquiry. The Territory system is based on AIIMS but the manner in which it has been implemented in the Territory was found by McLeod not to be totally consistent with the AFAC endorsed approach.⁵² The Committee has examined McLeod's findings to see what insights it might lend to the solution of the problems identified in the evidence gathered by the Committee. The Committee considers that some of the problems identified in the evidence could be overcome by the appointment of locally experienced field commanders, within the overall Incident Control System structure and, with clearly delegated authority to make timely tactical decisions.

51 Kevin Tolhurst, *Submission no. 210*, p. 3.

52 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 121.

- 5.56 McLeod noted that under the Australian Capital Territory system it is the intention that the incident commander in the field has the authority to make tactical-level decisions on the fire ground. However there are problems because, under the Territory system, the incident field commanders are not in a good position to be responsible for managing the entire response to the incident, largely because the support they required is centralised in the incident control centre. People in the field lack proximity to and awareness of the planning and logistical support functions that remain at the centre and do not deploy to the fire ground. The controller's reliance on support and advice from the service management team at the bushfire service headquarters created an impression, real or otherwise, that headquarters was controlling or directing events.⁵³ It appears that one of the problems in the January fires was that the field commanders not only lacked real authority but that they had to spend too much time getting or attempting to get briefings and instructions from the centralised head command centre.
- 5.57 The Committee believes that with major campaign fires there will always be a need to balance the capacity of field commanders to take decisive action with the need to put local circumstances into a larger regional strategic picture. Limiting the role of local commanders and centralising decision making entirely in remote centres as occurred in some of the 2003 fires however does not appear to have been the right balance.
- 5.58 The McLeod report looked at the approach adopted in the Yarrowlumla Fire Control District, where the incident controller was the senior officer in the Fire District. An Incident Management Team operated with him at the district office in Queanbeyan with sector or divisional commanders in the field. Mr McLeod considered that this system was consistent with that adopted in Victoria and South Australia and that it allowed for continuity and a consistent strategic outlook. He noted also that under this system the role of field commanders was to implement action plans developed by the Incident Management Team.⁵⁴ The Committee has already referred above to evidence to show that this approach was not entirely satisfactory. The delays it created and the failure to utilise local knowledge from the field resulted in adverse outcomes as far as the suppression of the fires in the Brindabellas was concerned.

53 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, pp. 121–123.

54 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 121.

- 5.59 The Committee notes that McLeod called for authorities in the Australian Capital Territory to review the current Incident Control System arrangements and suggested that incident controllers should not be expected to operate when separated from their supporting elements but that they should function as part of a cohesive, integrated management team.⁵⁵ Mr McLeod also suggested that adopting an approach consistent with that used by the New South Wales RFS would make it easier for Territory agencies, and inter-state fire crews, to work more closely together.⁵⁶
- 5.60 The Committee notes a 'significant number of submissions' received by the inquiry into the 2002–2003 fires in Victoria conducted by Mr Bruce Esplin, the State's Emergency Services Commissioner, criticised the management of the fires for ignoring local knowledge at both the tactical and strategic level. That inquiry found that the AIIMS based incident control systems used in Victoria Incident Control System is a sound command and control system, but that 'in some locations, it was applied in an inflexible way that resulted in opportunities to safely attack the fire being missed'.⁵⁷
- 5.61 An approach that more effectively incorporates local knowledge prior to and during fire events was outlined in a local fire planning model. This approach, addresses the problem of how to create better relationships and co-operative fire fighting strategies between local people and incident management teams. It takes into account:
- the local fire environment;
 - local fire risks and threats;
 - vegetation and fuels;
 - fire history, both wild and prescribed fire;
 - documentation of assets at risk, both natural and cultural;
 - fuel management plans;
 - maintenance and development of the local fire trail system;
 - location of natural fire advantages;
 - location of water sources for helicopters and tankers;
 - other key facilities, such as halls, fuel and food outlets; and

55 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 127.

56 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 126.

57 Bruce Esplin, *Interim Report of the Inquiry into the 2002-2003, Victorian Bushfires*, August 2003, p. 9.

- accurate and readable maps.⁵⁸
- 5.62 A local community fire plan is a bottom up approach to fire management, which involves local rural communities in planning how best to deal with local and bigger fire scenarios. A local fire plan can also put in place some basic principles of operation, which can be documented for incident management system teams to use, and to establish who are the leaders in the local community, and how best to make use of all people in a local community. These community fire plans can be integrated into broader risk management plans. When this level of local planning is incorporated into a regional risk management, they provide a useful level of detail, which can bear fruit in a fire incident, whatever its size. They also provide the link between local knowledge and its use in the development of appropriate fire strategies in major fire incidents.
- 5.63 An example of this approach was put in place in the Blue Mountains along the eastern section of Bells Line Road between Mount Tomah and Kurrajong Heights. In the development of this plan time was spent on the ground documenting all the necessary information to support a community fire plan with the local bushfire brigade captains, and at the same time informing the community through local meetings what the process of community fire planning was, and how the community can become involved. The results of the community fire planning were annotated onto maps and information on individual landowners and their assets were entered into a database, including the availability and suitability of private owned water sources.⁵⁹
- 5.64 The interim report of the Esplin inquiry states that both the CFA and DSE have agreed that the criticisms are valid, acknowledging that Incident Controllers at the Incident Control Centres did not always give due weight to local knowledge, experience and data from the fire ground to maximise strategic management and appropriately support tactical fire fighting at the fire front.⁶⁰ The interim report goes on to recommend that the CFA modify its operational procedures to ensure that local knowledge is flexibly and appropriately incorporated into tactical and strategic fire management and that the CFA continues to

58 Nic Gellie, *Report on: Causal and Risk Factors, Fuel Management, including Grazing and the Application of the Australian Incident Management System*, p. 32.

59 Nic Gellie, *Report on: Causal and Risk Factors, Fuel Management, including Grazing and the Application of the Australian Incident Management System*, p. 33.

60 Bruce Esplin, *Interim Report of the Inquiry into the 2002-2003 Victorian Bushfires*, August 2003, p. 10.

work with its brigades to complete the integration of AIIMS-Incident Control System with the group structure. It also recommends that

the DSE reviews procedures to ensure that all Incident Controllers and Incident Management Teams have full access to those Departmental, Parks Victoria or appropriately experienced and qualified community members who can provide local knowledge and expertise in the development of fire suppression strategies and that advice from the fire ground is incorporated into decision making.

- 5.65 The Committee heard evidence relating to the incident control systems in New South Wales where, for example, a comprehensive submission from the Wilberforce Rural Fire Brigade called for a 'revision of the Incident Control System (ICS) to review operations, thus allowing for more flexibility and simplification of procedures in strategy planning, etc'.⁶¹ The submission from the Brigade suggested that Incident Management Teams operating from local fire control centres during major bushfires need to listen to the advice of local bush fire officers prior to implementing strategic and tactical decisions on the fire ground. It was stated that this had not occurred effectively during the recent bushfires in New South Wales or the Australian Capital Territory. The submission went on to suggest that:

a supplementary approach could be employed that authorised a suitably qualified and experienced RFS officer (such as a Group Captain or section leader) working on the fire ground, being able to make immediate critical tactical decisions whilst the situations present themselves, rather than via long turn-around times through Fire Control, resulting in losing any window of opportunity.⁶²

- 5.66 Comments were received from other New South Wales fire fighters. One experienced volunteer submitted that:

Most if not all fire ground Division and Sector leaders across the State will confirm that this present management control system has major flaws. This is best highlighted in a large fire, rapidly moving and fluid situation on the fire ground, a situation where we least need things to go wrong. The problems range from poor choice of control lines, delays, lack of appreciation of the situation by the IMT, communication bottlenecks, lost requests, misunderstandings of priorities,

⁶¹ Wilberforce Rural Fire Brigade, *Submission no. 204*, p. 1.

⁶² Wilberforce Rural Fire Brigade, *Submission no. 204*, p. 1.

and the urgency of resource allocation. *It seems a small change but the IMT role should be to support the fire ground commanders not dictating to them.*⁶³

- 5.67 Mr Gray submitted that ‘the time has come to look at a few specialist positions, very experienced in fire fighting operations, to be brought in to direct the fire fighting for large scale fires’.⁶⁴ He told the Committee that:

Talking to some of the people involved in the fire, it became apparent to me that a number of the people in significant control roles were in fact departmental people who had an administrative capacity but did not particularly or necessarily have a long firefighting history, and certainly not at that high level. I believe that the AIIMS model, which we have used for some time, probably now needs to be reviewed. Maybe we do need to go to a model that identifies particular individuals that have the capacity to fight fires as well as manage the fire event. I am suggesting we need some work done that looks more closely at that.⁶⁵

- 5.68 Mr Stephen Walls, a Regional Officer with the CFA of Victoria made a personal submission based on the findings of his Churchill fellowship intensive study tour of the United States of America and the United Kingdom looking at current world trends in training of fire fighters in command and control skills. He suggested that:

The paradox is that the more information available to incident managers, the more difficult their task becomes because of potential information overload. A rapidly developing bushfire has the potential to overload both people and systems very quickly. Consequently a high priority must be placed on decision support systems, and training for personnel in decision making and incident management.⁶⁶

- 5.69 Mr Walls proposed that improvements could be made in the following areas:

- Building links with academic research and use of current material in training programs.
- Establishment of a national level incident management course.

63 Alan Davidson, *Submission no. 69*, p. 1.

64 Graham Gray, *Submission no. 97*, p. 7.

65 Graham Gray, *Transcript of Evidence*, 10 July 2003, p. 69.

66 Stephen Walls, *Submission no. 249*, p. 2.

- Effective inclusion of "Lessons Learned from Case Studies", both in formal training programs, and for individual skills maintenance.
 - Integration of computer simulation into training for command personnel.
 - Inclusion of "Human Factors" issues in training and development for command personnel.
 - Incident management exercises that recognise the importance of team interaction to successful incident management (most training programs tend to concentrate upon giving the individual skills and qualifications).
 - Skills maintenance programs for command personnel at all levels.
 - Allocating sufficient resources to command training. This may be resource intensive, but capital investment (e.g. computer simulators) cannot take the place of appropriate staffing for command training.
 - A formal process of analysing effectiveness of individuals and teams following operations and exercises.
- 5.70 The SCC proposed a way to improve local cooperation with incident control centres. It suggested that a system of regional teams be established with RFS staff employed in the regional centre and in local district offices and then brought together during emergencies to form regional incident teams. It was suggested that this would create a team of incident managers familiar with the local needs of particular geographical areas. The Council also proposed that regional centres of excellence be created to develop the skills of local volunteer incident team members.⁶⁷
- 5.71 The SCC proposal would help but the problems identified in the evidence to the Committee may need a more comprehensive approach. The Committee notes particularly the submission from one well recognised expert in fire behaviour, Mr David Packham who expressed concern about the replacement of local experienced fire controllers by the incident management system. Mr Packham, who advised the Coroner for the inquiry into the deaths of fire fighters at Linton submitted that:
- My examination of Linton caused me to conclude that the IMS may be suitable for a professional agency with a slowly developing situation but for a rapidly moving fire it failed and will continue to fail. It is slow to establish and takes no

⁶⁷ Shoalhaven City Council, *Submission no. 451*, pp. 2–3.

account of how a community actually works ... It fails to take account of local knowledge, relationships, trust and most importantly networks. It has no place in a community based fast initial attack fire brigade service. Its failure in Linton in my opinion was a major contribution to the placing of firefighters in harms way.⁶⁸

- 5.72 Mr Packham's submission rings true in light of the all the other evidence that the Committee has received about the short comings in the response to the 2003 fires. The evidence clearly establishes that there is a need to review incident control systems, particularly AIIMS and the management of incident control centres. There has to be greater local involvement in decision making, with a greater role for brigade captains, and local fire control officers. There is also a need to stop incident control centres from becoming a forum for inter-agency rivalries.
- 5.73 The Committee believes there is considerable merit in the various proposals and recommendations put forward by the McLeod and Esplin inquiries relating to incident control systems, as far as the Australian Capital Territory and Victoria are concerned, but the Committee believes that the evidence from a wider stage suggests that a national review of incident management is required in light of the experiences of the recent fires in south east Australia.

68 David Packham, *Submission no. 395*, p. 5.

Recommendation 23

- 5.74 **The Committee recommends that the Commonwealth, through the Council of Australian Governments and the Australasian Fire Authorities Council, initiate an overhaul of the incident management systems used by bush fire agencies in Australia to better incorporate local knowledge and expertise and better understanding of the needs and circumstances of local rural communities in the management of major fire events.**

The Committee also recommends that this overhaul should aim to:

- **refine the system to facilitate setting up simple command and control structures, closer to the fire ground, in tune with the ever changing local fire ground conditions and needs of local communities;**
 - **include training of incident management personnel on how to engage and involve local people in planning and management of fires.**
 - **establish national models for community fire planning and provide for the integration of community fire plans into incident management; and**
 - **include national reporting of the success of incident management of fires as a means of auditing the cost effectiveness or incident operations.**
- 5.75 AFAC is undertaking a review of AIIMS. The Committee is concerned to ensure that the Australian community gets better outcomes than the devastation of the major fires in 2003. The Committee is also concerned to ensure that the Commonwealth Government does not pay disaster relief funding for possibly avoidable events. The Committee therefore makes this recommendation to ensure that the important lessons of 2003 are learnt and that any review of AIIMS is not limited to some academic revision of the system documentation or is concerned only with compliance with the existing system.

- 5.76 A consultant engaged by the Committee to examine communications matters (see Communications section in chapter 6) observed that very few of the people that commented on communication issues had actually seen a documented 'communications plan' although some agencies do have written plans. The Committee believes that the lack of communication plans or at least the lack of awareness of such plans, needs to be addressed. The planning of communication should be undertaken on a collaborative basis involving all of the agencies likely to be involved.
- 5.77 The Committee notes that unless the basic framework is developed well ahead of an incident, time will be lost or a communications plan will not be promulgated to the people involved at the various levels of the suppression effort. The consultant found that with some jurisdictions not providing input to the inquiry it was difficult to determine the extent of the communication planning problems. There was sufficient evidence to say that at some incidents, communication planning was far from satisfactory.⁶⁹

Recommendation 24

- 5.78 **The Committee recommends that the state and territory bushfire agencies ensure that, on a district basis, communications are addressed within the district operations plans and that the plans are capable of easy adoption to incident action plans.**

Inter-agency cooperation

- 5.79 Any reform of incident control systems is unlikely of itself to result in much improvement to the management of major fires unless the review also takes account of inter-agency cooperation. The trend to increasing inter-state deployment of fire fighting personnel and equipment means that inter-state coordination should also be considered.
- 5.80 The Committee was told that in both New South Wales and Victoria that inter-agency competition, rivalry and lack of cooperation hampered fire fighting during the 2003 fires. In New South Wales for example the Farmers Association submitted that a key complaint put

⁶⁹ Brian Parry and Associates, *Report on Communication Issues*, September 2003, p. 39.

forward by its members was the lack of common effective resource sharing between agencies and jurisdictions. This was seen in:

- Ambiguities between agencies as to which are responsible for a fire or for hazard reduction burnings.
- Within agency confusion as to the zone or regions responsible.
- Inability to gain clear permission for private actions to prevent fire spread from any agency involved in the fire ground management and.
- Poor recognition and use of local knowledge to set suppression priorities, back burns and the establishment of emergency access tracks.⁷⁰

5.81 Fire fighting crews from the NPWS in areas adjacent to Kosciuszko National Park were said to be in asset protection mode outside the park but there was 'little co-operation and co-ordination with the local volunteer crews. This extended to the national parks crews operating on a different radio frequency.⁷¹ The General Manager of the Thredbo resort, which was under severe threat from fires in the park expressed confusion about the respective roles of various agencies:

we are a bit unsure about who looks after bushfire management now. We have the New South Wales Fire Brigades, we have the management side of the Rural Fire Service –and I would particularly separate the management side of the Rural Fire Service from the day-to-day bushfire brigades – we have the National Parks and Wildlife Service, and since December 2001 we have had Planning NSW ...

there was a lot of confusion at the time in regard to who was really responsible ... we are in a quite unique situation where there is a declared fire district, in relation to which we give funds to the urban firefighters. They were always on hand, but at the same time in terms of some of these decisions we ended up having a committee of 12 people involved in making a decision about back-burning or whatever process was going to go on. It took a lot of time, and there were mixed messages and no clear line of communication.⁷²

70 NSW Farmers Association, *Submission no. 318*, p. 24.

71 Peter Rankin, *Submission no. 421*, p. 3.

72 Kim Clifford, *Transcript of Evidence*, 10 July 2003, pp. 71–72.

- 5.82 The situation in north east Victoria was reportedly just as confusing with agencies said to be in competition, resulting in delay:

But what happened – and I am only talking about the Buffalo River side – was that DSE, National Parks, CFA and Primary Industries were all wanting to control this fire, plus the Hancock's to a degree. So you virtually had four government departments all wanting to control this lovely, big fire.

All these government departments could not work together. If one has to wait an hour to get permission from the other one, what is going on? All the CFA volunteers want to do is get in, put the fire out and go home. It cost most of us one month's work. We got nothing done for a month, but we join the CFA to put fires out and – like some of the others have said – not to get tied up in all the bureaucracy that goes on. There seemed to be a lot of bitching between the government departments.⁷³

- 5.83 The VAFI reported similar concerns arising from an apparent lack of coordination between DSE and CFA elements involved in the fire suppression effort. It was said that during the fires, participants in the fire effort reported examples of impediments created by public land managers not cooperating with fire fighters, particularly in national parks:

- In a Mullundung State Forest, a dozer operator was stopped by an officer from crossing the road into a flora and fauna reserve to follow the fire, and was only allowed in one hour later, by which time the fire had escaped.
- Parks' back burning fire trails have in many cases only allowed to be one dozer blade in width—compared to at least two in State forests – allowing the fires to jump, and creating unsafe situations for personnel.
- Operators were not permitted to cross streams or to put in side cuts again allowing fires to get away.⁷⁴

⁷³ Ian Johnson, *Transcript of Evidence*, 24 July 2003, pp. 68–69.

⁷⁴ Victorian Association of Forest Industries, *Submission no. 212*, p. 10.

- 5.84 It was also said in Victoria that the CFA was sometimes deliberately left out of the loop by DSE incident controllers.⁷⁵ However, there was also evidence to suggest that sometimes even DSE crews on the fire line were not totally in the picture:

It seems to me that DSE controllers on the fire line were not trusted by ICC in at Ovens, because they would make decisions, call in to do something and they were told, 'Wait out and we'll get back to you.' It could be four, five, six hours before they ever got back to them and it was far too late to do anything. There was a breakdown in the chain of command somewhere.⁷⁶

- 5.85 The IFA believes that on the whole, resource-sharing between agencies in the states and territories is necessary because the decline in basic fire fighting resources and that it is being reasonably well done in Australia. The Institute noted however that antagonism between agencies is a factor in some areas. It was suggested that this would be hard to reduce in a climate where there is overall lack of agreed objectives.⁷⁷ The Committee agrees with these sentiments and sees that there is a need to look further at agency integration, coordination and cooperation in bushfire matters.

Land managers as fire control authorities

- 5.86 Following the fires that burnt into Canberra in January RFS brigade captains from the mountain areas adjacent to the Australian Capital Territory submitted to the Committee that one agency should be responsible for the management of wildfire situation across all land tenures.⁷⁸

⁷⁵ Russel Smith, *Transcript of Evidence*, 28 July 2003, p. 59.

⁷⁶ Tony Menz, *Transcript of Evidence*, 24 July 2003, p. 63.

⁷⁷ Institute of Foresters of Australia, *Submission no. 295*, p. 20.

⁷⁸ Tim Webb, *Submission no. 179*, p. 2 and Peter Smith, *Submission no. 378*, p. 9.

5.87 Evidence from brigade captains elsewhere in New South Wales indicated similar sentiments. Representatives of the Wilberforce Brigade noted that arrangements for bushfire fighting in New South Wales are such that land management authorities have a unique role in managing fires at the initial (class 1) level and it is not until a fire is declared a class 2 fire or greater that the RFS has a much greater say in the coordination of that fire management. The Committee was told that once a fire has reached the class 2 category:

there could be significant difficulties experienced on the fire ground and it may be too late for action to be taken to minimise the size of a fire in its early stages.⁷⁹

5.88 The Captain of the Wilberforce Brigade told the Committee that:

I believe the Rural Fire Service ought to be the No. 1 fire organisation within New South Wales and that all the other land management authorities should become supportive agencies which have a legal obligation to support the Rural Fire Service.⁸⁰

5.89 Mr Peter Webb noted that although the NPWS in New South Wales is in fact poorly resourced for fire control, it manages very large areas of land and relies on the RFS to help them control fires.⁸¹ He suggested that this arrangement would be more effective if:

the Rural Fire Service personnel were in fact given the authority and were tasked and if the fire control operation were set up with the Rural Fire Service in control. We found in some cases that the Rural Fire Service was in control. Locally (the Brindabella fires), the Rural Fire Service FCO was the incident controller with the National Parks as deputy. That did not occur for a few days, mind you, and that was part of the delay. In Kosciuszko, the National Parks and Wildlife Service was in fact the incident controller and the RFS was the deputy. I think in that particular case the Rural Fire Service deputy incident controller ... had far superior knowledge in the local area and fire control and he really should have been in control the whole time.⁸²

79 Michael Scholtz, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 2.

80 Michael Scholtz, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 3.

81 Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 4.

82 Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 4.

- 5.90 At a broader level the NAFI referred to the conflicts between the policies and practices of the range of authorities involved in fire suppression and land management that in some cases lead to the obstruction of fire fighting activities. These policies can be underpinned by regulation:
- There are also a number of direct regulatory impediments to sound fire management. These are usually related to 'conservation' policy arrangements such as ... rejection of emergency earthworks and backburning operations. During the Victorian fires there were reported instances of actual obstruction of the activities of fire fighters by officials purporting to implement such regulations.⁸³
- 5.91 The Association submitted that where regulations are generally exempted from compliance with sound fire management there should be emergency overriding arrangements in place. The Executive Director of the Association told the Committee that in New South Wales the organisation with ultimate authority should be the RFS and that the NPWS should be accountable to the RFS in terms of fire management issues, and that similar arrangements ought to apply in other states.⁸⁴
- 5.92 Mr Athol Hodgson reflected on the Stretton report of the 1939 fires and quoted the report:
- No person or department can be allowed to use the forest in such a way as to create a state of danger to others. If conformity with this rule cannot be brought about, the offender must be put out of the forest, or, in the case of a public department, its authority curtailed or enlarged ...⁸⁵
- 5.93 Mr Hodgson believes that the approach subsequently adopted in Victoria failed to meet this test in that it provided that: 'in any national park or protected public land proper and sufficient work for the prevention of fire shall be undertaken only by agreement with the person or body having the management and control thereof ...' In his written submission he said of the division of responsibility and the conflict in Victoria that: 'A law that places on one agency, the duty to carry out proper and sufficient work for the prevention and

83 National Association of Forest Industries, *Submission no. 420*, p. 6.

84 Kate Carnell, *Transcript of Evidence*, 14 July 2003, p. 29.

85 Athol Hodgson, *Transcript of Evidence*, 30 July 2003, p. 77.

suppression of fires in every state forest and national park, and allows another agency to compromise that duty is a bad law.⁸⁶

- 5.94 The NAFI proposed that a single service be created in each state for bush fire management and control purposes and that these agencies provide services to all public and private land managers. It was suggested by the Association that single unified fire management agencies would end post event blame shifting, allow for more effective accountability, and allow transparency in funding outcomes.⁸⁷
- 5.95 The Committee examined the approach taken in Tasmania and found much to recommend. It does not involve a single agency model but it does require much more integration and cooperation between agencies than appears to be common in some other states. The approach in Tasmania was outlined in the Forestry Tasmania submission:

In Tasmania, long duration, multiple tenure firefighting events are managed by combined Incident Management Teams (IMT), coordinated through a Multi-Agency Coordinating Group (MAC). This process is underpinned by an Inter-Agency Fire Management Protocol between the Tasmania Fire Service, Forestry Tasmania and the Parks and Wildlife Service ... These cooperative arrangements ... include fire management planning, training, detection, research and representation at national and international meetings. The result has been an improved response to large bushfire incidents with better coordination and use of specialist resources from each agency. The overall unit costs to the State for the existing levels of preparedness are reduced, compared to the case where separate approaches are taken by individual land managers and the statutory fire authority.⁸⁸

86 Athol Hodgson, *Submission no. 450*, p. 11.

87 National Association of Forest Industries, *Submission no. 420*, pp. 6-7.

88 Forestry Tasmania, *Submission no. 173*, p. 6.

- 5.96 The Tasmanian system developed because there are extensive areas of public forests being managed by different agencies and extensive areas of forested privately owned land under various forms of land tenure. Mr Evan Rolley of Forestry Tasmania explained that:

It has been that very simple but profound point that has led Tasmania to develop what is unique in the country, and that is this interagency fire management protocol, which basically puts the fire service, the parks service and forestry together in a single unified group ... there is a seamlessness about all of the activity, be it the planning activity, the training activity or the equipment purchases ... Quite frankly, I do not think we could have dealt with the issues we dealt with in the last season if it had not been for that very seamless activity.⁸⁹

- 5.97 Mr Rolley provided an example of how this seamlessness works:

A fire is reported ... or it has been picked up as part of a detection system, either from a tower or from our aerial detection system ... the whole system is completely unified, so we do not have a fire service and a parks and a Forestry Tasmania aircraft. One aircraft flies over this landscape and reports the fires in a coordinated way with the tower system that supports it. So as soon as that is reported, the closest available resource goes to the fire immediately and commences an assessment of the appropriate suppression strategy and commences that work.

That information then is relayed on so that it is centrally coordinated through the fire service. The Tasmanian Fire Service incident control room will have information about all of the fire activity. That can be reinforced with either fire service or parks or forestry resources as required. Depending on the scale of the fire, you have different levels of resourcing and different organisational structure, but that all comes through this ICS system ... This is not an issue of what uniform badge or braid you have on; it is about the expertise that is available on the site, the team of people assembled and the tasks assigned to those team members. It could easily be a forestry person with fire service people working to him or it could be the other way around. It could be a forestry team working to an incident controller who is a fire service or a parks and wildlife officer.⁹⁰

89 Evan Rolley, *Transcript of Evidence*, 1 August 2003, p. 2.

90 Evan Rolley, *Transcript of Evidence*, 1 August 2003, p. 5.

5.98 In Tasmania the role of the Multi Agency Coordination Group is to monitor the state wide fire situation and appoint incident management teams. It also assesses the outcomes from each season, using a formalised and detailed assessment process, and develops strategies to address weaknesses and opportunities for improvement. The importance of this structure was explained by Mr Rolley:

It is driven down from the top level by the State Fire Management Council, which is chaired independently but which has on it as a statutory body all of the major stakeholders involved in fire in Tasmania. Again, its leadership comes from the fire service. It has Forestry Tasmania, the Parks and Wildlife Service, local government, representatives of the TFGA, the private land-holding, farming community and local government. It has a wide canvas. It meets quite regularly, certainly every six to eight weeks, depending on the issues. It meets and reviews all of the significant issues. People identify initiatives and then work by sharing resources together.⁹¹

5.99 The Committee believes that the Tasmanian approach is more appropriate than the development of a single agency approach to all rural fire management issues. As indicated above however the Committee is concerned to see that more effective and transparent arrangements are put in place. The Committee believes also that it is in the national interest for the review of incident management systems proposed above to look at more than just structures and process within incident control centres. There is a need for the states and territories to review and improve the coordination between the various agencies within each state that have an involvement in fire suppression.

5.100 It appears to the Committee that the adoption of the inter-service protocol in Tasmania has been instrumental in the development of a culture of cooperation that is focussed entirely on controlling wildfires regardless of who owns and manages the land. This compares to the culture in New South Wales, Victoria and the Australian Capital Territory where there is still an element of competition and, at times, confusion and conflict, over 'ownership' of fires.

⁹¹ Evan Rolley, *Transcript of Evidence*, 1 August 2003, p. 2.

Recommendation 25

- 5.101 **The Committee recommends that the Commonwealth seek to ensure that the Council of Australian Governments seek the adoption by all states and territories of multi-agency protocols and agreements for fire management, similar to those in force in Tasmania.**

Coordination when fires cross borders

- 5.102 There has been a trend towards greater inter-state deployment of fire personnel in recent years and the protocols to make this work seem to be increasingly effective. This success however seems to be dependent on visiting crews being placed under the direction of the receiving state's authorities. There seems to be less adequate arrangements in place where fires straddle state and territory borders as occurred in the high country and on the borders of the Australian Capital Territory and the two jurisdictions make independent responses.
- 5.103 There were problems on occasion when fire fighters crossed state and territory borders, and even across municipal borders. The owners of Tom Groggin were in a good position to observe the effectiveness of inter-agency and cross border fire fighting efforts. They found the chains of command between the RFS and the NPWS were 'confused and unclear'. They also found that position on the New South Wales and Victorian border meant that they:
- suffered from a lack of a coordinated approach. Depending on where the flames where at any time we fluctuated between being the responsibility of one control centre or another with the inevitable consequence of confusion and chaos. Effective progress in protecting our property was only made when we took control of our destiny.⁹²

⁹² Trevor Davis, *Submission no. 376*, p. 3.

- 5.104 The IFA referred to the growing tendency for fire fighters to move inter-state to provide assistance to each other, and noted this is a good thing, but suggested that:

the efficiency of interstate movements would be improved with further standardisation of equipment, communications and incident control systems.⁹³

- 5.105 Other submissions referred to communication problems and a lack of coordination when units were deployed, or sought to assist, across state and territory borders. This seemed most evident in relation to fires on the western border of the Australian Capital Territory:

One of the important shortcomings that we have identified in our communication was the poor communications and coordination that existed between the ACT and New South Wales fire authorities. We believe that that was a significant contributing factor.⁹⁴

- 5.106 It seems, in part, that the New South Wales authorities did not understand the requirements of the Australian Capital Territory and on 18 January some units were transited through areas in dire peril to take standby asset protection in areas that were no longer under threat. Mr Alan Holding, the leader of a task force from Harden deployed by the New South Wales RFS to assist with fires in the Canberra region told the Committee that his group and others were sent to do property protection in areas to the west of Canberra which by that time was not under threat. His group transited through and later returned to areas of suburban Canberra where houses were still catching alight from ember attack. He was concerned about the failure to call out his group before 18 January, that is before the fire developed to an uncontrollable fire storm. He was also concerned about the apparent lack of coordination between Australian Capital Territory and New South Wales authorities in making the best use of the resources available. He noted that such problems with major fires were not usual but arose in this instance because two jurisdictions were involved:

In most of my recent trips to section 44 incidents the deployment of firefighting resources have been good however the Canberra fire was in my view looking at it from a taskforce leaders position disastrous.⁹⁵

⁹³ Institute of Foresters of Australia, *Submission no. 295*, p. 20.

⁹⁴ Harold Adams, *Transcript of Evidence*, 15 July 2003, p. 79.

⁹⁵ Alan Holding, *Submission no. 28*, p. 3.

- 5.107 Mr Holding raised a number of questions about the deployment of his group:
- Why did it take two and a quarter hours from our arrival at Yarrowlumla Fire Control till the taskforce arrived at Fairlight property?
 - Why did the taskforce travel through the suburbs of Holder and Duffy, which were still burning, to a property, which did not need protection?
 - Why was the Taskforce allowed to wait in the suburb of Holder for one and half hours and not be tasked?⁹⁶
- 5.108 The delays in deploying the Harden task force are further detailed in a log of events attached to Mr Holding's submission. His task force returned to the Canberra suburbs when they ran out of water and it had become apparent that they could do more useful work protecting houses there. They sought specific tasking but were told by the RFS that discussions were being held with the Australian Capital Territory fire control. After an hour and a half no instructions were forthcoming and the task force returned to Harden.⁹⁷
- 5.109 Authorities in the Australian Capital Territory seemed, at that time, unaware of assistance available from New South Wales or were either unable or unwilling to use such resources:

This is anecdotal, but a number of my friends and extended family were firefighters involved in the Canberra fires and the fires in this area in 2002-03, and we concluded there were resources available that were not being used. Whether Canberra declined or did not know how to access the resources or whatever else, there did not appear to be – if not the will – the procedures in place to declare what assets were available. We had crewed tankers with fresh crews sitting here in Cooma ready to go to the ACT. Terry tells me there were crews in Tallaganda Shire who, when they heard about what happened, of their own volition were ready to jump on tankers and go across there. I cannot discern what happened; it may well have been that the higher commands from the ACT made some pretty bum guesses about how that fire was developing so that nothing happened.⁹⁸

⁹⁶ Alan Holding, *Submission no. 28*, p. 3.

⁹⁷ Alan Holding, *Submission no. 28*, Attachment.

⁹⁸ John Snell, *Transcript of Evidence*, 10 July 2003, p. 39.

5.110 The Committee notes that there was a lot of effective and well appreciated cross border assistance. The McLeod inquiry noted that many of the submissions that it received referred to difficulties with operational communications and a lack of coordination between New South Wales and Australian Capital Territory authorities.⁹⁹ Calls were made for greater coordination and cross-training between New South Wales and the Australian Capital Territory bushfire units and for the development of a common bushfire control plan. However, the McLeod report also details the considerable assistance provided by New South Wales. The New South Wales authorities attempted to deal fires that were within their own area of jurisdiction, but threatening the Australian Capital Territory. They also provided direct support to the Australian Capital Territory:

- A liaison officer from NSW Rural Fire Service was stationed at Queanbeyan for extended periods during the emergency and on 18 January, the NSW Rural Fire Commissioner dispatched an Assistant Commissioner who visited ESB.
- On 18 January, as a result of liaison between staff at Queanbeyan and Curtin, a number of aircraft operated out of the Yarrowlunla Fire Control District as the McIntyre Hut fire spread into the ACT. The Rural Fire Service Commissioner diverted an Erickson air crane from Jindabyne to Canberra, which was directed at property protection.
- Extensive GIS support in the form of line scans from aircraft, mapping products, and fire plots, was provided by the NSW Rural Fire Service, both during and after the fire.
- At the request of the ACT Fire Brigade, the NSW Fire Brigade provided a task force comprising four urban pumpers, two support units carrying portable pumps, and two command vehicles. It arrived in Canberra during the evening of 18 January.
- On 16 January, the Ambulance Service of New South Wales was formally asked to provide assistance. Two crews arrived on 17 January and on 18 January a liaison officer and further crews arrived. A NSW aero-medical helicopter also provided support to the ACT, releasing the Snowy Hydro Southcare helicopter to continue firebombing.¹⁰⁰

⁹⁹ Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 75 – refers to such problems as ‘commonly reported in submissions.’

¹⁰⁰ Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 59.

- 5.111 Mr McLeod noted that the Australian Capital Territory Bushfire Service and the New South Wales NPWS have a cross-border agreement on fire management and suppression but there is no similar documented agreement between the Australian Capital Territory Bushfire Service and the New South Wales RFS. Where support has been provided it depended more on personal contacts and continuing relationships rather than formalised plans and agreements.¹⁰¹
- 5.112 The McLeod report noted also that over time, a good relationship has built up between the Australian Capital Territory Bushfire Service and the New South Wales RFS, and an atmosphere of mutual support exists. It has been common for one service to provide support and assistance to the other: 'However, the arrangements have never been formalised'¹⁰².
- 5.113 The Committee notes developments in the state border area of western Victoria and south east South Australia where a joint working party of the South Australian Volunteer Brigades Association and the Victorian Rural Fire Brigades Association has been working to identify and address the issues that arise across state borders. In this instance the volunteer fire fighters have taken the lead in responding to these problems but have done so in a national context and have called for state fire and emergency services to adopt a national approach and to develop a national strategy.
- 5.114 The Committee notes also the guidelines for cooperation between Victorian and South Australian fire suppression organisations in the southern border area promulgated by the Southern Border Fire Coordination Association. This is a comprehensive document that covers a wide range of matters from legal issues to the allocation of radio frequencies, and deals with all aspects of fire suppression. The Southern Border Fire Coordination Association is a body formed by representatives of organisations with fire suppression responsibilities and capabilities, and organisations with statutory responsibilities in the area.¹⁰³

101 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 161.

102 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 161.

103 Southern Border Fire Coordination Association, *Guidelines for co-operation between Victorian and South Australian organisations on fire suppression in the southern border area*, p. 2.

5.115 The Committee believes that there is great value in informal personal relationships. The lack of such relationships and the distrust between incident controllers and fire ground captains appears to have been an impediment in some situations during the 2003 fires in several areas in south east Australia. However, there is also a need for more formalised regional responses to cross border fire events, as has been developed for the southern border area. Mr McLeod suggested that the best arrangements for managing fire suppression and providing the necessary specialist support would be based on a larger regional approach. He envisaged that the initiatives that should be pursued are part of planning and preparing for an integrated, regional approach include:

- Greater opportunities for joint exercises and training.
- Closer cooperation in the coordination and planning of responses to major bushfire emergencies.
- A stronger sense of 'jointness' in managing large regional firefighting operations.
- Greater cooperation in the deployment of equipment and personnel.
- Closer links in the development of communication protocols.
- Adoption of common incident control arrangements.
- Agreement on common operational terminology.¹⁰⁴

Most of these principles appear to be embodied in the guidelines adopted by the Southern Border Fire Coordination Association.

5.116 The Committee agrees with the proposal from the South Australian and Victorian volunteers for a national approach to issues facing volunteers when responding to cross border incidents. The formation of the Southern Border Fire Coordination Association and the promulgation of guidelines seem to be necessary and worthwhile developments. It appears that volunteer fire fighters involved in implementing those guidelines have identified a number of issues that affect them and which need clarification. The need to consider issues related to inter-state cooperation and coordination arises also with more formal deployment of resources to assist another state deal with major emergencies within the boundaries of that state. In this

¹⁰⁴ Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 162.

regard the Committee notes that the discussion paper that has arisen from the South Australian and Victorian joint working party states, in relation to major interstate deployment, that such deployment:

has presented a number of challenges in areas of training on unfamiliar equipment, compatibility of equipment, access to water, terminology, etc. In general these deployments have proved successful, however improvements can always be made and lessons learnt from these deployments should also be considered in a national perspective.¹⁰⁵

Recommendation 26

- 5.117 **The Committee recommends that Emergency Management Australia initiate a process involving Australasian Fire Authorities Council and the Australian Assembly of Volunteer Fire Brigades Association to review the coordination of cross border fire fighting arrangements and inter-state deployment of fire fighting resources. The review should specifically consider training on the full range of equipment and procedures likely to encountered, standardisation of equipment and procedures, communication and the provision of information about local characteristics such as access to water.**

¹⁰⁵ Discussion paper by Rex Hall, chairperson Joint Working party South Australian Volunteer Fire Brigades Association and Victorian Rural Fire Brigades Association.



6

Fire fighting resources and technology

- 6.1 The management of major bush fires involves a mix of professional and volunteer personnel; a range of vehicles, plant and aircraft and; the application of various communications and information technologies. The Committee was told of concerns with equipment and technology and with the training and management of personnel. It is not merely a matter of what resources fire managers have at their disposal. It is the question of how those resources are used that is vitally important. This matter was alluded to in the interim report of the inquiry into the Victorian fires:

the use by the CFA of strike teams provides a powerful and safe 'weight of attack' at the fire-front, but again, inflexible operational procedures have limited the use and effectiveness of strike teams.

The use of spatial information, line scanning aircraft, satellite imagery, and forward looking infrared technology was one of the successes of the fires. However, there is strong evidence to suggest that there were occasions when human intelligence from the fire area, which contradicted technical intelligence, was ignored.¹

¹ Bruce Esplin, *Interim Report of the Inquiry into the 2002-2003, Victorian Bushfires*, August 2003, p. 10.

Forestry and national parks resources

- 6.2 Responsibility for the suppression of bush fires in forested areas has traditionally been in the hands of state forestry authorities – they managed a large part of the forested land and they had the expertise and the resources to carry out fire fighting operations. They had also developed a lot of corporate knowledge derived from major fire campaigns, routine forest regeneration burns and exposure to scrutiny through various inquiries following serious events. Evidence to the Committee discussed how this situation has changed and the impact that it may have had in relation to recent fires. The Committee also heard repeated allegations that agencies responsible for the management of national parks received inadequate resources to manage the land under their care.
- 6.3 The IFA submitted that there has been a major downsizing of the permanent workforce in Australian forestry agencies in recent years, and this has not been accompanied by equivalent replacement when forest lands are transferred to national parks. This means that there are now inadequate resources available for rapid and effective initial attack across most of the forest zones of the nation.²
- 6.4 The IFA outlined six factors which it considered were reducing the adequacy and effectiveness of Australian fire fighting resources:
1. Australia-wide, the number of permanent experienced personnel and skilled firefighters in land management agencies is steadily declining and their ages are increasing. The agencies and emergency services are becoming more and more reliant on volunteers to fight fires.
 2. The massive reduction in the Australian hardwood timber industry in NSW, Victoria and WA in the last 5 years has led to a significant decline in the number and availability of earthmoving equipment used in the past for firefighting.
 3. Standards of road maintenance within forests, and general levels of access to forests have declined, especially in areas transferred from multiple use forest to conservation reserves. Declining road maintenance is partly a result of policy decisions (i.e. declaration of wilderness areas) and partly a result of lack of funds.

2 Institute of Foresters of Australia, *Submission no. 295*, p. 20.

4. The Commonwealth government is currently withdrawing VHF fire ground frequencies away from fire authorities for commercial sale to other users leaving fire ground communications severely limited. Coupled with this all states are choosing communication systems with no cross-border capacity, and even no operational capacity outside the range of their respective state repeater networks.
5. The usefulness of rapid first attack strategies using a combination of aerial fire bombers and ground resources on private land is under-rated. For the last seven years, aerial fire bombers deployed in the Mount Gambier area on a risk-related basis have clearly demonstrated that fires in high value plantations and agricultural crops can be extinguished under extreme fire weather conditions. This is only possible when fires are rapidly detected and strategically located ground crews are able to respond to all fires within 20 minutes.
6. Fire risk management is most effective when a single entity is responsible for prevention, presuppression planning and suppression. Most volunteer fire authorities focus only on suppression response (often this is set out in their legislation). In this scenario, responsibility for prevention is "someone else's job", and good coordinated bushfire prevention slips through the cracks between various agencies.³

- 6.5 Beyond the loss of equipment to land managers involved in fire mitigation activities, Mr Phil Cheney of the CSIRO suggested that the decline in forestry has seen a loss of practical expertise on fire behaviour and management:

With the decrease in production forestry, particularly in native forests, there has not been the same transfer of expertise over to the major national park land managers... meeting specific objectives requires professional planning and professional implementation.⁴

³ Institute of Foresters of Australia, *Submission no. 295*, p. 19.

⁴ Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 36.

- 6.6 The serious deficiency in the protection of the Uriarra forestry settlement in the Australian Capital Territory referred to in chapter 5 reflects the down sizing that has gone on across the board in the forest industry:

Prior to the early 1980s when the management of Uriarra Settlement was handed over (from ACT Forests) to ACT Housing the settlement was well prepared and managed for the event of a bushfire ... The past 15 years has seen a reduction in ACT Forestry workers – these men were fully trained and experienced bush fire fighters who knew the geographical area well.⁵

- 6.7 A resident of the Stromlo Forestry settlement in the Australian Capital Territory stated that the forced redundancy of 26 long serving forestry workers amounted to the loss of ‘almost 600 years of Bushfire fighting experience within Canberra ...’ The diminished fire fighting capacity within the settlement where 17 of 20 houses were destroyed was evident during the January fires:

The largest tanker within the ACT Rural Fire Service was fully loaded and sitting unmanned along with 2 light units at the ACT Forest headquarters at the Stromlo settlement ...⁶

- 6.8 The submission from Mr Val Jeffery also contained clear evidence of how the resources available from the forestry sector had declined significantly thereby removing experienced, trained and well equipped fire fighters from the mix of assets that could have been deployed for a rapid response to the 2003 fires.

- 6.9 The NAFI detailed the loss of fire fighting capacity within the forestry industry in north east Victoria since the mid 1980s. Prior to that there were over 150 foresters, overseers and forest workers. The number has declined to less than 40 and the Association notes that the staff and experience deficit has not been made up within national parks personnel.⁷ There has also been a loss of equipment with all of the larger bulldozers having been sold off.

- 6.10 The VAFI also referred to concerns about the reduction in the availability of skilled and experienced fire fighters and incident controllers and suggested that:

This drain of experienced fire fighting personnel and equipment cannot simply be replaced with numbers of casual

5 Uriarra Community Association, *Submission no. 392*, p. 1.

6 David Ferry, *Submission no. 505*, pp. 2-3.

7 National Association of Forest Industries, *Submission no. 420*, p. 15.

summer fire fighters and hired machines to achieve the same fire fighting capacity, as the critical bush and fire fighting experience components are missing.⁸

- 6.11 In comparing the 2003 fires with those of 1984/85, Mr Athol Hodgson noted that one of the reasons the initial attack was faster and more effective in 1985 was that there was a larger more experienced work force available in forest management and the forest industries.⁹
- 6.12 The VAFI commented particularly on the contribution that is made by the private sector in the forest industries in supplying its bulldozers, transport machinery and operating personnel to fight the fires. It was reported that during the fires in January some 83 bulldozers and crews supported the fire fighting effort but that almost half may exit the industry as a part of the industry downsizing following from the review and subsequent reduction of the sustainable yield.¹⁰
- 6.13 It is the view of the VAFI that:
- With the increased use of aircraft for fire control, and other improved technology, the number of forest fires that develop into major fires that require significant manual input has decreased, e.g. there have been no major forest fires in the North East between 1985 and 2003; hence the opportunity for personnel to gain experience in fire control has decreased.
- As a consequence the main opportunity for fire fighters to gain experience with high intensity fires is by use of prescribed fires for slash burning following logging operations or broad area fuel reduction burns. But the curtailment of hardwood logging in the North East and the reluctance in recent years to carry out fuel reduction burns has resulted in these opportunities disappearing.¹¹
- 6.14 The cost of transferring land tenure from a productive capacity, such as state forest or private land, to national park was indicated by the acting Executive Director of CALM Mr Keiran McNamara. Mr McNamara referred to additional levels of funding required to manage 30 new national parks that added 400,000 hectares to the estate in the south-west of the state:

It is fair to say that that area of the state would previously have been managed utilising the funding that accrued to the

8 Victorian Association of Forest Industries, *Submission no. 212*, p. 8.

9 Athol Hodgson, *Submission no. 450*, p. 10.

10 Victorian Association of Forest Industries, *Submission no. 212*, p. 8.

11 Victorian Association of Forest Industries, *Submission no. 212*, p. 8.

agency through the timber harvesting activity. That revenue is clearly no longer on the table. The government recognised that and, in its first year in 2001, allocated an additional \$25 million to the department over that financial year, the first financial year, and the out years of the budget process – \$25 million over four years: \$16 million recurrent and \$9 million capital. That allows the department to meet its responsibilities to manage those areas, including for fire management.¹²

- 6.15 A senior experienced fire control officer from Western Australia told the Committee that in that state also ‘There is a serious reduction in the availability of “backup resources” from the timber industry, particularly heavy machinery and trained/experienced operators.’¹³
- 6.16 A submission from Tasmania went to the same concerns. The TCA Tasmanian State Office submitted that the forest industry is a ready source of equipment and trained personnel drawn from communities likely to be threatened by fires. It was said that this work force has faced severe pressure in the last 20 years as the timber industry has been cut back and national parks established.¹⁴
- 6.17 This downturn in the availability of forestry based fire fighting resources across the country and the non replacement of this loss from national parks services makes more urgent the need to properly train and use volunteer bush fire fighters.
- 6.18 The VAFI argued that ensuring the ongoing presence of the timber industry in the state forests, and preferably an expansion of that presence, is a legitimate and cost effective means of significantly supplementing vital forest management and emergency fire fighting resources.¹⁵
- 6.19 The lack of resources generally to manage national parks was raised by the Captain of the Kurrajong Heights Brigade who estimated that ‘there are about two National parks staff for about every 7,000 hectares of the state...they simply do not have the resources...’¹⁶

12 Keiran McNamara, *Transcript of Evidence*, 6 August 2003, p. 82 and Rick Sneeuwjagt, *Correspondence*, 19 September 2003, p. 1.

13 John Evans, *Submission no. 96*, p. 3.

14 Timber Communities Australia Tasmania State Office, *Submission no. 454*, p. 4.

15 Victorian Association of Forest Industries, *Submission no. 212*, p. 2.

16 Brian Williams, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 26.

6.20 The Chair of the Snowy River District Bushfire Management Committee stated that the:

Snowy River Fire Service has not had any funding for fire trail maintenance for three years ... Fire trails in the KNP are poorly planned, constructed and maintained. This was evident in the fires where some 35 bulldozers and graders were needed to allow access to the fires ...¹⁷

6.21 He continued that the Kosciuszko National Park is:

under staffed and this makes it impossible for any quantity of work to be done.¹⁸

6.22 A Group Captain from the Snowy River Fire District placed the absence of funding in context stating that the district has 1200 kilometres of fire trails.¹⁹ Besides the direct cost of opening, upgrading, closing and 'rehabilitating' fire trails as bushfire threats emerge and pass; the Committee was informed of an indirect cost to brigades that arises from poor trail maintenance. The Chair of one of the RFSA conferences stated that 'in one district alone in a period of 12 or 13 months ... \$200,000 panel damage [had been done] to trucks.'²⁰

6.23 A property owner with land adjoining the Brindabella National Park indicated that inadequate resources precluded managers of public lands from taking the most basic precautions against bushfires:

I contacted the National Parks in December last year and asked why we did not have signs up advising the public that there were total fire bans ... the ranger said that it was because there were insufficient staff to put the signs up.²¹

6.24 A doctoral student, Mr Peter Curtis, provided an even more disturbing account of the consequences of inadequate land management resources in the Warby Range State Park where he conducted field work for his thesis on fire ecology and the grass tree (*Xanthorrhoeas*):

If they are short staffed and only have a certain amount of allocated money to cover burning – and I have seen this ... where they have had to cover a large area – it comes to knock-

17 David Glasson, *Submission no. 359*, p. 2.

18 David Glasson, *Submission no. 359*, p. 2.

19 Peter Bottom, *Transcript of Evidence*, 10 July 2003, p. 6.

20 Brian McKinlay, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 30.

21 Wayne West, *Transcript of Evidence*, 14 July 2003, p. 38.

off time, they have not got the funding to keep personnel patrolling.²²

The role of volunteers

- 6.25 The Committee received many submissions indicating that the volunteers who may be asked to fill the gap created by the reduction in the number of experienced and trained professional fire fighters retained by public land managers are feeling marginalised by those managers. The delays in responding to fires, difficulties with access, problems with incident control and inappropriate asset protection, as outlined above, have all contributed to a sense of frustration and have left many senior brigade members with a feeling that their experience and knowledge have been brushed aside. This was best summed up by a comment that was reported to the Committee on several occasions and attributed to one fire controller, as was repeated at a public hearing in Wodonga:

I think one of the famous statements was that a departmental person said to a volunteer, 'I didn't go to university for four years to be told how to do things by a volunteer.' This just is one of the keys to the whole thing: local knowledge and experience were completely ignored.²³

- 6.26 There is also a view that with the increase in emphasis on safety and liability that the increased formal training and certification of volunteers is leaving many experienced fire fighters behind.
- 6.27 The Committee received some evidence to suggest that the situation in New South Wales was not as it should be. A submission from Access for All suggested that:

there is strong evidence that, in NSW at least, there is increasing disenchantment among volunteers that is discouraging their participation and likely to result in the demise of the volunteer as a force. However, it is patently obvious that substitution of a professional, even a part-time professional, service of the required scale is economically unaffordable. States and Territories need to encourage volunteers by giving them a voice in the development of

22 Peter Curtis, *Transcript of Evidence*, 25 July 2003, p. 25.

23 Brian Fraser, *Transcript of Evidence*, 25 July 2003 p. 54.

policies, procedures and operations commensurate with their contribution.²⁴

- 6.28 This view was supported by evidence presented in Cooma where it was put to the Committee that:

Blokes in the bushfire brigades are now starting to feel isolated. That is where all the experience of the country is, and yet it is often ignored. You have some bloke who has a degree in fire management who has fought one or two fires in his life, if you are lucky, and who may have done a few hazard reductions, put in charge to run the whole show. These blokes try to have an input and they are pushed aside with comments like, 'We're running the show. You just sit back and take notice.'²⁵

- 6.29 A Group Captain with the Snowy River Shire expanded on the apparent double standard in the attitude of the NPWS to volunteer fire fighters in national parks:

If any of our blokes had been caught in the park the day before the fire started, they would have been fined. The fires then get going and suddenly Parks say: 'Please come in. Help us. Bring your own vehicles – bash the shit out of them.' That is the sort of mentality ... one minute we are criminals and the next minute they are asking us to go in there and give them a hand ...

The day before they will fine you; the day after they are asking you in there.²⁶

- 6.30 The former Captain of the Nimmitabel Rural Fire Brigade told the Committee that concerns about safety when out of area volunteers are tasked to use poorly maintained fire trails in national parks. Loss of income and lack of insurance compared to paid parks personnel, and poor incident control are also issues of concern. These concerns lead brigade members to baulk at attending fires on public land. He explained that:

Nimmitabel brigade were at the stage where, if it happens again, we will think very hard about not even turning up. We are only volunteers; we can make that decision.

24 Access for All, *Submission no. 104*, p. 10.

25 Angel Gallard, *Transcript of Evidence*, 10 July 2003, pp. 120–21.

26 Darvall Dixon, *Transcript of Evidence*, 10 July 2003, pp. 11–12.

The only reason we did attend was for our friends in the Snowy River shire, the Yaouk Valley and Bredbo Valley.

We have written to Phil Koperberg to say that we will give due consideration in future and we will probably not attend. We feel that in an S44 period our volunteers should be paid the same amount as government employees.²⁷

- 6.31 Similar sentiments were expressed in Victoria, but it was also acknowledged that volunteers would continue to turn out to protect their communities. Two senior volunteer fire fighters explained:

Mr Box – The initial impact was that they would not bother going if they were asked again, but we have been through this sort of thing before. The reality is that, if there is a fire, we will all still attend.

Mr Reeves – The other snag with that, of course, is the same people will not go to training. They will be there and they will do their utmost best when the smoke goes up. But until then, they are not interested. I cannot blame them. The frustrations some of those fellows were feeling was right up there.²⁸

- 6.32 In the Australian Capital Territory the Committee was also told that:

I think there is also a tremendous crisis of morale in the local volunteer bushfire brigade ... The problem for us as landholders is: why should we bother anymore? Our opinions are not taken into account and our availability is not taken into account. What are we going to do? On the one hand we see these bright machines flashing up and down the road that seem able to protect us in most situations but are clearly inadequate in catastrophic situations.²⁹

- 6.33 An obvious potential outcome is that the number of volunteers actively involved in rural areas may decline. More seriously, the Committee heard suggestions that the formal structure may break down and that landholders will take independent action to protect their own properties and those of their neighbours. To some extent this is already happening. The VFF submitted that:

the CFA finds itself unable to use a large number of long serving local volunteers because they have not completed their required minimum skills training. This is despite the

27 Richard Blyton, *Transcript of Evidence*, 10 July 2003, p. 9.

28 Robin Box and David Reeves, *Transcript of Evidence*, 24 July 2003, p. 69.

29 Geoffrey Hyles, *Transcript of Evidence*, 15 July 2003, p. 90.

fact that many of these volunteers have extensive experience and knowledge of fire fighting which now is not officially recognised ...

Groups of efficient private vehicles' equipped with good equipment and UHF radios, that are highly motivated to protect their own and neighbours property have formed effective fire fighting units. Increasingly, these units are driving past the CFA shed and tanker to fight fires in the brigade area when manpower is low. Increasing regulation of equipment and onerous training requirements threatens to force these units outside the control of the CFA.³⁰

- 6.34 A landholder and former volunteer group officer from north east Victoria gave evidence supporting this view, indicating that it was not a theoretical prospect:

We now have a situation in which we have fire trucks parked, and people in their own private units are actually setting up their own little firefighting organisations. They have very efficient radios. All farmers have UHF radios and 400- to 600-litre tanks. This has been forced on them, because they want to go and help their neighbours. I feel that the indemnity part might be covered by the fact that if you go and help your neighbour and you have public risk policies there does not seem to be a problem. But it is a reality and it has occurred.³¹

- 6.35 The concerns of the volunteers and the possibility of the development of unofficial fire fighting units were enunciated in a comment made by a brigade Captain at a public hearing in Wodonga:

We are keener and stronger than ever, and unless we get some pretty straight directions from the state and federal governments after this we will probably be starting to run our own ships by the time the next lot of fires go up. So we are going to have to pull the whole show together and get some really good guidelines to get us working as a main fire suppression agency. Otherwise you will see us out there putting the fires out – but other people might not quite know what we are doing.³²

30 Victorian Farmers Federation, *Submission no. 423*, pp. 8–9.

31 Brian Fraser, *Transcript of Evidence*, 25 July 2003, p. 44.

32 Jack Hicks, *Transcript of Evidence*, 24 July 2003, p. 77.

6.36 The Kojonup Shire in Western Australia already has a successful privately based fire fighting response:

Kojonup is unique in that it relies on volunteers alone and does not have any organisations helping it. It has developed its own fire protection system over many years and generations, based on volunteers and experience. Kojonup was one of the first shires in WA to pioneer and embrace a radio-controlled network to support its volunteer firefighters. It now has some 580 members over 12 brigades. Today's volunteers own and maintain 128 medium-heavy firefighting units and a further 120 to 130 light-fast attack units. This means that around 250 privately owned units are capable of attending any fire in the district at any given time. The firefighting forces are controlled by four senior fire control officers, 12 brigade fire control officers and other deputies. A fire advisory committee has been set up to oversee and advise this organisation as it sees fit regarding firebreak orders and fire management.³³

6.37 The Kojonup Bushfire Advisory Committee Deputy Chief Fire Control Officer explained that that state government did not interfere in their activities but this situation is changing:

The state government keeps telling us that they will not interfere with our system but unfortunately, since the fire and emergency services levy has been introduced, a whole new level of bureaucracy has come in over the top of us which volunteers are meant to cope with. ... For example, if a wildfire starts in Kojonup and someone close by on a farm sees the smoke go up, they do not wait for me or one of the fire control officers to tell them to go; they go. If it ends up being a false alarm, they turn around and go home again. Under some of the arrangements we are now seeing come out for FESA, for example, we are meant to log people into fires—log the time they go in and come back out—so they do not work more than eight hours and do not get too worn out. The end result of that is you have to tell someone like a farmer in Kojonup who has spent 15 hours the previous day driving a harvester doing his harvesting operations that he can only work eight hours when he is at a fire and then maybe have to come back for the next three or four days to sort the mess out

33 Gregory Marsh, *Transcript of Evidence*, 5 August 2003, p. 16.

rather than get the job done and go home. That is the sort of bureaucracy that is starting to infiltrate to us and it makes ... (it) ... very hard to sell the volunteer organisation to someone when you have that level of bureaucracy on top of you. People do not have to be volunteer firefighters, they can go and do other things.³⁴

- 6.38 The motivation of local land holders to become involved in the volunteer brigades is an important factor in making those brigades effective. Ms Christine Finlay studied the internal dynamics of various brigades and described the differences between those that perform more efficiently and those that are less effective. One of the differences related to the relationship between participation in a brigade and protecting their own property. The more functional brigade was one where the members were involved in protecting their own property (among others). In more dysfunctional brigades this relationship was not so evident.³⁵ This connection with property can however be a two edged sword which may, in the future, reduce volunteer commitment to fires away from their properties. This is particularly likely to be the case when the effort and risks taken by volunteers is not reciprocated by public land managers:

Most C.F.A. Captains are farmers. The C.F.A. really needs to re-examine its philosophies if it is to retain members in the future. Your commitment to the C.F.A. is considerably reduced when you fight a State Fire for 3 weeks, only to find out that your own farm is not on the priority.³⁶

- 6.39 Whether or not there is an actual decline in brigade numbers or capability is not clear. Whilst there was evidence of disenchantment and some brigade members indicated that they had stood aside, there was also a suggestion that applications for membership increased after the recent fires. The Committee was told that:

in Victoria CFA volunteer numbers have fallen from about 120,000 in the early 1980's to about 68,000 currently. Of more concern are the rapidly rising age classes of the remaining volunteers particularly in some rural areas. Over the next ten years many firefighters with high levels of experience, skill and knowledge will retire. To some extent there have been attempts to redress the ageing process through the Project

34 Timothy Johnston, *Transcript of Evidence*, 5 August 2003, p. 20.

35 Christine Finlay, *Submission no. 315*, p. 6.

36 Robyn and John Scales, *Submission no. 161*, p. 3.

Fire Fighter program and through the recruitment of skilled people into the CFA in Victoria. The picture in South Australia and New South Wales is not so proactive.³⁷

- 6.40 The demographic problems outlined in the eastern states also appear to be a problem in Western Australia, where the Manjimup Shire Council outlined the problems with maintaining brigade numbers;

The Shire of Manjimup has twenty nine (29) Volunteer Bushfire Brigades comprising of approximately 400 active and non active members. There are several identified issues in recruiting and also retaining Volunteer Bushfire Brigade members which are most likely not just limited to the Shire of Manjimup. Recruiting new Volunteer Bushfire Brigade members and retaining Volunteer Bushfire Brigade members is becoming increasingly difficult for the following reasons;

- Ageing populations and unsustainable populations in rural areas due to economic, educational and social reasons.
- Frustrations at the perceived lack of equipment resources.
- Limited recognition for volunteer work completed.
- Volunteer work is unpaid and often incurs a financial loss to the volunteer if completed during ordinary working hours.
- An increasing need to undertake training in their own time.
- Concern for their own safety during fire suppression and control especially since the recent deaths of Volunteer Bushfire Brigade members in the Eastern States of Australia.³⁸

- 6.41 This problem was put quite clearly to the Committee at the public hearing in Cooma where a very large gallery of mostly landholders and volunteer fire fighters turned out to give evidence and listen to the proceedings. The General Manager of the Snowy River Shire Council, Mr Ross McKinney said that:

I think there needs to be a serious look at incentives that could be put in place for people. We require volunteers to have a higher level of training ... and all this takes a lot more time than it used to. Therefore they are spending more and more time as a volunteer in learning these things and in many instances some of these local people would have better

37 Peter Bentley, *Submission no. 143*, p. 5.

38 Manjimup Shire Council, *Submission no. 200*, pp. 3-4.

expertise than some of the people that they are alongside. This is a serious issue because you are losing volunteers. In fact, if you take a look at the interest in this inquiry and at the people who have addressed it and look around now ... the average age of the people in this room is not young. That reflects what is happening particularly in the rural communities. There is very little incentive for young people to get into these organisations.³⁹

- 6.42 The evidence on this matter does not necessarily indicate that brigades in all areas will decline, at least in the short term:

I do not believe you lose volunteers after these fires, because in our area I saw lots and lots of orange overalls and I saw a lot of minimum skilled and well-trained fires out on the ground. And since the fires, as a captain, I have had many requests from members of our very strong brigade to further their experience. They want to have more minimum skills. The minimum skills trainers are loaded up so much now that they cannot keep up with it.⁴⁰

- 6.43 The Committee is concerned, however, that unless some steps are taken there will be a decline in the capacity of the volunteer brigades, particularly in the rural area where there is a direct connection between brigade membership and property ownership. There may be a move towards withdrawal from brigade membership and an increasing reliance of locally organised informal privately based responses to bush fires. To prevent this happening will require attention to some of the factors that act as a disincentive to participation. Improving the prevention and management of fires as discussed above is relevant to this question. It will also require attention to some measures that will encourage and keep volunteers motivated. A good start would be an acknowledgement of volunteers' expertise by involving them in decision making.

39 Ross McKinney, *Transcript of Evidence*, 10 July 2003, pp. 49–50.

40 Jack Hicks, *Transcript of Evidence*, 24 July 2003, p. 77.

Decline of volunteers in land management

- 6.44 The majority of evidence received by the Committee on the role of volunteers related to fire suppression activities. However, there was significant reference to the role of volunteers in implementing land practices that mitigated the treat of severe bushfire.
- 6.45 Mr Peter Webb contended that there is a significant disparity between the responsibilities of the NPWS and the resources made available to it. This has resulted in a situation where:
- the National Parks and Wildlife Service are in fact poorly resourced for fire control, yet they manage and have jurisdiction over a very, very large area of land. Put simply, they rely on the Rural Fire Service in New South Wales to help them control fires and they are calling on them to help them do hazard reduction work. That would work all right if the Rural Fire Service personnel were in fact given the authority and were tasked and if the fire control operation were set up with the Rural Fire Service in control.⁴¹
- 6.46 However, evidence from volunteer fire brigades suggested that under-resourced land management agencies are now limiting the involvement of volunteers in land management activities designed to mitigate the severity of bushfire such as prescribed burning.
- 6.47 The Colo Heights Rural Fire Brigade stated that:
- Over recent times, the National Parks and Wildlife Service have greatly reduced hazard reduction within the parks situated in the Colo Heights area and have actively discouraged hazard reduction by local Rural Fire Brigades.⁴²
- 6.48 The Rushworth Fire Brigade described the development and decline of a working relationship between a volunteer fire brigade and the DSE in Victoria in fuel reduction activities:
- For some 20 years the brigade had burnt private land, shire land and crown land, to reduce the fuel load and clean up tracts of land so that they would become lineal breaks should a significant fire threaten the town.
- Years ago a fire protection plan was instigated ... for a coordinated fuel reduction in the forest surrounding the town and with the [Department of Natural Resources and Environment] coordinating this jointly.

41 Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 4.

42 Colo Heights Rural Fire Brigade, *Submission no. 154*, p. 1.

Two years ago we were told that we could no longer carry out any fuel reduction on crown land and that it was the Department of Natural Resources and Environment's responsibility ...⁴³

6.49 A senior member of the Carboor Rural Fire Brigade stated that:

Our brigade has very little input on control burns at the moment. It is not because we do not want to; we are not encouraged. There is no active involvement from DSE to have local brigades involved in that sort of thing.⁴⁴

6.50 As well as having a negative impact on the resources available to public land managers, the exclusion of volunteers from land management strategies such as prescribed burns represents a missed opportunity in volunteer training. Mr Box continued:

The other very important aspect of the controlled burns ... is as a training aid for fire control. With respect to most of our fire brigades, all of our training facilities and props tend to relate to fires in buildings and car fires. There is very little, if any, training done in a bushfire situation, as it is difficult to do this. A controlled burn, or any of the fuel reduction burns, can facilitate training, the fuel reduction aspect, the environmental aspect and also the interdepartmental working relationships – the relationships between the CFAs, the DSE and local government.⁴⁵

6.51 The IFA argued that:

prescribed burning programs help to familiarise staff with the use of fire and to train them in fire behaviour and bushfire survival. Personnel with long experience in undertaking well planned burns, generally make better and safer firefighters.⁴⁶

6.52 While the Institute was referring to professional foresters, the principle of using prescribed fuel reduction burns as training for volunteers holds. In addition to and perhaps even more importantly, the inclusion of volunteers in the land management of national parks may engender a spirit of cooperation rather than exclusion between neighbours, which in some communities is evidently not present. At a

43 Rushworth Fire Brigade, *Submission no. 153*, p. 1.

44 Robin Box, *Transcript of Evidence*, 24 July 2003, p. 64.

45 Robin Box, *Transcript of Evidence*, 24 July 2003, p. 64.

46 Institute of Foresters of Australia, *Submission no. 295*, p. 13.

public hearing in Cooma Mr McKinney summed up the benefits of cooperation:

I think you would need to try to take the community on board with you. In other words, you should allow commercial and non-commercial activity groups such as horse riding or mountain bike riding groups et cetera who will actually be on these trails to report things to park managers, state forest managers or whoever it is. Use the people to help, and do not keep them out. Keeping them out increases illegal incidents, quite frankly. There needs to be far greater interaction there.⁴⁷

- 6.53 The Committee concludes that one strategy in which the unsatisfactory level of resources currently available to managers of national parks and other public lands could be redressed is through placing greater emphasis on the involvement of volunteers in the maintenance of fuel loads and fire trails. The Committee is aware that the implementation of effective and safe fuel reduction burns requires a high level of planning and experience. However, it can see no reason why training opportunities are not extended to volunteers in this area.

Incentives, support and recognition for volunteer fire fighters

- 6.54 The commitment to protect their communities, their property and the properties of their neighbours may provide the basis for retaining and recruiting volunteer fire fighters in rural areas, but it seems likely that more will need to be done. Some of the measures have been suggested that would help with this problem seek to offset the tension between volunteers and the paid staff of land management agencies, as encapsulated by a former brigade Captain:

My volunteers are fed up with fighting fires in national parks when no mitigation work is carried out our resources are mainly funded by our insurance levy. I doubt that our National Parks have insurance on our natural resources. My volunteers were subjected to up to 20 hour shifts because National Park employees went home after 12 hours.⁴⁸

47 Ross McKinney, *Transcript of Evidence*, 10 July 2003, p. 49.

48 Richard Blyton, *Submission no. 30*, p. 1.

- 6.55 The issues associated with non-payment of volunteers was summarised by Mr McKinney:

Pay versus non-pay is obviously becoming a bigger issue, and it was certainly voiced in our community. People were working alongside Rural Fire Service people in the fire control centres – unpaid people against Rural Fire Service officers, who are highly paid. National Parks, state forests, local government or other agency officers were also there being paid while you were working alongside them as a volunteer. That has raised some very important issues and divided some people in our community.⁴⁹

- 6.56 The contribution of volunteers is considerable. The Volunteer Fire Brigades Victoria (VFBV) submission stated that the CFA volunteers' time valued at more than \$480 million per annum and that the national volunteer fire fighting contribution could be in excess of \$2 billion per annum. Quite clearly, governments could not replace the contribution with paid staff nor could it live with the level of damage to private and public assets that would follow a collapse of the volunteer system.

- 6.57 The VFBV pointed out that volunteers incur out of pocket expenses in:

- Purchase and maintenance of uniforms and equipment.
- Travel to and from fire calls, training and meetings.
- Communication expenses such as telephone and mobile phone costs directly and necessarily incurred in fire fighting.⁵⁰

- 6.58 The Committee heard some examples of the direct out of pocket expenses that volunteers incur, in addition to lost work time. The cost of using vehicles was mentioned in Cooma where it was said that some volunteer Group Captains travelled over 5000 kilometres in their own vehicles during the 2003 fires in the Snowy Mountains.⁵¹

- 6.59 The Committee did not hear an overwhelming call for volunteers to be paid some form of wages. If anything there was strong support from the volunteers for retaining their volunteer status – as one volunteer put it 'when you join as a volunteer, you know that you will be putting your time in. We are not worrying about any of that; that is

49 Ross McKinney, *Transcript of Evidence*, 10 July 2003, p. 49.

50 Volunteer Fire Brigades Victoria, *Submission no. 380*, p. 7.

51 Richard Blyton, *Transcript of Evidence*, 10 July 2003, p. 10.

why we are volunteers'.⁵² The VFBV suggested that the majority of volunteers meet their own travel and communications costs for the privilege of serving their communities. Some volunteers would argue that this is their contribution to their community yet the majority would value initiatives from the federal government that would offset these costs.⁵³

6.60 The VFBV made it clear that volunteers do not want to be paid for their services because it undermines the volunteer ethos but on the other hand, volunteers do not want to be out of pocket.⁵⁴ It was noted that this view emerged also at a Volunteer Summit in 2001 convened by Emergency Management Australia (EMA). The cost that volunteers incur in terms both of direct expenditure and lost income becomes somewhat demoralising when issues of payments to departmental staff arise.

6.61 The Committee was told how volunteers developed the perception that some employees of land management agencies made it known that they were being well paid and receiving considerable overtime payments:

The frustration of local volunteer firefighters was exacerbated when at meal breaks the paid DSE / CFA firefighters talked about the earnings 'I've earned \$3,600 this week' whilst others complained about the tax they would be paying. In fact the penalties and overtime being paid to non-volunteer firefighters was considered responsible for reducing the urgency of the firefighting effort on many occasions. This imposed a substantial deterioration on the morale of the volunteers who had left their own jobs to fight the fires, losing wages and leaving their own assets unprotected.⁵⁵

6.62 There were other suggestions that containment was not such a pressing issue for some of the paid fire fighters:

We continually saw these spot-overs and they [DSE and national parks employees] just kept saying, 'There's another new house!' or 'Another new boat!' or 'Another new car!' It was just a wrong mentality... [this meant] ...More money. You got paid fires there working on the line, and if we take in another 6,000 hectares we are going to be there for another

52 Ian Johnson, *Transcript of Evidence*, 24 July 2003, p. 76.

53 Volunteer Fire Brigades Victoria, *Submission no. 380*, p. 7.

54 Volunteer Fire Brigades Victoria, *Submission no. 380*, p. 7.

55 Eureka Foundation, *Submission no. 128*, p. 16.

week. I suppose it was only said in jest, but a lot of our brigade members took it to heart pretty bad because quite a few of them were paying people to milk their cows or do their work at home ...⁵⁶

- 6.63 The Committee was also told about paid fire fighters getting better food, better accommodation and spending less time on the fire line as they made crew change overs at some distance from the fire ground. These things all contribute to volunteers feeling that their contributions are not valued and were disruptive to the fire fighting effort. In New South Wales for example it was said that:

One of the big issues for our area was the feeding of the volunteers and the professional people ... based on the impact report that we got back, the level of food that the paid employees were getting was considerably above what the volunteers were getting. A small thing like that caused a huge amount of discontent out on the field, to the extent that the group captains and deputy captains called a meeting at the incident control centre to raise their concerns. For example, the volunteers who were working a 12-hour stint would have to feed themselves or were expected to feed themselves before they came along. They got a very small lunch pack and were expected to feed themselves when they went home, as opposed to the situation of most of the professional people. They would be in accommodation or brought into the area, so their meals before and after were basically prepared for them. Issues like that blew up very quickly.⁵⁷

- 6.64 Similar comparisons between the lot of volunteers and that of paid employees were mentioned in Victoria:

The change-over period in our experience is that DSE, National Parks and all those paid firies were changing over on the breakfast-dinner mentality – they would have their meals and then they would come out. The meal times were included in the work times, which I disagreed with. I thought their time should start when they turned up to get on the tanker or get on the fire line. Having their breakfast and what they did first thing in the morning – cleaning their teeth – was really in their own time, but that was all included. That was all right, but the CFA was trying to change their crews at the

⁵⁶ Jack Hicks, *Transcript of Evidence*, 24 July 2003, pp. 71–71.

⁵⁷ David Rawlings, *Transcript of Evidence*, 10 July 2003, pp. 55–56.

same time. After a few days, we came to realise that it was just no good us heading back to the control grounds with the change-over. We just had to stop there and guard the lines.⁵⁸

Wages, expenses and employment

- 6.65 The solution was not necessarily seen to include direct payment, however some consideration of financial costs were proposed. The Committee believes that it is appropriate to consider some compensation for out of pocket expenses and some financial measures to support volunteer fire fighting duties.
- 6.66 The Ferntree Gully Brigade proposed a range of measures broadly defined as economic support and community recognition. The economic proposals included:
- Support and assistance programs for education costs extending to the volunteer fire fighter and his or her dependants – at higher secondary level and tertiary level, and provision of subsidised accommodation for isolated students having to attend institutions in centres remote from home.
 - Discounted or subsidised local rates and fees.
 - Discounted services and utilities fees – utilities such as telephone, electricity and gas services, vehicle registration and insurance fees for volunteer's private vehicles.
 - Discounted volunteer's household fire insurance premiums and ambulance service subscriptions.
 - Subsidy for loss of income arising from fire fighting duty – direct to the fire fighter whose pay has been stopped during period of absence or who is self-employed, and direct to the employer who makes up the absent employee's pay to its normal level.⁵⁹
- 6.67 The VFBV submission concentrated on tax rebates as a way to recognise volunteers' contribution and off-set out-of-pocket expenses:
- Volunteers have suggested that a tax rebate is possibly a more equitable way of recognizing volunteer contribution because is not dependent on income or employment status or the claiming of actual expenses against other income. The details of eligibility would need to be clarified but a rebate could, for example, be linked to acquisition of minimum skills that could be validated by a certificate from the fire authority ...

58 Jack Hicks, *Transcript of Evidence*, 24 July 2003, p. 70.

59 Ferntree Gully Urban Fire Brigade, *Submission no. 155*, p. 7.

If the annual amount of rebate were, for example, in the order of say \$200 to \$300 per volunteer per year, the cost based on Victorian volunteer firefighters alone would be \$11.6 to \$17.4 million. But this appears relatively small when compared with the CFA volunteer contribution valued at more than \$480 million per annum and the potential loss of 12,000 houses in relation to the North East and Gippsland fires conservatively estimated between \$840 million to \$1.2 billion.⁶⁰

6.68 The VFBV also considered ways to offset the costs incurred by employers who maintain wages (or some form of remuneration) for volunteers, and for the self employed. They noted that the Commonwealth Government through Centrelink has provided compensation in the past for cases of hardship but these have been one-off instances for particular fire related events rather than an ongoing program. It is suggested that an ongoing program of compensation for employers and the self employed could be considered and that such a program would be acceptable within the volunteer ethos. Specifically the VFBV suggested that compensation could be paid to employers and self-employed persons who release volunteers to attend emergency services training in a similar way to the Army Reservist Employer Support Program where employers are reimbursed for releasing employees for routine training.⁶¹

6.69 The Captain of the Wilberforce Brigade told the Committee the time has come for some form of support for volunteer fire fighters:

I call it a voluntary relief fund – for firefighters and other volunteer services when a protracted bushfire emergency or other civil emergency extends beyond five days. We need to be able to provide an appropriate level of welfare for our families – in other words, a meal on the plate – if we are not being paid in that period, particularly self-employed contractors who may not get paid for three weeks. I can attest to the fact that, as a public servant, I get fully paid for an entire bushfire emergency, but a number of people in my brigade who are self-employed do not receive income during that period, and therefore I believe it is incumbent upon the government to start looking at that.⁶²

60 Volunteer Fire Brigades Victoria, *Submission no. 380*, pp. 7-8.

61 Volunteer Fire Brigades Victoria, *Submission no. 380*, p. 9.

62 Michael Scholz, *Transcript of Evidence*, 9 July 2003 (Richmond), p. 15.

- 6.70 There is some variation from state to state in how volunteers are compensated, if at all, for costs and expenses. The Committee believes there is merit in a standardised national approach, especially considering the trend for inter-state deployment of volunteer fire crews. The Committee does not however think it appropriate to interfere with the voluntary nature of the commitment made to bush fire brigades and although some form of compensation or cost offsetting is required it ought not be a direct wages like payment.

Recommendation 27

- 6.71 The Committee recommends that
- the Commonwealth implement a program similar to the Army Reservist Employer Support Program for the re-imburement of costs incurred by employers of volunteer fire fighters when attending bush fires for a period exceeding five days in any month; and
 - the Commonwealth consult with the states and territories through Council of Australian Governments to develop a range of measures related to local government rates, state government charges and insurance costs to provide rebates for registered volunteer fire fighters.
 - the Commonwealth consider the feasibility of taxation relief on costs incurred by registered fire fighting volunteers in the line of duty.
- 6.72 To support the employer compensation program proposed above the Commonwealth should also enact legislation to protect employees against dismissal for reasonable attendance for fire duties as registered volunteer fire fighters. The Committee heard evidence, at the public hearing in Richmond of a volunteer fire fighter being sacked because of his fire fighting duties. This might not be a wide spread problem but it should be easily preventable

- 6.73 The Committee notes the passage of the Workplace Relations Amendment (Protection for Emergency Management Volunteers) Act 2003. The Amendment protects:
- emergency management workers from unlawful dismissal if their temporary absence from their normal employment is 'reasonable in all the circumstances' ...⁶³
- 6.74 The Explanatory Memorandum to the Amendment notes that the:
- reasonableness requirement means that in most circumstances there would be an expectation that the employee would seek the employer's consent before absenting himself or herself from the workplace ...
- The duration of the absence would also have to be reasonable in all the circumstances ... The size of the employer's business is one factor which may affect what is considered reasonable.⁶⁴
- 6.75 The Commonwealth legislation introduces a national minimum standard for the protection of all volunteers, who are members of or who have a 'member-like' association with an emergency management organisation. Generally speaking: 'The range of employment related rights protected ... is narrower than equivalent State and Territory legislation.'⁶⁵ However, there are areas where the level of protection is extended beyond those available to volunteers in some jurisdictions. For example:
- There is no legislated protection for the employment rights of emergency workers in Victoria or Western Australia.
 - The Act extends protection to volunteers responding to all reasonable emergencies and thus increases the level of protection currently available in the Northern Territory, Queensland and Tasmania where protection is only available to volunteers responding to declared emergencies and disasters.

⁶³ Department of the Parliamentary Library, *Bills Digest No. 131*, 2002-03, p. 1

⁶⁴ *Workplace Relations Amendment (Protection for Emergency Management Volunteers) Act 2003*, Explanatory Memorandum, http://parlinfoweb.parl.net/parlinfo/view_document.aspx?ID=1441&TABLE=OLDEM S, viewed 20 October 2003.

⁶⁵ Department of the Parliamentary Library, *Bills Digest No. 131*, 2002-03, p. 6

- The Act protects volunteers against acts of victimisation for being absent from work on emergency relief thus making protection for volunteers in New South Wales no longer only when the Premier directs.⁶⁶

Insurance against death or injury

- 6.76 Concerns were raised about the under insurance of volunteers. The Committee was told that in New South Wales:

It is also a problem that we are only insured for \$150,000. If we want more than that, we have to go to court to get it. I have had heard that the people burned in the Wingello fires are still fighting for compensation. I do not think that is fair to us. I have been on page for 24 hours a day for the last six years and I do not think it is fair for my family that, if I were seriously injured or killed at my age, they would only get \$150,000. It has got to the stage with these men here where it was going to affect their livelihood. It was not going to affect my livelihood but it could have affected me because of the safety concerns I had. Nimmitabel brigade were at the stage where, if it happens again, we will think very hard about not even turning up. We are only volunteers; we can make that decision.⁶⁷

- 6.77 The Committee does not have sufficient evidence to determine if this is a problem for New South Wales alone or if it is affecting participation in volunteer brigades, but it does believe that the concerns of volunteers needs to be addressed.

Recommendation 28

- 6.78 **The Committee recommends that the Commonwealth Government work with Australasian Fire Authorities Council to review the insurance cover provided to volunteer fire fighters in all states and territories and ensure that cover is adequate for loss of life or injury and related loss of income and property lost in the line of duty.**

⁶⁶ Department of the Parliamentary Library, *Bills Digest No. 131*, 2002-03, p. 2

⁶⁷ Ian Blyton, *Transcript of Evidence*, 10 July 2003, p. 9.

Aerial fire fighting

- 6.79 The Committee was presented with evidence that suggests that a more appropriate use of aerial fire fighting resources would help achieve a more aggressive and effective early attack on fires, as advocated in chapter 5 above. The Aerial Agricultural Association of Australia (AAAA) said that:

Those States that are currently using aerial agricultural operators in an aggressive initial attack role have been able to change their management approach from generally reactive to a more proactive approach - being able to contain small fires and manage them accordingly, thereby freeing resources for better training and other initiatives.⁶⁸

- 6.80 The evidence included examples of fire fighting aircraft being available during the January fire but not used even though conditions at the time were conducive to aerial attack:

During various stages of the January fires, a number of fixed wing fire bombers were on the ground at Tumut awaiting better visibility and tasking from NSW controllers. However, for at least one day just before the Saturday fires sweeping through Canberra, there was sufficient visibility to see the fire front from 1000' above Canberra Airport as it came over the Brindabellas. Unfortunately, tasking onto the fires at that stage did not occur, other than helicopters being tasked into the defensive asset protection role.⁶⁹

- 6.81 The role that aircraft can play in the early attack on wildfires was explained by Mr Col Adams, an experienced operator of fixed wing fire fighting aircraft:

While their most appropriate role is in the initial attack on fires – containing fires until ground crews can reach them, they can also be used effectively in assisting to control established fires.⁷⁰

⁶⁸ Phil Hurst, *Submission no. 57*, p. 2.

⁶⁹ Phil Hurst, *Submission no. 57*, p. 2.

⁷⁰ Col Adams, *Submission no. 84*, p. 1.

- 6.82 Much of the evidence received about aerial fire fighting went to the question of the underutilisation of available fixed wing aircraft compared to the more newsworthy use of helicopters. Mr Adams' submission outlined what work fixed wing aircraft can do. He referred to what could have been delivered by fixed wing aircraft that were available for the McIntryes Hut fire:

If the RFS had taken the situation seriously and efficiently utilized just half the aircraft available these aircraft could have delivered up to 36,000 litres of retardant mixture per hour to the fire front. This volume of retardant roughly translates into over 2 kilometres of retardant line (a chemical fire break) per hour. In remote or inaccessible terrain, no bulldozer/grader can build a fire break with the speed and effectiveness of a fixed wing aircraft.⁷¹

- 6.83 Commenting on the fire suppression effort in the Kosciuszko National Park at a public hearing in Cooma, Mr Michael Apps the owner and Managing Director of the Polo Flat Airfield reported delays in using aircraft to combat fires because of the inappropriate timing of briefings:

Instead of briefing the pilots on the night before and saying, 'I want you here at five in the morning, when the air is calm and we have good visibility; I want to send you out there to hit the fires hard,' they worked a nine to five routine. They had their briefings at 9.30 or 10 o'clock. By that time the wind was up, the fires were roaring off again, visibility was down to zero and it was another incompetent shambles.⁷²

- 6.84 Mr Apps presented the consequences of the poor level of organisation at Polo Flat Airfield in terms of days of flying time lost:

The aircraft got in the air one day and did 93 sorties. They flew on four days in total out of 24. That is 20 days when six aircraft, worth \$1½ million each, with enormous water-dropping capacity, sat on the ground with the pilots sleeping, watching television and getting very fed up.⁷³

71 Col Adams, *Submission no. 84*, p. 3. The submission indicates that within 10 nautical miles of the site of the original fire there are 5 agricultural airstrips suitable for the operation of Dromader aircraft carrying 2,000 litres of retardant with a turnaround time of less than 15 minutes firebombing operations, and there are also three larger airstrips that could accommodate larger capacity turbine aircraft carrying up to 3,000 litres.

72 Michael Apps, *Transcript of Evidence*, 10 July 2003, p. 114.

73 Michael Apps, *Transcript of Evidence*, 10 July 2003, p. 116.

- 6.85 The effectiveness of early aerial attack, particularly with fixed wing aircraft was demonstrated in Western Australia in the 2002-2003 fire season. CALM advised that contracted fixed wing (Dromader) aircraft 'have proven to be effective in restricting small fires and in asset protection'.⁷⁴
- 6.86 For the 2002-03 season additional aircraft were required and two additional Dromader fixed wing aircraft and two helitankers were deployed. It was said that the fixed wing aircraft 'proved yet again to be of major benefit in supporting ground forces in containing small fires. These aircraft were particularly effective in restricting initiating wildfires within forest fuels and heathland fuels'. The helitankers were used extensively for asset protection in the urban bushland interface around Perth. The Department estimated that this deployment of fixed wing aircraft and helitankers, which cost in the order of \$1.5 million, resulted in savings of \$40 million in assets and suppression costs.⁷⁵
- 6.87 The IFA suggested that there is a need to recognise the potential to use aerial water bombers as part of a rapid initial response to fires:
- The usefulness of rapid first attack strategies using a combination of aerial fire bombers and ground resources on private land is under-rated. For the last seven years, aerial fire bombers deployed in the Mount Gambier area on a risk-related basis have clearly demonstrated that fires in high value plantations and agricultural crops can be extinguished under extreme fire weather conditions. This is only possible when fires are rapidly detected and strategically located ground crews are able to respond to all fires within 20 minutes.⁷⁶
- 6.88 It is important to remember however that aircraft are not the entire answer. As the VAFI said that aerial suppression can be very effective only at certain stages of the fire and a ground crew is still required to follow-up and check the fire. Furthermore, all forms of aircraft are only effective in the early stages of fire growth in the right weather conditions:
- They have low effectiveness in smoky, low visibility conditions, or high wind. They should be seen as complementing ground crews, not replacing them. If fire-

74 Western Australian Government, *Submission no. 362*, p. 19.

75 Western Australian Government, *Submission no. 362*, p. 20.

76 Institute of Foresters of Australia *Submission no. 295*, p. 19.

fighters rely too heavily on aerial suppression then they limit their opportunities for control because aircraft are not suitable for every fire situation.

Reliance on air attack risks failure in a multiple-fire situation like that which occurred in 2003 unless it is supported by a determined ground attack by experienced forest fire fighters.⁷⁷

- 6.89 The IFA referred to ‘the growing enthusiasm for high-cost, high media-value, jazzy suppression tools, such as air crane helicopters. The Institute stated that while these aircraft are useful ‘they are not a replacement for solid fire prevention work, and for skilled crews on the ground.’⁷⁸ This position was supported by the CSIRO:

We had a project nearly 10 years ago looking at aerial suppression, mainly with fixed wing aircraft in Project Aquarius. Aerial suppression is good as a support activity for ground based things. It can be moved into position quickly. But, at the end of the day, you still need people on the ground and you still need some means of fuel management, if you are going to tackle these things.⁷⁹

- 6.90 Mr Phil Cheney expanded on this point:

aircraft are limited in what they can do. Our own studies from Project Aquarius back in 1985 indicated that even the largest aircraft that was available in the world at that time, and it is probably still the largest aircraft that is available for firefighting, could not do any better than ground forces with a bulldozer.

In practice, any aerial operation has to be supported with ground fire line instruction. If it is not, it may or may not slow the fire. The air operators, depending on their inclination, may say it did or it did not. But, unless they are properly supervised and the direction of the fire suppression is undertaken, it can be a waste of money. In many cases, I think, in these recent fires there was certainly an over reliance on helicopter attack to slow the fire without the support coming in on the ground. I think analysis in the future will

77 Victorian Association of Forest Industries, *Submission no. 212*, p. 9.

78 Institute of Foresters of Australia, *Submission no. 295*, p. 17.

79 Tim Vercoe, *Transcript of Evidence*, 14 July 2003, p. 73.

show that the aircraft attack alone had very little impact on the overall spread unless it was supported by ground crews.⁸⁰

- 6.91 Having said that Mr Cheney indicated that with due preparation and with good aerial supervision that aircraft had an effective role to play:

In general terms, I would say that the use of aircraft does require preparation. Some states have set up to do it and other states have not. In each case where a state has set up to use light agricultural aircraft they have found that there is a role. The study we did, a desktop economic study, showed that using several of these aircraft dispersed across the state was more efficient than buying one very large single-purpose aircraft.⁸¹

- 6.92 The Forest Owners Conference (FOC) also referred to the need for aircraft to be available for rapid attack:

Contracts for special resources, such as fire fighting aircraft should be flexible enough to allow scaling up and down of resources according to risk.

There has been a tendency in recent years for the Government to support large major contracts for equipment such as the Erikson Skycranes. Whilst these are effective fire suppression equipment, under certain circumstances, (especially around the urban fringe,) the support of these should not be at the expense of smaller more flexible aircraft. The FOC are strongly of the opinion that fixed wing fire bombers and medium helicopters are vital pieces of fire fighting equipment. We cite numerous cases where the rapid deployment of fire bombers in conjunction with ground forces, in first attack has resulted in the effective suppression of the fire before it has a chance to develop into a major conflagration.⁸²

- 6.93 In part the problem in Australia is due to the practice of calling up aircraft only after a fire has reached some threshold level of threat. This is not the best way to use aircraft, as explained by National Air Support (NAS):

The most effective use of aircraft in the aerial fire fighting role is when they are used as soon as possible after initial fire

80 Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 28.

81 Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 29.

82 Forest Owners Conference, *Submission no. 350*, p. 4.

detection and maximum effort is expended when the fire is at its smallest size and intensity. Thus preventing small fires becoming big fires. This approach has a much more effective result for the same level of resources than an incremental response to a fire event. However this requires dedicated resources to be available on immediate call much the same as a metropolitan fire service.

Unfortunately in most parts of Australia an incremental approach is taken resulting from time to time in large fires where no amount of resources aerial or otherwise are capable of combating or managing the fire. In many areas of Australia initial fire suppression including the cost, is the responsibility of the lowest level of government. Responsibility including financial responsibility only transfers when the fire event exceeds the means of the previous level. In recent fire seasons this has seen extensive use of the military and Federal government funds provided to the States.⁸³

Use of aircraft during the 2003 fires

- 6.94 The initial response to the McIntryes Hut fire, as indicated elsewhere in this report was insufficient. In relation to the deployment of aerial assets during the first few days Mr Adams submission detailed the opportunities available to use fixed wing aircraft during the Canberra fires – opportunities that were not taken up:

Despite the fact that the situation was tailor made for fixed wing firebombing, no attempt was made to really hit them using fixed wing aircraft. While there were 9 fixed wing fire bombers engaged at the Kosciusko National Park fires, another 11 fixed wing firebombing aircraft were available for firefighting in NSW. These 11 aircraft were available to NSW RFS from the onset of the fires on 8/1/03 and it was not until the 17/1/03 that these aircraft were finally tasked (to other locations in NSW).⁸⁴

- 6.95 On several occasions the Committee heard that aircraft were available at suitable times but were not deployed. For example, in Victoria, the Committee was told that:

there were very limited opportunities for aircraft to bomb fires or even fly along the fire edge to find out where it was.

83 National Air Support, *Submission no. 203*, p. 4.

84 Col Adams, *Submission no 84*, p. 2.

Early in the morning was an opportunity, but ... they were not despatched until later in the day and then it was pointless because they could not see anything. ... On the morning of the 30th, when we were burnt out, it was calm. The wind did not get up until probably 11 o'clock in the morning. Then it was too late; nothing could be done.⁸⁵

- 6.96 In another example an experienced pilot told the Committee that on several occasions that aircraft were held on the ground:

There was nil cloud, there was no smoke and the fire started spotting ... The aircraft were kept on the ground; Melbourne would not allow them to fly. This happened on quite a few occasions.

The pilots objected very strongly; they wanted to go and get out. There were four aircraft to start and get into these spot fires. They refused to allow them. They sent one aircraft to go to a hot spot in the middle of a fire over at Tallangatta. I do not think he got there; I think he finished up telling them exactly where they could fit the situation. That happened repeatedly. They were forever being sent to areas that were already reasonably safe ...

The use of aircraft could have saved untold troubles. I heard of an instance where the Premier went up to Mount Beauty and they called the aircraft across there, put on a massive demonstration to satisfy him and then they all came back again. They did not bother doing any firefighting; they were not allowed to.⁸⁶

- 6.97 Mr Jim Norrie, an operator of helicopters raised concerns about the way these aircraft were supported and deployed by fire fighting agencies, including a lack of training of field staff in procedures around aircraft and inadequate tasking of aircraft. It appeared that some incident management teams had a lack of understanding of the capabilities of types of aircraft and pilots, as indicated by the following inappropriate tasking:

- Medium helicopters used in mop up exercises when light helicopters should be used.
- Inexperienced pilots tasked to difficult jobs.
- Aircraft continually flying when they are totally ineffective.

85 Kevin Rodgers, *Transcript of Evidence*, 28 July 2003, p. 11.

86 Robert Pendergast, *Transcript of Evidence*, 28 July 2003, p. 41.

- Heavy helicopters continually missing targets on bombing runs and in fact light helicopters being much more effective on the same task.
- Mapping runs and surveys being undertaken over and over again, much of which is simply pleasure flights.
- FL1R runs being carried out at the wrong stage of the fire with totally useless information being reported.⁸⁷

6.98 A similar case was put by another helicopter company heavily involved in the 2003 fires. McDermott Aviation also argued that the current system of calling in aircraft once the fires have reached critical stage is a long way short of correct utilisation. The company also indicated that there was a lack of interaction from air to ground units which is vital for effective control. The company proposed a different solution. It suggested that a dedicated helicopter fire fighting unit be established. This was proposed to allow better training of fire fighters in interaction and better use of aerial support for the ground units. This would feature locally available heavy and medium sized helicopters contracted on a long term basis with the contractors providing the full support and management package.⁸⁸

The use of aircraft in New South Wales

6.99 Of particular concern was the approach being adopted in New South Wales compared to other states. Mr Col Adams observed that:

The Victorian Department of Natural Resources and Environment (DNRE) has over 30 years experience in using fixed wing aircraft in firefighting and has developed a system that should serve as a model for other Australian bushfire authorities to adopt South Australia and Western Australia also place heavy emphasis on rapid deployment of fixed wing aircraft to fires. The NSW RFS on the other hand has steadfastly refused to embrace the concept of using fixed wing aircraft as a first line of attack on fires. Despite over 20 years of advocacy by others, and myself the RFS continues to ignore its potential and denigrate its proponents. While there has been some increase in use of fixed wing fire bombers in NSW over the last couple of years, this seems to have been more for window-dressing rather than a serious attempt to fully utilize their capabilities. There is little corporate knowledge within the RFS on aerial firefighting using fixed

⁸⁷ Jim Norrie, *Submission no. 182*, pp. 1–2.

⁸⁸ John McDermott, *Submission no. 226*, p. 1.

wing firebornbers and apparently little desire to acquire such knowledge. There is also little enthusiasm for the idea that total aviation costs in fire control could possibly be more than halved if aircraft were used proactively rather than reactively. Despite being one of the most experienced and best equipped firebombing pilots operating in NSW, my attempts to get an effective system in place have been met with accusations from the upper echelons of the RFS of self-interest and not being a team player. Most other operators of fixed wing firebombers hold similar views to mine about the capabilities and organization of firebombing in NSW but are unwilling to voice their concerns publicly for fear of losing contracts or casual work with the RFS.

This is not an unfounded fear – have been virtually sidelined for the past few fire seasons with preference often being given to inappropriately equipped aircraft flown by pilots with no firebombing experience. There are also a small number of casual contractors more concerned with keeping their aircraft flying and the dollars rolling in who don't give a damn about their effectiveness.⁸⁹

6.100 Mr Graham Gray made similar comments:

Victoria have used fixed wing aircraft in particular for a number of years. Whilst they still have their problems, they have developed the skills for using them far more than we have in New South Wales ...

the very large helicopters that have been brought in for this fire season have certainly been very effective around the urban interface but they are an enormous cost. Small helicopters that carry 200 litres or a bit more, dropping fresh water dipped out of a dam, are quite ineffective against fires of the sort of intensity we have seen. They have a role to play but it is certainly not doing that.

The money being spent on those inappropriate uses of aircraft might be better spent on agricultural aircraft, which can drop 2,000 litres at a time instead of 200 litres and can drop water that has been dosed with retardant or foam to make it 10 times more effective ...⁹⁰

⁸⁹ Col Adams, *Submission no. 84*, p. 2.

⁹⁰ Graham Gray, *Transcript of Evidence*, 10 July 2003, p. 69.

A national approach

- 6.101 A national approach to the acquisition and management of fire fighting aircraft has emerged over the last few years with the Commonwealth providing funding to enable the states and territories to operate additional aerial fire fighting resources over the 2001/02 and 2002/03 fire seasons.⁹¹ In 2002 the Commonwealth made available up to \$800,000 to bring two Erickson Air-Crane Helicopters to Australia. Further funding of up to \$50,000 was provided to the peak body for all Australian fire agencies, the AFAC to develop a national strategy. During 2002-03 the Commonwealth provided funding of \$8.2 million (inclusive of GST) to enable additional aircraft resources to be available for the 2002/03 fire season⁹². The DoTARS submission detailed this and identifies this expenditure:

In September 2002 ... the Federal Government made a funding offer to the States and Territories of up to \$5.5 million to cover half of the direct costs of leasing and positioning three heavy capacity Air-Crane helitankers ... in Australia for the 2002-03 season. The States and Territories would meet the remaining costs including all operating costs for the helitankers. In October 2002 ... [the Commonwealth] announced additional ... assistance of \$400,000 to meet half the costs of airfreight for the helitankers to expedite their arrival in Australia.

In January 2003 the bushfire crisis in Victoria, New South Wales and the ACT led to the announcement by the Prime Minister of further funding of up to \$2.1 million to meet half the direct costs of leasing and positioning two additional Air-Crane helitankers

In addition \$250,000 and \$300,000 was provided to South Australia and Western Australia respectively to help meet their needs for small fixed wing water bombers and medium sized helicopters.⁹³

- 6.102 The DoTARS advised the Committee that:

The Federal Government recognises the potential benefits of a national approach to aerial firefighting to ensure scarce State contracted aircraft equipment can be used more effectively and efficiently across the jurisdictions to combat major fire

91 Department of Transport and Regional Services, *Submission no. 208*, p. 5.

92 Department of Transport and Regional Services, *Submission no. 208*, p. 8.

93 Department of Transport and Regional Services, *Submission no. 208*, pp. 5–8.

outbreaks. It considers that the national coordination between States and Territories of equipment and placement based on risk would facilitate a more cost-effective national response.⁹⁴

- 6.103 National Air Support made a submission that argued that there is no national standard or approach for the employment of aerial fire fighting and this combined with ad hoc usage and availability in fire fighting aircraft in Australia is a major impediment to the development of a coordinated and effective aerial fire fighting capability:

The States have variations on the basic applications of aircraft in aerial fire fighting, which have developed within the constraints of cost and local availability. This has meant that access to highly specialised aircraft and support organizations has not been possible. This is directly attributable to the divided responsibility and legislative basis for fire suppression in Australia.

The application of operator standards, except in Victoria, has suffered from the same approach. Only in Victoria do core service providers have structured contracts and system checks for compliance and call when needed operators under go pre season validation. Outside Victoria this has resulted in recent years in the aviation response during large fire events of an almost anything that flies approach being taken, resulting in numerous incidents and hazards which are in the main avoidable.⁹⁵

- 6.104 A solution to problems arising from the incremental approach to funding was proposed by NAS:

Significant funding has generally not being available to place effective numbers of dedicated specialised aircraft on standby/availability for the fire season. However when serious fire events occur large quantities of operational funding becomes available under existing emergency service major incident arrangements. This results in ad hoc, as available, non role specific aircraft being utilised. Flight Safety is significantly compromised with this approach and the effectiveness of aircraft tasked under these circumstances is less than marginal compared to the effectiveness of

⁹⁴ Department of Transport and Regional Services, *Submission no. 208*, p. 6.

⁹⁵ National Air Support, *Submission no. 203*, p. 3.

dedicated aircraft tasked early in the fire management or attack cycle.

This incremental approach and funding matrix almost ensures the most ineffective use of aerial fire fighting assets. The real key to the effective use of aerial fire fighting assets is to transfer the funding made available under the emergency service provisions into funded standby arrangements for dedicated assets. It can be convincingly argued that this will result in the same level or a reduced level of funding being required over time with a far more effective operational outcome.⁹⁶

National Aerial Fire Fighting Strategy

- 6.105 The approach suggested by NAS is in part embodied by in the National Aerial Fire Fighting Strategy to which the Commonwealth in 2003–2004 is contributing \$5.5 million.⁹⁷
- 6.106 This strategy is based on the view that it has proven to be beyond the resources of individual states and territories to fully provide appropriate aircraft resourcing for the higher levels of threat of fire that may be faced. It is in this context that the possibility of a cooperative resource provision and sharing arrangement involving relevant Commonwealth, state and territory agencies is logical and offers considerable promise to ensure the provision of an appropriate aerial fire fighting capacity to the Australian community.⁹⁸
- 6.107 The Strategy proposed a two stage approach that would lead to a Commonwealth, State and Territory cooperative and equitable arrangement to operate an Australian Interagency Fire Coordination Centre and provide a shared national aerial fire fighting resource. In a way that is consistent with the evidence presented above, the Strategy notes that:
- aerial firefighting is not always the appropriate tool to employ, for safety and effectiveness reasons – firefighter and public expectations must be managed
 - optimum returns come from rapid attack on incipient fires – there is a key requirement to *invest* in ensuring that the aircraft are readily available and are dedicated to rapid response

⁹⁶ National Air Support, *Submission no. 203*, p. 4.

⁹⁷ John Doherty, *Transcript of Evidence*, 21 August 2003, p. 49.

⁹⁸ Australasian Fire Authorities Council, *National Aerial Fire Fighting Strategy*, Draft 3.1, p. 5.

- aerial fire fighting firefighting must be integrated into the overall fire control strategy and will require ground follow up
 - appropriate, competent management, supervision and support is crucial
 - competent, experienced highly skilled aircraft operators and pilots must be employed
 - access to a range of aircraft types is necessary to ensure the right aircraft may be matched to the right task.⁹⁹
- 6.108 The principles underlying the strategy are that agencies should continue to provide their own base load aircraft (that is, provision for a normal season) but with enhanced arrangements for sharing this base load resource, and that to address gaps there needs to be a pooled national resources of specialised aircraft with management and support resources.
- 6.109 The AAAA has expressed serious concerns about the steps towards a national strategy that have so far occurred. The Association argues that there is a lack of commitment to aggressive initial attack using at least fixed wing fire bombers and, as appropriate, large helicopters. This is a flawed approach with the AAAA suggesting that all that will happen is that the funding will be divided between the states without a great deal of thought to strategy or a commitment to aggressive initial attack. The Association is also concerned that there will be cost shifting from the states to the federal government whereby the states will back down on the commitment to use fixed-wing aircraft, in particular, on aggressive initial attack.¹⁰⁰
- 6.110 The Association is also concerned about the call for expressions of interest and tender process managed by the AFAC. It is concerned that the tender process was actually aimed at removing consideration of fixed-wing aerial firebombing. The definitions in the contract proposal for both the medium and the heavy-lift capacities, in the Association's view, make it very clear that it was really looking at helicopters only.

⁹⁹ Australasian Fire Authorities Council, *National Aerial Fire Fighting Strategy* Draft 3.1, p. 5.

¹⁰⁰ Phil Hurst, *Transcript of Evidence*, 30 July 2003, p. 19.

- 6.111 The specifications include comments that actually indicate that helicopters with fixed underbelly tanks would be preferred and the water carrying capacities for heavy lift aircraft appear to have been set at a level to favour the Erikson Air Crane helicopters. The Association told the Committee that:

The next step was that AFAC decided to go with this process of calling for expressions of interest. Basically, the operators were given very little time – I think it was two weeks – to get ready for that tender. They were given a briefing two weeks after the initial ad. At the briefing, as I mentioned before, questions would only be answered if they were in writing. At that briefing we were assured, without any doubt, that what was written in the tender document was advisory only and did not really count and that fixed-wing aircraft would be considered. Since that time a number of the people with fixed-wing aircraft who have been put in tenders have been advised that they are not going to be consulted any further in the process because AFAC are already talking to their preferred tenderers. My concern is that some of those preferred tenderers may be international operators with no local expertise. Some of them will be operating aircraft that have never been tried in Australia and have been phased out in other parts of the world. So we have a big question mark over the whole process. Our initial take on the process, when we read the tender documents, was that this was a set-up to ensure that only helicopters would share in the \$5½ million strategy.¹⁰¹

- 6.112 The Association also argues that the bias towards helicopters is misplaced because the use of fixed-wing aircraft is a more cost-effective method, particularly when coupled with the aggressive initial attack. Whilst a role for helicopters is acknowledged in moving people, doing sling loads, bucketing and fire fighting it was suggested that:

Some of the helicopters are too small; they are simply ineffective in a practical sense. The sky cranes are so large and so complex that for the same amount of money – as I have just elucidated – you could have a number of fixed-wing bombers doing exactly the same job in either asset protection or aggressive initial attack.¹⁰²

101 Phil Hurst, *Transcript of Evidence*, 30 July 2003, p. 26.

102 Phil Hurst, *Transcript of Evidence*, 30 July 2003, p. 26.

- 6.113 It remains to be seen whether or not the AAAA's fears for the tender process are valid. If the strategy for 2003-04 does not provide for a mix of aircraft type – including fixed wing and helicopters and if provision is not made to disperse the aircraft on a risk basis nationally for early rapid attack then it will, in the Committee's view have been flawed. The Committee notes that the Air Cranes that appear to be favoured by the tender process may not comply with all the specifications in relation to modern well maintained aircraft if, as the Committee has been told, they are old aircraft now out of production and subject to high maintenance costs.¹⁰³

Steps towards improving aerial fire fighting

Improved contractual arrangements

- 6.114 NAS outlined a crucial element of any contractual arrangements that needs to be remedied for a national approach to be effective:

In order to ensure access to high quality, safe, reliable and effective aircraft resources for fire fighting duties sufficient funding needs to be provided on a long term viable basis. The use of short term contract (less than 5 years) will in effect pre prescribe the use of older more marginal aircraft and not provide the certainty for operators to invest in high quality systems and well developed experienced operations. Long term contracts allow operators to invest in high quality, modern, high cost but effective and safe aircraft and provide the certainty to invest in the development of high quality operations.

Other contracted aviation operations have recognised and benefited from this approach with the majority of aviation service contracts being in the 7-10 year range and moving out to 15 year terms. Examples of this approach are the Australian Customs Service Coastwatch program, New South Wales Air Ambulance and RAAF Search and Rescue.¹⁰⁴

¹⁰³ Email by Keith Logan (forwarded to the Committee by Peter Cochran), 28 July 2003.

¹⁰⁴ National Air Support, *Submission no. 203*, p. 7.

Aerial control

- 6.115 Mr Phil Cheney told the Committee that the thing that would contribute most to the effectiveness of aerial water bombing is better aerial supervision:

I think the use of aircraft in Australia requires a very thorough look and overhaul because, based on research overseas, we are not using aircraft in this country very efficiently. Of all the different types of aircraft and the studies that have been done on them, the one single factor that has been shown to most improve the efficiency of the operation is having it closely aerial supervised.¹⁰⁵

A better approach to a national strategy

- 6.116 The Committee concludes that there is strong evidence to show that a mix of medium fixed wing and helitankers should support fire fighting efforts but they need to be available for initial attack and not just called upon once fires escalate. The states and territories should commit to using aircraft effectively in rapid initial attack mode as a prerequisite for accessing funds made available by the Commonwealth. There is clearly a need for a national strategy that involves long term contractual arrangements and the strategic deployment of aircraft around the country on a risk basis as the fire season unfolds.
- 6.117 The National Aerial Fire Fighting Strategy appears to be on the wrong track in targeting helicopters. The Committee is concerned that this reflects a bias in New South Wales against fixed wing aircraft. This could prove costly to the Commonwealth and the Australian community. If the arrangements to be made for the 2003–2004 season reflect the Committee's concerns then there will be a need for the Commonwealth to review its options before making commitments to further long term funding. The Commonwealth should ensure that the national strategy includes a better mix of aircraft and more flexible arrangements, and it should ensure that aircraft are utilised for initial attack.

105 Phil Cheney, *Transcript of Evidence*, 22 August 2003, p. 28.

- 6.118 The Committee notes the approach indicated by Mr Cheney that using several medium fixed wing aircraft dispersed across the state was more efficient than buying one very large single-purpose aircraft. This should be a fundamental aspect of the national strategy.
- 6.119 Any national strategy should include provision of suitable ground support equipment positioned at key strategic locations as well as training for key personnel in the fire suppression agencies.

Recommendation 29

- 6.120 **The Committee recommends that the Commonwealth should commit funding for aerial fire fighting beyond the 2003–04 season on the proviso that the Australasian Fire Authorities Council and the state and territory governments make a commitment to:**
- **Rapid initial attack of all wildfires during the bush fire season regardless of tenure.**
 - **Deployment on long term contracts of a mix of aircraft, including fixed wing.**
 - **Deployment of aircraft on a nationally coordinated risk analysis basis to be updated as each fire season unfolds.**
 - **Provision of nationally coordinated full ground support.**
 - **Development of training arrangements for air crews, ground support crews, incident management teams and fire fighters to a national standard.**
 - **Development of systems of effective aerial control of fire bombing operations.**

Other proposals for the use of aircraft

- 6.121 The Committee received a number of proposals for the development, acquisition or deployment of larger aircraft and aerial fire bombing systems. The Committee is not in a position to make technical and engineering assessments of these proposals but it notes that there is evidence to show that effective and efficient medium to heavy lift fixed wing and helicopter aircraft are available in Australia and have been used with success when properly tasked. The Committee also notes the comment from Mr Cheney reported above about the outcomes of the Project Aquarius study. It is a matter for state and territory authorities to further consider these particular types of aircraft as part of their overall strategy.

Ground to air communications at the fire front

- 6.122 The consultant engaged by the Committee to examine communications matters (see Communications section below) reported that there was evidence of complaints from fire fighters of not having direct communications from the fire ground to the air support resources engaged in water bombing or reconnaissance work. Some agencies that normally have access to their own air resources can maintain communications from the fire ground to the aircraft, but as a general rule the practice is frowned upon. During water bombing operations an 'Air Attack Supervisor' would normally direct the aircraft to the target in compliance with the request from the 'Air Operations Manager'. The air operations manager within the Incident Control System structure is working in conjunction with the 'Operations Officer', and it is considered to be inadvisable for air resources to be prioritised or directed from any other location once the management structure is up and running.¹⁰⁶ Although, as noted above, there is also a need for effective aerial supervision.
- 6.123 The Committee agrees that the management of air operations should continue to be the responsibility of incident management teams but considers that there needs to be better co-ordination with ground crews. This will not be achieved by putting the direction of air operations in the hands of ground crews but if the level of support to the fire ground is inadequate then steps needs to be taken to correct this anomaly. The need to address concerns about difficulties in communicating operational information from the fire front to aircraft

¹⁰⁶ Brian Parry and Associates, *Report on Communication Issues*, September 2003, p. 34.

should be taken up in the changes to incident management systems as proposed in the preceding chapter.

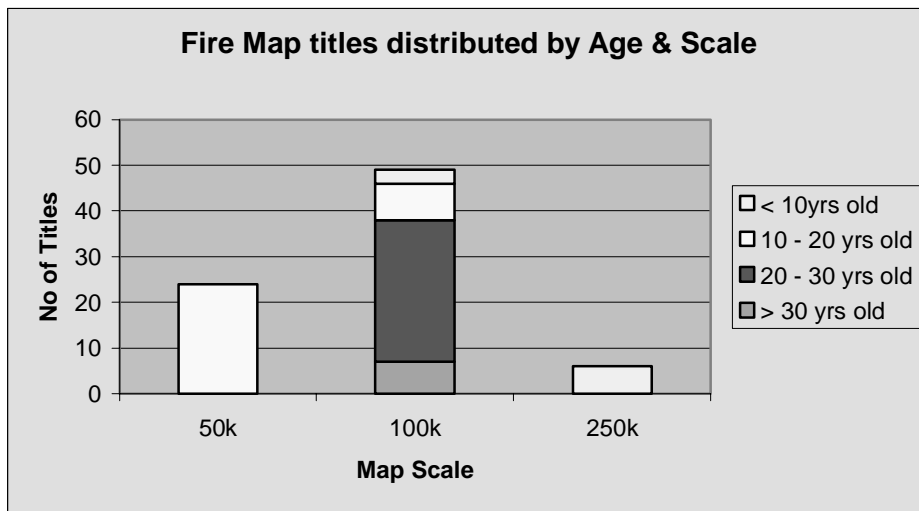
Recommendation 30

- 6.124 The Committee recommends that in changing the incident management systems as proposed in recommendation 23 above all bush fire agencies review concerns about difficulties in communicating operational information from the fire front to air operations.**

Maps and geographical information systems

- 6.125 The Committee on several instances was told that fire fighters were hampered in their efforts by a lack of basic up to date maps. On the other hand the Committee heard evidence of the availability of very powerful geographical and spatial information systems (GIS). Both these matters raise issues of concerns – on the one hand the effectiveness of fire fighting operations and the safety of fire fighters is compromised. On the other there is a risk of over-reliance on technology that may then lead to the same risks.
- 6.126 Clearly there is a need to use the right mix of technology and to use it in a way that best supports operations. Good information is vital to incident controllers, support teams and fire fighters on the ground. The lack of up to date maps requires urgent attention to mapping programs in the states and territories.
- 6.127 The Committee was given information about the availability of maps used in the recent fires that confirmed the view that many maps were out of date. Information provided by Geoscience Australia indicated that most of the maps they distributed during the January fires were 1:100 000 scale titles that were 20 to 30 years old, as illustrated in Figure 6.1 (below).

Figure 6.1 Age of Maps Distributed by GeoScience Australia for the January fires



Source: GeoScience Australia

- 6.128 The Australian Spatial Information Business Association (ASIBA) briefed the Committee on some of the problems impeding the development and delivery of geographical information systems for bush fire fighting. Whilst these issues are generic across the geo-spatial data industry they do also impinge on fire management planning, fire fighting operations and fire analysis. The Association differentiated between two basic kinds of data:
- Reference data – mainly cadastral and topographical information used in all stages of emergency management. This data is generally collected and maintained by the government and is accumulated over long time periods and has national coverage.
 - Operational data – collected, processed and distributed to decision makers within a few hours to assist tactical operations. This data covers only the relatively small areas in which operations are taking place. It requires a lot of costly infrastructure that sits idle for most of the year.
- 6.129 Reference data was said to be generally available (albeit at some cost) but also generally out of date and incorrect. In emergency situations it is hard to update this information without access to base data sets maintained by various governments. If the question of cooperation and policy are resolved with respect to the access to this critical data then information could be enhanced by the use of currently available technology.

- 6.130 A central feature of any national approach would be a move to greater standardisation of data collection and processing. According to ASIBA there would be several benefits of this approach:
- Standardisation lets peers communicate.
 - Minimises cost of uptake of new information.
 - Maximises utility and stability of information products.
 - Permits more applications to operate under known conditions.
- 6.131 This approach would require that there be a coordination agency which ASIBA suggested could be Geoscience Australia or EMA.
- 6.132 The Association argued that this data needs to be used in a proactive way and not just accessed during major emergencies. It was proposed that there be a national Spatial Data Policy which provides for free access to base spatial data held by governments across the country. The Association has found that there is little leadership shown at the national level on this issue and that EMA seemed reluctant and disinterested in developing the opportunities to improve access to data and its use prior to and during emergencies. The development of a national policy and supporting programs should be a matter taken up by Geoscience Australia with EMA in a supporting partnership role in assisting with the dissemination and uptake of geographical information technology.
- 6.133 The Committee believes that any application of this proposal should involve the emergency management agencies as closely as possible and should be focused on the development of technology as an aid to those agencies. Geoscience Australia and EMA have already been involved in this type of activity through the development with the Technik Group of the GeoInsight Project. Technik developed the GeoInsight project in recognition of opportunities to more widely utilise such information and associated technologies in order to achieve greater protection of lives, property and the environment. It brought together the spatial information industry and the emergency management community to create a better understanding of each other's capabilities and needs. The project incorporated the production of demonstration and awareness resources and a range of example spatial applications. It conducted demonstration and awareness workshops in each state and territory and provided skills development tools to complement the program. The program built on existing spatial initiatives in the states and territories to enhance diffusion of spatial technologies in the emergency management community. The resource material created by the project was

distributed to 3000 emergency service personnel and geospatial businesses across Australia.¹⁰⁷

Recommendation 31

- 6.134 The Committee recommends that Geoscience Australia take responsibility, in conjunction with Emergency Management Australia, for developing a national spatial data policy to coordinate the development of data systems, the collection of data and the sharing of data between all the emergency response agencies across Australia, and that both agencies participate in the development and delivery of spatial information systems as part of a national approach to emergency planning and management data. The first priority in policy development and of systems should be related to bushfire hazards.**

Recommendation 32

- 6.135 The Committee recommends that Emergency Management Australia be required to participate in the development and delivery of spatial information systems as part of a national approach to emergency planning and management data. The first priority in policy development and of systems should be related to bushfire hazards.**

Recommendation 33

- 6.136 The Committee recommends that the 1:100,000 national mapping program be accelerated to achieve an average life of no greater than 10 years with priority given to those areas most susceptible to national disasters.**

¹⁰⁷ Geosight, http://www.technik.com.au/special_projects.html, viewed 1 October 2003.

Communications

- 6.137 The submissions and evidence contained many comments about communications. Many of the comments arose because of failures to effectively pass on information and many others referred to problems with communication systems. Given the Commonwealth's general role in managing the radio spectrum and communications matters, the Committee is particularly concerned about system failures. The Committee also notes that some of the submissions and evidence called for the development of a national approach.
- 6.138 These are complex issues and are associated with difficult technical matters. They need to be addressed in a comprehensive way because effective solutions will improve the safety and efficiency of fire fighters thereby helping to solve some of the problems identified elsewhere in this report. The Committee commissioned Brian Parry and Associates to review the evidence, gather further information and propose some possible remedies to the reported communications problems (see Appendix F). The matters discussed in this section reflect the work done by the consultants.
- 6.139 Brian Parry and Associates reported that many of the matters they looked at had been the cause of a considerable amount of anxiety for people during, and after the fires. In many cases these were matters that can be fixed for the future without any significant injection of funds. It was observed that where there is a need for expenditure on radio equipment, it is extremely important that everyone works together to ensure that, further down the track, they can communicate with each other on an agency and national level.¹⁰⁸
- 6.140 The communication systems that have been developed by the states and territories to ensure that adequate coverage is available for fire fighters, utilises a diverse range of radio technology within a number of radio spectrums. Matching the equipment to the geography of the area is critical to the performance of the network.¹⁰⁹

108 Brian Parry and Associates, *Report on Communication Issues*, September 2003, p. 7.

109 Brian Parry and Associates, *Report on Communication Issues*, September 2003, p. 5.

- 6.141 There is a growing tendency towards ‘whole of government radio networks’, and while these may suit many agencies, it could be contended that the time and current climate dictates, that on a national basis, emergency services must plan to work more closely together. Communications across agencies is one of the major elements in establishing this cooperative climate.
- 6.142 From the submissions and evidence presented to the inquiry, Brian Parry and Associates identified several major issues – some of which were relevant to one incident or agency, but many also had relevance to other agencies.¹¹⁰

Radio network problems at the command level

- 6.143 The inability of agencies (in operation) to communicate on one radio network was seen as a planning issue and it became evident during the consultancy that the development of incident action plans has not always been supported by the preparation of communications plans. Planning should occur well in advance of any major bushfire incident and include due regard for effective communication. The Committee accepts the view that there is a need for the state and territory bushfire agencies to give a greater emphasis on pre-incident and incident preparation of communication plans as a means of ensuring effective interoperability between agencies at command and tactical levels. The speed of transfer of operational information between agencies at command level needs to be regularly monitored to ensure that operational objectives are not being compromised.

110 Some other issues identified by the consultants are discussed in chapter 4.

Support for the retention and use of UHF CB radios throughout the fire services

- 6.144 Brian Parry and Associates advised the Committee that in previous years some fire services have actively set out to discourage brigades from the use of CB radio, principally when CB radio was operated in the 27 MHz range. For rural fire fighting, the attitude has now changed with some services encouraging the installation of the equipment, while others are condoning its use for other than operational communications. The evidence shows that on numerous occasions during the last season, UHF CB proved to be invaluable to brigades when they found that they had lost all other means of communication. The service was also used for the initial reporting of fires, reports on the progress of fires and in particular the proximity to assets, tactical communication between the vehicles and personnel working at the fire front. It also proved to be critical as a means of alerting the community. It was suggested that currently UHF CB is the only nationally available radio system that has wide-spread access and acceptability.
- 6.145 However, there are problems with this band because it is an 'uncontrolled' network that allows unsupervised access from anyone with a radio transmitter capable of operating on these open frequencies. Operators have reported very little deliberate interference and that through local planning, and with access to 40 channels, procedures are in place to overcome such problems. The use of the network by vehicle mounted radios and handheld units has wide acceptance in most states for tactical communication on the fire ground. With such wide-spread use within the fire services and rural landholders throughout Australia, the system is achieving interoperability at a very practical level.
- 6.146 The Committee accepts that that the use of this equipment for this purpose should continue and that the use of UHF CB between units on the fire ground be included in communications planning for intra-state and interstate deployments.

Inadequate radio coverage during recent major events

- 6.147 During many of the recent major fires better communication was provided by VHF radio in steep terrain and heavily vegetated areas. The consultants noted that the forced migration of fire services to the use of UHF radio systems in mountainous terrain has in itself become a major occupational health and safety issue.

- 6.148 Some emergency services have made huge financial commitments to developing high performance UHF networks, installing numerous repeaters at accessible high points, still without achieving complete coverage of their respective areas. For such situations, further financial commitment has then been required to overcome the black spots by introducing satellite phones or some other technological solution.

Failure to achieve interoperability via communications at fire ground level

- 6.149 Some agencies have UHF and VHF systems specifically for communications at fire ground level using low power transmissions, enhanced by 'talk around' channels. In some places a specific channel on the main network is nominated for tactical fire ground communication. There is enormous disparity between various fire services and other agencies involved in fire fighting which in some states is a 'day to day' issue. The increasing trend for the interstate deployment of fire crews and incident control staff increases the need, as discussed in chapter 5 for standardisation of equipment. The Committee is advised that currently this can most efficiently be achieved by the utilisation of the UHF CB network but in the longer term, use of this system may prove to be impractical.
- 6.150 The Committee strongly agrees that Australia must work toward developing a National Strategic Radio System whereby, in any major incident, agency commanders and their respective communication centres can achieve full community interoperability.

Radio congestion at fire ground and command level

- 6.151 Complaints in regard to this matter were found not to be relevant to all states and territories. It is less likely to be an issue where an effective communications plan has been developed. It is clear that at fire ground level, on some recent incidents, there were too many users for the available channels.
- 6.152 At a command level there was an obvious need for further diversification of channels. These radios operate as a controlled net, hence each call from a mobile requires a response from the control operator. This can mean that if 60 mobiles are operating on the one network then the average transmission time can be as low as 30 seconds per hour, per vehicle. This further reinforces the need for interoperability communications to be relayed through the communications centre, rather than introduce other agencies onto the

main operational fire channels. It also highlights the need for communication training on protocols and operating procedures.

National Emergency Channel

- 6.153 The Committee's consultants found that there appeared to be an accepted point of view across all of the emergency service organisations, that there is a need for radio frequencies to be set aside as a means of ensuring interoperability between the various states and agencies. This need was first identified back in 1974 after Cyclone Tracey, and the Australian Communications Authority (ACA) issued a block of 64 channels to fulfil this purpose. The combined police forces of Australia took control of all 64 channels and this situation remains unchanged. Currently the police, on a national basis, have identified a need once again for channels where they can communicate between services and with other emergency service organisations, but it seems highly unlikely that they will surrender all or any of the 64 channels that previously had been set aside for this very purpose.
- 6.154 This matter was discussed with the ACA, it was indicated that whilst this is a very complex issue, the ACA is sympathetic to the need for interoperability at a senior level and on a nation wide basis.
- 6.155 An Inter-government Spectrum Harmonisation Committee has been established by the states and territories but despite this both the New South Wales and Victorian Governments are currently procuring totally incompatible equipment within the same radio band. The states and territories appear to be driven by the need for short term fixes for current problems. If the national approach is ever going to succeed, then the states and territories will need to adopt a long term approach to the matter.
- 6.156 If a national radio system is to be operational at command level across many agencies there needs to be commitment by the Commonwealth, state, and territory governments to plan and procure the necessary infrastructure and hardware. This would be facilitated by one Commonwealth organisation fulfilling the coordination role. The Committee agrees with proposals that this coordination role should be adopted by EMA. To make this possible there may be a need to a review of the current role of EMA and the administrative arrangements under which it operates.
- 6.157 The issues raised above require a consolidated review of the allocation and use of frequencies and channels within frequency bands.

Recommendation 34

6.158 The Committee recommends that Emergency Management Australia and the Australian Communications Authority jointly with the Australasian Fire Authorities Council:

- **Initiate an urgent review on a district basis, of the suitability of the current allocated radio spectrum to ensure that as far as possible, fire fighter safety is not being compromised through inadequate communications.**
- **Commit to the development, in conjunction with representative bodies of all emergency services, to a National Strategic Radio System.**
- **That the coordination of the deliberations be assigned to Emergency Management Australia.**

Recommendation 35

6.159 The Committee recommends that:

- **As a short term objective, the use of '40' channel UHF CB equipment be adopted for coordination and interoperability of communications at fire ground level.**
- **As a longer term objective a national communications plan be developed and incorporate the provision of low powered VHF channel allocations for the purpose of ensuring compatible fire ground communications between all agencies on a national basis.**
- **That the use of UHF CB between units on the fire ground be included in communications planning for intra-state and interstate deployments.**

Recommendation 36

- 6.160 **The Committee recommends that Emergency Management Australia and the Australian Communications Authority work with state and territory bush fire authorities to ensure that that district communication plans have regard for the amount of radio traffic that may be generated under the most severe conditions.**

Recommendation 37

- 6.161 **The Committee recommends that Emergency Management Australia work through the Australasian Fire Authorities Council to ensure that:**
- **A greater emphasis be placed on pre-incident and incident preparation of communication plans as a means of ensuring effective interoperability between agencies at command and tactical levels.**
 - **That the speed of transfer of operational information between agencies at command level be regularly monitored to ensure that operational objectives are not being compromised.**

Survivability of communications sites during major bushfires

- 6.162 During the recent fires some communication sites were rendered unserviceable for prolonged periods of time due to direct impacts of fire or loss of power following damage to electricity supplies. This included mobile telephone towers, two way radio transmitter and repeater sites, and commercial radio and television. Such loss of service can affect fire fighting operations and pose risks to safety.
- 6.163 Brian Parry and Associates reported that these situations should be avoidable because in most cases, the fuel levels surrounding this equipment could be controlled by either burning or mechanical means without major environmental degradation of the area.

Recommendation 38

- 6.164 **The Committee recommends that Emergency Management Australia and the Australian Communications Authority, in conjunction with the respective state and territory governments, ensure the survivability of essential communication installations during fire incidents by strategic fuel management around the assets.**

Inadequate telephone infrastructure in bushfire prone areas

- 6.165 The recent bushfires caused major disruption to power distribution and, consequently, telephone communications failed in some areas when eight hour battery back up became depleted. This problem was seen to be common to both the mobile telephone network and the standard telephone system. Management of major bushfire situations involve numerous agencies. The lack of interoperability and the failure of radio systems referred to above, necessitate access to effective telephone communication.
- 6.166 Through their inquiries Brian Parry and Associates found that very few telephone or mobile phone facilities now have automatic generators to cope with power outages, with full reliance on the eight hour battery back up. Further advice is that if the power is expected to be out longer than the eight hours, then a contractor is required to deliver an emergency generator to the site to facilitate the resumption of telephone service. The events of the past fire season have proven this system to be totally inadequate.

Recommendation 39

- 6.167 **The Committee recommends that the Commonwealth investigate, and where necessary, require the urgent enhancement of the provision of emergency power and telecommunications services for the purpose of restoring essential services expeditiously in areas affected by fire or other natural disaster and where necessary to place licence requirements on telecommunication providers to do so.**

Cost of Repeater Sites

- 6.168 Many of the UHF radio network repeater sites are controlled by other agencies who contribute very little to the fire fighting effort that protects these facilities but which charge the fire fighting services rental to have the repeater equipment installed at their sites. The consultant found that this has been identified by brigades as being totally inequitable. Many of the agencies that are involved in this practice are commonwealth, state and territory government bodies.

Recommendation 40

- 6.169 **The Committee recommends that, for the purpose of communications for the police, ambulance and fire brigades, any rental costs associated with the use of radio sites under the care, control or management of the Commonwealth, state, territory or local government be waived, other than for the ongoing cost associated with the use of power at the site.**

Other developments

- 6.170 The Committee was also provided with advice on alternative and emerging communication methods. These include data radio communication and satellite telephony. There is the potential that without due regard for inter-operability and standardisation some of the problems outlined above will be repeated and impede the effective national deployment of such equipment.

Recommendation 41

- 6.171 **The Committee recommends that Emergency Management Australia request the Australasian Fire Authorities Council to:**
- **Determine protocols and standards on a national basis for the adoption and implementation of mobile data services by all fire fighting agencies with a view to ensuring national compatibility.**
 - **Consider the development of a 'closed user group', utilising satellite telephony, as an interim measure for achieving interoperability between member agencies on a national level.**

- 6.172 The work that Brian Parry and Associates undertook led them to make a number of recommendations. Some of these have been incorporated above in this section, others have been discussed elsewhere in the report. A few relate to very localised action and are entirely within the jurisdiction of the states and territories. The Committee urges bushfire authorities to study the report prepared by Brain Parry and Associates and implement those recommendations.

Other technology

- 6.173 The Committee received several submissions and proposals for the development or utilisation of fire fighting technology, including fire attack vehicles and water delivery systems. Several information technologies were also put forward for the Committee's attention. The scope of the Committee's inquiries and the time available did not allow for detailed consideration of these proposals.



Fire protection

- 7.1 This chapter looks at three interrelated areas – insurance, individual preparedness and liability. It begins by outlining the structure and operation of the Australian insurance industry in the context of disaster management and describes the broad types of insurance available for property protection. It then discusses the prevalent insurance issues raised to the Committee throughout the inquiry such as the cost, claims management and under and non-insurance. The chapter then addresses some of the measures that individuals can take to protect their assets from the threat of bushfires which extends to planning and building codes, evacuation and education. It then highlights the key liability issues based on the evidence received by the Committee.

The structure and operation of the Australian insurance industry

- 7.2 The Insurance Council of Australia (ICA) is comprised of private sector insurance and reinsurance companies and is the representative body of the general insurance industry in Australia.¹ The ICA members supply 37.8 million insurance policies and handle three and a half million claims annually.²

¹ Insurance Council of Australia, *Submission no. 311*, p. 1.

² Insurance Council of Australia, *Submission no. 311*, p. 1.

- 7.3 The ICA also works with the Insurance Disaster Response Organisation (IDRO) which was established in March 2000 to coordinate the services of the insurance industry and commonwealth, state, territory and local governments in the event of natural disasters.³ For example, IDRO provides a central contact point for assisting with identifying the insurance companies of claimants and provides policy holders with advice on lodging claims.⁴ This system is designed to enable more efficient response and recovery to disaster victims and to aid insurance companies placed under enormous pressure with the increased flow of enquiries.
- 7.4 Although the IDRO is activated as a central interface response and recovery unit on committees or taskforces established by the relevant government/s in the event of a natural disaster, it is a permanent organisation. It continually liaises with governments, response agencies, meteorological bureaus and the media⁵ to develop effective disaster response and recovery mechanisms and reports to the Board of Directors of the ICA. The IDRO has a National Coordinator and State Coordinators and is a partnership of the following.⁶
- Insurers.
 - Reinsurers.
 - Brokers.
 - Loss adjusters.
 - Insurance Enquiries and Complaints Ltd (IEC).
- 7.5 The structure of the Australian insurance industry in the context of disaster management is illustrated graphically in Figure 7.1 (below).

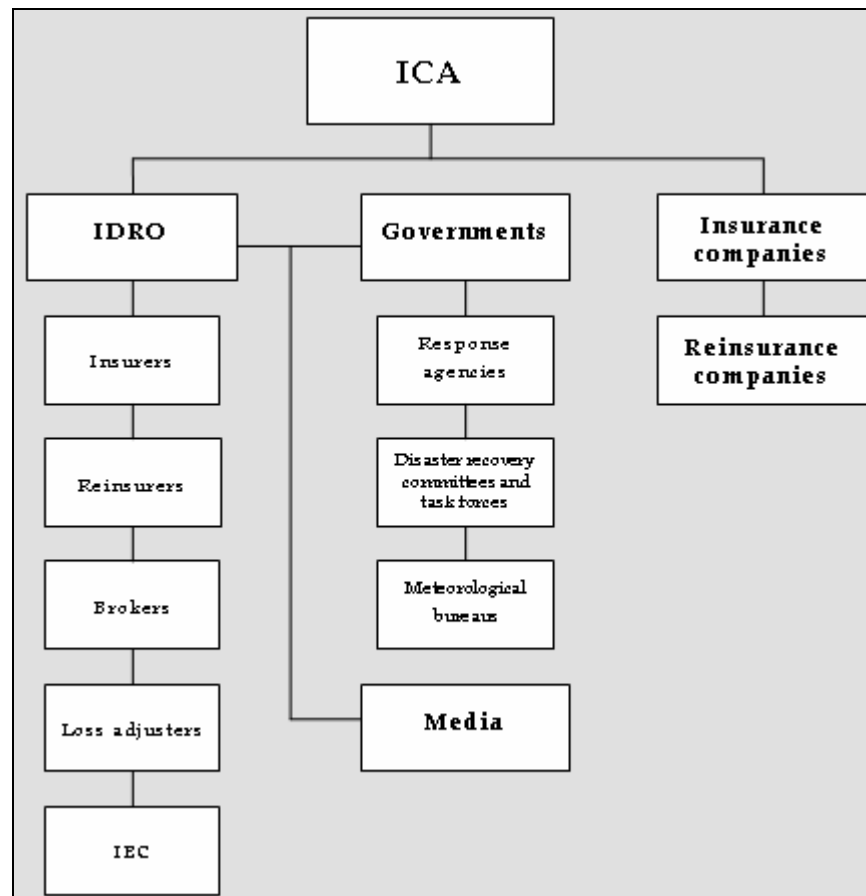
3 Insurance Council of Australia, *Submission no. 311*, p. 1.

4 Insurance Disaster Response Organisation, <http://www.idro.com.au/about/default.asp>, viewed 15 August 2003.

5 Insurance Disaster Response Organisation, <http://www.idro.com.au/about/default.asp>, viewed 15 August 2003.

6 Insurance Disaster Response Organisation, <http://www.idro.com.au/about/default.asp>, viewed 15 August 2003.

Figure 7.1 Structure of the Australian insurance industry in the context of disaster management



Source: Produced for this report.

- 7.6 From February 1967 to January 2003, IDRO and its predecessor – the Insurance Emergency Service – provided services to the insurance industry during 157 disasters (ie, cyclones, earthquakes, hailstorms, floods, bushfires, etc) in Australia.⁷ Bushfires have accounted for about 10 percent of these disasters at an equivalent cost of \$1.062 billion.⁸
- 7.7 The Insurance Australia Group (IAG), Australia’s largest general insurer, claims that the highest three insurance losses from bushfires are Ash Wednesday (1983), Canberra (2003) and Hobart (1967) (in that order) being the sixth, seventh and seventeenth largest insurance losses recorded, respectively.⁹

⁷ Insurance Council of Australia, *Submission no. 311*, p. 6.

⁸ Insurance Council of Australia, *Submission no. 311*, p. 6.

⁹ Insurance Australia Group, chart detailing insured losses of natural disasters, n.d.

Types of insurance for protecting properties

- 7.8 Home and business insurance are the two broad categories of property protection. The scope of coverage within such policies varies between insurance companies but is broadly summarised below.¹⁰

Home insurance

- 7.9 There are generally two types of insurance required for protecting home property against the threat of bushfires – home building and contents.

Home building

- 7.10 This covers the following (up to the sum insured and subject to an assessment).
- Home replacement.
 - Breakage of glass in doors, windows and skylights.
 - Temporary accommodation.
 - Public liability (ceasing upon payment of claim for total loss).

Home contents

- 7.11 This covers the following (up to the sum insured and subject to an assessment).
- New for old replacement of contents.
 - Accidental breakage of glass items (including mirrors).
 - Public liability.

Business insurance

- 7.12 Business insurance is more complex but generally covers assets (building and contents), liability and workers compensation for various types of small to large businesses, including farms.

¹⁰ AAMI, <http://www.aami.com.au>,
GIO a Suncorp Company, <http://www.gio.com.au/gio/index.html> and
NRMA Insurance, <http://www.nrma.com.au/pub/nrma/insurance/index.shtml>
viewed 20 August 2003.

Cost of insurance

- 7.13 Home and business insurance premiums naturally depend on the level of coverage sought but also reflect the level of risk (now determined through digital aerial photography and other means).¹¹ Properties in country areas are generally deemed to be of higher risk and therefore, attract higher premiums than those in metropolitan areas. To illustrate, public land that is not regularly hazard reduced is seen as high risk and this is reflected in the premiums of country policy holders who commonly adjoin such land. Having said this however, the IAG claims that less than one percent of premiums across Australia reflect bushfire risk.¹² Further to the expense associated with the levels of coverage and risk, although tax deductible, business insurance is more costly than home insurance and attracts higher Fire Levy tax (where applicable).
- 7.14 The issue of taxes on insurance premiums warrants review. According to the ICA, some Australian States have world record levels of taxing on insurance.¹³ In New South Wales and Victoria there is a triple compounding tax (that is, Fire Levy, Goods and Services Tax (GST) and Stamp Duty) on home and business insurance premiums (and Tasmania for the latter only). For example, the first imposition (that is, Fire Levy) is included in the base when the second imposition (that is, GST) is calculated – the total of which is used for calculating the third imposition (that is, Stamp Duty).¹⁴ This cascading effect facilitates a higher total than if each of these taxes were individually calculated as a percentage of the premium only. In Victoria the combination of taxes is as high as 77 per cent above the premium.¹⁵

11 Graeme Adams, *Transcript of Evidence*, 22 August 2003, p. 4.

12 Graeme Adams, *Transcript of Evidence*, 22 August 2003, p. 2.

13 Insurance Council of Australia, *Submission no. 311*, p. 7.

14 Insurance Council of Australia, *Submission no. 311*, Appendix C, p. 11.

15 Insurance Council of Australia, *Submission no. 311*, p. 7.

- 7.15 This means that insureds are not only financially penalised but, through paying the Fire Levy, are also protecting those who are not insured.¹⁶ The taxing system on insurance acts as a deterrent to protecting assets because there is no preferential treatment in the deployment of response services (funded through the Fire Levy) and financial support is, to an extent, nevertheless provided to the uninsured through various relief funds. Further, only those covered by Australian based insurers pay the Fire Levy (where applicable) which raises questions about the effectiveness of paying this tax through insurance premiums.¹⁷
- 7.16 The impact (as a percentage) of this ‘tax on a tax on a tax’ on home and business insurance products (in metropolitan areas) is illustrated below in Tables 7.1 and 7.2, respectively, using a hypothetical premium.

Table 7.1 Impact of taxes on home insurance in metropolitan areas

State	Premium	Fire Levy		GST	Stamp Duty \$		Total Cost	Impact (approx)
	\$	%	\$	\$	%	\$	\$	%
VIC	100.00	13	13.00	11.30	10	12.43	136.73	37
NSW	100.00	17	17.00	11.70	5	6.44	135.14	35
SA	100.00	NIL	NIL	10.00	11	12.10	122.10	22
WA	100.00	NIL	NIL	10.00	10	11.00	121.00	21
QLD	100.00	NIL	NIL	10.00	8.5	9.35	119.35	19
TAS	100.00	NIL	NIL	10.00	8	8.80	118.80	19
ACT	100.00	NIL	NIL	10.00	10	11.00	121.00	21
NT	100.00	NIL	NIL	10.00	10	11.00	121.00	21

Source: Adapted from Insurance Council of Australia, Submission no. 311, Appendix B and *Burden on insurance policies leaving Australians exposed to major risk*, available at http://www.nrma.com.au/pub/nrma/about_us/media_releases/20020213a.shtml.

16 Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 9.

17 NSW Rural Fire Service Association Central East Conference, *Submission no. 386*, p. 11.

Table 7.2 Impact of taxes on business insurance in metropolitan areas

State	Premium	Fire Levy		GST	Stamp Duty \$		Total Cost	Impact (approx)
	\$	%	\$	\$	%	\$	\$	%
VIC	100.00	28	28.00	12.80	10	14.08	154.88	55
NSW	100.00	30	30.00	13.00	5	7.15	150.15	50
SA	100.00	NIL	NIL	10.00	11	12.10	122.10	22
WA	100.00	NIL	NIL	10.00	10	11.00	121.00	21
QLD	100.00	NIL	NIL	10.00	8.5	9.35	119.35	19
TAS	100.00	28	28.00	12.80	8	11.26	152.06	52
ACT	100.00	NIL	NIL	10.00	10	11.00	121.00	21
NT	100.00	NIL	NIL	10.00	10	11.00	121.00	21

Source: Adapted from Insurance Council of Australia, Submission no. 311, Appendix B and *Burden on insurance policies leaving Australians exposed to major risk*, available at http://www.nrma.com.au/pub/nrma/about_us/media_releases/20020213a.shtml.

7.17 The differing levels of Fire Levy tax on home and business insurance in metropolitan and country areas are illustrated in Table 7.3 below.

Table 7.3 Fire Levy tax on home and business insurance in metropolitan and country areas

State	Home Fire Levy		Business Fire Levy	
	Metropolitan	Country	Metropolitan	Country
VIC	13%	19%	28%	47%
NSW	17%	17%	30%	30%
SA	NIL	NIL	NIL	NIL
WA	NIL	NIL	NIL	NIL
QLD	NIL	NIL	NIL	NIL
TAS	NIL	NIL	28%	28%
ACT	NIL	NIL	NIL	NIL
NT	NIL	NIL	NIL	NIL

Source: Adapted from Insurance Council of Australia, Submission No. 311, Appendix B, n.p.

7.18 To address the issue of heavy taxes on insurance premiums, the New South Wales Government has decreased the level of Stamp Duty on insurance products to five per cent and the Western Australian Government has made the Fire Levy payable through local council rates rather than insurance premiums.¹⁸ However, the Fire Levy saving in Western Australia has been offset (to an extent) by

18 Insurance Council of Australia, *Submission no. 311*, p. 7 and Gregory Marsh, *Transcript of Evidence*, 5 August 2003, p. 23.

a rise in Stamp Duty on insurance products from eight to ten percent.¹⁹ This has an effect of adding \$40 to \$100 to the cost of an insurance premium.²⁰

- 7.19 Of concern to the Committee is evidence received about insureds paying a double Fire Levy in some States. For example, in some parts of New South Wales, Fire Levies are not only paid through insurance premiums but also through local council rates.²¹ Despite this, in country areas where the Fire Levy is at its highest, there is not as much response assistance with brigades as there is in metropolitan areas.²²

Recovery phase

- 7.20 The IDRO positioned itself on the various state and territory government taskforces after the recent bushfires. As an example, in the Australian Capital Territory, IDRO worked with the Bushfire Recovery Taskforce to provide post-fire claims management to policy holders.²³ This included identifying their insurers and providing assistance on the process involved in making a claim.²⁴ Some insurance companies undertook positive claims processing where they initiated contact with their affected policy holders (identified through their geocoded databases).²⁵
- 7.21 Usual practice is for insurers to appoint a loss adjuster to assist them in assessing claims. They may calculate the home building value by multiplying the area of the home in square metres by a rate dependent on the type of construction (ie, materials and nature) and calculate the replacement value of contents through an inventory completed by the policy holder.²⁶

19 Insurance Council of Australia, *Submission no. 311*, p. 7.

20 Graham Fellows, *Transcript of Evidence*, 5 August 2003, p. 49.

21 Allan Hansell, *Transcript of Evidence*, 22 August 2003, p. 20.

22 Allan Hansell, *Transcript of Evidence*, 22 August 2003, p. 20.

23 Insurance Australia Group, *Submission no. 339*, p. 5.

24 Insurance Disaster Response Organisation, <http://www.idro.com.au/about/default.asp>, viewed 20 August 2003

25 Insurance Council of Australia, *Submission no. 311*, p. 6.

26 ACT Bushfire Recovery Taskforce: *Insurance: Lessons Learnt from the January Bushfires*, pp. 2-3, available at http://www.bushfirerecovery.act.gov.au/word/Insurance_article@30April2003.doc.

- 7.22 An issue of concern to the Committee is that with some companies, insurance payments do not exceed the value insured when the replacement cost is greater.²⁷ Yet on the other hand, insurance payments do not exceed the replacement value when it is less than the amount insured.²⁸ Therefore, those who undervalue their home and/or contents bear some of the replacement costs yet those who overinsure are unlikely to receive the full insured value (despite paying higher premiums).
- 7.23 Further, policy holders sometimes fail to read the fine print concerning the scope of their coverage, believing they are protected for items that are excluded from their policy. On the other hand, sometimes there is a belief that certain products are not covered by insurance when in fact they are. This was evident after the Canberra bushfires where the Australian Capital Territory Government entered into negotiations (on behalf of those who lost their homes) with a demolition company not realising that this 'product' is actually covered by one of the major insurers in its home building contracts.²⁹
- 7.24 Upon having their claims processed, many residents discovered that their home and contents were (unwittingly) undervalued. To ensure building insurance is adequate, policyholders should regularly assess the value per square metre of their home against the rates applicable to the building industry in their state or territory and allow for additional items such as separate garages, pergolas, retaining walls.³⁰ To adequately insure home contents, householders need to regularly conduct an inventory of their items and associated value for each room in line with the Consumer Price Index.³¹ This can be done prior to receipt of the renewal notice.

27 ACT Bushfire Recovery Taskforce: *Insurance: Lessons Learnt from the January Bushfires*, p. 2, available at http://www.bushfirerecovery.act.gov.au/word/Insurance_article@30April2003.doc.

28 ACT Bushfire Recovery Taskforce: *Insurance: Lessons Learnt from the January Bushfires*, p. 2, available at http://www.bushfirerecovery.act.gov.au/word/Insurance_article@30April2003.doc.

29 Insurance Australia Group Ltd, *Submission no. 339*, p. 5.

30 ACT Bushfire Recovery Taskforce: *Insurance: Lessons Learnt from the January Bushfires*, p. 2, available at http://www.bushfirerecovery.act.gov.au/word/Insurance_article@30April2003.doc.

31 ACT Bushfire Recovery Taskforce: *Insurance: Lessons Learnt from the January Bushfires*, p. 2, available at http://www.bushfirerecovery.act.gov.au/word/Insurance_article@30April2003.doc.

- 7.25 From the evidence received, it would appear that many policy holders had (unwittingly) failed to review both their home cover to allow for rapid escalation in the cost of rebuilding and their contents cover to allow for additional items and inflation. The Committee was told that the average building insurance policy covers about \$1000 per square metre when realistic building costs commonly vary between \$1500 to \$1700 per square metre³² and are rapidly rising. Further, insurance companies will only insure for what they consider a reasonable value³³ of which, in the event of a claim, may no longer provide sufficient coverage.
- 7.26 Lack of prior building experience adds to the trauma associated with losing a home to fire and being underinsured – which was the case for many of the people who lost their homes, including the elderly.³⁴ The Committee heard evidence that quotations can vary between \$295,000 and \$500,000 for building a 40-square home and that some of those who choose to rebuild believed they were the subject of unprecedented market forces but were in fact, also the subject of profiteers.³⁵ There are also many hidden costs that impact heavily on those who have limited experience with rebuilding.
- 7.27 Businesses also found that their insurance did not cover everything. An example relates to Kosciusko Thredbo Pty Ltd losing direct tangible revenues after the fires that were not covered in its insurance claim.³⁶ Further, the cost of goods and services provided free of charge by the company to those involved in the response and recovery and the loss of five developments (resulting from the bushfires) were not covered by its insurance policy.³⁷
- 7.28 In the aftermath of fire disasters, it is not uncommon for the disaster recovery taskforces to assist policy holders resolve disputes with their insurance companies.³⁸ Alternatively, claims disputes can be reviewed internally by the insurance companies and failing this, matters of dispute can be referred to the IEC. After the Canberra fire storm, the

32 Mark Douglas, *Transcript of Evidence*, 15 July 2003, p. 62.

33 Mark Douglas, *Transcript of Evidence*, 15 July 2003, p. 62.

34 Peter Lawler, *Transcript of Evidence*, 15 July 2003, p. 4.

35 William Rooney, *Transcript of Evidence*, 22 August 2003, p. 4.

36 Kim Clifford, *Transcript of Evidence*, 10 July 2003, p. 82.

37 Kim Clifford, *Transcript of Evidence*, 10 July 2003, p. 82.

38 ACT Bushfire Recovery Taskforce: *Insurance: Lessons Learnt from the January Bushfires*, p. 1, available at http://www.bushfirerecovery.act.gov.au/word/Insurance_article@30April2003.doc.

Bushfire Recovery Taskforce is claimed to have expressed concern about its role in handling the full array of insurance disputes.³⁹ Claims that were trivial in nature (such as shrunk curtains from an insurance claim for dry cleaning) diverted attention and resources from assisting people who had suffered total loss.⁴⁰ It has been suggested that in future, insurance disputes be prioritised with those of a trivial nature being referred to the insurance company in question.⁴¹

To insure or not to insure

- 7.29 A prevalent theme during the recent bushfires is under-insurance and non-insurance. Following the 2003 firestorm in the Australian Capital Territory, under-insurance was estimated to be at 40 per cent for replacement of house structures and between 30 and 50 per cent for replacement of contents.⁴² Further, up to one in four households in Australia carry no insurance.⁴³ Under-insurance and non-insurance are most prevalent in the lower socioeconomic groups, particularly among tenants.⁴⁴ This situation places economic strain on governments providing cash grants to victims of which are generated from public and public contributions to relief funds.
- 7.30 High premiums and taxing on insurance are said to be key contributing factors to the high level of non-insured households. The Committee has heard that the high cost of insurance has necessitated property owners to justify whether the risk of loss outweighs the expense of insurance.⁴⁵ An example of the cost was provided by a property owner in Wulgulmerang who lost everything in the 2003 fires. She claimed that the insurance premium for her property was \$2880, plus a Fire Levy of \$347 and Stamp Duty of \$355 – totalling over \$3500.⁴⁶ Fortunately she had justified this expense, however, it is one that some property owners can only partially

39 Insurance Australia Group Ltd, *Submission no. 339*, p. 6.

40 Insurance Australia Group Ltd, *Submission no. 339*, p. 6.

41 Insurance Australia Group Ltd, *Submission no. 339*, p. 6.

42 Insurance Council of Australia, *Submission no. 311*, p. 6.

43 Insurance Council of Australia, *Submission no. 311*, p. 6.

44 Alan Mason, *Transcript of Evidence*, 22 August 2003, p. 15.

45 Peter Webb, *Transcript of Evidence*, 14 July 2003, p. 9 and Stephen Angus, *Transcript of Evidence*, 15 July 2003, p. 84.

46 Heather Livingstone, *Transcript of Evidence*, 29 July 2003, p. 48.

afford⁴⁷ (and even then, it may cost around \$20,000 per year).⁴⁸ For others, property insurance is a financial impediment and is consequentially, unaffordable.⁴⁹

7.31 'You can lead a horse to water but you can't make it drink.'⁵⁰ According to the ICA, the bottom line regarding protecting property is about personal prioritising.⁵¹ An example relates to the cost of insuring a pay by the month policy on a \$300,000 home in the Canberra suburb of Duffy being about as little as a carton of beer.⁵² The ICA believes that individuals need to take responsibility for insuring their home and contents, despite the high cost.

7.32 The Committee has received evidence that ill-education⁵³ coupled with a 'won't happen to me' mentality⁵⁴ – particularly among those living in urban areas where the threat of bushfires is not seen as high – may also be attributed to the lack of insurance. This situation has frustrated parts of the community as Mr David Melville, from the Manyana District Citizens Association, succinctly said

Another item that gets up my nostrils is insurance.⁵⁵

To overcome this, it has been suggested that community education be undertaken and the concept of implementing compulsory insurance be investigated.

7.33 Numerous initiatives aimed at encouraging people to insure their home and contents – most of which are aimed at reducing its cost – have been suggested to the Committee. Many of these initiatives are outlined below.

- Abolishing the Fire Levy imposed on insurance premiums (and incorporating it into council rates).⁵⁶ Aside from the direct savings, this would also eliminate the costs (to the insurance companies)

47 Anne Strang, *Transcript of Evidence*, 28 July 2003, pp. 21–22.

48 Colin Nicholl, *Transcript of Evidence*, 6 August 2003, p. 94.

49 John Scales, *Transcript of Evidence*, 25 July 2003, p. 41 and Maurie Smith, *Submission no. 58*, p. 3.

50 William Rooney, *Transcript of Evidence*, 22 August 2003, p. 6.

51 William Rooney, *Transcript of Evidence*, 22 August 2003, p. 6.

52 William Rooney, *Transcript of Evidence*, 22 August 2003, p. 6.

53 Jim Clark, *Submission no. 363*, p. 2.

54 Graeme Adams, *Transcript of Evidence*, 22 August 2003, p. 6 and David Melville, *Transcript of Evidence*, 8 July 2003, p. 26.

55 David Melville, *Transcript of Evidence*, 8 July 2003, p. 26.

56 Insurance Council of Australia, *Submission no. 311*, p. 8.

associated with administering this tax, thereby facilitating a possible reduction in premiums.⁵⁷

- Calculating the cost of each type of insurance tax (that is, Fire Levy, GST and Stamp Duty) based on the amount of the premium only.⁵⁸ This would eliminate the cascading effect of the taxes, thereby, reducing the total cost of insurance.
- Introducing a rebate scheme similar to that offered to those who have private health insurance.⁵⁹
- Introducing tax deductibility of insurance premiums for home and contents insurance for principal places of residence.⁶⁰
- Increasing the excess on the insurance policy to discourage small claims, thereby, facilitating a reduction in the premium.⁶¹
- Exempting registered fire fighting volunteers from paying the Fire Levy on insurance,⁶² whether it be through insurance premiums or council rates. This is discussed in more detail in chapter 6.
- Reducing premiums according to the level of risk reduction performed in and surrounding the homes of policy holders.⁶³

The Committee's conclusions

- 7.34 The structure and operation of the Australian insurance industry facilitates collective and centralised coordination of disaster management, which the Committee believes is the right approach. The high levels of under- and non-insured are not attributed to the structure and operation of the industry, but rather, the high cost and lack of consumer awareness.
- 7.35 Although there are many factors contributing to the high cost of insurance, the Committee believes that taxing on premiums is an

⁵⁷ Graeme Adams, *Transcript of Evidence*, 22 August 2003, p. 7.

⁵⁸ Insurance Council of Australia, *Submission no. 311*, p. 8.

⁵⁹ Insurance Council of Australia, *Submission no. 311*, p. 9.

⁶⁰ Insurance Council of Australia, *Submission no. 311*, p. 9.

⁶¹ William Mason, *Transcript of Evidence*, 22 August 2003, p. 21.

⁶² Graham Fellows, *Transcript of Evidence*, 5 August 2003, p. 49.

⁶³ Graeme Adams, *Transcript of Evidence*, 22 August 2003, p. 5.

impediment to its affordability. The numbers, levels and calculation of taxes requires review.

Recommendation 42

- 7.36 The Committee strongly recommends that the New South Wales, Victorian and Tasmanian Governments abolish the Fire Levy tax they impose on home and business insurance premiums (wherever applicable), making it payable through household rates instead.**

Any cost savings gained by the insurance industry through relief from collecting Fire Levies should be passed on to policyholders through reduced premiums. At the same time the Committee urges the Insurance Council of Australia to run ongoing education campaigns to increase public awareness on bushfire preparedness, including the need for insurance.

- 7.37 The cost savings to policyholders flowing from abolishing Fire Levy tax as proposed in the preceding recommendation should not be offset by a subsequent increase in the amount of Stamp Duty tax paid on insurance premiums.**

Recommendation 43

- 7.38 The Committee recommends that taxes on insurance premiums be calculated only on the premium in order to eliminate the current cascading cost.**

Recommendation 44

- 7.39 The Committee suggests that registered volunteer fire fighters be exempt from paying Fire Levy tax to help offset some of the expense they incur during active duty. The exemption could be for a period of 12 months following each bushfire season in which they are proven to have fought fires.**

- 7.40 Lack of consumer awareness has impacted upon the level of under- and non-insured households. The recent bushfires highlighted an apparent unawareness of both the need for insuring assets and the extent to which it is required.

Recommendation 45

- 7.41 **The Committee recommends that the Insurance Council of Australia coordinates a public education campaign aimed at illustrating the importance of asset protection and how this can be achieved (that is, insurance products).**

Recommendation 46

- 7.42 **The Committee recommends that insurance companies ensure that potential and existing policyholders are aware of the need to regularly review their insurance policies to prevent undervaluing. This could be done through renewal notices and quarterly reminders. This should include a list of bushfire risk reduction measures that policyholders can implement to decrease the cost of their premium.**

Individual preparedness

- 7.43 With about 80 per cent of the Australian population residing in urban and semi rural areas, the potential for loss and damage to life and property are high.⁶⁴ This highlights the need not only for adequate insurance, but individual preparedness on the home front.
- 7.44 There is no single strategy that individuals can adopt to reduce the risk of loss and damage to life and property resulting from the embers, radiant heat and direct flames of bushfires.⁶⁵ However, individuals can use a combination of the available preparedness measures appropriate to their physical and financial capacity, value systems and level of risk.

⁶⁴ Peter Bentley, *Submission no. 143*, p. 2.

⁶⁵ CSIRO, *Submission no. 434*, p. 65.

- 7.45 The Committee received evidence that houses can survive the initial impact of the fire front yet may later ignite because of a subsequent ember shower⁶⁶ and this was experienced by a resident of the Canberra suburb of Duffy.

I would tend to agree with that. The house next door to us, No. 94, did not start to burn until sometime after the initial fire front went through. I believe that was caused by embers in their gutters and also the fact that none of the gas was turned off.⁶⁷

Alternatively, an ember shower may arrive well before the bushfire front. The ways in which embers and flying burning debris ignite buildings include the following.⁶⁸

- Combine with combustible materials at or near ground level.
- Lodge in gaps in and around combustible materials used in building structures.
- Gain entry to the interior of buildings, igniting combustible materials.

Building maintenance

- 7.46 'Good management, not miracles, saves property and people.'⁶⁹ It is possible to reduce the impact of embers (and direct flame) by minimising the amount of combustible materials on a property and by returning to it after the initial fire front has passed to extinguish ignitions.⁷⁰ Some of the ways of reducing the fuel load on a property are listed in Table 7.4 (below).

⁶⁶ CSIRO, *Submission no. 434*, p. 66.

⁶⁷ Paul Garrett, *Transcript of Evidence*, 15 July 2003, p. 53.

⁶⁸ CSIRO, *Submission no. 434*, p. 66.

⁶⁹ Joan Webster, *Essential Bushfire Safety Tips*, 2001, p. 20.

⁷⁰ Joan Webster, *Essential Bushfire Safety Tips*, 2001, p. 20.

Table 7.4 Individual preparedness – building maintenance

Area	Preparedness measures
Building surrounds	<ul style="list-style-type: none"> ▪ Removing, thinning and pruning vegetation, particularly if highly flammable and within close proximity to building structures. ▪ Removing hazardous material such as timber, clippings, dead leaves, twigs and rubbish. ▪ Stripping and disposing of loose bark on trees. ▪ Maintaining lawns and raking grounds. ▪ Maintaining timber fences (ie, replacing rotted crossbeams, staining and securing loose posts). ▪ Ensuring access points are not obstructed including those to hoses. ▪ Clearing powerlines. ▪ Storing gas tanks, bottles and other combustible substances at a distance from the expected fire path and main building and covering in metal mesh. ▪ Storing firewood in metal or brick boxes. ▪ Ensuring water reserve tanks are full and hoses are in working order.
Building	<ul style="list-style-type: none"> ▪ Clearing gutters, under the house and in the ceiling. ▪ Closing doors and windows and sealing any crevices. ▪ Cleaning chimney. ▪ Maintaining paint work on timber. ▪ Replacing rotten boards and loose roof tiles. ▪ Positioning furnishings a good distance from windows and doors. ▪ Purchasing commercial products such as fire blankets and chemical technology.

Source *Better Living DCP for Single Dwellings and Subdivision Developments, C4.1: Bushfire, pp. 1–8; CSIRO, Submission 434, pp. 65–66, and Joan Webster, Essential bushfire safety tips, 2001, chapters 13 and 19.*

Building design

7.47 Further to building maintenance, building design has an important affect on a property withstanding the impact of a bushfire.⁷¹ Below (see Table 7.5) are some of the ways in which building design can help protect life and property in the event of a bushfire.

Table 7.5 Individual preparedness – building design

Item	Design
Windbreaks	<ul style="list-style-type: none"> ▪ Incorporating a series of windbreaks into the design of the building to reduce the speed at which fires travel including planting low combustible trees around buildings (that would also capture embers) and positioning non-combustible outbuildings on the likely fire front side of the main building.
Radiant heat barriers	<ul style="list-style-type: none"> ▪ Installing non-combustible radiant heat barriers (ie, masonry walls, steel panel fences, earth mounds, dense non-combustible trees, etc) between the building and likely direction of hazards.
Vegetation	<ul style="list-style-type: none"> ▪ Providing appropriate vegetation barriers using fire resistant species.
Building construction	<ul style="list-style-type: none"> ▪ Using simple designs throughout (to limit crevices) with non-combustible materials and easy access points. ▪ Erecting low walls to avoid wind turbulence. ▪ Constructing and enclosing decks, trellises and other decorative structures with non-combustible materials. ▪ Sanding and painting or staining external timber structures and surfaces. ▪ Installing leaf guards on gutters or rather than gutters, installing surface drain collectors at ground level. ▪ Using downpipes of a minimum of 100mm x 75mm. ▪ Using solid core timber external doors with metal framed wire security doors. ▪ Installing draught seals on external doors and screening vents and other openings. ▪ Glazing glass to enhance protection against radiant heat cracking. ▪ Installing wire mesh or close-fitting metal shutters on all opening windows to reduce the levels of radiant heat impacting in the glazing, prevent ember entry and contain broken glass. ▪ Erecting colour bond or masonry fences.
Access and egress	<ul style="list-style-type: none"> ▪ Positioning and, where appropriate, signposting gates to allow efficient access and egress for fire fighting personnel and evacuees.
Water	<ul style="list-style-type: none"> ▪ Installing exterior sprinkler systems, hoses sufficient in length to reach all ends of the building and a static water supply of around 10 000 litres (ie, pool, dam or tank).

Source Blue Mountains City Council, *Better Living DCP for Single Dwellings and Subdivision Developments, C4.1: Bushfire*, pp. 1–8; CSIRO, *Submission 434*, pp. 66–69 and Joan Webster, *Essential bushfire safety tips*, 2001, chapters 10, 12, 16, 17 and 19.

71 Joan Webster, *Essential Bushfire Safety Tips*, 2001, p. 67.

Planning and building codes

- 7.48 Despite the existence of national building standards endorsed by state and territory governments, the Committee has received evidence that:

Houses in bushfire prone areas are often not located, constructed, or maintained to minimise the risk of their ignitions when there are bushfires in the surrounding bushland.⁷²

- 7.49 The Australian Building Codes Board (ABCB) is comprised of representatives of all levels of Australian government and the building industry. Its mission is:

To achieve community expectations of safety, health and amenity in the design, construction and use of buildings through nationally consistent, efficient and cost effective technical building requirements and regulatory systems.⁷³

- 7.50 The Building Code of Australia (BCA) contains technical provisions for acceptable building design and construction throughout Australia and is produced and maintained by the ABCB.⁷⁴ The BCA incorporates Australian Standards (AS) that detail how its provisions can be implemented. For example, BCA Part G5 and Part 3.7.4 (respectively containing provisions on commercial and housing construction in bushfire prone areas) both incorporate AS3959–1999: Construction of Buildings in Bushfire Prone Areas.

- 7.51 The key feature of AS3959–1999 is methodology for bushfire hazard assessment resulting in four categories of risk (low, medium, high and extreme) with four corresponding construction levels (n/a, Level 1, Level 2 and Level 3).⁷⁵ Anything exceeding 'extreme' is beyond the scope of this standard but may be the subject of performance-based design (that is, an alternative approach that still meets the performance requirements of the BCA). The AS3959–1999 is currently under review but will not be completed for 2003 publication.

72 CSIRO, *Submission no. 434*, p. 71.

73 Australian Building Codes Board, <http://www.abcb.gov.au/content/codes/>, viewed 8 September 2003.

74 Australian Building Codes Board, <http://www.abcb.gov.au/content/codes/>, viewed 8 September 2003.

75 CSIRO, *The Adequacy of the Australian Standards AS3959–1999 Construction of Buildings in Bushfire-Prone Areas*, n.d., p. 2.

- 7.52 Interestingly, evidence presented to the Committee states that the ‘extreme’ category is only contained in the draft proposed version of AS3959–1999 of which, if implemented, will be outside the scope of the Standard’s authority.⁷⁶ This highlights inconsistencies with the interpretation (and possibly application) of AS3959–1999.
- 7.53 These inconsistencies may be attributed to the way AS3959–1999 is presented as the Committee has been informed that some practitioners have difficulty using the classification methodology because of poor illustrations and inclusion of extraneous material in some parts.⁷⁷ Likewise, the effectiveness of the performance-based design approach has been questioned because of inconsistent interpretations on what building designs comply with relevant performance requirements.⁷⁸ From the evidence received by the Committee, it is apparent that there is great confusion about the current building codes.
- 7.54 Another feature of AS3959–1999 is prescribed minimum separation distances between new developments and native bushland in ‘bushfire prone’ areas based on expected radiant heat levels according to the vegetation type and slope.⁷⁹ A concern with the application of this is that in some circumstances, the expected radiant heat level could still exceed required design standards (where only the minimum separation distance has been adopted).⁸⁰ For example, buildings constructed to higher standards can lawfully be sited closer to native bushland which inevitably increases exposure of people and property to radiation and heat.⁸¹ Further, AS3959–1999 does not prescribe minimum separation distances between houses to reduce the risk of house-to-house spread of fire.⁸²

76 National Association of Forest Industries, *Submission no. 420*, p. 25.

77 Fire Protection Association Australia, *Submission no. 382*, p. 7.

78 John Briginshaw, *Transcript of Evidence*, 1 August 2003, p. 23.

79 CSIRO, *The Adequacy of the Australian Standards AS3959–1999 Construction of Buildings in Bushfire-Prone Areas*, n.d., p. 3.

80 CSIRO, *The Adequacy of the Australian Standards AS3959–1999 Construction of Buildings in Bushfire-Prone Areas*, n.d., pp. 2–3.

81 CSIRO, *The Adequacy of the Australian Standards AS3959–1999 Construction of Buildings in Bushfire-Prone Areas*, n.d., p. 3.

82 CSIRO, *The Adequacy of the Australian Standards AS3959–1999 Construction of Buildings in Bushfire-Prone Areas*, n.d., p. 3.

- 7.55 The BCA enables building regulatory legislation in each state and territory – fulfilling technical requirements that have to be satisfied for approval of building proposals.⁸³ Compliance to these laws is interpreted and administered by the building and development authorities in each state and territory⁸⁴ therefore, there are no consistent processes for ensuring that the system is effective. Further, although the BCAs pertaining to construction in bushfire prone areas are enforceable under the various building regulatory legislation, this is **only where the states and territories have declared an area as bushfire prone**. This indicates that, with the changing nature of the urban-rural interface, constant reviewing of land is required to ensure that bushfire prone areas are accurately identified and appropriately developed and managed.
- 7.56 The Committee has received evidence that some authorities/councils have been imprudent in their land planning by approving urban development in bushfire prone areas.⁸⁵ An example relates to reticulated development, particularly on ridgetops to which fire travels rapidly.⁸⁶ Such dispersed development reduces the size of reserves and makes fuel reduction and access difficult, thereby, increasing the risk to life and property. The majority of this high fire damage risk development approval was made prior to the introduction of current risk assessment techniques, building standards and native vegetation retention policies. Hard edge interface between urban development and bushland is preferred⁸⁷ because it enables prominent separation distance, thereby, facilitating better protection.
- 7.57 The BMCC claims to have taken a constructive approach through implementing a development control plan to provide for the bushfire prone environment in which it exists.⁸⁸ This plan, *Building in Bushfire Prone Areas*, is designed for single residential developments, prescribing pre-development bushfire assessments in bushfire prone areas and detailing the building and landscaping standards based on

83 CSIRO, *The Adequacy of the Australian Standards AS3959–1999 Construction of Buildings in Bushfire-Prone Areas*, n.d., p. 3.

84 CSIRO, *The Adequacy of the Australian Standards AS3959–1999 Construction of Buildings in Bushfire-Prone Areas*, n.d., p. 3.

85 Rob Whelan, *Submission no. 351*, p. 6.

86 Rob Whelan, *Submission no. 351*, p. 6.

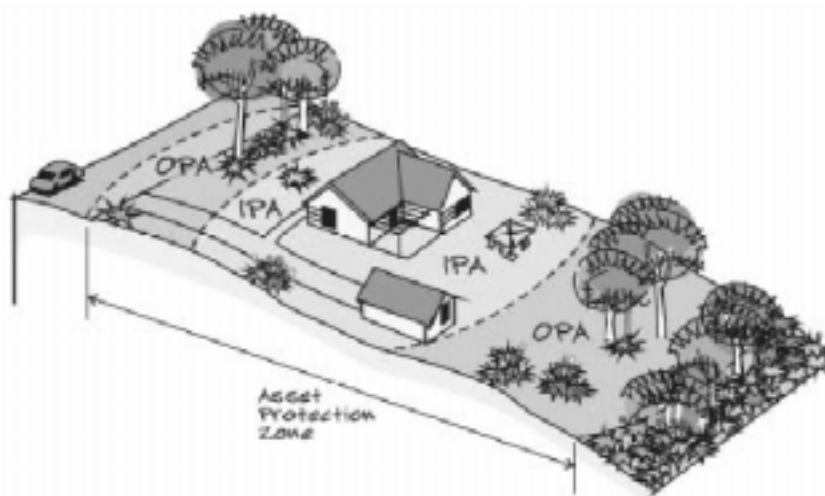
87 Ken Taylor, *Transcript of Evidence*, 14 July 2003, p. 42.

88 Blue Mountains City Council, *Submission no. 329*, p. 4.

various guidelines including the BCA and AS3959–1999.⁸⁹ The Council claims that every residential property built in adherence to these codes has withstood the impact of bushfires in the area.⁹⁰

- 7.58 As required under recent amendments to the *NSW Rural Fires Act 1997*, the BMCC has continued with its asset protection zone inspections to new and existing properties located in bushfire prone areas.⁹¹ As discussed in chapter 2, the concept of asset protection zones is to reduce radiant heat or flame contact through hazard reduction, while providing areas where burning debris can fall without great risk of creating further outbreaks. This is illustrated on a property in Figure 7.2 below (where IPA is an Inner Protection Area and OPA is an Outer Protection Area).

Figure 7.2 Asset Protection Zoning



Source Blue Mountains City Council, *Better Living DCP for Single Dwellings and Subdivision Developments*, C4.1: *Bushfire*, p. 4.

- 7.59 It has been put to the Committee that lack of compliance, not lack of codes, is the underlying issue in the area of land planning and building.⁹² Failure to comply with the asset protection zone requirements results in the Council issuing a 'section 66 notice' whereby, upon a second inspection 30 days later, non-compliance ramifications of a \$500 fine and final warning are issued.⁹³ If this final warning is not acted upon, the Council contracts the required work at

89 Blue Mountains City Council, *Building in Bushfire Prone Areas*, n.d., p. 5.

90 Blue Mountains City Council, *Submission no. 329*, p. 4.

91 Frank Garofalow, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 2.

92 Saturn Corporate Resources Pty Ltd, *Submission no. 171*, p. 1.

93 Christopher West, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 3.

the expense of the property owner.⁹⁴ The principals of this system have been adopted in various States throughout Australia but the Committee was told in Manjimup that it can be ‘an administrative nightmare and it is very expensive.’⁹⁵ Perhaps this accounts for the apparent reluctance of some local governments declaring bushfire prone areas.⁹⁶

- 7.60 It has been suggested that a scheme be implemented to assist low-income residents in meeting the asset protection zone requirements as they can not afford to upgrade their existing properties to make them more resistant to bushfires.⁹⁷ Further, the expense of building new properties in the area in conformity with the development control plan (DCP) has deterred many land owners (such as retirees) from building on their land⁹⁸ – compliance can add up to \$30,000 to the cost of building a new home.⁹⁹ Additionally, if DCP compliance for a development proposal is impractical, landowners are prevented from building.¹⁰⁰ In this instance compensation from councils to landowners may be appropriate.
- 7.61 Although the planning powers of some councils apply to new and existing development, others only apply to the former – yet tree clearing is classified as a form of development.¹⁰¹ Failure to address current compliance may stem from AS3959–1999 requiring that the classification system only be applied during the approval and construction stages of building, thereby, not considering the possibility that the category of risk may change over time.¹⁰² The absence of planning powers covering *existing* properties coupled with landowners’ inability to freely remove hazardous trees has resulted in properties being ill-prepared for bushfire attacks.

94 Christopher West, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 3.

95 Thomas Muir, *Transcript of Evidence*, 5 August 2003, p. 15.

96 Mark Gribble, *Submission no. 345*, p. 4.

97 Hugh Paterson, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 21.

98 Kevin Browne, *Transcript of Evidence*, 9 July 2003 (Katoomba), p. 37.

99 National Association of Forest Industries, *Submission no. 420*, p. 25.

100 Christopher Brogan, *Transcript of Evidence*, 9 July 2003 (Katoomba), pp. 4–5 and NSW National Party, *Submission no. 405*, p. 6.

101 Ian Mott, *Planning for Disaster. Regulations Precluding Reasonable Precautions*, p. 2, available at <http://www.ipa.org.au/pubs/special/bushfires/mott.pdf>, and Helen Ferns, *Submission no. 328*, p. 8.

102 Forest Industries Association of Tasmania, *Submission no. 258*, p. 3.

- 7.62 It has also been suggested to the Committee that a Commonwealth and State Government national strategy be devised to handle issues pertaining to urban planning, building design and construction, maintenance, education and enforcement.¹⁰³ This strategy should be devised taking a holistic approach with the expertise from the areas of forestry, building, science, engineering and urban planning and implemented at a federal level.

Fight or flight?

- 7.63 Insurance and building maintenance and design will certainly mitigate the risk of loss and damage to life and property in the event of a bushfire. However, these need to be combined with an appropriate individual active defence because ultimately, this will have the greatest impact on the amount of loss or damage incurred.
- 7.64 The Committee received evidence that initial community based attack is an important first line of defence that can provide a successful outcome.¹⁰⁴

It is the job of communities to protect their own properties. It is the job of the fire service to prevent the spread of the fire front. It is mathematically and morally wrong to expect a fire unit for every threatened house.¹⁰⁵

- 7.65 The CSIRO claims that according to its research, no attended houses have been lost where people endeavoured to extinguish spot fires and embers and that unattended houses are commonly lost.¹⁰⁶ Statistics reveal that 80 to 90 per cent of attended houses are saved and 99.9 per cent are saved where householders employ proven effective defence techniques.¹⁰⁷

The occupant of No. 96 told his wife and son to leave and he stayed. He saved his house. Mr Douglas and his son, Simon, who were on the other side of our house, saved their house as well and possibly saved some of our house because the wooden fence dividing our houses was very close.¹⁰⁸

103 Terry Edwards, *Transcript of Evidence*, 1 August 2003, p. 33.

104 David Packham, *Submission no. 395*, p. 4.

105 Joan Webster, *Submission no. 89*, n.p.

106 Tim Vercoe, *Transcript of Evidence*, 14 July 2003, p. 76.

107 Joan Webster, *Essential Bushfire Safety Tips*, 2001, pp. 22–22.

108 Paul Garrett, *Transcript of Evidence*, 15 July 2003, p. 54.

7.66 In contrast though, one Canberran witness believed that attempts to save his property from the ember showers would have been futile.¹⁰⁹ This is however, considering other factors such as the severity of the ember shower, his age, failing water pressure, inadequate equipment and official calls to evacuate.¹¹⁰

7.67 Further, in the event of a bushfire, the chance of *survival* is greater for those who attend their house¹¹¹ because evacuation, particularly last minute, bears greater risk to life than remaining in the home.¹¹² This is supported by the AFAC.

Research into Australian bushfire fatalities shows that last minute evacuations from bushfires contributed to the majority of deaths. Late evacuation is inherently dangerous and can cause greater risks than remaining in the fire area.¹¹³

As indicated above though, it must be recognised that the decision to ‘fight or flight’ depends on the circumstances of the situation – the benefits of staying must be weighed against the risks, also considering the advice of emergency services.¹¹⁴ For example, there is less risk to an able person whose house is well prepared than to an impaired person with limited defence capabilities but sufficient time and means to evacuate to a designated community refuge.

7.68 As unattendance can lead to a loss of property, it has been suggested to the Committee that the Victorian approach to evacuation be adopted nationally.¹¹⁵ This involves the prevention of forced evacuation of a person from any land or building if they have pecuniary interests in it.

109 Peter Lawler, *Transcript of Evidence*, 15 July 2003, p. 2.

110 Peter Lawler, *Transcript of Evidence*, 15 July 2003, p. 2.

111 Joan Webster, *Essential Bushfire Safety Tips*, 2001, p. 22.

112 Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 188.

113 Australasian Fire Authorities Council, *Position paper on community safety and evacuation during bushfires*, AFAC Limited, 2001, p. 2.

114 CSIRO, *Submission no. 434*, p. 65.

115 Institute of Foresters Australia, *Submission no. 295*, pp. 3-4.

- 7.69 The AFAC agrees with the basis of this suggestion. It believes that authority to evacuate should reside with the lead fire combat authority and that, where legislation enables forced evacuation, an exclusion protocol be developed by the relevant authorities preventing forced evacuation where there is pecuniary interest and where there is no imminent danger of death or serious injury.¹¹⁶
- 7.70 An emergency escape plan based on this system has been adopted in Tasmania that also allows for residents in an area to be put into fire groups to deal with emergency matters such as defence strategies and evacuation.¹¹⁷ The success of this is largely dependent on having people with like minds who can work together before, during and after a bushfire.

Community awareness

Recent Australian bushfires have clearly and tragically demonstrated that Australians still, by greater percentage, remain poorly educated and ill informed as to how to prepare for and deal with a bush fire attack. The result has been horrific loss of property and lives.¹¹⁸

- 7.71 In contrast, the VNPA believes that the relatively low loss of houses during the fire season in Victoria can perhaps be attributed to the success of the bushfire protection mechanisms implemented in that State including public preparedness programs.¹¹⁹
- 7.72 The issues discussed in this chapter need to be understood by all sectors of the community to reduce the impact of bushfires. It has been suggested that a high profile, proactive and continual national education program be undertaken¹²⁰ to ensure that current bushfire preparedness information is effectively relayed to a wide audience.

116 Australasian Fire Authorities Council, *Position paper on community safety and evacuation during bushfires*, AFAC Limited, 2001, pp. 4–5.

117 Brian Smith, *Transcript of Evidence*, 1 August 2003, p. 24.

118 Cease-fire Technologies Pty Ltd, *Submission no. 413*, p. 1.

119 Victorian National Parks Association, *Submission no. 176*, p. 21.

120 Victorian National Parks Association, *Submission no. 176*, p. 21.

7.73 A number of councils publish and distribute guidelines but it is unknown whether these reach all residents in bushfire prone areas¹²¹ and are read, understood and executed. The January 2003 bushfires in Canberra illustrated that even people who do not live in declared bushfire prone areas need to be aware of the need for insurance, building maintenance and design and defence strategies, again, highlighting the need for a national education program. Features of a national campaign could include the following:

- Introducing bushfire skills training to schools and libraries.¹²²
- Training various categories of emergency services personnel on their specific role in the event of a bushfire.¹²³
- Ensuring that those in the fields of building, engineering, urban planning,¹²⁴ forestry and science have a clear understanding of bushfire risk management including current related regulatory codes and legislation.
- Running adult education courses on protective planning¹²⁵ (including insurance, building design and maintenance and defence techniques) in the context of bushfires.
- Broadcasting protective planning issues through the media, television,¹²⁶ Internet, radio and publications.
- Structuring the community into groups and providing them with guidelines for launching an initial attack on a bushfire.¹²⁷
- Enclosing brochures about bushfire protection with rates notices.¹²⁸
- Counselling prospective land developers in bushfire prone areas on the risks and necessary protective planning.¹²⁹

121 Engineers Australia, *Submission no. 401*, p. 2.

122 JH Wickett, *Submission no. 341*, p. 5.

123 JH Wickett, *Submission no. 341*, p. 5.

124 ICS Group, *Submission no. 202*, p. 7.

125 JH Wickett, *Submission no. 341*, p. 5.

126 JH Wickett, *Submission no. 341*, p. 6.

127 ICS Group, *Submission no. 202*, p. 6.

128 Cooma District Council of the NSW Farmers Association, *Submission no. 353*, p. 3.

129 Peter Smith, *Submission no. 378*, p. 8.

- Having a Bushfire Awareness and Preparedness Day (similar to Clean Up Australia Day) where the community is encouraged to undertake risk reduction with local governments coordinating the disposal of hazardous material.¹³⁰

Property protection products and programs

- 7.74 The Committee has received submissions promoting the use of property protection products and packages for private and commercial use including the following.
- Barricade Fire Protection Pty Ltd's fire suppression chemical technology, designed to act as a protective coating (to surfaces to which it is applied) against the impact of flames and radiant heat.¹³¹
 - Firebloka's external sprinkler systems.¹³²
 - Cease-Fire Technologies' Australian Bushfire Home Protection Information Program Awareness Pack.¹³³
 - Environmental Hazard Management F-500.¹³⁴
- 7.75 Although the Committee has been made aware of these products and program, it is not in a position to evaluate and make recommendations – rather, this is an avenue of research that the Bushfire Cooperative research Centre should undertake.

The Committee's conclusions

- 7.76 Although there is no 'one size fits all' strategy to bushfire risk reduction, there is a range of building maintenance and design measures that can be taken to reduce the likelihood of damage suffered through ember showers, radiant heat and direct flame. However, it appears that appropriate building maintenance is not widely performed and that despite the existence of national building standards, buildings are nevertheless, not located and constructed to minimise the risks associated with bushfires. It also appears that the

130 East Gippsland Shire Council, *Submission no. 387*, p. 15.

131 Patrick Harrington, *Transcript of Evidence*, 30 July 2003, pp. 66–67.

132 Firebloka, *Submission no. 2*, p. 5.

133 Email from Cease-Fire Technologies to Ian Dundas, 22 September 2003.

134 Environmental Hazard Management, *F-500 CD-Rom*.

community as a whole is not aware of the ways in which it can contribute to minimising the loss of lives and properties in the event of a bushfire.

- 7.77 The Committee believes that the lack of building maintenance can be attributed to regulations that focus specifically on construction and only in bushfire prone areas. From analysing the evidence, the Committee is of the opinion that imprudent planning and building design is attributed to inconsistencies in the interpretation and application of the BCA, specifically AS3959–1999: Construction of buildings in Bushfire Prone Areas.

Recommendation 47

- 7.78 **The Committee recommends that Standards Australia incorporate building maintenance into AS3959–1999: Construction of buildings in Bushfire Prone Areas, perhaps renaming it as AS3959–1999: Construction and maintenance of buildings in Bushfire Prone Areas.**

Recommendation 48

- 7.79 **The Committee recommends that state and territory governments be required to regularly performs risk assessments to the land within their jurisdictions to ensure that bushfire prone areas are accurately identified and can be appropriately managed. This should include possibly prohibiting, or at least limiting, reticulated development in these areas. If building is effectively prohibited on land previously zoned for residential or commercial building, state and territory governments, in conjunction with local councils, should adequately compensate the affected landholders.**

Recommendation 49

- 7.80 **The Committee recommends that Standards Australia review the clarity of AS3959–1999: Construction of buildings in Bushfire Prone Areas to ensure that all relevant stakeholders can interpret and apply the Standard in the way it is intended.**

Recommendation 50

- 7.81 **The Committee recommends that Program D of the Commonwealth Bushfire Cooperative Research Centre examines the (pending) outcome of the ABCB's review of the existing Building Code of Australia bushfire provisions (including Standard AS3959–1999) to determine their adequacy and the ways in which compliance can be better managed. This should include extending its scope to cover existing buildings and those that are not in areas declared as bushfire prone, yet still on the urban-rural interface and therefore, potentially at risk.**
- 7.82 The Committee concludes that the recent Australian bushfires demonstrated a general lack of community awareness about the active role that it can play in reducing the severity of the impact of bushfires.

Recommendation 51

7.83 The Committee recommends that (under Programs C and E) the Bushfire Cooperative Research Centre considers the following items as part of a national education program.

- **Introducing bushfire skills training to schools and libraries.**
- **Training various categories of emergency services personnel on their specific role in the event of a bushfire.**
- **Ensuring that those in the fields of building, engineering, urban planning, forestry and science have a clear understanding of bushfire risk management including current related regulatory codes and legislation.**
- **Counselling prospective land developers in bushfire prone areas on the risks and necessary protective planning.**
- **Running adult education courses on protective planning (including insurance, building design and maintenance and defence techniques) in the context of bushfires.**
- **Broadcasting protective planning issues through the media, television, Internet, radio and publications.**
- **Structuring the community into groups and providing them with guidelines for launching an initial attack on a bushfire.**
- **Enclosing brochures about bushfire protection with rates notices.**
- **Having a Bushfire Awareness and Preparedness Day (similar to Clean Up Australia Day) where the community is encouraged to undertake risk reduction with local governments coordinating the disposal of hazardous material.**

Recommendation 52

7.84 The Committee recommends that the Australasian Fire Authorities Council's suggested evacuation protocol be adopted by all of the Australian States and Territories.

Recommendation 53

- 7.85 **The Committee recommends that the Commonwealth Bushfire Cooperative Research Centre’s research and recommend property protection products and programs under Program D.**

Liability

- 7.86 The evidence received by the Committee clearly illustrates the angst among many sectors of the community.

It is just not fair. If I caused a fire on my land and it was by my negligence or lack of foresight, I would be liable. But the state is not.¹³⁵

- 7.87 The issue of liability is complex and although the Committee does not seek to implicate anyone, it does seek to highlight the key issues based on the evidence it has received.

- 7.88 Unfortunately the Committee has not received evidence from the Victorian, New South Wales and Australian Capital Territory Governments. This has caused speculation, with at least one submitter believing that the Victorian Government fears liability for improperly managing public land and that it demonstrates its unwillingness to change existing policies.¹³⁶

- 7.89 According to the evidence, there has been an apparent shift of priorities concerning land management practices among some of the state and territory governments.¹³⁷ Protecting conservation values appears to be the underlying land management priority – but this has been at the expense of life and property.¹³⁸ The arguments for and against hazard reduction on public land are discussed in chapters 2 and 3 but the issue of one’s ‘duty of care’ warrants further discussion.

¹³⁵ Robert Richardson, *Transcript of Evidence*, 24 July 2003, p. 10.

¹³⁶ Out ‘n’ About, *Submission no. 390*, p. 2.

¹³⁷ Institute of Foresters of Australia, *Submission no. 295*, pp. 20-1.

¹³⁸ Institute of Foresters of Australia, *Submission no. 295*, pp. 20-1.

- 7.90 Private and public landholders have a duty of care to ensure that reasonable precautions are taken to protect their own assets and prevent any foreseeable detriment to their adjoining lands.¹³⁹ Currently, the issue of liability appears to be an impediment to this.

Compensation

- 7.91 The Committee has been informed that public landholders prosecute private landholders when fires (be it wildfires or escaped controlled burns) originating on private holdings cross onto public land.¹⁴⁰ Despite this, the reverse appears to be the exception rather than the norm.¹⁴¹ This situation has caused grief to many private landholders, particularly those who are under or not insured – the public liability of which, if fully insured, may not cover damage caused by privately performed controlled burns breaking containment lines.¹⁴²
- 7.92 The Committee has been told that
- We are convinced also that the Government should be responsible for compensation.¹⁴³
- similar to the South Australian Government, Telecom, power transmission companies and State Rail for causation of fires.¹⁴⁴ There is an apparent reluctance by private landholders to pursue litigation though, not only because of the costs at such an inopportune time but also in fear of subsequent repercussions.¹⁴⁵
- 7.93 Damage caused to private land by fire fighting operations is an issue that has been raised throughout the inquiry. An example relates to private landholders providing access (for fire fighters) to adjacent burning public land¹⁴⁶ where bulldozing buffer zones, demolishing fences and outbuildings, destroying roads and depleting water supplies occur without subsequent compensation.

139 Edward Stuckey, *Submission no. 70*, p. 3 and Ian Mott, *Planning for Disaster. Regulations Precluding Reasonable Precautions*, p. 3, available at <http://www.ipa.org.au/pubs/special/bushfires/mott.pdf>.

140 Access for All Inc, *Submission no. 104*, p. 7.

141 Access for All Inc, *Submission no. 104*, p. 7 and Philip Read, *Submission no. 76*, p. 5.

142 Alan Harris, *Submission no. 289*, p. 3.

143 Heather Livingstone, *Transcript of Evidence*, 29 July 2003, p. 49.

144 Peter Webb, *Submission no. 317*, p. 12.

145 Andrew Duncan, *Transcript of Evidence*, 6 August 2003, p. 93.

146 Access for All Inc, *Submission no. 104*, p. 7.

- 7.94 Further to this, a recurring theme during the inquiry was the issue of damage to privately owned fences through fire fighting operations, suppression activities or bushfires igniting on public land. ‘The issue of fencing has been the only thorn in everyone’s side’.¹⁴⁷ The Committee received reports that in Victoria, only boundary fences shared by the Government are compensated for and even then, it is partial with exclusions.¹⁴⁸ Internal fences are not covered in these circumstances¹⁴⁹ so unless one can afford to insure kilometres of fencing, there is no protection, making farmers face a replacement cost ranging from \$50 000 to \$450 000.¹⁵⁰
- 7.95 Overall, fencing is a risk borne by private landholders which ‘provides no imperative for public landholders to manage their side of the fence.’¹⁵¹ The interim report of the Esplin inquiry into the 2002–03 Victorian bushfires highlights the need for a clear and consistent fencing policy to eliminate the confusion about entitlements and anger regarding the current inequities.¹⁵²
- 7.96 The report recommends a review of the existing fencing policy for boundary and internal fences damaged as a result of fire. This should result in a revised policy, perhaps with public consultation and with consideration to the following.¹⁵³
- It is not a substitute for insurance.
 - It provides an imperative for appropriate land management.
 - It should be equitable, predictable and transferable between different areas and situations.

147 John Costello, *Transcript of Evidence*, 24 July 2003, p. 59.

148 Philip Reid, *Submission no. 76*, p. 5 and Robert Richardson, *Transcript of Evidence*, 24 July 2003, p. 10 and Indigo Shire Council, *Submission no. 285*, p. 5.

149 Philip Reid, *Submission no. 76*, p. 5.

150 John Costello, *Transcript of Evidence*, 24 July 2003, p. 37 and Anne Strang, *Transcript of Evidence*, 28 July 2003, p. 19.

151 Bruce Esplin, *Interim Report of the Inquiry into the 2002–2003 Victorian Bushfires*, August 2003, p. 11.

152 Bruce Esplin, *Interim Report of the Inquiry into the 2002–2003 Victorian Bushfires*, August 2003, p. 11.

153 Bruce Esplin, *Interim Report of the Inquiry into the 2002–2003 Victorian Bushfires*, August 2003, p. 11.

- 7.97 The report also recommends that the Victorian Government develops a consistent policy for the repair/replacement of private assets damaged or destroyed in authorised suppression activities. This includes fencing and water stores.¹⁵⁴
- 7.98 It has been suggested to the Committee that councils be held liable for loss and damage incurred to properties in bushfire prone areas if it can be established that development was imprudently approved (ie, reticulated development in bushfire prone areas).¹⁵⁵ Further, it has been suggested that councils be held liable for authorising the sale of land in bushfire prone areas that is subsequently identified as being inappropriate for development.¹⁵⁶ It must be remembered, however, that it is the responsibility of the individual to become aware of the risks associated with living in bushfire prone areas including the relevant building maintenance and design requirements.

Avoiding liability

- 7.99 Fear of liability is such that the New South Wales regulations require private landholders to perform the ignition for a controlled burn on their property, even if RFS personnel are present.¹⁵⁷ This is to protect the RFS from liability should the burn break containment lines¹⁵⁸ and has caused private landholders to ignite fires without using the expertise of RFS or discouraged them from performing hazard reduction burns. In either case, the chance of loss and damage to life and property is increased.
- 7.100 Likewise, this situation has caused grief for government agencies, with the VNPA expressing the State Government's position being 'damned if it burns and damned if it doesn't'.¹⁵⁹ It fears the legal consequences for both controlled burns on public land escaping to private land and increased fuel loads from failing to perform controlled burns.¹⁶⁰ It was said to the Committee that liability should not be imposed on public land managers for damage to adjacent private land if the legislative requirements for the management of that

154 Bruce Esplin, *Interim Report of the Inquiry into the 2002–2003 Victorian Bushfires*, August 2003, p. 12.

155 Helen Ferns, *Submission no. 328*, p. 9.

156 Helen Ferns, *Submission no. 328*, p. 9.

157 Alan Harris, *Submission no. 289*, p. 3.

158 Alan Harris, *Submission no. 289*, p. 3.

159 Victorian National Parks Association, *Submission no. 176*, p. 8.

160 Victorian National Parks Association, *Submission no. 176*, p. 8.

land have been met.¹⁶¹ This is despite public land management 'preservation' policies being a significant contributor to the neglect of hazard reduction¹⁶² and therefore, damage caused to its adjoining private land – indicating that these policies require review.

- 7.101 Sadly, liability implications encourage spontaneous fires of an 'unknown origin'¹⁶³ potentially causing more damage than those performed with expertise of fire fighting personnel under a well designed hazard reduction program.
- 7.102 In Victoria, rural industries are required to form fire brigades with company directors assuming liability for all incidents involving fire crews, even when operating under the direction of the CFA.¹⁶⁴ Such incidents increase workers' compensation premiums making insurance unaffordable.¹⁶⁵ They also discourage some companies from engaging in fire suppression activities because 'There is a fine line between safety [liability] and getting water on fire.'¹⁶⁶ but, depending on the nature of the business, others are forced to accept the risk¹⁶⁷ (often to their detriment).
- 7.103 It has been said that supervisors responsible (under New South Wales occupational health and safety laws) for the safety of fire fighters have tried to protect themselves against litigation by developing broad policies¹⁶⁸ however, this is difficult when fighting an 'unpredictable enemy'¹⁶⁹ because 'what may be fair and reasonable policy in one situation may be downright dangerous in another'.¹⁷⁰ For example, the RFS occupational health and safety policy requires a minimum of two officers on board a fire vehicle for increased protection. However, this may result in a driver being unable to rescue his/her fellow officers performing a nearby ground attack because he/she cannot legally manoeuvre the vehicle unaccompanied.¹⁷¹

161 Colong Foundation for Wilderness Ltd, *Submission no. 243*, p. 5.

162 David Melville, *Transcript of Evidence*, 8 July 2003, p. 26.

163 Alan Harris, *Submission no. 289*, p. 4.

164 Hancock Victorian Plantations Pty Ltd, *Submission no. 358*, p. 8.

165 Hancock Victorian Plantations Pty Ltd, *Submission no. 358*, p. 8.

166 Mervyn Holmes, *Transcript of Evidence*, 24 July 2003, p. 67.

167 Malcolm Tonkin and Mr Philip Lloyd, *Transcript of Evidence*, 30 July 2003, pp. 9–10.

168 Garry Owers, *Submission no. 81*, p. 2.

169 Mervyn Holmes, *Transcript of Evidence*, 24 July 2003, p. 67.

170 Garry Owers, *Submission no. 81*, p. 2.

171 Garry Owers, *Submission no. 81*, p. 2.

- 7.104 In Hobart, the Committee heard evidence that paid and volunteer fire fighters are uncertain as to whether or not they should ‘break the door down’ because they may be sued for property damage.¹⁷² Emergency services personnel work under unique circumstances with inherent risks and, if they are to partake in fire suppression activities to save lives and properties, perhaps require an exclusive insurance policy offering them sufficient protection.¹⁷³ This may include compensation for lost wages (if applicable) and for both injuries sustained and loss to unattended property while on active duty.¹⁷⁴ It has been suggested that this be extended to land management staff to protect them against the risks associated with fuel reduction burning.¹⁷⁵ This issue is dealt with in more detail in chapter 4.
- 7.105 It must be noted that failing to act may on the surface, appear to provide protection from liability, but in actual fact may have the adverse affect because fire fighting personnel are legally bound to act in a way that will help save lives and property.

The Committee’s conclusions

- 7.106 Private and public land owners have an equal duty of care to ensure that reasonable precautions are taken to protect their own assets and prevent any foreseeable detriment to their adjoining lands. Ironically, the legal implications of taking such precautions can be an impediment to accepting this duty of care. Based on the evidence, the consensus is that private landholders are liable for their mistakes, yet public landholders are not and that avoiding liability amounts to avoiding active duty on the fire front – the latter of which is debatable. The bottom line is that extinguishing bushfires requires the expertise of fire fighters and control officers and until they are protected from the inherent risks of their work, lives and properties will remain in danger during bushfires.

¹⁷² Reuben Radford, *Transcript of Evidence*, 1 August 2003, p. 64.

¹⁷³ Hancock Victorian Plantations Pty Ltd, *Submission no. 358*, p. 8 and NSW National Party, *Submission no. 405*, p. 7.

¹⁷⁴ Stanthorpe Shire Council, *Submission no. 338*, p. 2.

¹⁷⁵ Edward Stuckey, *Submission no. 70*, p. 3.

Recommendation 54

7.107 Further to recommendation 21 in chapter 4, the Committee recommends that the Commonwealth seeks to ensure that the proposed Council of Australian Governments review of the bushfire management, initiate with the states and territories, as a priority, a review of the duty of care of public and private landowners and their potential liability. This should be done with a view to developing clear and consistent principles that cover (but are not limited to) the following:

- **Timely replacement/ repair of loss/damage (including to fences) resulting from fire fighting operations, suppression activities or wildfires.**
- **The liability of councils that imprudently approve the sale of land.**
- **The responsibilities and potential liabilities of fire controllers with a view to developing principles of indemnification for reasonable, responsible and informed decision making (including occupational health and safety).**

Future directions for the Commonwealth: toward a national bushfire policy

Increased role and accountability for Commonwealth agencies in bushfire policy

- 8.1 Through the recommendations in the preceding chapters the Committee has expressed the view that it is both within the interests of the Commonwealth and in accord with its responsibilities to become more actively involved in bushfire management. At present, the Commonwealth plays a relatively passive role through the provision of assistance to fire suppression efforts, ‘one off’ payments for additional equipment in bad fire seasons and contributions to recovery strategies after the event through the NDRA. The Commonwealth has relatively little input into the fire mitigation and suppression policies, which can ultimately be a significant determinant in the level of these payments.
- 8.2 The call by the IFA for a national policy on bushfire mitigation and suppression expresses succinctly the direction in which the Committee believes Australia must move in order to more satisfactorily manage the risk of bushfire.¹ The Committee recognises that a very nascent national policy may be developing through fora such as the AFAC, but there is a long way to travel down this path. The formation of a national approach and policy on bushfire

¹ Institute of Foresters of Australia, *Submission no. 295*, p. 1.

management requires an exhibition of political will. The Committee's recommendations outline elements of what might be called a virtual national policy on bushfire management. Many recommendations imply an enhanced role for Commonwealth agencies, particularly EMA.

- 8.3 A case in point is the funding for fire fighting aircraft provided to states and territories through EMA for the 2003 fire season. Rather than merely responding to requests for assistance, the Committee believes EMA and commonwealth departments involved in fire fighting, primarily Defence, should have a more proactive role in determining the most effective type of aerial resources to be made available and how these resources are best used, for instance in rapid response after detection of a bushfire.

Recommendation 55

- 8.4 **The Committee recommends that the functions and administration of Emergency Management Australia be reviewed to develop an organisation that is proactive and involved in the development and implementation of national policy on emergency response.**
- 8.5 One policy forum in which the Commonwealth can develop a more proactive role is the Australasian Fire Authorities Council.

Recommendation 56

- 8.6 **The Committee recommends in acknowledgement of the expertise that the Commonwealth can bring to the Australasian Fire Authorities Council and of funding already supplied to the Council for the development of a National Aerial Firefighting Strategy, that the current status of Emergency Management Australia on AFAC as an associate member be upgraded to full membership and that full membership also be extended to the Department of Defence.**

- 8.7 The Committee was concerned that in its submission and during a public hearing in Canberra the Department of Transport and Regional Services was unable to provide breakdowns of the specific emergencies or even types of emergency, for instance bushfire, flood or storm, for which funding under the NDRA had been provided.
- 8.8 DOTARS subsequently advised the Committee that as NDRA assistance is calculated using a state's aggregate eligible expenditure over a financial year on all qualifying disasters the level of assistance for any one event can only be approximated.² Costs can also be claimed over a three year period, increasing the difficulty of isolating expenditures for specific events.
- 8.9 The Committee sees the ability of the Commonwealth to know what type of disaster relief its assistance is funding as an appropriate principle of accountability. Additionally, an indication of expenditure on a natural disaster on which management practices have some bearing, such as bushfire, could provide a rough and ready indicator of comparable levels of the adequacy of appropriate management practices across jurisdictions.

Recommendation 57

- 8.10 **The Committee recommends that the Department of Transport and Regional Services review its record keeping practices to show the type of emergency for which assistance is provided through the Natural Disaster Relief Arrangements.**
- 8.11 The Commonwealth's concerns and interest to ensure adequate prevention and suppression of fires would be served by the development of a national approach and the other measures outlined above. As also outlined above there is a need for some accountability and performance measures to ensure that the Commonwealth's investments through programs such as the National Heritage Trust, its financial commitments through disaster relief funding and its direct contributions to fire prevention are protected. The Committee believes that while performance measures would be difficult to

² Letter from the Department of Transport and Regional Services, 26 September 2003, providing answers to questions taken on notice at the public hearing on 21 August.

specify there is a case for requiring agencies that access Commonwealth assistance in what ever form to have comprehensive bush fire management plans in place.

Recommendation 58

- 8.12 **The Committee recommends that the Commonwealth require state and territory governments to have in place comprehensive bush fire management plans as a pre-requisite for accessing funding from the National Heritage Trust and like programs.**

Research

- 8.13 The Committee's attention was consistently drawn to the inadequate level of knowledge about the relationship of fire with the environment (particularly the effects of intense wildfires on the landscape) as restricting the development and implementation of fire mitigation practices such as prescribed burning and grazing. Hopes that the poor state of knowledge in this area would be alleviated were consistently placed with the Bushfire Cooperative Research Centre.
- 8.14 The Committee supports the development of the Bushfire Cooperative Research Centre and sees practical merit in the five proposed programs. The Committee believes that it is imperative that the practical value to end users is the primary determinant of all research funded by the Centre.

Recommendation 59

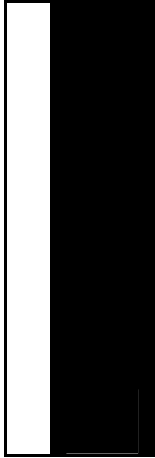
- 8.15 **The Committee recommends that Program E of the Bushfire Cooperative Centre, which is tasked with the development of the next generation of fire researchers and dissemination of the Centre's work, be tasked further to collect and respond to feedback, particularly from the on ground volunteer levels of fire brigades, on the practicality of its outputs and their future requirements.**

National standards

- 8.16 There has been a significant increase in inter-jurisdictional cooperation of fire suppression agencies in responding to bushfire emergencies over recent years. Fire fighters from around the country have found themselves assisting colleagues in other states and territories with increasing frequency since the 1994 fires to the north and west of Sydney.³ Furthermore, the 2003 fires showed, as did the fires in 1939 and 1983 before them, that fire does not respect territorial distinctions and jurisdictional boundaries.
- 8.17 The Committee is of the view that the current lack of national standards in key areas continues to restrict the effectiveness of fire suppression efforts in this country: a parallel can be drawn between the current state of bushfire management and the inefficiencies that prevailed before the introduction of a national rail gauge. Telling as this parallel may be, it does not reflect the far more tragic consequences of inefficiencies in bushfire management that may arise in the loss of life, property and heritage.
- 8.18 Through its recommendations the Committee has expressed its view that the Commonwealth can contribute a valuable leadership role and forum for developing several national standards. The Committee hopes that the recommendations in this report will provide an impetus through political fora such as the Council of Australian Governments and administrative fora such as the Australasian Fire Authorities Council to move toward bringing about a comprehensive national policy to bushfire management that includes agreed standards on the management of public lands and fire suppression activities as well as building and planning standards.

Gary Nairn
Committee Chair
23 October 2003

3 John Gledhill, *Transcript of Evidence*, 21 August 2003, p. 6.



Dissenting report

Mr Michael Organ MP

DISSENT

**ON THE REPORT OF THE HOUSE OF
REPRESENTATIVES
SELECT COMMITTEE INTO THE RECENT
AUSTRALIAN BUSHFIRES**

**Michael Organ MP
Member for Cunningham**

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.¹

Introduction

The House of Representatives Select Committee on the Recent Australian Bushfires played an important role in bringing together evidence and submissions from around Australia on an issue of national importance, namely, how to deal with the ever present – and some would say worsening – threat of bushfires in the Australian environment.

The majority report strongly reflects the evidence and the more than 500 submissions received by the Committee. It is valuable for that and will be an important source of information for those planning the way forward.

Whilst I support many of the recommendations included in the final report, I also have concerns about a number which specifically deal with the management of fire and its impact on the environment, both short- and long-term. From the outset I have been concerned with two main aspects of the Inquiry and the Committee's work.

Firstly, the fact that a number of significant state government agencies did not contribute to the Inquiry. These included that the New South Wales and Victorian

¹ Western Australian Forest Alliance (WAFA) and the Conservation Council of Western Australia, "Fire, prescribed burning and the conquest of nature", Submission, p.2.

authorities responsible for fire fighting, emergency services such as SES and police, and the management of national parks and other public lands.

The absence of their submission was especially telling in light of the numerous criticisms received in submission and evidence from private land owners and land managers and those associated with farming, grazing and forestry industries.

Strenuous efforts were made by the Committee to obtain the input and support of all levels of government throughout Australia, but this was not successful. Reasons given to the Committee included perceptions that this was a politicised inquiry and that therefore the subsequent findings would be subject to question or in some way biased. All members of the Committee worked hard to dismiss these perceptions.

The announcement by the Prime Minister that he would also be setting up a COAG inquiry into bushfires was an additional factor in limiting the commitment of state governments around Australia to supporting and resourcing the present inquiry.

Secondly, I was concerned with the often expressed approach by some members of the government to bushfire prevention, the inherent attitudes regarding conservation and ecological issues, and a frequent off-hand dismissal of valid environmental considerations in the evaluation of bushfire risk and prevention. Public statements along these lines caused concern.

In terms of addressing specific aspects of the final report, I will address some of the terms of reference as well as some of the recommendations. I have reservations in regard to the potential usefulness of the report as a result of the limited scope of the evidence that was drawn upon to finalise recommendations, specifically from the important state agencies referred to above. I do not strongly oppose other aspects of the report aside from those I that specifically address in this Dissent.

Much of the evidence on which the final report relies is untested. This is not to say that it is not genuine or factual. There are many examples given in the final report which are based on decades of hands-on experience working with fires and with fire suppression and management. However, whilst the many submissions and evidence given at hearings are no doubt genuine, and therefore important in our understanding of what took place in connection with the recent Australian bushfires, it needs to be stated that in sum total the evidence as presented to the Committee cannot be said to give a complete picture.

The quote in the report from the Wilberforce Rural Fire Brigade is a good example:

The National Parks and Wildlife Service manages fire for conservation purposes, whilst the RFS manages fire to protect life and property. Therefore the RFS is the most appropriate agency to manage bushfire emergencies.²

It is of course wrong to blandly state that the NP&WS does not manage fire to protect life and property, as well as for conservation purposes. Just as it is obviously

² Wilberforce Rural Fire Brigade, Submission no. 204, p.1.

important that the RFS manage bushfire emergencies in close co-operation with the NP&WS. Yet this is not the impression gleaned from the quote.

The majority of evidence was received from volunteer bushfire fighters, many with extensive experience. Evidence was also received from scientists, environmental groups, local government instrumentalities and state government authorities in Western Australia and Tasmania.

Members of the committee were fully aware of the implications of not hearing directly from, for example, the NSW Rural Fire Service or National Parks and Wildlife Service, and their ACT and Victorian equivalents. This was especially significant in light of the impact of the 2003 bushfires on large areas of those two states.

As such, I believe that this omission, or absence of evidence, significantly limits many of the subsequent recommendations of the Inquiry.

I believe that the Inquiry has, in some instances, reached conclusions based upon a consideration and presentation of unbalanced or insufficient evidence. This is the thrust of this dissenting report.

For example, in regard to the manner in which Term of Reference (b) was considered:

(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;

As the Committee did not have the benefit of hearing evidence from the NSW or Victorian National Parks & Wildlife Services, criticisms of their management regime that came to the Inquiry in the form of submissions (both written and verbal) were largely untested.

Once again, the evidence in such instances was genuine and telling, however with no input from “the other side”, mitigating circumstances and explanations of particular behaviours open to criticism were not put before the committee.

These concerns also impact upon Terms of Reference (b) to (f):

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

(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;

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

(f) the appropriateness of existing planning and building codes, particularly with respect to urban design and land use planning, in protecting life and property from bushfires;

As a result of the Committee's inability to obtain important evidence and submissions from relevant state government authorities, I have specific concerns in regards to some of the recommendations arising out of the first three chapters of the report and also with some of the editorial comments made within those chapters.

For example, I do not accept the broad observations made in the introductions that:

The fire suppression effort was hampered by a lack of prior fuel reduction burning, closure and lack of maintenance of tracks, historical loss of resources from land management agencies (particularly the forest industry), and a policy of suppression rather than prevention.

In many instances prior fuel reduction burning had been carried out, and the management of the fire risk was not subject to major criticism.

For example, information received from the Blue Mountains City Council suggested that, as a result of their many years experience in dealing with constant bushfire threats in an environmentally sensitive, fire prone urban environment, the authorities in that part of New South Wales were able to adequately deal with the bushfire threat in recent years.

As such, the broad nature of the statement in the aforementioned paragraph could not be sustained.

In this Dissenting Report I will respond to the general thrust of this statement by citing evidence and submissions that were presented to the Inquiry but were not including in the majority, as well as quoting experts in the field of bushfire management whose contributions are relevant to this debate.

Bushfire is a part of the Australian landscape and has been for thousands of years.

Aboriginal people used fire to manage the landscape but the use of fire by indigenous Australians prior to the European invasion of 1788 was not uniform across the landscape. The details of indigenous fire management are poorly understood in most areas, and there are few oral history accounts available which detail Aboriginal use and management of fire across the continent.

Whilst many people have seen images of Aboriginal people burning grasslands in Central Australia, their precise use of fire in wetter parts of Australia, such as amongst rainforests of south-eastern Australia and Tasmania, is little known.

Unfortunately the use of fire by indigenous people prior to the European invasion is frequently used to justify contemporary intensive burning regimes and native forest logging, despite the lack of available data and research.

The management of bushfires requires complex and detailed planning, taking into account and balancing often competing interests. However, a balance of interests is possible and must happen.

My concern is that sections of the majority report prefer one perspective and one set of interests over another, e.g. forestry managers over conservationists. And there is no doubt that the forest industry has a vested interest in how they deal with and manage bushfires, both upon their holdings and on adjacent land. In states such as Western Australian and Tasmania the Committee was shown evidence of how there are close linkages at the highest levels of government between the forestry authorities, fire fighters and the responsible environmental agencies. Testimony was presented that the environment was the junior partner in these relationships and as such as suffering.

As I do not believe in the wholesale and uncritical “burn more and burn often” mantra which was evident in many of the submissions presented to the Committee, I feel that an emphasis on such evidence weakens some of the recommendations in the final report and will not produce the best outcome.

The science of bushfire management is developing at a rapid rate. And it needs to, as more areas of the Australian bush are being subject to residential development and the threat to life and property therefore increases.

There is no doubt that the Commonwealth should assist in developing bushfire related information and management systems. This is recommended in the main report. The Commonwealth can assist in developing or financing the utilisation of such technologies for the benefit of the Australian community and our environment, but this approach should be based upon the best scientific data available and the approach should be balanced and not politically motivated.

Jurisdictional Issues

Via this Committee and the majority report the Commonwealth is asserting an interest in bushfire management, due to their mostly voluntary contributions to disaster relief and also via grant funding such as the National Heritage Trust.

I have major concerns with the fact that this Inquiry sought to tie Federal Government ‘performance conditions’ to future bushfire related disaster payments. It is inappropriate for a government to impose its priorities and perspectives onto matters which lie outside its jurisdiction. It is even more inappropriate when one considers that the recipients of Federal disaster relief are typically ordinary Australians who have no jurisdictional responsibility whatsoever for bushfire prevention.

I am strongly opposed to this aspect of the Report, and therefore reject Recommendation 58.

General concerns with the Inquiry

I am concerned by comments made by Committee members whilst the Inquiry was being undertaken. I was particularly concerned by comments attributed in the media

to the Chair of the Committee, on 17th July 2003, after only 1 week of hearing submissions, and 4 months out from the Report being issued, saying:

...fuel loads are of great concern. There's a view that overwhelmingly, the fires were so bad because of very heavy fuel loads which were present because prescribed burning hasn't gone on in the past 10 or 20 years the way it used to.³

I take issue with the broad generality of this assumption. There is no doubt that the Chair and other members of the Committee received evidence along those lines, and strongly supportive of that sentiment. However, once again, the evidence was untested.

There is no denying that "fuel loads are of great concern" in areas where life and property are under threat. But to then state that in general, across the country, there are heavy fuel loads because "prescribed burning hasn't gone on in the past 10 or 20 years the way it used to" is neither appropriate nor correct in all instances.

Throughout the main report there is an underlying emphasis on the 'burn more' model of bushfire management and prevention. I am unequivocally opposed to this position.

We need to "understand fire better" and manage it better, rather than simply "burn more." This may involve increased prescribed burning in certain areas, just as it could also involve less burning in some areas, and no burning in areas identified as of ecological significance.

The fact is, we need to know our local environment better, with more scientific analysis so that we can make informed decisions in regards to managing bushfires.

The perception that this Inquiry would focus on a "burn more" regime was obviously one of the reasons many people who would have made important contributions decided to shun the Inquiry.

The media report on the 17th July of this year quoted above seemed to best some up the perception of the Inquiry in the minds of many:

State governments and their agencies have shunned a new federal inquiry into last summer's horrific bushfires which started public hearings in NSW fire 'hotspots' last week.

All the now-familiar allegations about inadequate hazard-reduction burning, the snubbing of local knowledge in both fire prevention and management and the failure of major public land managers such as the National Parks and Wildlife Service to properly prepare for bushfires were trotted out at the hearings.⁴

This criticism of the Committee was of concern to its members.

³ Melissa Lang, "Government Silence", The Land, 17 July 2003.

⁴ Ibid.

It highlights the fact that substantial evidence countering these perspectives was not presented to the Committee, and is therefore not referred to in any detail within the majority report. A reader could therefore easily conclude that such evidence does not therefore exist, and this is not necessarily the case.

A difference perspective can be obtained from evidence presented to the Committee. This is a perspective not necessarily reflected in the majority report.

Professor Rob Whelan, the Dean of the Faculty of Science from the University of Wollongong and a specialist in fire ecology, has been outspoken in his concern regarding the misinformation circulating and the ill-informed criticism of the NSW National Parks and Wildlife Service after the recent bushfires. He sought to counter this criticism by explaining the potential ecological impacts as a result of broad scale, frequent, hazard-reduction burning.

Professor Whelan's testimony was quoted in the majority report.

Professor Whelan is the spokesperson for a group of 16 professional ecologists from around Australia who expressed their concern at the inappropriate demands for simplistic solutions that accompanied the 2003 fire event. In his submission to this Inquiry, Professor Whelan commented on the terms of reference presented to the Committee and related his comments specifically to sections (c), (d) & (e).

The report of this Inquiry and its findings on these three terms of reference were of particular concern to me and so I found it appropriate to refer back to Professor Whelan's submission. As he points out:

Although it is undoubtedly true that fuel reduction can reduce fire intensity and rate of spread, achieving sufficient fuel reduction across a whole landscape to ensure effective wildfire control under severe weather conditions will require such frequent burning (perhaps every 5 years, or even less in some vegetation types), that the primary, conservation objective of the land will be compromised.

Broad-scale hazard reduction is threatening biodiversity conservation and must therefore be avoided by land managers and resisted at a political level.

This situation is not unique to temperate Australia. It occurs in all fire prone regions of the world where large population centres abut native vegetation. Land management agencies in California and South Africa are currently experiencing similar threats to biodiversity because of increasing pressure for wide scale hazard reduction surrounding expanding urban centres.”⁵

Broad-scale hazard reduction must be replaced by targeted, strategic fire management practices at the local and regional level.

You do not need to burn “a million wild acres” to save a house on a small acreage.

⁵ Professor Rob Whelan, Submission, p.4.

You do not need to burn large areas of wilderness and bush to save specific properties and assets.

Towards the end of his submission Professor Whelan points out, and I support this observation:

The complex challenge for land managers is how to protect adjacent property and human lives without compromising biodiversity conservation in the areas gazetted to serve just that purpose. The responses to this challenge are not simple. I urge the Select Committee to be wary of simplistic proposals and apparent ‘quick fixes’.⁶

The Victorian National Parks Association submission made the following comment:

The unsophisticated, interested and blame-apportioning comments that followed the 2002-3 fires will not yield a successful and sustainable relationship with our natural environment.

Such a relationship will balance the needs of safety, biodiversity, tourism, agriculture and cost efficiency with the realities of where and how we live.

The Victorian National Parks Association believes that significant strides in this direction have been made in Victoria and that in general, both fire planning and suppression is intelligent, balanced and worthy of commendation. Improvements can be made, but we believe that the basic structures, processes and principles are current and need to be respected and preserved.⁷

Both these quotes point to the measured, scientific and strategic approach which must, at the end of the day, be adopted in order to protect biodiversity and assets.

Bushfires in Australia: In Context

We cannot consider recent fires out of context in the sense that fires have always been a part of Australian life. We must learn to live with them, rather than believe that they can somehow be ‘defeated’.

We have learnt a lot in recent decades. However we have also learnt that fire is often unpredictable, horrific, devastating and indiscriminate. We have also learnt that in instances where hazard reduction has occurred, and other management regimes have been put into place, disaster can still strike of weather conditions and human deficiencies come into play.

Associate Professor Chris Cunningham, in his paper “Urban Bushfires: A Time for Reflection”, points to the long-term problem of bushfires in Australia:

The most devastating Australian fires have occurred in the southern states. The Black Thursday fires of 1851 in Victoria are the first recorded examples of the cyclical episodes of disastrous fires which have ravaged the state on average every

⁶ Ibid., p.4.

⁷ Victorian National Parks Association, Submission, p.3.

13 years.... Still well remembered is the 1938-39 season culminating in the Black Friday fires of 13 January 1939, when a large part of the state was burnt out, over 1000 homes destroyed, and 71 people lost their lives. In 1943 fires in Victoria were almost as destructive and 51 lives were lost.

In Tasmania the fires of 7th February 1967 in the Hobart region resulted in the loss of 62 lives, more than 1000 homes, and many farms and pastoral properties. Loss of life was again heavy in the January 1969 Victoria fires which cost 23 lives and destroyed 230 dwellings, plus 34 other major buildings, and damaged many rural enterprises. The 'Ash Wednesday' fires of February 1983 in South Australia and Victoria caused loss of life and property destruction exceeding that of the 1939 season, with 73 lives lost and more than two thousand dwellings destroyed.

Compared with these disasters, bushfires in NSW have been far less destructive. In 1843 the Sydney Morning Herald reported that central NSW was ravaged by fires which persisted for weeks.... In October 1928 fires burned throughout the Sydney & Central Coast areas and 70 homes were destroyed...After the Second World War the extent of urban damage in New South Wales has accelerated...In 1968..Six lives were lost and more than 200 homes destroyed....In 1977 there was a season of similar magnitude...In 1994 three lives were lost and more than 200 properties were lost in the fires that burned from January 3 to January 11.⁸

It is important for us to remember that bushfires will always be a part of life in Australia – we cannot avoid them. At best we can only reduce risk. We first need to identify and analyses the risk and then priorities how best our scarce resources can be used to deal with the risk, whilst preserving the environment and protecting assets and lives.

The involvement and education of the community in managing bushfire risk is essential.

A sensible and balanced approach is required.

The need for Bushfire Management Plans

It is clear from the many submissions and evidence gathered by the Committee that we need to better manage bushfire, at all levels – individual, local, state and federal.

Bushfire management plans are essential. The federal government could assist in providing research and information to develop bushfires plans across the country.

Bushfire risk management plans should be based on the assessment of all risk factors such as ignition potential (including arson), asset vulnerability (including homes, property and environmental assets), hazard or fuel management, land use planning provisions and the provision of suitable equipment and resources to manage residual risk. Bushfire risk management plans should have regard to ecologically sustainable development in the consideration of their potential impact.

⁸ Assoc. Prof. Chris Cunningham, "Urban Bushfires: A Time for Reflection", public lecture, UNE, 18 March 2000.

As well as the need to protect human life, community assets such as homes and crops, environmental assets such as national parks estate, wilderness areas, remnant urban bush land, threatened species and communities which are not fire tolerant need to be protected.

Biodiversity should be considered as an asset

Professor Whelan argues that:

Biodiversity should be considered as an asset, just as public and private property, installations, pine plantations, native production forests, and other human activities are considered assets.⁹

I agree with this assertion and feel that this Inquiry did not pay appropriate attention to either the concept of the environment as an asset and to ecologically sustainable development, two extremely important and relevant concepts in regard to bushfire management.

All members of the Committee recognised the destruction caused to the environment by the recent bushfires in south-eastern Australia. What value can be placed upon that destruction? Likewise, inappropriate broad-scale burning is destructive and costly to the environment.

As Professor Whelan noted:

One key element of the nation's biodiversity conservation strategies is the national parks and other reserves. For example, the Corporate Plan of the NSW National Parks and Wildlife Service identifies their principal objective as "...to protect and conserve natural and cultural heritage." This includes conservation of biodiversity, and species and communities that are listed as vulnerable and endangered.

A major challenge for any individual or land management agency charged with conserving biodiversity, under threatened species legislation and state or national biodiversity strategies, is the lack of detailed knowledge about the responses of many vulnerable animal and plant species to different types of fires.¹⁰

The need for a modern approach to land & resource management

Assumptions about traditional European bushfire prevention, mitigation, control and management need continual review in the light of improvements in technology, understanding of fire behaviour and the need for ecological sustainable management.

The assertion that the practices of bushfire management from 10 or 20 years ago are somehow preferable to current practices does not seem to reflect the acknowledgement of how far we have come in terms of our understanding of fire and

⁹ Professor Rob Whelan, Submission, p.2.

¹⁰ Ibid.

how to best manage it, taking into account the complex factors and considerations involved.

As the Western Australian Forest Alliance and the Conservation Council of Western Australia point out in their submission:

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 modify and modernise approaches to fire and pre-emptive burning by reducing and varying the size, intensity and frequency of burns and varying the season....¹¹

There is a need to correct the misconception that responsible fire management necessarily involves burning to reduce moderate and high fuel loads generally throughout the landscape, irrespective of where they occur. Rather, such activities should be strategically planned, in proximity to vulnerable assets.

Prescribed burning is only one method of fuel management and should be considered in the context of other available options and the management objectives of the land in question.

The need for more appropriate planning, better education, and concerns regarding the effectiveness of hazard reduction burning

Professor Rob Whelan supports the perspective of more appropriate planning, and outlines his concerns regarding where hazard reduction methods should be implemented:

One strategy that shows promise is directing fire management activities at the boundaries between urban areas and adjacent bushland. This is essentially the objective behind the zoning strategy used in bushfire management planning under the NSW Rural Fires Act. District Bushfire Management Committees develop management plans, across all land tenures, to address both detection and prevention of bushfires – recognising the different management objectives of different parts of the landscape.

If the most effective protection is reducing the fuel loads close to houses (combined with ‘fire-wise’ house and garden maintenance and well trained and prepared fire fighting services), then even greater pressure will be brought to bear on land managers to create and maintain fuel reduction within the bushland where it abuts urban areas.

This is problematic, especially where the small size of reserves is already compromising conservation objectives. A ‘sacrificial zone’ within a reserve effectively reduces the size of the reserve and alienates part of it from its primary

¹¹ WA Forest Alliance & the Conservation Council of WA, Submission, p.2.

conservation purpose. Future subdivisions must surely contain adequate fuel load reduction zones within the subdivision, not in the adjacent bushland.¹²

There are of course some concerns about the effectiveness of hazard reduction burning. Some of these concerns are outlined by the Blue Mountains Conservation Society in their submission;

A paper was prepared by Stuart James for the Rural Fire Service, Blue Mountains District, giving an overview of results of field studies of Prescribed Burns in the Blue Mountains from 1993 to 1997. This showed that hazard reduction burns are of limited effectiveness.... Hazard reduction, other than by fire, e.g. slashing, mowing and thinning of vegetation, near the assets being protected, will provide better protection for those assets than burning in remote areas.¹³

Education and community awareness material needs to focus especially on the threat to the environment and property of inappropriate use of fire, particularly burning which is too frequent, extensive in area, of excessive intensity, badly timed or carelessly implemented.

High bushfire hazard areas are usually those associated with natural areas and vegetation. The location of residential or rural residential areas in high bushfire hazard areas increases the level of native vegetation loss as well as increasing the level of threat to people and their homes from the risk of a bushfire. This is neither economically, socially, nor ecologically sustainable.

Development should not be permitted in bushfire prone areas, where such development is likely to put lives or property in danger or involve substantial protection and suppression costs including loss of environmental values.

Fire fighting services need support, supplementation and additional resources. In particular, local government needs to be provided with additional resources and finances to enable the proper implementation of its responsibilities with regard to the assessment and implementation of hazard reduction strategies.

Education of councils, land managers, land-holders, the general public, fire management planners and fire fighters is needed and should be publicly funded. Such education should target specific audiences and address a broad range of 'bushfire' and environmental issues.

As was argued in the submission from the Blue Mountains Conservation Society:

Lack of education and preparedness of the community in general contributes to the severity of the impact – for example, in the Canberra fires. Most residents are not adequately prepared to protect their homes, gardens are not maintained to reduce fire spread, homes are not fitted with well-known and accepted measures to assist in risk management.¹⁴

¹² Professor Rob Whelan, Submission, pp.4-5.

¹³ Blue Mountains Conservation Society, Submission., p.3.

¹⁴ Ibid., p.2.

Further on, this point is developed:

With regard to damage mitigation of individual properties, retro-fitting of protective items to buildings should be encouraged, eg. shutters, metal screens, water tanks, sprinkler systems, etc....There is an urgent need for...legislation regarding restrictions on building approvals in bushfire areas to be implemented and enforced. Continuing development in the Blue Mountains is further endangering the property built on the developments, and the environment surrounding them when fires occur. New subdivisions are currently being developed further into the bush... Although house design, materials, construction and siting can lead to some approvals, local government needs to carefully assess these matters and in some cases refuse consent for either subdivision or individual home development approval. Some properties cannot be protected from bushfire, no matter how carefully they follow design codes...Clearing of asset protection zones as required by current legislation can have an adverse effect on the environment and biodiversity, but this needs to be balanced against the need for property protection and requires further research.¹⁵

Many submissions called for the need for more sensible planning, rather than the need for more hazard reduction burning, as a way of countering the severity of impact upon urban areas during a fire event. Calls for the need for more burning were countered by a number of submissions, including that from the National Parks Association of Queensland, which stated:

In some sectors, there has been a tendency to blame the fires on national parks and other natural areas. Statistics show that more wildfires start outside national parks and burn into them than vice versa. Natural places should not become the victims of –fire counter-measures, but rather a more enlightened approach to development surrounding them is needed. The importance of such places and the need for their proper preservation must be recognised.¹⁶

The Blue Mountains Conservation Society also supported this perspective, stating in their submission:

A major factor contributing to the impact on people and property is that of granting development consent in high and extreme bushfire risk areas. This could be addressed immediately, preventing further building in such areas.¹⁷

Many people have of course already built in bushfire prone areas and so we must implement strategies to protect these properties from destruction from fire.

The problems with broad scale burning

There was some discussion in the Inquiry's report outlining the case for broad scale burning as a means to protect potentially vulnerable properties. I am opposed to broad scale burning because I believe it destroys too much bush unnecessarily and there is

¹⁵ Ibid., p.3.

¹⁶ National Parks Association of Queensland Inc, Submission, p.1.

¹⁷ Blue Mountains Conservation Society, Submission.

not sufficient evidence that it achieves a beneficial outcome on balance. Many also argue that broad scale burning is not feasible given the limitations of equipment and time resources.

Responding to calls for more extensive prescribed burning after wildfires 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.¹⁸

The Western Australian Forest Alliance and the Conservation Council of Western Australia made the following point in their submission to the inquiry:

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.¹⁹

In his paper entitled “Managing Urban Bushfire Risk: To Burn or Not to Burn?”, Chris Cunningham, an Associate Professor and Honorary Fellow from the School of Human and Environmental Studies at the University of New England, writes:

There are quite a few possible ways of removing fuel. We can rake up and dispose of ground fuels, and we can keep land ‘groomed’ to ensure that further fuel does not accumulate. These procedures are mostly considered too labour intensive to be practical, so many scientists, fire fighters, lay people and, not least, politicians enthusiastically see the use of fire itself – hazard reduction burning – as the long term solution to the bushfire problem. So great is this enthusiasm that we hear arguments that failure to carry out such burning by authorities charged with management of public lands is almost criminal.

But is hazard reduction burning really a general solution to bushfire management? There is no doubt that it is a useful management tool, but the efficacy of that tool should never be overrated. For protection of urban property it is a very limited tool indeed.

Hazard reduction burning in autumn, winter and, perhaps, early spring depends heavily upon the weather. Bushland which burns explosively in high summer when wind speed and atmospheric temperature are high and relative humidity is very low, burns fitfully if at all in cool weather with high humidity. In any given year there are likely to be fewer than forty days that are suitable for such burning.

It is a labour-intensive procedure. While authorities with responsibility for national parks and forests have a small permanent fire management staff, the overall task to

¹⁸ NSW Rural Fire Service Chief Commissioner Phil Koperberg, Sydney Morning Herald, 7 January 2002.

¹⁹ WA Forest Alliance & the Conservation Council of WA, Submission, p.2.

control burn every hectare of bushland, even if that were desirable, is well beyond their capacity, despite the availability of broad brush methods such as incendiary dropping from aircraft. Much of the work on urban fringes relies on the voluntary labour of bushfire brigades, and this largely reduces the available working days to weekends. In short, only a tiny fraction, even of the vulnerable urban fringes can be treated in any given year.

Hazard reduction burning is far from a precise science. It is rare for a fire to exactly match a desired prescription. Too little intensity and virtually no fuel will be removed, too much intensity and the scorched canopy will soon rain down litter to replace the fuel removed. If the vegetation is moist and green all that may be achieved is a partial dessication and an increase in available fuel in subsequent wildfires.

Fuel accumulates more rapidly than hazard reduction burning can reasonably remove it. Within three years of a successful prescribed burn, the bushland of the Sydney region has the ability to produce enough ground fuel to support an uncontrollable wildfire in extreme bushfire conditions. This means that adequate protection of urban areas would require hazard reduction burning on a two-year rotation.

It is also a fallacy that hazard reduction burning conducted deep in the heart of natural bushland and many kilometres away from urban property will have any significant ameliorating effect on urban bushfires. The land that really matters is that located within one kilometre of urban areas, and especially within 300 metres of, and indeed within, the urban areas themselves. Fire does not gain any special ferocity for having travelled many kilometres in its run: its intensity depends upon the availability of fuel in the area where it happens to be burning as well as on atmospheric temperature and humidity, wind speed and the slope of the land. Most houses destroyed in bushfires are destroyed by the penetration of ember showers from short distance spotting by very intense local fire. Of course the fire may have started a long way from the point of its eventual impact, but it is the condition of bushland close to the urban areas that ultimately determines the extent of urban damage...

Even with these precautions we will still lose property in extreme bushfire conditions: Canberra's suburbs were much less vulnerable through design than most parts of the Blue Mountains, Sutherland Shire, the Adelaide Hills, western Hobart or the Dandenong Ranges near Melbourne. The real lesson when we choose to live close to the bush, is to be prepared for fire, be prepared for the possibility that we can lose everything and to be fully insured.²⁰

Professor Whelan, in his submission, comments upon the impact of a single wildfire compared to regular burning;

Previous research, pioneered by Dr. Malcolm Gill of CSIRO Division of Plant Industry, has demonstrated clearly that the long term responses of plant and animal populations, and of ecological communities, to fire are determined by the **fire**

²⁰ Chris Cunningham, op cit.

regime. This represents the various characteristics of fire, including intensity, interval between fires (also called ‘frequency’), season of burning, and type of fire (e.g. crown fires, vs. surface fire).

A range of studies in several parts of Australia reveals that high intensity wildfires kill many individual animals and plants. However, it is rare for **populations** of species to become locally extinct as a result of a single wildfire. Reproduction and, in some cases, recolonisation, rebuilds populations.

Although incomplete, research has revealed many plant and animal species that persist through a single high-intensity fire event can nevertheless be threatened by too-frequent fires....

A large-scale high-intensity fire will open up the habitat and make it unfavourable for many elements of the fauna for a few years in every several decades. Hazard-reduction burning can create these unfavourable conditions for several years out of every five to seven years, and even maintain them permanently.

Research findings...have led to the declaration of the ecological consequences of high frequency fires as a key threatening process under the NSW Threatened Species legislation and to a position statement on the use of fire in ecosystem management published by the Ecological Society of Australia (an organisation representing more than 1500 professional ecologists based in a wide range of universities, research institutes and land management agencies in Australia and overseas).²¹

The impact of extreme weather conditions

The recent bushfires on the eastern coast of Australia coincided with extreme weather conditions. Drought, strong winds and extreme temperatures combined to provide the conditions for large and intense bushfires.

As was pointed out in the submission from the Victorian National Parks Association:

Unquestionably, the major cause for the 2002/03 fires was drought. This may have been exacerbated or even caused by global warming.....the current drought was exceptionally severe.²²

The National Parks Association of Queensland, in their submission to this Inquiry stated:

The bushfires which ravaged many parts of Australia, particularly the south-east areas, were extraordinary and resulted from extraordinary climatic conditions. The severity of the fires must be recognised as extreme and not taken to be the normal situation faced by the majority of the country in ordinary bushfire seasons.

²¹ Professor Rob Whelan, Submission, p.3.

²² Victorian National Parks Association, Submission, p.4.

*There should not be an overreaction when considering measures to counter fires which are normally encountered as part of the natural Australian ecosystem.*²³

Part of the reason for our recent severe drought could be attributed to the effect of global warming.

As was noted in the Bureau of Meteorology submission to the McLeod Inquiry:

The high temperatures in the lead up to the 2002/2003 bushfire season appear to be unprecedented.²⁴

The Blue Mountains Conservation Society also believed that extreme climatic conditions have been a major contributing factor and called on governments to address the issue of climate change in a more meaningful way;

Another contributing factor is the hotter, drier weather we have experienced. Although this may be cyclical, climate change due to global warming is leading to more frequent 'el nino' effects, and the Federal and State governments have not moved to improve or control the changes. This must be addressed urgently, and by all Australian governments as any change will be over the long term.²⁵

Around the world unprecedented bushfire events are being experienced after periods of extreme temperatures. For example, Portugal and British Columbia are facing firestorms in this northern summer. Global warming outcomes like severe drought and prolonged higher temperatures, necessarily resulting in worse bushfires has been largely ignored in this report.

In their joint submission to the Inquiry, Climate Change Network Australia (CANA) and Greenpeace had the following to say about climate change:

It is now accepted that since the industrial revolution, the burning of fossil fuels had led to an increase in atmospheric concentrations of carbon dioxide. This in turn has led to an increase in global temperatures which are predicted to result in changes to the global climatic system....

Since global climate change is predicted to affect temperature and precipitation patterns it is also likely to affect bushfire regimes. Research published earlier this year revealed that the 2002/03 drought had been exacerbated by record high temperatures resulting in record evaporation rates and drying of vegetation in parts of Australia. The exceptionally dry conditions are thought to have, in part, influenced the severity of the fires, particularly in Canberra.

Even the Prime Minister has publicly made the link between the Canberra bushfires and drought. On ABC Radio on the morning of January 20, Mr Howard said:

²³ National Parks Association of Queensland Inc, Submission,, p.1.

²⁴ Bureau of Meteorology, Submission to the McLeod Inquiry 2003.

²⁵ Blue Mountains Conservation Society, Submission, p.2.

I do know...that we are in eastern Australia experiencing probably the worst drought in a hundred years and the severity of that drought has contributed enormously to the precarious tinderbox nature of the environment and you can imagine what happened at the weekend was a freakish conjunction of a very hot day, bad winds, dry undergrowth, all those things coming together in a quite uncontrollable fashion.²⁶

In their submission, CANA and Greenpeace suggested that the Committee needed to:

...recognise that further scientific research is required into the link between climate change and bushfire risk in Australia, and that such research is an important step in the development of successful bushfire prevention and mitigation strategies.²⁷

I strongly support this recommendation and call on the federal government to recognise that climate change will be a major problem globally into the future and that Australia is not, and will not be immune from these problems.

Despite this, Australia has always experienced intense fires due to extreme weather in the past, and obviously this will continue. How severe this weather becomes is yet to be seen, and recent extreme conditions cannot be ignored in the context of the impact of global warming.

As the submission from Gecko (Gold Coast & Hinterland Environment Council) pointed out:

Recent fires show the need for a multi-pronged approach to bushfire management. The challenges created by climate change are unprecedented and will require fire managers to rethink all strategies. Global warming with increased drought, evaporation and dryness will not only increase the frequency and intensity of bushfires, but will also make hazard reduction burns more risky, and will even make rainforests more susceptible. We need to rethink all our fire management techniques.²⁸

Countering the case for more fire trails

There is much discussion in the main report about the need for more fire trails and access roads to assist in fighting fires, and also for greater access to water to assist in fighting fires.

In regard to these aspects of the report I was again concerned by the lack of evidence countering certain perspectives which were prevalent in the report.

As Gecko pointed out in their submission:

²⁶ Climate Action Network Australia, Submission, p.2.

²⁷ Ibid., p.4.

²⁸ Gecko, Submission, p.1.

We are concerned by the position taken by some that the more frequent hazard reduction burning and the greater number of fire trails, the better. We do not want to see our forests managed to such an extent that they lose their natural values.... Tracks can ... become too extensive, creating edge effects and bringing in threatening processes such as weeds, feral animals and even fire vandals... We are insistent that if fire breaks are necessary, they must be planned, not only strategically for the prevention of the spread of fire and protection of fire fighters, but also for the protection of our rare and threatened plant and animal habitats, as well as the stability of the landscape and protection of our waterway.²⁹

The Wilderness Society, on the subject of fire trails, in their submission said:

Only tracks regarded as essential for fire-fighting purposes should be maintained. The potential for 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 should be regarded as no-track zones.³⁰

The Victorian National Parks Association also made mention of this issue in their submission:

It has been oft claimed during and after the recent fires that the existing road and track network is inadequate and that it needs to be extended and upgraded to improve and aid fire detection and suppression. As roads and road maintenance has severe detrimental impacts on conservation values, in particular through facilitating the spread of weeds and vermin, expansion of the track network is not to be taken lightly.³¹

Countering the claims regarding the benefits of grazing in bushfire prevention and management

In their submission, the Victorian National Parks Association pointed out their concerns with regards to the suggested benefits of grazing to minimise the impact of bushfire:

The recent fires have led to the predictable repeat of the claim of the Victorian Mountain Cattlemen's Association that 'grazing reduces blazing'. Much is made of the fact that sections of the Bogong High Plains were unburnt. But from visiting the area ourselves we observed that there were also many parts of the Bogong High Plain and of other areas in the Alps that were grazed and yet burnt....In fact there are severely burnt, partly burnt and unburnt areas to be found in both grazed and ungrazed areas.... There have been claims that the cover of shrubs is reduced by cattle grazing, which in turn reduces the fire risk in the alps. However, such claims

²⁹ Ibid., p.2.

³⁰ The Wilderness Society, Submission, p.9.

³¹ Victorian National Parks Association, Submission, p.11.

are not supported by any of the long term monitoring studies, nor by a consideration of the behaviour and diet of cattle.³²

Friends of the Earth, Melbourne, also commented on the effects of grazing on fire hazard reduction, pointing out that:

Stock grazing has been advocated as a fire prevention method based on the idea that cattle reduce the fine fuel load in the forest. After the 2002-2003 fires, Brian Gilligan, Director General of the NSW National Park and Wildlife Service, described this as 'a proposition that was debunked by government decision based on good science 50 years ago. Every time that people have tried to revisit it, to put livestock back into the parks, every scientist that has looked at it has debunked it..' (ABC 7.30 Report, 21 January 2003).³³

Community participation in bushfire management

Many submissions provided helpful and enlightening suggestions as to how we should manage bushfire risk in a more enlightened and inclusive way. One of those suggestions came from the NSW Nature Conservation Council submission which made the following point on the subject of community participation:

Community participation in fire management is vital to achieving better fire preparedness. While governing agencies are usually well represented on bushfire management planning bodies, generally the public only has marginal participation.

Community/public involvement in the planning process is essential to community appreciation of bushfire risk management strategies, and to cultivating an appreciation amongst the public of their role in bushfire risk management. Management of hazards on private property should be an integral component of any bushfire risk management.

States and territories should move away from token public consultation on risk management plans and towards genuine community participation in the planning and mitigation processes. This could be achieved through co-operative development and implementation of property, reserve, village and town level management plans, each of which is a subset of a larger district or zone plan.

Fire services and land managers need to develop mechanisms for collecting and utilising knowledge and information from locally acting stakeholders including farmers, volunteer fire fighters, conservationists and the Aboriginal community. The incorporation of these knowledge resources would have the dual effect of developing a comprehensive understanding of fire and its interaction with the environment in particular localities, as well as broadening the scope of risk management and creating a sense of involvement on the part of stakeholders. This

³² Ibid., p.9.

³³ Friends of the Earth, Submission, p.5.

would have beneficial outcomes for risk management on both private and public land.³⁴

Gecko outlined in their submission that they have embarked upon planning a local education program entitled 'Families, Forests & Fire'. According to Gecko, the purpose of the program will be to:

....bring together all stakeholders to discuss the latest knowledge and issues involved. We are gathering research and inviting speakers to enlighten all of us on the need to guard our communities with proper building standards and distances from forests. Gecko is seeking a multi-pronged approach to fire management, including avoiding building near forests.³⁵

In their submission, the Colong Foundation requested that the Committee take into account the following IUCN resolution on fire management:

Resolution on Fire Management by the Australian Council of the IUCN

Impacts of Human-Induced Fire Events on Biodiversity Conservation

Recognising that both protected areas and non-protected natural and modified habitats on public and private lands make a vital contribution to the conservation of biodiversity and ecological integrity;

Recognising that many ecosystems are highly sensitive to fire, for example wetlands, rainforests and alpine areas, and that their ecological integrity may be destroyed, degraded or significantly altered as a result of inappropriate fire regimes; and that other ecosystems such as prairies are dependent on fire to maintain natural processes;

Recognising that fire is required to renew or to maintain the natural ecological characteristics and functions of ecosystems such as natural grasslands, brushlands, pine forests and the boreal forest, and can be an appropriate management tool;

Noting that in many parts of the world the natural vegetation is highly flammable under certain conditions and that where land use patterns are inappropriate this creates risks to life and property;

Noting that urbanisation (residential, recreational, tourism, etc.) increasingly extends into natural or semi-natural areas of value for biodiversity and that protected areas may receive large numbers of visitors;

Noting that in both protected and nonprotected areas the optimum strategy is one that utilises a better balance of techniques including planned fire events and non-fire based risk reduction strategies;

Noting that in some protected and non-protected areas the current management focus on the use of planned fire events for fuel reduction is giving rise to an increasing reliance on fire-based techniques at the expense of more ecologically and economically sustainable non-fire-based risk reduction strategies; and in some ecosystems the absence of fire based management techniques may lead to the irreversible loss of biodiversity;

Believing that all human-induced fire management strategies should place emphasis on ecological sustainability when implementing strategies to reduce risks for life and property;

³⁴ NSW Nature Conservation Council, Submission.

³⁵ Gecko, Submission, p.3.

The World Conservation Congress at its 1st Session in Montreal Canada, 14-23 October 1996, passed the following motions:

Requests the Commission on Ecosystem Management to identify the types and extent of ecosystems subject to frequent occurrences of human-induced fire events, and to identify and consider the implications of human-induced changes to natural fire regimes for the biodiversity and ecological integrity of such ecosystems;

Calls upon all governments to have regard for the ecological sustainability of affected ecosystems when implementing bushfire risk management strategies in relation to both public and private land.

The way forward

Colin Sagar, in his submission put on behalf of the Environment Network in Bega stated, after attending a Fire Forum at the Australian National University that the forum had:

...encouraged the move from a vocabulary and approach to fire of “fighting an enemy in an emergency of dire threat”, to one of “understanding fire, using fire and adapting our lifestyles in order to successfully live with the recurring nature of fire in the Australian landscape.”³⁶

Professor Whelan suggests, and I support this proposal, that:

... this inquiry display leadership in Australia and internationally by recommending funding for a unified research effort in fire and biodiversity to parallel proposals for research into fire prevention and control.³⁷

This perspective is supported by the Blue Mountains Conservation Society in their submission which states:

Although knowledge and understanding of fires is increasing, further research is needed in a number of areas.

1. A better understanding of the behaviour of arsonists and investigation of appropriate rehabilitation of those convicted.
2. The behaviour and patterns of wildfire.
3. The effectiveness of hazard reduction burning and other fire mitigation options.
4. The damage to biodiversity from fires and fire mitigation, and the possible methods of effective rehabilitation.
5. Improved building design measures.³⁸

One of the recommendations of the Committee to come out of this Inquiry is the establishment of a national database to monitor fuel load across the country.

³⁶ Carl Sagar, Carl, on behalf of the Environment Network, Submission,, p.5.

³⁷ Professor Rob Whelan, Submission, p.4.

³⁸ Blue Mountains Conservation Society, Submission.

I support the concept of a database being established that is federally funded and that has a federal perspective, but I am concerned by the fundamental thrust of this report and the fact that the push for this database may be politically motivated.

A sensible approach is needed, and if a database is to be established and research undertaken, these efforts must have a balanced perspective in order to be of genuine benefit.

I have concerns that the federal government, in conducting this Inquiry and in putting the recommendations that it has, is committed to the 'burn more' perspective and that the recommendations that are implemented will be pushed toward promoting this perspective.

As I have previously outlined, I have fundamental concerns with the outcome of this Inquiry for these reasons.

The World Wildlife Fund, in their submission, included an impressive list of recommendations that I strongly support and which I regret the Committee did not take on board:

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, to 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 CRC for Tropical Savannas Management support and co-ordinate 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.³⁹

Conclusion

I believe it is of crucial importance that all stakeholders who are potentially bushfire affected or who are involved in fighting fires or managing land that is bushfire prone work together to ensure the best outcomes for the Australian environment and the community.

I am concerned by the fact that this Inquiry was perceived as being politicised, as this issue is too important to be manipulated for political ends.

We must respond to the reality of the Australian environment with a co-ordinated, scientific and sensible approach. We must reach consensus on the way forward wherever possible. This will involve concessions and understanding from all quarters.

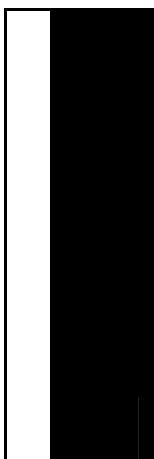
I believe this is possible, and the evidence I have read in association with the Committee indicates that, at the end of the day, the community will work for a positive outcome for the natural and the built environment. In the interim vested interests and poor management is impacting upon that aim.

At the end of the day we all want to protect people and property from the ravages of wildfire without unduly compromising our precious environmental assets.

On this I think all members of the Committee concur.

Michael Organ
Committee Member
24 October 2003

³⁹ World Wildlife Fund Australia, Submission, p.3-4.



Additional comments

Hon Dick Adams MP, Deputy Chair

Ms Annette Ellis MP

Mr Steve Gibbons MP

Mr Frank Mossfield MP

Mr Gavan O'Connor MP

**House of Representatives
Select Committee on
The Recent Australian Bushfires**

Additional Comments

October 2003

Overview

The context in which wildfires occurred during the 2003 season needs to be fully understood in order to achieve a balanced future response by the community to what scientists are predicting will be an increased incidence of bushfires of considerable intensity in future years as a result of global warming and climate change.

The 2003 bushfire season was preceded by one of the most severe droughts on record and characterised by a prolonged period of higher than average temperatures coupled with lower than average rainfall for the nine months preceding the outbreaks in January 2003. These conditions induced high evaporation rates and drying of vegetation and forest litter, making high fuel loads in forests a potential driver of extreme wildfire in unusual climatic circumstances.

These extreme variables came together in early January 2003 when the occurrence of dry storms saw in excess of 80 lightning strikes across the eastern ranges of Australia, caused fires which put intolerable pressure on existing fire fighting resources.

Despite the overwhelming of fire fighting resources in many instances, we note the success of the fire fighting effort in containing and suppressing the majority of those outbreaks, and acknowledge the dedication and sacrifice of volunteer fire fighters, state government agency personnel, police and other emergency service personnel, landowners and members of the general community in the fire fighting effort.

The Committee heard evidence that in some instances considerable tension evolved between people involved in the fire fighting effort around issues such as the allocation of resources, backburning, the timing of responses and other strategic considerations. However we acknowledge the high degree of co-operation overall between the state government agency personnel and volunteer fire fighters in meeting the wildfire threat, and their collective effort in suppressing many fires throughout the season and preventing loss of life.

We accept that much of the evidence to this committee has been honestly given and delivered from personal experience, by people who were directly threatened and have had their livelihoods diminished, as a result of the fires. Other evidence was supplied by fire fighters with considerable experience and local knowledge and therefore should not be ignored in any assessment of features of the 2003 bushfire season, and the response of agencies.

We also note however that many experienced fire fighters and personnel in control of fire fighting assets and land managements practices were not able, for a variety of reasons, to give evidence to the Committee. Their perspectives and recollections of local events and responses would have been invaluable to the Committee in its deliberations, and would have provided some opportunity at least to test some of the evidence presented and to challenge some of the myths that often develop in the public mind when reacting to extreme events.

The Context of This Inquiry

This House of Representatives Bushfire Inquiry is one of many inquiries conducted in the wake of recent Australian bushfires.

In the ACT an “Inquiry into the Operational Responses to the January 2003 in the ACT” (the McLeod Inquiry) has completed its deliberations and reported to the ACT Government. A Coronial Inquiry is in progress.

In Victoria the Auditor General has completed and tabled his report into Fire Prevention, and a more general Inquiry into the 2002-03 Victorian Bushfires (Esplin Inquiry) has completed its deliberations and has reported to the State Government.

In New South Wales a Joint Select Committee on Bushfires into the 2001-02 Bushfires reported to the NSW Government in 2002, and a Coronial Inquiry has completed its deliberations and delivered its findings.

At the National level two Inquiries have been initiated; this one and the National Inquiry on Bushfire Management, Prevention and Mitigation (COAG) to be conducted in co-operation between the Commonwealth and the States and Territories through the Council of Australian Governments (COAG).

This Committee was informed by State and Territory Governments that their priorities and that of their land management and fire fighting agencies would be directed to their own State and Territory based Inquiries, and the COAG Inquiry.

Therefore this report has of necessity been written without the benefit of all sides to this debate having articulated their points of view or having this evidence tested, as has been the case in many of the State and Territory based inquiries that are still progressing or that have already been concluded.

Regrettably many Parliamentary Inquiries are established in a highly charged political atmosphere following national disasters, where the media is seeking the sensational story, the community is demanding answers, and politicians are seeking

to apportion blame. These are hardly conducive circumstances for the rational evaluation of evidence, the setting aside of long held prejudices and the development of practical recommendations to assist the community to prepare itself to meet future bushfire threats.

Stating the facts of this matter, the circumstance of this inquiry and its political and associated context, does not detract from the honesty with which evidence was tendered, the personal integrity and expertise of individuals and organisations who have given it, and the quality of the scientific evidence that came before the Committee.

Changing Culture – Impact of the Linton Tragedy and Other Factors

It would appear that in recent times there has been a change in land management and fire fighting practices in relation to different land tenures such as National Parks, State Forests, private land and private plantations.

This has occurred in response to changing community expectations, the emergence of the environment as the key political issue, events such as the Linton fire tragedy, and the actions of Governments of all political persuasions.

With regard to the latter, trends in downsizing relative to total area under land management that has occurred under many Governments, and changes in forest policy have led to a loss of critical fire fighting expertise and a significant reduction in resources.

While these changes need to be fully appreciated, it is important for managers in all land tenures including those who administer public lands, to justify to the public their management philosophies and administrative regimes.

With regard to current fire fighting procedures and practices, the impact of the Linton tragedy should not be underestimated. Neither should the difficulty facing incident controllers in balancing the need to attack fires early, particularly if they occur and take hold in inaccessible areas, and their statutory responsibilities to guarantee wherever possible the safety of the paid and unpaid fire fighters under their control.

Hindsight is a wonderful thing, and opinions formed on how resources should be allocated in certain circumstances (on the ground in the heat of the battle) while valid for the person forming them, might not have the value of the larger perspective on the fire being fought, the resources available to fight it and the legal and statutory context in which critical decisions carrying the weight of liability have to be made.

Therefore it is extremely important in our view that considering the volume and variety of information that is available from local and other sources and required to be validated and processed in emergency situations, that particular resources be directed to train incident controllers in advanced decision making to ensure quality decisions are made and the best fire fighting outcome is achieved.

The Debate over Hazard Reduction Burning

We note the contentious debate, both in evidence to the Committee and in the wider community on the extent to which fuel reduction burning ought to be instituted as a fire prevention or mitigation measure.

Within the Australian community there are strongly held views that broadscale hazard reduction burning ought to be the main tool for fire prevention, and this view was reflected in evidence to the Committee. There are equally strongly held views that the practice ought to be either abandoned or severely restricted on environmental grounds, the potential to cause unwanted wildfires, and because of urban sensitivities, views which were also reflected in evidence to the Committee.

We note that in recent times community attitudes have moved to accept greater areas of our forests, bushland and wilderness areas being set aside in National Parks. These increased areas, along with the attitudes of members of the community stridently opposed to broadscale hazard reduction burning, have made it extremely difficult for land managers, firefighters and the community to strike the appropriate balance between environmental outcomes that protect biodiversity and other environmental values, as against initiating measures to reduce fuel loads on a substantial scale to protect property and life.

We also note the concept of hazard reduction burning has been supported in numerous Coronial Inquiries, Parliamentary Committee reports and Audit reports over the past decade.

The body of public and scientific evidence presently identifies two potential but conflicting outcomes.

Firstly unchecked high intensity wildfires on a massive scale have the potential in many circumstances to impact adversely on biodiversity values in our flora and fauna, cause soil erosion and other serious environmental problems. Equally, frequent prescribed burning, if not undertaken in a strategic manner and on the basis of strong science, can cause significant environmental damage by destroying the habitat of species, altering the pattern of nutrient recycling and exposing areas to weeds and noxious animal invaders.

We are of the view that if a policy of prescribed burning is adopted by agencies as a fire management tool it should be done on a strategic basis according to negotiated and agreed fire management plans, and on the basis of comprehensive research data, to enable the best possible assessment of local environmental impacts.

Well meaning calls for broadscale fuel reduction burning on a massive scale may be as counterproductive in achieving a national response to the bushfire threat, as calls by other sectors of the community to outlaw prescribed burning in all forms and circumstances.

Given the need for hazard reduction burning to be undertaken with appropriate regards for the ecological and biodiversity needs of forest areas, it is important that it be conducted by skilled personnel in appropriate and optimal circumstances.

We note that land management and fire fighting agencies from NSW, Victoria and the ACT were not in a position to directly tender evidence on their policy and practice in relation to hazard reduction burning in recent years, the scientific basis on which it was undertaken, and the skill of land management and other personnel to whom this task was entrusted.

However we also note that in evidence tendered to other State and Territory based enquiries these agencies have conducted fuel reduction burning programs against the background of limited windows of opportunity caused by prolonged dry seasons and adverse weather conditions, and community input.

The Committee received evidence from West Australian and Tasmanian agencies which suggested that public land management and fire management have become highly integrated, and sophisticated planning is being employed in implementing strategic mosaic burns to meet both fuel reduction objectives and community expectations on the environment.

We are strongly of the view that Australia's bushfire research effort must be intensified in order to provide land management decision makers with the best science available, to enable them to make decisions that achieve better balance between the needs of the environment, and the community's needs to feel secure from the threat of wild fire.

National Bushfire Strategy

We are strongly of the view that the Commonwealth Government should as a matter of some urgency, develop a comprehensive national bushfire strategy in consultation with the States and Territories.

In the wake of the devastating fires in south eastern Australia in 2001-02 which caused extensive property loss, as well as loss of life, the Federal Government announced that it intended to pursue a national bushfire strategy in co-operation with the States and Territories.

In a press release on 2 April 2002 the then Minister for Regional Services, Territories and Local Government said, “the Government was developing a national fire fighting strategy in partnership with State and Territory Governments.”

The Government commissioned Australia’s Fire Chiefs under the auspices of the Australasian Fire Authorities Council (AFAC), to investigate Australia’s aerial fire fighting capacity as part of the pursuit of a national strategy, and to make recommendations to it in advance of the 2003 season.

AFAC reported to the Minister in August 2002 making detailed recommendations on a range of aircraft required to supplement existing State based aerial resources, to meet the extreme threat from wild fire in the 2003 season.

It canvassed two funding options for the Commonwealth, which involved a mix of aerial resources including high volume aircraft, medium helicopters, fixed wing firebombers and light helicopters for air attack supervision.

Australia’s fire chiefs warned in August 2002 that climate predictions indicated the high probability of an above average fire season in the south eastern states particularly, and emphasised the need to put a national fleet of aircraft resources in place for the 2002-03 season as a matter of urgency.

The AFAC recommendations were dismissed as a ‘wish list’ of resources by the then Federal Minister. The supplementation of overstretched State based aerial capacity occurred well into the fire season, with Erickson sky cranes considered by some fire fighters to be inefficient in certain operational circumstances and by some States as too expensive to operate.

We support the view expressed in this report that an initial attack fire fighting capacity is a desirable one for our fire fighters to possess. We note the strong views expressed in evidence that the eventual damage caused by the 2003 fires

could have been ameliorated if resources had been brought to bear earlier. We also note that some fires occurred in remote and inaccessible areas, and conscious decisions were made by fire fighting agencies not to attend to them because appropriate resources were not available to be deployed.

The dire warnings to the Federal Government on the likely severity of the 2003 bushfire season and the emphasis placed on an urgent need to put a national fleet of aircraft resources in place for the 2002-03 season by Australia's fire chiefs in the AFAC were recommendations that should have been acted upon by the then Minister as a matter of urgent priority. They were not. One can only speculate as to the impact these early suppression initial attack resources might have had at the outbreak of lightning fires in inaccessible areas in NSW and around the ACT.

Australia's experience over the past few years indicates that extreme climactic conditions and intense bushfire events are occurring with greater frequency. Given high fuel loads in our forests, changed land management practices, the complexities of the urban-bush interface and other factors, we believe that the need to develop and adequately resource a comprehensive national bushfire strategy is self-evident and urgent.

Role of Local Government in Bushfire Management

The Committee report acknowledges the important role of local government in fire prevention and suppression activities, as well as the post bushfire recovery phase in local communities. We wish to emphasise that role, and encourage local governments in bushfire prone areas to expand their bushfire mitigation efforts.

In the past detailed knowledge to assist local government in defining fire risk has not been available, and as a consequence local area planning has been undertaken without due sensitivity to the threat posed by fire to many localities.

Lack of planning sophistication has permitted housing development in inappropriate areas, with individual property owners being permitted poor choices in the design of buildings and materials used in construction.

The legal system and existing law in some states, has also made it difficult for local government to refuse to allow developments in sensitive and fire prone areas at the urban – bush interface.

Even where planning has been undertaken, adequate resources have not been made available to effectively police and ensure the implementation of appropriate planning controls.

We note however that the technical skill and capacity now exists to assist municipalities in assessing risk and developing comprehensive planning strategies for their local areas. We acknowledge the fine work already being done by some local government administrations in preparing local fire mitigation and management plans, effectively administering bushfire sensitive planning schemes, conducting extensive community education campaigns, and playing pivotal roles in the fire suppression efforts and in the recovery of local communities from bushfire.

It is a matter of some urgency that all municipalities that have fire prone areas within their boundaries, follow this excellent lead in effectively preparing their communities for bushfire events.

There is a need for greater liaison between local government planners and local fire authorities, and for formal processes of communication and consultation between the above on all aspects relating to local bushfire management. Any level of communication, consultation and co-operation will be negated if appropriate local and state planning processes are not developed for discreet land tenure types.

The areas of planning and community education offer local governments a unique opportunity to play an increased role in bushfire prevention and management.

Public Education

We wish to emphasis the need for a greater public education effort to be undertaken by all levels of Government and the agencies they control, as well as the general community, as an integral part of a national bushfire strategy.

In recent times in many areas there has been changing ownership of private land with the emergence of small holdings by people seeking a rural lifestyle but who may be unfamiliar with both the demands of living in a rural environment, and the need to adequately prepare their properties for the eventuality of a bushfire.

Many of those people live away from their properties for most of the time and are not able to undertake the required fire prevention work around their properties when the best opportunity presents itself to do so.

Clearly many landowners are not doing enough to protect their properties at the urban interface, and indeed the failure of those landholders and their local governments to fully comply with the provision of existing legislation, is putting the general community and fire fighters at greater risk from bushfire.

There is an urgent need to scale up the public education campaign at all levels of government, and to explore in greater depth the legislative and practical financial measures that can be employed to induce greater co-operation from landholders in this regard.

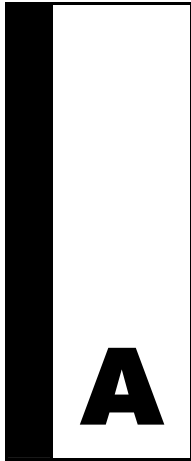
Hon Dick Adams
Deputy Chair
27 October 2003

Ms Annette Ellis
Committee Member
27 October 2003

Mr Steve Gibbons
Committee Member
27 October 2003

Mr Frank Mossfield
Committee Member
27 October 2003

Mr Gavan O'Connor
Committee Member
27 October 2003



Appendix A – The 2002–2003 fire season

On January 8 2003, lightning strikes from a severe electrical storm sparked 87 fires in the drought affected landscape of north-east Victoria and 60 fires in southern New South Wales and the adjoining areas of the Australian Capital Territory.¹ Over the coming weeks, these fires spread rapidly, behaving in ways not previously seen,² eventually merging into one continuous line spanning an area of 1.7 million hectares.³

The link between meteorology and bushfires

There is a strong link between weather and climatic patterns and the behaviour of bushfires therefore, a detailed understanding of Australia's meteorology is critical in bushfire risk assessment and developing effective suppression strategies.⁴ The typically hot and dry climate over summer in the south east states of Australia is conducive to the ignition of bushfires. Coupling this with undesirable weather conditions such as high winds and

1 Nic Gellie, *Report on Causal Factors, Fuel Management, including Grazing, and Australian Incident Management Systems*, p. 12.

2 National Parks Association of NSW, *Kosciuszko—and the burning issue of hazard reduction*, <http://www.npansw.org.au/web/journal/200304/features-fire.htm>, viewed 24 September 2003.

3 National Parks Association of NSW, *Kosciuszko—and the burning issue of hazard reduction*, <http://www.npansw.org.au/web/journal/200304/features-fire.htm>, viewed 24 September 2003.

4 Bruce Esplin, *Report of the Inquiry into the 2002–2003 Victorian Bushfires*, October 2003, p. xvi and the Bureau of Meteorology, *Submission no. 369*, p. 2.

drought, not only increases the risk of ignition, but facilitates rapid and uncontrolled spreading of bushfires.⁵

In the months preceding (and during) the recent bushfires, Australia's meteorological conditions were as follows.⁶

- Severe drought.
- Below normal atmospheric humidity and cloudiness.
- Unprecedented high daytime temperatures.

The above combination of factors resulted in severe moisture stress and an early curing of fuels across most of eastern Australia – conditions conducive to a severe fire season.⁷ A similar combination of conditions existed in the months preceding (and during) the bushfire seasons of 1938-39 and 1982-83 where the severity is comparable to 2002-03.

Australia's drought

The drought conditions experienced across Australia can be attributed to the following.

- El Nino – cyclic warming of the central and eastern Pacific Ocean that typically increases Australia's atmospheric pressures and daytime temperatures, decreases the country's winter-spring rainfall and precipitates delayed onset to the northern monsoon.⁸ Most of Australia's severe droughts have occurred during El Nino events where severe fire conditions are more frequent.⁹
- Precipitation – rainfall plus the water equivalent of snowfall, where applicable.¹⁰ From October to December 2003, precipitation in most of the south-eastern areas of Australia was well below average and had almost reached record-breaking low levels by the end of January.¹¹ This situation facilitated early curing of the (already dry) forest fuels and longevity of the fires (after their outbreak).

5 Bureau of Meteorology, *Submission no. 369*, p. 2.

6 Bureau of Meteorology, *Submission no. 369*, p. 4.

7 Bureau of Meteorology, *Submission no. 369*, p. 4.

8 Bureau of Meteorology, *Submission no. 369*, p. 8.

9 Bureau of Meteorology, *Submission no. 369*, p. 8.

10 Bureau of Meteorology, *Submission no. 369*, p. 9.

11 Bureau of Meteorology, *Submission no. 369*, p. 9.

- Temperature – the year 2002 was the fifth warmest nationally since the commencement of records in 1911 and created heatwave conditions with many areas of southern Victorian experiencing temperatures in the range of 43-46 degrees celcius.¹²
- Evaporation – from April 2002 to January 2003, this was 5-20 per cent above average (where comparable data is available).

Soil dryness and fire danger indexes

Mr Gellie, the Committee's consultant, undertook an analysis of long term climate records to identify historical trends in two key parameters in fire behaviour – Soil Dryness Index and Fire Danger Index. This is presented in detail in Appendix E.

This analysis shows that there have been twelve years out of a total of forty six where the soil dryness has exceeded 140 millimetres for more than forty days in a year. Prolonged periods of soil dryness in excess of 140 millimetres will lead to wilting of trees and shrubs, and curing of grasses, in native forests, and will tend to increase flammability and curing of live forest fuels. It is notable that the years in 1968 and 1998 had significantly greater number of days than that in 2003, exceeding 100 days in a year. The most recent fire season was comparable with previous years 1965, 1978, 1980, and 1983 and was not the worst dry period in the recent historical record as far as soil dryness was concerned.

An historical analysis of combined daily fire danger ratings and soil dryness was undertaken by the Committee's consultant, based on the Omeo and Canberra weather stations. The results of this trend analysis show that the number of days with high soil dryness index and fire danger exceeding 30 in 2002-03 was the third highest on record in Canberra, being exceeded in 1982-83, and 1997-98. Omeo has consistently fewer such days than Canberra. The frequency of such days was comparable with previous fire seasons, such as 1967-68, 1972-73, 1990-91, and similarly 1982-83 and 1997-98 had significantly more severe days. The data suggests that the occurrence of high to severe fire weather conditions in 2002-03 were comparable with those of previous fire years in both north eastern Victoria and south eastern New South Wales, perhaps being slightly higher than on an average drought year.

The analysis showed that the 2002-03 fire season had four days which exceeded a forest fire danger rating of 40, with some of the highest values of

12 Bureau of Meteorology, *Submission no. 369*, p. 10.

forest fire danger and soil dryness. However a comparable number of peak fire days have occurred in previous fire seasons, in 1957-58, and 1982-83. The next most recent fire season in 1997-98 had six days in late January and February, where values of forest fire danger rating were between 40 and 60.

Spread of the fires

The consultant prepared a map of the fire spread using Sentinel Hotspot data supplied by the CSIRO and an overlay of final fire perimeters derived from data published on the Victoria DSE's website and maps of New South Wales prepared by the RFS and NPWS. Although the accuracy of the consultant's map is approximate, it indicates the progressive build-up and eventual containment over a period of six weeks starting on January 2003.

Major breakouts of containment lines occurred on 17 January when the Forest Fire Danger rating was between 30 and 45 at elevations between 700 and 1200 metres. This fire spread continued the following day with the most the growth in areas of the Australian Capital Territory and in the Jagungal Geehi and Upper Murray precincts of Kosciuszko National Park. The next major breakout occurred on 26 January where the fire danger rating peaked at Omeo at 57 with separate fires in Victoria merging into one major complex. On the 30 January, the fire danger rating reached 78 in Omeo, the second worst on record. At this point, major spotfires were ignited from thunder clouds developed from the convection column activity. By 1 February the fire danger rating decreased, enabling containment lines in Victoria and southern New South Wales to be consolidated.¹³

13 All information contained under this sub-heading was taken from Nic Gellie, *Report on Causal Factors, Fuel Management, including Grazing, and Australian Incident Management Systems*, pp. 13-14.

Reported losses

The 2002–03 fire season was one of the most serious on record taking into account over three million hectares of land destroyed throughout the country (including Queensland, Tasmania and Western Australia).¹⁴ The areas burnt in Victoria, New South Wales, the Australian Capital Territory, Western Australia and Tasmania made the fire season the most severe on record. The losses are outlined below.

Victoria

In Victoria the bushfires resulted in 400 injured civilians, 36 lost homes (plus outbuildings), over 1,324,000 hectares of burnt land (including 108,000 of private land) and the loss of 2800 sheep, 850 cattle, stock and equipment.¹⁵

New South Wales

The New South Wales fire season took three lives, approximately 86 residential homes (and damaged 28 homes and 188 outbuildings) and burnt 1,465,000 hectares of land including two-thirds of Kosciuszko National Park and 30,000 hectares of private lands and significant areas of the southern Alps.¹⁶ Around 3400 stock was lost including horses, cattle and sheep plus a koala colony.¹⁷

14 National Association of Forest Industries, *Facts and Figures: Bushfires*, <http://www.nafi.com.au/faq/index.php3?fact=10.htm>, viewed 24 September 2003.

15 Emergency Management Australia Database of Australian Disasters <http://www.ema.gov.au/ema/emaDisasters.nsf>, viewed 24 September 2003, National Association of Forest Industries, *Facts and Figures: Bushfires*, <http://www.nafi.com.au/faq/index.php3?fact=10.htm>, viewed 24 September 2003 and Bruce Esplin, *Report of the Inquiry into the 2002–2003 Victorian Bushfires*, October 2003, p. xvi.

16 National Parks Association of NSW, *Kosciuszko—and the burning issue of hazard reduction*, <http://www.npansw.org.au/web/journal/200304/features-fire.htm>, viewed 24 September 2003 and New South Wales Fire Brigades <http://www.nswfb.nsw.gov.au/index.asp?sectionid=361>, viewed 15 October 2003.

17 and New South Wales Fire Brigades <http://www.nswfb.nsw.gov.au/index.asp?sectionid=361>, viewed 15 October 2003.

Australian Capital Territory

The fires and associated firestorm that reached suburban Canberra resulted in four deaths (plus injuries to civilians), loss of 501 houses (plus damage to over 300 houses), 160,000 hectares of burnt land (almost 70 per cent of the Australian Capital Territory) and major loss of government infrastructure and facilities including the Mount Stromlo Observatory.¹⁸

Western Australia

In terms of area burnt, the south west area of Western Australia experienced its worst fire season since 1960-61¹⁹ covering 133,000 hectares.²⁰ CALM stated that: 'As at 1 May 2003 ... fires ... covered 754,000 hectares of Crown lands and private property between Geraldton and Esperance.'²¹

No lives were lost in the south west fires and only 'a few houses and sheds'.²² One volunteer fire fighter lost his life during a fire to the north of Perth.²³

Tasmania

Tasmania experienced 1500 vegetation fires that burnt a total of 52,000 hectares of land including 6000 hectares of state forest, 16,500 hectares of National Parks and reserves and 29,500 hectares of private property.²⁴ Six homes were lost (plus outbuildings), several hundred farm animals perished and the timber community lost 2000 hectares of pine plantation.²⁵

18 Ron McCleod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT*, August 2003, p. 188.

19 Rick Sneeuwjagt, *Transcript of Evidence*, 6 August 2003, p. 75.

20 Western Australian Government, *Submission no. 362*, p. 5.

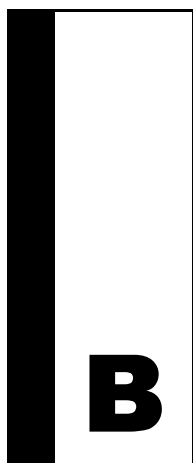
21 Western Australian Government, *Submission no. 362*, p. 5.

22 Western Australian Government, *Submission no. 362*, p. 8.

23 Western Australian Government, *Submission no. 362*, p. 10.

24 Forestry Tasmania, *Submission no. 172*, p. 2.

25 Forestry Tasmania, *Submission no. 172*, p. 2 and Emergency Management Australia <http://www.ema.gov.au/ema/emaDisasters.nsf>, viewed 25 September 2003



Appendix B – List of submissions

Number	From
1	Mr Bruce Telfer
2	Firebloka
3	Mr Ken Drane
4	Mr A K Lance
5	Mr Robert Mack
6	Ms Noeline Franklin
7	Mr James Sandison
8	Mr Mark Douglas, Paul Garrett and Phil Tuckerman
9	Michael Nairn Pty Ltd
10	Mr Ken Mulder
11	Ms Rebel Penfold-Russell
12	Mr Nick Margetts
13	Mr Ron Dean
14	Mr Andrew Laurie
15	Mr W H Fox
16	Mr Val M Jeffery
17	Mr Bob Butt
18	Mr Michael Sobb
19	Mr Joe Gavarra
20	Mr Fred Ward
21	Mr Bernard Katz

22	WA Forest Alliance
23	Mr Andrew Gemmell
24	Mr Raymond Edward Barnard
25	Mrs Margaret Bear
26	Mr K B Goff
27	Mr Mark Taylor
28	Mr Alan Holding
29	Mrs Zuvele Leschen
30	Mr Richard Blyton
31	Mr Tom Crogan
32	Mr Brian Hungerford
33	Communications, Electrical, Electronic, Energy, Information, Postal, Plumbing and Allied Services Union of Australia (CEPU)
34	Mr Kevin McManus
35	Mr Peter Mayman
36	Mrs Rachel Miller
37	Ms J D Child
38	Ms Susan Bartell
39	Mudgegonga Rural Fire Brigade
40	Mr Michael Chambeyron
41	Mrs Gloria Malouf
42	Mr Gavin Bugg
43	Mr Donald Matthews
44	Rev Fr R Burtonclay
45	Ms Eileen Buckland
46	Mr Ian Pownall
47	Mr John Cribbes
48	Mr David Fry
49	Ms Rebekah Doley
50	Mr John Margetts
51	Mr Anthony Williamson
52	Mr Paul McGowan
53	Mr R Walker
54	Mr George Dobbys
55	Mr W R Marshall

56	Mr Ian Roper
57	Aerial Agricultural Association of Australia (AAAA)
58	Mr Maurie Smith
59	Mr R A Free
60	Dr David Horton
61	Ms Anne Edwards
62	Mr Bruce Clelland
63	Mr James Litchfield
64	Mr Manuel Kallis
65	Mr Colin Coakley
66	Mr Alick Myers
67	Ms Rosslyn McLeod
68	Mr John Gibbons
69	Mr Alan Davison
70	Mr Edward Stuckey
71	Mr C R Sparks
72	Mr Laurie and Mrs Eden Smith
73	Mr Colin Richardson
74	Mr John Yelland
75	Mr Graham Gunn MP
76	Mr Philip Reid
77	Ms Katie O'Brien
78	Mrs V D Burnett
79	M D Boyle
80	Mr Rod Daw
81	Mr Garry Owers
82	Mr E H Manning
83	Mrs Barbara Powe
84	Mr Col Adams
85	Mr R C Baker
86	Barricade Fire Protection Pty Ltd
87	Major Russell Smith
88	Mr Jervis Hayes
89	Ms Joan Webster

90	Ms Ruth Nicholas
91	The Bushfire Front
92	Mr Michael Merriman
93	Mr Rupert Milne Home
94	Rocky Plains Bushfire Brigade
95	Singleton Council
96	Mr John Evans
97	Mr Graham Gray
98	Captain A J Ellis, Captain P J Cannon and Mr C Minovilovich
99	Aqua Fire Protection Pty Ltd
100	Dr Merike Johnson
101	Field Air (Sales) Pty Ltd
102	Mr Robert Pendergast
103	Mr Jim Bates
104	Access for All Inc.
105	Environment Network
106	Dry Plains Rural Fire Service
107	Mrs Ruth Franklin
108	Mr Will and Mrs and Rhonda George
109	Mrs Joan Wheal
110	Friends of Queens Park
111	Mr Michael Calkovics
112	E J Cousens
113	Mr Roger Nicholson
114	Mr Ken Harris
115	Ms Judy Moore
116	Mr Stan Duncan
117	Mr Charles Timma
118	Mr Robert McDonald
119	Mr Neville Robinson
120	Mr Allan Mull
121	Mr Neville Watkins
122	Mrs Beverly Jackson
123	Mrs Margaret Parish

124	Mr Robert Bethune
125	Mr Roy and Mrs Bev Bantick
126	Mr John and Mrs Margaret Silvester
127	Mr Phil Seymour
128	The Eureka Project
129	Dr Richard Kocsis
130	Mr John King
131	Mr David Morton
132	Ms Thelma Dennis
133	Mr Noel Carr
134	Mr W I Crain
135	Mr Geoff Waters
136	Friends of Malabar Headland
137	R E Zegebroks
138	Mr Colin Bungay
139	Mr Billy Tait
140	Mr Warwick Nichols
141	Mr Jim Crebbin
142	Mr Peter Whitebread
143	Mr Peter Bentley
144	The Budawang Committee Inc.
145	Outdoor Recreation Party
146	Mr Wayne West
147	Mr John Parker
148	Mr Craig Ingram MP
149	Federation of Australian Scientific and Technological Societies
150	Mr Alan Lush
151	Mr Jim Speirs
152	Dederang Fire Brigade Management Team
153	Rushworth Fire Brigade
154	Colo Heights Rural Fire Brigade
155	Ferntree Gully Urban Fire Brigade
156	National Parks Association of Queensland Inc.
157	Institute of Public Affairs

158	Kurrajong Heights Rural Fire Brigade
159	Mr Don Spriggins
160	North East Victorian Division of General Practice
161	Mr John and Mrs Robyn Scales
162	Mr John Scales
163	Mr Scott Dizais
164	Towong Shire Council
165	District Council of Grant
166	Forests and Forest Industry Council
167	Albury-Wodonga Environment Centre
168	Murray Hume Business Enterprise Centre
169	Mr Craig Allatt
170	Mr Alan Hoysted
171	Saturn Corporate Resources
172	Mr Graham Hicks
173	Forestry Tasmania
174	Ms Rita Bentley
175	Captain Bill Kingwill
176	Victorian National Parks Association (NPA)
177	Mr Vic Jurskis
178	Mr John Cardwell
179	Mr Tim Webb
180	Mr Jack Boardman
181	Mr Herbert Bolles
182	Mr Jim Norrie
183	Dr Dionisio Regozo
184	Ms Margery Smith
185	Mr Ron Smith
186	Mr Graham Elphick
187	CONFIDENTIAL
188	Mr Robert Martin
189	Mr Barry Mapley
190	Mr Roger Mull
191	S Loiterton

192	Hon Dr Bob Such
193	J Underwood
194	Mr Victor Walker
195	Ottavio Kos
196	Mr John Hindmarsh
197	Hon Paul Omodei MLA
198	Dr Katja Mikhailovich
199	World Wide Fund for Nature Australia
200	Shire of Manjimup
201	Australian Committee for The World Conservation Union (ACIUCN)
202	Mr Klaus Braun
203	National Air Support
204	Wilberforce Rural Fire Brigade
205	Mr Paul Kennedy
206	Mr Alastair Paton
207	Greenpeace and Climate Action Network Australia
208	Department of Transport and Regional Services (DOTARS)
209	Blue Mountains Conservation Society Inc.
210	Dr Kevin Tolhurst
211	Mrs Margery Scott and Mrs Anne Strang
212	Victorian Association of Forest Industries (VAFI)
213	Dr Andrew Southcott MP
214	Environment Victoria
215	Mr and Mrs Graham and Diane McGill
216	Australian Institute of Landscape Architects
217	Ms Christine Litchfield
218	Bridgewater and Gagebrook Urban Renewal Project
219	Mr Jim Williamson
220	Timber Communities Australia – Southern Tasmania Branch
221	Fire for Life Inc.
222	Just-In Case
223	Prospectors and Miners Association
224	Dr Scott Mooney
225	Standards Australia International Ltd

226	Mr John McDermott
227	Mrs Leisa Caldwell
228	WA Farmers Federation
229	SkillPro Services Pty Ltd
230	Mr Les Dollin
231	Mr Allan Lehepuu
232	Mr Robert Macguire
233	North East Catchment Management Authority
234	Mrs June Weston
235	Monaro Merino Association
236	Mr Peter Rankin
237	Narrawallee Residents and Ratepayers Association
238	Mr Bill Hancock
239	Ms Thelma Dennis
240	Alpine Shire
241	Mr D D Melville
242	Kioloa Volunteer Rural Fire Brigade
243	Colong Foundation for Wilderness Ltd
244	Gecko – Gold Coast and Hinterland
245	Mr John Modra
246	Mr Cameron Reid
247	Mr Mac Paton
248	Woolla Pastoral
249	Mr Stephen Walls
250	Mr Terry Cardwell
251	Mr Ralph and Mrs Rosetta Barnes
252	Rural and Regional Committee of the Liberal Party NSW
253	R W Condon
254	Mrs R Jensen
255	Mr Mark Jenkins
256	Mr Brian Murphy
257	City of Mitcham
258	Forest Industries Association of Tasmania
259	Ms Sandra Johansen

260	Mr Alex Hooper
261	Ms Win Morgan
262	Mr Allan Friar
263	Mr Paul Titterington
264	Carboor Rural Fire Brigade
265	Mr Bruce and Mrs Michele Fonnest
266	Buffalo River CFA
267	Miss Anita Martin
268	Mr D McCauley
269	Mr John Lyons
270	Mr John and Mrs Wendy Ward
271	Mr Ross Briggs
272	Mr John Arter
273	Ms Margaret McIntosh
274	Mr Andrew Mull
275	Mr Ray Blewett
276	Mr Jack Hicks
277	Mr Geoffrey Lacey
278	Mr Doug Seacombe
279	Mr T R Walpole
280	Mr Leonard Tonkin
281	Mr Ian Black
282	Mr Anthony Carey
283	Ms Lorraine North
284	CONFIDENTIAL
285	Indigo Shire Council
286	Alpine Conservation and Access Group
287	Timber Communities Australia – Mount Beauty Branch
288	Mr Kevin Whalan
289	Mr Alan Harris
290	Ms Mary McDonald
291	CONFIDENTIAL
292	Mr Geoff Lucas
293	Mr Rod Andrew

294	CONFIDENTIAL
295	Institute of Foresters of Australia
296	Southeast Queensland Fire and Biodiversity Consortium
297	Timber Communities Australia – Rushworth Branch
298	Mr Ralph Steele
299	Bush Users’ Group Indigo Region
300	Mr Frank Fitzpatrick
301	Noorongong Rural Fire Brigade
302	Mr Peter Curtis
303	United Firefighters Union of Australia - QLD
304	TransGrid
305	The Wilderness Society
306	Loddon Shire Council
307	Mr Bruce Limsden
308	CONFIDENTIAL
309	Cooma Rural Lands and Protection Board
310	Binalong Bay Ratepayers Association
311	Insurance Council of Australia (ICA)
312	Fire Search
313	Mr Norman Endacott
314	Barmah-Millewa Collective Friends of the Earth
315	Ms Christine Finlay
316	Mr Neil Barraclough
317	Mr Peter Webb
318	NSW Farmers Association
319	Mr Rock De Marchi
320	Mr Miles Franklin
321	Peak Environmental Enterprises
322	Mr V W Hickey
323	Mr Brian Fraser
324	Mr Edward Baynes
325	Mr Bruce Bingham
326	Australian Honey Bee Industry Council
327	Mr Joe Lopez

328	Ms Helen Ferns
329	Blue Mountains City Council
330	ACT Rural Lessees' Association
331	Mr Laurie Crouch
332	A K Whitsed
333	Mr Dennis Bettens
334	Dr L H Pyke
335	CONFIDENTIAL
336	Bush Users' Group Victoria
337	Mr Chris Commins
338	Stanthorpe Shire Council
339	Insurance Australia Group (IAG)
340	Forest Industries Federation WA
341	Mr John Wickett
342	Prof Ken Taylor
343	Mr David Menzel
344	Emergency Management Australia (EMA)
345	United Firefighters Union of Australia - QLD (Supplementary to 303)
346	Commonwealth Scientific and Industrial Research Organisation (CSIRO)
347	Environment Australia
348	Ms Dianne Blackwood
349	Monto Shire Council
350	Forest Owners Conference
351	Prof Robert Whelan
352	Bush Users' Group Victoria, Inc (Supplementary to 336)
353	Cooma District Council of NSW Farmers Association
354	Mr Michael Walsh
355	Stanley Rural Fire Brigade
356	Kosciusko Thredbo Pty Limited
357	Mr Leandro Boscosuro
358	Hancock Victorian Plantations Pty Ltd
359	Mr David Glasson
360	Mr Alan Oates

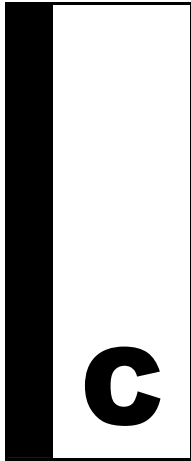
361	Mrs Patricia Laird
362	Western Australian Government
363	Mr Jim Clark
364	Ms Natalie Woodley
365	Ms Belinda Clarkson
366	Mr Stephen Laver
367	Ms Margaret Logan
368	Hon Peter McGauran MP
369	Commonwealth Bureau of Meterology
370	Mr Reuben Radord
371	Mr Maurie Killeen
372	Mr Michael Skehan
373	Mr Graeme Bailey
374	Mr Harry Ryder
375	Ms Nina Waldron
376	Mr Trevor Davis
377	Bombardier Aerospace
378	Mr Peter Smith
379	Rubicon Roland Branch of the Liberal Party
380	Volunteer Fire Brigades Victoria
381	M and R Dunn Architects
382	Fire Protection Association Australia
383	Advocates for Clean Air
384	Dr David Karoly
385	Mr Duncan Kirkland
386	NSW Rural Fire Service Association
387	East Gippsland Shire Council
388	Mr Robert Allen
389	Bombala Council
390	Mr Russell Morse
391	Mr Thomas Jarvis
392	Uriarra Community Association
393	CONFIDENTIAL
394	M O Blake

395	Mr David Packham
396	Friends of East Killara
397	Timber Communities Australia – National Branch
398	CONFIDENTIAL
399	Australasian Assembly of Volunteer Fire Brigade Associations Inc. (AAVFBA)
400	Conservation Council of Western Australia
401	Institution of Engineers Australia
402	Mr Ray Cowburn
403	Mr Ronald Evans
404	Mr Don Nott
405	NSW National Party
406	Ms Josephine Martin
407	Mr Lindsay (Ralph) Barraclough
408	Mrs Pat McCubbin
409	Mrs Nola McCallum
410	Mr Ian Haynes
411	Mr David Barton
412	North-Eastern Apiarists Association
413	Cease Fire Technologies
414	Mr Philip Clark
415	Save Honey Suckle Reservoir Committee
416	Hon Wilson Tuckey MP
417	CONFIDENTIAL
418	Ms Valerie Warner
419	Ms Elizabeth Marsden
420	National Association of Forest Industries
421	Mr Peter Rankin (Supplementary to 236)
422	Mr Gavin Bugg (Supplementary to 42)
423	Victorian Farmers Federation
424	The Mountain Cattlemen's Association of Victorian Inc.
425	Department of Defence
426	Mr Peter Edwards
427	CONFIDENTIAL
428	Hon Wal Murray

429	Mr Ken Scott
430	Powercor Australia
431	Snowy River Shire Council
432	Mr Johan Kohlman
433	CONFIDENTIAL
434	Commonwealth Scientific and Industrial Research Organisation (CSIRO)
435	Mr Robert Birch
436	Mr Stewart Stastra
437	Mr Steve Pratt MLA
438	Mr Angel John Gallard
439	Mr Ray Stafford
440	Polo Flat Private Airfield and Farm and Disabled Flying Centre
441	Mr Kevin Browne
442	Mrs Patricia Shergis
443	Mr Kevin Crameri
444	Mr Keith Campbell
445	Mr Peter Brumby
446	Mr Alan Oates (Supplementary to 360)
447	Mr Allan Brown
448	Ms Fay Neil
449	Mr Terry Leahy
450	Mr Athol Hodgson
451	Shoalhaven City Council
452	Mr Bill Haigh
453	Mr Mark Douglas (Supplementary to 8)
454	Timber Communities Australia
455	Urbenville Rural Fire Brigade
456	Huon Resource Development Group
457	Towong Shire Council (Supplementary to 164)
458	Mr Gilbert Rothe
459	Mr Robert and Mrs Samantha Stoney
460	Mr Matt Carroll
461	Institution of Fire Engineers, Australia Inc.
462	Agrecon

463	Cr Ben Buckley
464	Mr Peter and Ms Heather Henderson
465	Mr Trevor Dwyer
466	Mr Paul Buchler
467	Mr David and Mrs Yvonne Ward
468	Blue Mountains Conservation Society Inc. (Supplementary to 209)
469	Mr Edwin Lowery
470	Ms Angela Turner
471	Mrs Kim Van Dyk
472	Mr Graeme Evans
473	Mr A J Pedro
474	Mr Andrew Muir
475	Mr Charle Sumner
476	Ms Sue Jack
477	Mr Tony Tynan
478	Albury Wodonga Regional Tourism Forum Inc.
479	Mr R C Halton
480	Mr Ron Messer
481	Mrs Beverley Allen
482	Mr Lindsay (Ralph) Barraclough
483	Mr Kevin Mills
484	Mr Lyndley Chopping
485	Victorian Association of Forest Industries (Supplementary to 212)
486	Nillumbik Ratepayers Association
487	Mr Darrel Drage
488	Mr Kevin Broome
489	Mr Mark Cupitt
490	Mrs Gay Wilson
491	Australian Spatial Information Business Association Limited
492	ADI Limited
493	Environmental Hazard Management Pty Ltd
494	CONFIDENTIAL
495	CONFIDENTIAL

496	Mr Colin McKenna
497	Shire of Kojonup
498	Mr Gareth Kimberley
499	Mr A R Wake
500	Nature Conservation Council of NSW and Australian Conservation Foundation
501	Mr Graeme Connley
502	Mr Michael Millard
503	CONFIDENTIAL
504	Cease Fire Technologies (Supplementary to 413)
505	Mr David Ferry
506	Mr Colin Watson
507	Australian Management Consolidated Pty Ltd



Appendix C – List of exhibits

Number	From
1	Australasian Fire Authorities Council Letter from the Australian Forest Authorities Council with a National Aerial Fire fighting Strategy
2	Mr Peter Smith Copy of a submission to the NSW Coronial inquiry into the Canberra Region bushfires
3	TransElec International Brochure on the TransElect International Fire Defence System
4	Snowy River Rural Fire Service Berridale Brigade Proposed Control Centre - Jindabyne
5	Trees Inc. Copy of pamphlet Some thoughts on Prescribed Burning based on material published in the Age, presented by Trees Inc.
6	Hon Warren Entsch MP Letter to the Hon Wilson Tuckey MP from the Hon Warren Entsch MP
7	Mr N B C Carter Copy of a letter to the Coroner, Canberra Fire Inquest, from Mr N B Carter, Cooma, NSW

-
- 8 **Mr David Hawker MP**
The People of Gariwerd
- 9 **Mr David Hawker MP**
Pamphlet on the report by the Auditor-General Victoria on fire prevention and preparedness
- 10 **Mr Ron Neeves**
Copies of letters to the local Emergency Management Officer (Nowra) the NSW Minister for Emergency Services, and the NSW Minister for Police
- 11 **K M McManus**
Copies of letters with multiple signatures to the NSW Coroner regarding correspondence from the NSW NPWS
- 12 **Cease Fire Technologies**
Proposal for a bushfire information program, presented by Cease-Fire Technologies Australia (related to submission no. 413)
- 13 **Humane Society International**
Copy of a proposal for nomination of firewood harvesting practices for listing as a Key Threatening Process under the Endangered Species Protection
- 14 **Mr Donald Batty**
Letter from Mr Batty of Geelong, Vic, forwarding a selection of press clippings
- 15 **W R Taylor**
Copy of a submission made to the bushfire inquiry established by the Victorian Government, W R Taylor, Omeo, Vic
- 16 **Mr Graham Hicks**
Copy of a Submission to the McLeod inquiry (ACT fires) forwarded by Mr Graham Hicks, Hawker ACT
- 17 **E Grady**
Copy of a letter to NWS NPWS from E Grady, Bracken Ridge, QLD

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- | | |
|----|--|
| 18 | Mr Charles Schroeder

Copy of a Submission made to the bushfire inquiry established by the Victorian Government, by Mr Charlie Schroeder, Omeo, Vic |
| 19 | Mr Brent Stafford

Material provided by ITS Australia, with a covering email stating the ITS is not able to make a formal submission |
| 20 | Mr Arthur Farn

Copy of a submission made to the bushfire inquiry established by the Victorian Government, forwarded by Arthur Farn, Yanck, Vic |
| 21 | Mr Adam Phillips

Copy of a letter to Strike Force Toronto, from Trevor and Lynda Davis of Tom Groggin Station, Vic |
| 22 | Mr Simon Paton

Debrief of Fires in the Tallangatta Valley, presented during committee inspections in north east Victoria |
| 23 | The Mountain Cattlemen's Association of Victorian Inc.

Collection of photos entitled Fire Impact in the Victorian Alps
The Benefits of Grazing, Mountain Cattlemen's Association, Omeo, Vic |
| 24 | Towong Shire Council

Towong Shire Council for the Municipal Fire Prevention Committee |
| 25 | Mr Leo Dignan

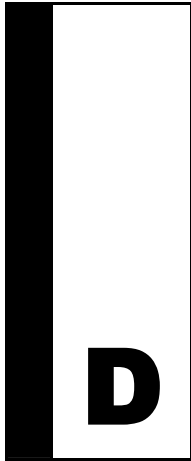
Copies of two submissions made to the bushfire inquiry established by the Victoria Government |
| 26 | Pinkerton

Copy of an opinion prepared for the Eureka Project on the submission made by the Eureka Project
(related to submission no. 128) |

-
- 27 **Mr Arthur Hubbard**
Letter from Mr Arthur Hubbard, Everton Victoria to Max Ellen
Captain of the Everton Fire Brigade
- 28 **Mr David Packham**
Copy of a submission to the bushfire inquiry established by the
Victorian Government, David Packham, Willung Victoria
- 29 **Cann Valley Landcare Group**
Submission to the Victorian Government, Judy McKinnon on
behalf of the Cann Valley Landcare Group
- 30 **Mrs Clare Gray**
Letter to the Prime Minister forwarded through the office of the
Minister for Regional Services, by Robert and Clare Gray,
Hunter Springs NSW
- 31 **Sir Peter Lawler**
ACT Government Inquiry into the Operational Response to the
January 2003 Bushfires
- 32 **Mr Richard Blyton**
Copy of the fire captain's report and a copy of correspondence
sent to the Premier of NSW, forwarded by Richard Blyton,
Nimmitabel
- 33 **Wilberforce Rural Fire Brigade**
Wilberforce Bushfire Brigade, including comments and
recommendations on the NSW bushfire Assessment Code and
on training systems
- 34 **Mr Brian McKinley**
Copies of various correspondence presented by Brian McKinley,
NSW Fire Association
- 35 **Mr A K Lance**
Copy of report Review of Environmental Factors Hazard
Reduction Burning on Private Property
- 36 **Mr A K Lance**
Copied extract from Burning Questions
- 37 **Mr Vic Jurskis**
Copies of photographs presented by Mr Vic Jurskis

-
- 38 **Val Bland**
Copy of submission to the McLeod Inquiry, forwarded by Val Bland, Weston ACT
- 39 **W R C Geary**
Copies of extracts from The Bush Fire Problem in Victoria
Proposals for a new fire control system 1983, forwarded by
WRC Geary
- 40 **Mr Brian (Bluey) Bettles**
Fire Track Condition Report, presented by Mr Bluey Bettles at
the public hearing on 25 July
- 41 **Mr Linton Briggs**
Documents presented by representatives of the Victorian
Apiarists' Association at the public hearing on 25 July -
Statement of Detriment
- 42 **Mr Neville Wright**
Document providing background information on the Alpine
Conservation and Users Group
- 43 **Mr Andrew Scholz**
Copy of a proposal from the Wilberforce Rural Fire Brigade for a
Relief Fund for Volunteer Firefighters
- 44 **Ms Kate Carnell**
Fire Management on Public Land, prepared for Forest and
Wood Products CRC by Luke Balcombe
- 45 **Timber Towns Victoria**
Report Socio-Economic Impact of Bushfires on Rural
Communities and Local Government in North East Victoria
- 46 **Mr Tony Corcoran**
Answers to questions taken on notice by representatives of the
Department of Defence at the public hearing on 15 July
- 47 **Hon Peter McGauran MP**
Report to the bushfire community meeting at Tubbat on 31 July
by Mr Sami Cline, Orbost

-
- 48 **Hon Peter McGauran MP**
Copy of a submission to the Victorian State Government bushfire inquiry by Paul, Judy, Lauren and Glen Sykes, Gelantipy
- 49 **Mr David Hawker MP**
Copy of a report of a cross border volunteer workshop, 24 and 25 July
- 50 **Mr Phil Lloyd**
Copy of the Southern Border Fire Co-ordination Association Guidelines
- 51 **Sir Peter Lawler**
Copy of a letter from Sir Peter Lawler to the ACT Minister for Urban Services
- 52 **Mr Patrick O'Halloran**
Letter from the Victorian Farmers Federation forwarding resolutions from the VFF annual conference, related to the 2003 bushfires
- 53 **Eurobodalla Shire Council**
Copy of a submission by Eurobodalla Shire Council to the NSW Minister for Emergency Services, forwarded by the Eurobodalla Shire
- 54 **Ms Judy Roberts**
Copy of a submission to the ACT Government for a community fire unit in Curtin, by residents of Munro Street Curtin ACT
- 55 **Ms Annette Ellis MP**
Document presented by Ms Ellis - ACT Government notes 'Fuel reduction burns - difficulties in the ACT'



Appendix D – List of public hearings

Tuesday 8 July 2003 – Nowra

Manyana District Citizens Association

Mr David Desmond Melville, Secretary

Narrawallee Residents and Ratepayers Association

Mr Brian Philip Hawkins, President-Secretary

Shoalhaven City Council

Mayor Gregory Herbert Watson, Mayor

Mr Barry Gordon Russell, Divisional Manager, City Services Division

Private capacity

Councillor John Anderson

Mr Kenneth Andrew Forbes

Mr William Henry Haigh

Mr William Frederick Hancock

Mr Thomas Colin McManus

Mr Philip Bernard Mills

Mr Ross Ian Reeves

Professor Robert John Whelan

Wednesday 9 July 2003 – Katoomba

Blue Mountains City Council

Mr Peter Donald Geoffrey Belshaw, Fire Planning Officer
 Mr Christopher Gerard Brogan, Manager, Building and
 Construction Branch
 Mr Frank Joseph Garofalow, Program Leader Natural Systems
 Mr Anthony Brendan Martini, Group Manager City Solutions
 Mr Christopher John West, Fire Mitigation Officer

Blue Mountains Conservation Society

Mr Hugh John Paterson, Bushfire Representative

Private capacity

Mr Kevin Browne

Mr Donald William Nott

Wednesday 9 July 2003 – Richmond

Friends of East Killara

Mrs Freida Joan Martin

Kurrajong Heights Rural Fire Brigade

Mr Raymond Andrew Lewis, Deputy Captain, Planning Officer and
 Equipment Officer
 Mr Robert Cecil McFadyen, Secretary
 Mr Brian Williams, Captain

New South Wales Rural Fire Service Association, Central East Regional Conference

Mr Ross Jones, Member
 Mr Brian Lindsay McKinlay, Chairman

Wilberforce Rural Fire Brigade

Mr Adrian Greentree, Senior Deputy Captain
 Mr Andrew Scholz, Deputy Captain
 Mr Michael Scholz, Captain
 Mr Neville Wearne, Secretary

Private capacity

Mr Raymond Edward Barnard

Mr Herbert Bolles

Mrs Helen Ferns

Mr Brian Robert Hungerford

Mr Kurt Albert Lance

Mr Warwick Dixon Nichols

Mrs Barbara Mary Powe

Thursday 10 July 2003 – Cooma

Access for All Inc.

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Mr John Charles Snell, Member

Mr Donald (Neil) Waddell, Chair

Berridale Rural Fire Brigade

Mr John Norris King, President and Area Deputy

Bombala Council

Mr David Rawlings, General Manager

Bombala Rural Fire Service

Mr Thomas Clive Cottrell, Group Captain

Cooma District Council of the New South Wales Farmers Association

Mrs Beverley Allen, Member

Mr Charles (Ian) Antony Litchfield, Treasurer

Mr James Litchfield, Member

Mr Robert Edward Maguire, Member

Mrs Susan Kathrine Mitchell, Chairman

Cooma-Monaro Shire; District Bushfire Management Committee; and Cooma-Monaro Shire Rural Fire Service Captains Committee

Mr Winston Churchill Phillips, Deputy Mayor of Shire and
Chairman of both Committees

Cooma Rural Lands Protection Board

Mr Sidney William Walters, Director

Mr Michael James Green, Director

Dry Plains Rural Fire Service

Mr Stephen Barry Mackay, Captain

Kosciusko Thredbo Pty Ltd

Mr Kim Andrew Clifford, General Manager

Mr Garry John Huggett, Property and Development Manager

Nimmitabel Bushfire Brigade

Mr Richard Ian Blyton, President, Past Captain and Volunteer

Numbla Vale Rural Fire Service

Mr David Glasson, Volunteer

Polo Flat Airfield

Mr Michael Charles Seymour Apps, Owner/Managing Director

Rocky Plain Bushfire Brigade

Mr David Edward Fletcher, Brigade Captain

Snowy River Shire Rural Fire Service

Mr Peter Bottom, Group Captain

Mr Darvall Sinclair Dixon, Group Captain

Mr Philip Alan Reid, Group Captain

Mr Ross Anthony Walters, Group Captain

Snowy River Shire Council

Mr Ross McKinney, General Manager

Private Capacity

Mr George Ross Dobbyns

Mr Angel John Gallard

Mr Graham John Gray

Mr Vic Jurskis

Monday 14 July 2003 – Canberra**Commonwealth Scientific and Industrial Research Organisation**

Mr Timothy Kent Vercoe, Centre Director, Asset Protection, Forestry
and Forest Products and Bushfire Coordinator

Timber Communities Australia

Mr Peter Lachlan Cochran, New South Wales State Manager

Ms Noeline Franklin, Consultant

Mrs Jill Lewis, National Director

National Association of Forest Industries

Ms Kate Carnell, Executive Director

Mr Phil Townsend, Deputy Executive Director

Private Capacity

Mr Gavin Bugg

Mr Ian William Haynes

Dr Katja Mikhailovich

Professor Ken Taylor

Mr Peter William Webb

Mr Wayne Karl West

Mr John Harold Wickett

Tuesday 15 July 2003 – Canberra

Australian Capital Territory Rural Lessees Association

Mr Harold John Parker Adams, President
 Mr Stephen James Angus, Committee Member
 Dr Tony Griffin, Vice-President
 Mr Geoffrey Hyles, Honorary Secretary

Emergency Management Australia

Mr David Templeman, Director-General

Department of Defence

Captain Edwin Stewart David Dietrich, Director, Joint Operations
 Mr Geoffrey Charles Hay, Acting Director-General, Regions and Bases,
 National Operations Division, Corporate Services and
 Infrastructure
 Major Garry Bede Smyth, Staff Officer Grade 2 Operations, Corporate
 Services and Infrastructure-Sydney Centre

Uriarra Community Association

Mr Michael James Anderson
 Mr Thomas William Bates
 Mrs Donna Kavanagh
 Ms Donna Murphy

Private Capacity

Mr Michael Dorrington Boyle
 Mr Mark Ralph Douglas
 Mr Paul Robert Francis Garrett
 Mr Valentine Max Jeffery
 Sir Peter Lawler
 Mr David Leslie Menzel
 Mr Peter Anthony Smith

Thursday 24 July 2003 – Wodonga

Albury-Wodonga Regional Tourism Forum Inc

Ms Christine Isabel Stewart, Vice-President

Alpine Shire

Mr Ian Nicholls, Manager Environment Services
 Mr Doug Sharp, Chief Executive Officer

Buffalo River Country Fire Association

Mr Ian Francis Johnson, First Lieutenant and Treasurer
 Mr Tony Menz, Captain

Bush Users Group

Mrs Jeanette Dowd, Secretary, Indigo Region
Ms Win Morgan, President, Indigo Region
Mr Robert Richardson, Committee Member, Victoria

Carboor Rural Fire Brigade

Mr Robin Box, First Lieutenant and Deputy Group Officer,
Moyhu Group of Fire Brigades
Mrs Susan Marie Box, Secretary-Treasurer
Mr Mervyn Frederick Holmes, Captain and Group Officer,
Moyhu Group of Fire Brigades

Dederang Fire Brigade

Mr Jack Hicks, Captain

Indigo Shire Council

Mr John Patrick Costello, Chief Executive Officer
Ms Ruth Tai, Manager Community Services

Mitta Rural Fire Brigade

Mr John Raymond Robert Cardwell, Captain

Mudgegonga Rural Fire Brigade

Mr David George Reeves, Captain

Nillumbik Ratepayers Association

Ms Mary Ellen McDonald, Member

Noorongong Fire Brigade

Mr Mark Smith

Towong Shire Council

Mr Peter Lenaghan, Manager Technical Services

Private Capacity

Mr Bob Bennett
Mr Les Carver
Mrs Belinda Clarkson
Ms Sue Jack
Mrs Carol Margaret McDonald
Mr Robert Arthur Charles McDonald
Mr Antony Fulton Plowman MP, Member for Benambra
Mr Monty Skehan
Mr John Paul Titterington
Ms Nina Waldron

Mr Thomas Richard Walpole

Mr Allan (Keith) Whitsed

Friday 25 July 2003 – Wodonga

Albury-Wodonga Environment Centre

Dr Dennis Black, Convenor

Alpine Conservation and Access Group

Mr Bruce William Addinsall

Mr Jack Hicks, Representatives

Mr Anthony John Roberts, Representative

Mr Neville Robinson, Committee Member

North Eastern Apiarists Association Victoria, Inc.

Mr John Linton Briggs, Executive Councillor

Mr Philip Blair Mc Pherson, President

Mrs Elwynne Papworth, Secretary

North-East Catchment Management Authority

Mr Mac Paton, Board Member

Mr Geoff Robinson, Manager, Land and Vegetation

North-East Victorian Division of General Practice

Dr John Mark Robinson, Medical Director

Ovens Eurobin CFA

Mr Barry John Mapley, Fire Captain

The Wilderness Society

Ms Susie Duncan, Woodlands Ecologist

Private Capacity

Mr Brian (Bluey) John Bettles

Mr Norman Peter Curtis

Mr Ronald James Evans

Mr Brian Andrew Fraser

Mr Mac Paton

Mr Simon Fraser Paton

Mr Ian Roper

Mr John Colin Scales

Mrs Robyn Christine Scales

Monday 28 July 2003 – Omeo**Federal Member for Gippsland**

Hon Peter McGauran MP

Mountain Cattlemen's Association of Victoria

Mr John Kevin Rogers

Mr Harry John Ryder, Special Project's Officer

Timber Communities Australia

Mr Peter John Panozzo, Representative for North-East Victoria

Wild Fire Task Force Inc.

Mr Robert George Grant, Member

Mr Fred Ward, Public Relations Officer

Private Capacity

Mr Clive Anderson

Mr Thomas Joseph Courtney

Mr John Macaulay Cribbes

Mr Bryan James McCormack

Mrs Leanne Faye McCormack

Ms Catherine McCoy

Mr Robert George Pendergast

Mrs Margery Isobel Scott

Mr Charles Edmond Rolfe Slade

Major Russell Leigh Smith

Mr Elizabeth Anne Strang

Mr Ken Stuart

Mr Graham Symons

Tuesday 29 July 2003 – Buchan**Bushfire Task Force Inc.**

Mr Robert George Grant, Chair

Mr Stewart Stastra, Member

Federal Member for Gippsland

Hon Peter McGauran MP

Licola Fire Brigade

Mr Lindsay Ralph Barraclough, Captain

Member for Gippsland East

Mr Craig Ingram MP

Private Capacity

Mr Hugh William Adams

Mrs Elizabeth Bronte Benton

Mrs Eileen Buckland

Mr Bill Livingstone

Mrs Heather Livingstone

Mrs Sandra Livingstone

Mr Nicholas Margetts

Mr David Roy OAM Packham

Mrs Gina Trotter

Wednesday 30 July 2003 – Ballarat**Aerial Agriculture Association of Australia Ltd**

Mr Rob Boschen, Member and Former Director

Mr Phil Hurst, Executive Officer

Mr Peter Mackay, Vice-President and Director (Victoria)

Mr Ross Pay, Director

Auspine Tree Farms and Forest Owners Conference

Mr Philip Gerard Lloyd, General Manager and Member (respectively)

Barricade Fire Protection Pty Ltd

Mr Patrick David Harrington, Director

Mr Leo Kenneth Peek, Director

**Communications, Electrical, Electronic, Energy, Information, Postal,
Plumbing and Allied Services Union of Australia**

Mr Burt Mackenzie Blackburne, Assistant Secretary

Forestry South Australia and Forest Owners Conference

Mr Brian Farmer, Director and Member (respectively)

Hancock Victorian Plantations and Forest Owners Conference

Mr Malcolm Geoffrey Tonkin, position not provided and Member
(respectively)

Institute of Public Affairs

Dr Peter Muecke Attiwill, Member, Research Advisory Committee

University of Melbourne

Dr Kevin Gerard Tolhurst, Senior Lecturer, Fire Ecology and
Management

Victorian Association of Forest Industries

Mr Patrick Dennis Wilson, Director, Public Affairs

Private Capacity

Mr Peter Thomas Bentley

Mr Athol Hodgson

Mr Paul Buchler

Friday 1 August 2003 – Hobart**Binalong Bay Ratepayers Association Inc.**

Mr John Ernest Briginshaw, President

Mr Brian Smith, Committee Member

Forest Industries Association of Tasmania

Mr Terry Edwards, Chief Executive

Mr Larry Earl Henderson, Manager, Sawmiller Services

Mr Gregory Brendon Hickey, Industry Representative, State Fire
Management Council

Miss Katy Hobbs, Assistant Manager, Member Services

Forestry Tasmania

Mr Evan Rolley, Managing Director

Mr Alen Slijepcevic, Manager, Fire Management Branch

Rubicon Roland Branch of the Liberal Party

Mr Reuben Radford, Federal Rural Delegate

Mr Tom Shacklock, Vice President

Timber Communities Australia

Mr Ricky Samuel Birch, Member

Mr Barry Lloyd Chipman, Tasmanian State Coordinator

Mr Basil Leo Hickey, Member

Tuesday 5 August 2003 – Manjimup**Dingup Bushfire Brigade**

Mr Robert Ian Morgan, Fire Control Officer/Secretary

Fire for Life

Mr Edward John Liddelow, Chairman

Mr Thomas Muir, Vice-Chairman

Kojonup Bushfire Advisory Committee

Mr Timothy Raymond Johnston, Deputy Chief Fire Control Officer

**Member for Warren-Blackwood, Shadow Minister for Agriculture,
Regional Development and Emergency Services**
Hon Paul Domenic Omodei MLA

Shire of Kojonup and Bushfire Advisory Committee
Mr Gregory John Marsh, Councillor and Representative (respectively)

Shire of Manjimup
Mr Andrew Graeme Campbell, Environmental Services

Unions Western Australia
Mr Nicholas James Oakes, Workers Employment Advisor

Private Capacity
Mr Rodney Clarence Daw
Mr John Stewart Evans
Mr Graham George Fellows
Mr Gregory Ernest Giblett
Mr James Robert Muir
Mr Don Spriggins

Wednesday 6 August 2003 – Perth

Conservation Council of Western Australia
Dr Beth Schultz, Vice-President

Department of Conservation and Land Management
Mr Kieran James McNamara, Acting Executive Director
Mr Richard John Sneeuwjagt, Manager of Fire Services Branch
Mr Alan William Walker, Director, Regional Services

Fire and Emergency Services Authority of Western Australia
Mr Craig Anthony Hynes, Director, Fire Services Country
Mr Robert James Mitchell, Chief Executive Officer
Mr Ralph Douglas Smith, Manager, Wildfire Prevention

Forest Industries Federation of Western Australia
Mr Robert John Pearce, Executive Director
Ms Brea Read, Resource Policy Officer

Front Line Fire Fighting
Mr Anthony Jefferis Pedro, Inventor—Head Operator

ICS Group
Mr Klaus Braun, Principal

South Coast Environment Group

Mr Hendrik Johan Versluis, Secretary

The Bushfire Front

Mr Roger John Underwood, Chairman

Western Australian Farmers Federation

Mr Andrew David Duncan, Board Member

Mr Andrew John McMillan, Director of Policy

Mr Colin Jeffery Nicholl, President

Western Australian Forest Alliance

Mr Peter Robertson, Convenor

Private Capacity

Hon Alexander Ashley Lewis

Ms Sandra Louise Boulter

Mr Bruce Malcolm Telfer

Thursday 21 August 2003 – Canberra**Australasian Assembly of Volunteer Fire Brigade Associations Inc.**

Mr Ian Harold Bennett, Secretary

Mr Campbell Robert Stafford, President

Australasian Fire Authorities Council

Mr Leonard Raymond Foster, Chief Executive Officer

Mr John Bryan Gledhill, President

Commonwealth Bureau of Meteorology

Mr Kevin Joseph O’Laughlin, Deputy Director, Services

Mr Barry Norman Southern, National Program Manager, Fire and
Air Quality Services

Department of Transport and Regional Services

Mr Adrian Beresford-Wylie, Assistant Secretary, Local Government
and Natural Disaster Management Branch, Territories and
Local Government

Mr John Doherty, First Assistant Secretary, Territories and
Local Government

Friday 22 August 2003 – Canberra

Commonwealth Scientific and Industrial Research Organisation

Mr Phil Cheney, Fire Research Scientist, Bushfire Behaviour
and Management, Division of Forestry and Forest Products

Dr Peter Francis Monckton Ellis, Fire Research Scientist,
Bushfire Behaviour and Management, Division of Forestry
and Forest Products

Mr Justin Leonard, Project Leader, Bushfire Research, Manufacturing
and Infrastructure Technology

Dr Stephen Ross Morton, Executive Chair, Division of Environment
and Natural Resources

Mr Timothy Kent Vercoe, Centre Director, Asset Protection, Forestry
and Forest Products and Bushfire Coordinator

Department of Environment and Heritage

Mr Con Boekel, Assistant Secretary, Parks Australia South

Mr Bruce Herbert Leaver, Head, Heritage Division

Mr Stewart Noble, Assistant Secretary, Natural Resource Management
Policy Branch

Insurance Australia Group Ltd

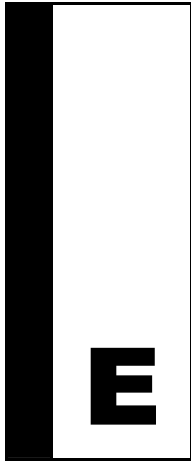
Mr Graeme Adams, Head of Product and Underwriting

Mr William Rooney, Operations Manager, Wollongong and Country
West Region Personal Insurance, Assessing and Claims

Insurance Council of Australia

Mr Allan John Hansell, Manager for NSW and the ACT

Mr Alan John Mason, Executive Director



Appendix E – Report on causal and risk factors, fuel management, including grazing, and the application of the Australian Incident Management System

Nic Gellie, October 2003

ECOGIS
PRINCIPAL CONSULTANT
NIC GELLIE

REPORT ON:
CAUSAL AND RISK FACTORS,
FUEL MANAGEMENT,
INCLUDING GRAZING,
& THE APPLICATION OF THE
AUSTRALIAN INCIDENT
MANAGEMENT SYSTEM(AIMS)

TO THE FEDERAL PARLIAMENTARY
INQUIRY INTO THE 2003 BUSHFIRES

ACKNOWLEDGEMENTS

This report is dedicated to three people who have played a key role in my life as a fire ecologist, fire planner, and as a fire manager.

Jim Hickman, former Deputy Director of the Rural Fire Service of Tasmania, and for many years head of the fire management branch of Forests Tasmania. I am indebted to his frank, human, and honest appraisal and insights into the social aspects of fire management.

Tony Mount, former research officer and head of the Fire Management Branch of Forests Tasmania, whose mentoring in fire research and fire ecology, as a university lecturer and a work colleague, gave me the insights and understanding of fire behaviour and fire ecology, to apply and manage fire in many different contexts.

Neville Brogan, a former park worker with the National Parks and Wildlife Service in the Blue Mountains, whose unswerving dedication to high standards in field fire operations, is an example of what can be done, if you only spend enough time learning and doing. Neville is suffering from terminal lung cancer.

I would also like to acknowledge the help and assistance of

- Athol Hodgson in Victoria, providing me with historical context of bush fires and prescribed burning in the Victorian Alps;
- Kevin Tolhurst, for recent studies and papers on fire management in Victoria
- Tony Mount, assisting me with the soil dryness index, and ideas on fuel management;
- Lachlan McCaw, with recent scientific papers on vegetation, fuel, and wildfire management in Western Australia;
- Phil Cheney, on fire behaviour in forests and grasslands;
- The secretariat of the House of Representatives Bushfire Committee;
- The Bilpin Bushfire Brigade, for providing me with more recent information from the Bilpin Community Fire Plan – an ongoing plan; and
- the numerous people I contacted to discuss their local knowledge and perspectives on the recent 2003 fires

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Ecosystem Management in the Alpine and Montane Regions of Victoria and SE NSW

TERMS OF REFERENCE

The House of Representatives Select Committee on the Recent Australian Bushfires, requested an independent consultancy to provide advice in relation to fire ecology and bushfire suppression planning and management.

The terms of reference supplied to EcoGIS, included the following:

- 1) Review the evidence the committee has received on the effectiveness and impact of prescribed hazard reduction burning and, taking account of the literature and research in the area, provide an assessment of that evidence. The secretariat will provide you access to the evidence to be considered. The assessment should discuss the extent to which the evidence is consistent with known wild fire management histories and the scientific literature.
- 2) Provide advice on the extent to which more extensive prescription burning programs could be undertaken and what would be the effect of any expansion of existing programs. This should include an assessment of the programs that would be needed to provide a better level of protection than was apparently available to the Australian community in recent years, and the technical/scientific issues that would need to be considered in any expanded programs.
- 3) Provide an assessment of the Australian Interagency Incident Management System as currently employed in Australia for bush fire suppression, and alternative approaches to the command and control of suppression activities.

CHALLENGES IN DECISION MAKING

The main challenge in managing large fires is the ability to take account of a multiplicity of factors, including fuel, fire, weather, containment strategies, as well as natural and cultural indicators in a short time frame. There is also a need make swift and accountable decisions to meet a variety of agency, social, and community needs, such as:

- limit the risk of damage to life and property;
- limit the long term impact of severe wildfires on the natural environment;
- manage the political and social environment; and
- to maintain the ecological integrity of ecosystems and species subject to severe fires

Unfortunately there are few people trained to make complex decisions in this decision-making environment. In the Alpine and Montane regions of Victoria and New South Wales, major fire seasons come around every ten to fifteen years, meaning few people get the experience to develop the skills of strategic and local fires assessment. As happened in the recent fires, decisions are based on the first criterion to protect life and property, with often little attention being given to the last three criteria. What is also often missing is a detailed local understanding of ecosystems, terrain, fire weather, and short and long term climate patterns, which can help to fashion more appropriate fire strategies to meet all of the above.

In the last ten years, decisions are now made in fire control centres, remote from the fire-ground, which often complicate, slow, and frustrate flexible and prompt decision-making. Groups of people isolated from the fire ground, and its myriad of small rapid changes brought about changes in fire weather, fuels, terrain, and success or failure of fire suppression crews, cannot respond effectively and efficiently to rapidly changing scenarios. Decision-making then becomes reactive and loses momentum in pre-emptive planning and creating opportunities to limit overall threats of a fire. In the last ten years, a trend of managing large fires, using the Australian Incident Management System (AIMS) has emerged. A major theme running through submissions from local brigades and landholders is that this management system in its present form, does not serve the interests, fears, and concerns of local people and communities. The ability to forecast a scenario is very much dependent on key factors, such as:

- current state of vegetation and fuels,
- terrain and fire barriers the fire is traversing,
- current seasonal pattern of weather,
- local weather conditions, and
- the likelihood of a rain stopping event.

Few people can read all these indicators and signs and integrate them into a coherent strategic assessment of potential fire scenarios and then to determine which one could be the most effective action to minimise any fire threats. When an attitude of suppression at all costs prevails, it is difficult to present alternative fire scenarios, based on calm, resolute, and scientific analysis.

Decision-making in this pressure-cooker environment can lead to major long term environmental impacts, which in otherwise less stressful circumstances, would not be considered. Present fire emergency legislation focuses on protecting assets at all costs, generally at the expense of the natural, cultural and physical environment. From the evidence provided in submissions from rural constituents, they are very much concerned at the long term damage done to their property, and on adjacent public land, when Alpine Ash forests or sub-alpine Snow Gum woodlands were killed by fires. What they are seeking is an alternative land management approach that takes into account local views and opinions on the best way to protect their local vegetation, watersheds, soils, and private and community assets.

A more unified and co-operative approach to fire and land management could be found in community based fire planning, with an agreed set of objectives, indicators, and processes. This local approach could help to develop a more dynamic and responsive approach to decision-making on large fires at local and sub-regional levels. The community fire planning concept could build a decision-making framework for fuel management and response to fire, based on the principle of adaptive management (Holling 1978). Adaptive management is the process of learning from past events in an objective and impassive manner, accepting that our present knowledge and understanding is imperfect. Our learning and adaptive management could be improved if monitoring of past decisions and actions is incorporated into future decisions. Adaptive management is in a sense a distilling and filtering of past successes and failures, which leads to a more intuitive decision making process.

A local planning approach could help to build trust and engagement of local people in planning and managing fire, which could lead to better relationships before, during, and after fires. Again a strong theme of alienation from decision-making and involvement is seen in many submissions. Land management agencies could adopt such local planning, and could achieve more successful outcomes with the community if local agency people are given more latitude and involvement to develop local policies and initiatives. Successful models of local fire planning have been developed for some years, which could be adapted to a wide range of social, political, and natural environments found in SE Australia.

ANALYSIS OF CAUSAL FACTORS

Severe fire behaviour historically occurs when there is a coincidence of the following conditions:

- Stressed vegetation – wilting of the vegetation canopy;
- Maximum fuel availability – more than 15 to 25 years since areas were burnt, either by wild or prescribed fire, pronounced curing of grass and shrub fuels, and full availability of stringybark and ribbon bark fuels as spotting and ember material;
- Very high to extreme periods of fire behaviour, usually over a one to two week period in the middle of summer; and
- Prolonged summer dry spells that follow a dry winter and/or spring.

The analysis undertaken in this report demonstrates that these conditions were comparable to that experienced in 1982/83 fire season with a long drawn out period of little rain between early December and late February, although the overall drought conditions were almost as severe as that in 1997/98.

HISTORICAL WEATHER

To understand how severe the recent fires were in the Highlands of Victoria and New South Wales, long term climate records from key weather stations were obtained from the Meteorological Bureau. Data from these weather stations was then used to create historical trends in key parameters in fire behaviour:

- Soil Dryness Index – measures the level of soil dryness, and potential stress in vegetation
- Fire Danger Index – measures the potential fire behaviour, given soil dryness, and ambient weather conditions at 3pm

To obtain a range of montane and sub-alpine environments, stations were picked geographically across the area burnt by the recent fires. Two weather stations, Canberra and Omeo, had almost continuous records back to the mid 1950's, which provided almost fifty years of continuous historical weather data. Complementary weather data was obtained from other

weather stations which were found at higher elevations or in different geographical places. The additional weather data came from the following stations:

- Nowra
- Cabramurra
- Falls Creek
- Noojee
- Combienbar.

The weather stations, Nowra, Falls Creek, and Noojee, comprised manual and automatic weather data sets whereas Cabramurra and Combienbar were recorded from Automatic Weather Stations (AWS). The weather data from these automatic weather stations were found to have many missing records, which meant that it was difficult to compile soil dryness indices for particular stations, without first having to infill a large number of daily records.

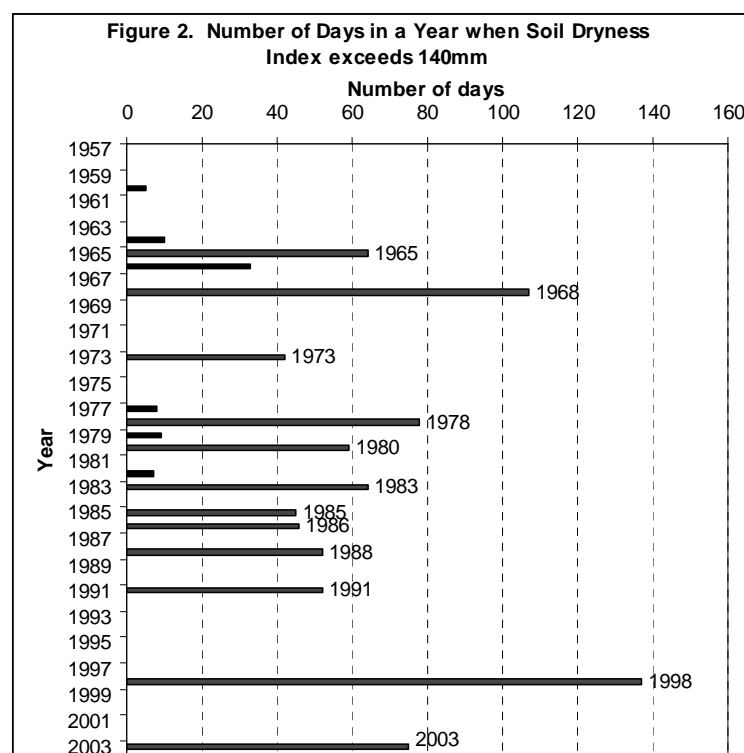
LEVELS OF MOISTURE STRESS SEEN HISTORICALLY

The Soil Dryness Index developed by Tony Mount for use throughout Australia has been shown to be a reliable indicator of general levels of soil moisture deficit (Mount 1964). The soil dryness index is based on two daily measurements of temperature measured at 3pm and rainfall from the previous day measured at 9 am. The index was derived from catchment run-off data and is also a useful guide to catchment conditions, including overland flow and sub-surface run-off.

The method used to compare recent levels of soil dryness in the Montane and Sub-alpine regions affected by the 2003 fires is based on a historical trend analysis of soil dryness index from the start of reliable records. The results of this trend analysis for the Omeo and Canberra airport weather stations are shown in Figure 1a and Figure 1b respectively in Appendix 1. The pattern of soil dryness in Figure 1a and 1b shows an oscillating pattern of dry periods in summer followed by cool wetter periods in most years. There are occasions when summer rainfall remains high and a much lower peak summer dryness index is reached. This occurred in the summer of 1961, 1962, 1963, 1969, 1970, 1973, 1974, 1992, 1993, 1994, 1996, 1999, and 2002. These wetter summers were generally associated with “La Nina” patterns in the Pacific Ocean when Southern Oscillation indices had either zero or positive values.

The driest summers in Omeo have occurred in the summers of 1964/65, 1968/69, 1972/73, 1977/78, 1982/83, 1984/85, 1987/88, 1997/98, and in 2002/03. Most of these dry summers are associated with “El Nino” patterns in the Pacific Ocean, with the exception of 1964/65, 1984/85, and 1987/88, where more localised climatic factors contributed to dry summers.

Based on the author’s experience of relationship between Soil Dryness Index and moisture stress in the vegetation, usually prolonged periods of soil dryness in excess of 140mm will lead to wilting of trees and shrubs, and curing of grasses, in native forests, and will tend to increase flammability and curing of live forest fuels. Figure 2 shows that there have been twelve years out of a total of forty six years where the soil dryness has exceeded 140 mm for more than forty days in a year. It is notable that the years in 1968 and 1998 had significantly greater number of days than that in 2003, exceeding 100 days in a year. The most recent fire season was comparable with previous years 1965, 1978, 1980, and 1983. In the latter case, the number of days in a year was between 60 and 80, where the SDI was in excess of 140mm.



The most recent fire season was therefore not the worst dry period in the recent historical record. The author's field observations in south-eastern NSW in 1998 noted that there were large patches of wilted forest on exposed westerly aspects, showing up as reddish orange patterns in the forest landscape, indicating drought induced moisture stress.

FUEL LEVELS

Although detailed spatial data of recent wildfires and prescribed fires were not available for analysis, some broad assessments can be made about levels of fuels in the montane and sub-alpine landscapes. The last most significant fire season that burnt over a million hectares was in 1939/40. Since then the sub-alpine areas of Victoria and New South Wales had almost continuous levels of fuels, which contributed to these areas being burnt.

There have been some major fire seasons since 1939. In the last fifteen years in Victoria, these were in 1984/1985, 1990/91, and 1997/98. Based on the statistics provided in DSE Research Report No. 49, there has been a gradual reduction in area burnt in NE Victoria in the period from 1975/76 to 1985/86, which includes area burnt by wildfire and prescribed fire. The decline in area burnt by all types of fires corresponds with relatively moist period from 1992-1996, which could have precluded more extensive fuel management in NE Victoria. Refer back to Figure 1a which shows the lower levels of soil dryness in these periods from the weather station records at Omeo. A submission presented to the Inquiry by the Mountain Cattlemen's Association of Victoria [], suggests that there were significant areas in the Victorian Alps which had not burnt since 1939.

Correspondingly in New South Wales, there were significant areas burnt in 1982/93, 1984, and 1984/85. Given the 15 to 18 years since the last major fire in the sub-alpine and montane regions of Kosciuszko National Park, fuel levels would have developed sufficiently to carry intense fires, except where intense fires in the last five to ten years have caused slow vegetation recovery, in fire sensitive Alpine Ash forest or Snow Gum woodland regrowth. Most of the sub-alpine forests and open woodlands were most likely last burnt in 1939, with some areas burnt in 1972/73 in the headwaters of the Geehi, and in 1982/83 in the Tantangara precinct of central Kosciuszko National Park.

In the ACT, according to submissions received in the inquiry, the only significant fire that has occurred in the last 20 years was a fire in Southern Namadgi.

In most of the alpine and sub-alpine regions, there was sufficient fuel to carry an intense fire in summer, which is what occurred after dry lightning storms. Equations which describe the build-up of fine fuels after fire have been described previously from fuel studies undertaken in the sub-alpine and montane regions of Kosciuszko and Namadgi National Park (Good 1994, Walker 1981). These fuel build curves assume a steady state where fuel accumulation and decomposition eventually balance out to produce a maximum equilibrium fuel load at some time after fire. The values of maximum litter and grass input, and decomposition rates are used to describe the maximum fuel levels reached, as well as the rate of accumulation.

The equation $X(t) = L/k*(1-e^{-kT})$ describes a generalised fuel build-up curve, where

$X(t)$ = the fuel level at a given time (t) after fire

L = the maximum fuel levels reached at an equilibrium fuel state

K = the rate of decomposition

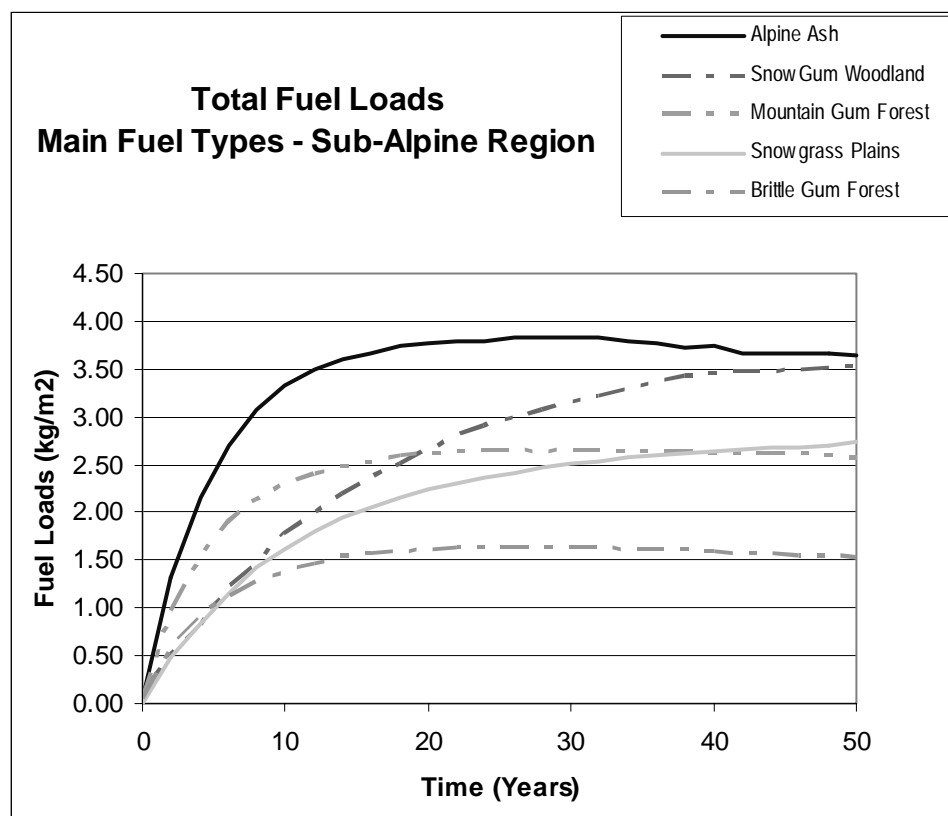
There are five principal vegetation fuel types found in the Sub-Alpine regions of the Central Highlands of Victoria and the Southern Tablelands of New South Wales: Alpine Ash Forest, Mountain Gum-Peppermint Forest, Broad-Leaved Peppermint Forest, and Snow Grass Plains. Figure 3 summarises the fuel build-up equations of these five main vegetation/fuel types. Within North-Eastern Victoria and south eastern NSW there are other fuel types in the fire affected area, which are not described in this report.

The highest fuel loads develop in Snow Grass Woodland because of the combination of litter and snowgrass build-up, combined with low decomposition. Alpine Ash forest has the highest fuel load levels, comprising mainly litter fuels, with some grass and shrub fuels present. However after 30 years, the litter layer can develop a deep duff layer, underneath the more recently deposited litter and bark. The next highest fuel loads develop in Snow Grass Woodland because of the combination of litter and snowgrass build-up, combined with low decomposition. There can be quite high local abundance of hip high flammable *Bossiaea* and other ericoid shrubs, depending on fire regimes. Fuel loads in Mountain Gum-Peppermint Forest are somewhat lower because of lower levels of litter fall and grass cover, with some patchy shrub fuels present, usually comprising *Acacia spp.* Snow grass plains comprise a dense sward of *Poa spp.* and other sub-alpine grasses, which can develop into a highly cured fuel build-up, if left unburnt for long periods. Finally the Brittle Gum-Broad Leaved Peppermint forest type has moderate fuel levels.

If most of the mountain country has been unburnt for at least 10-15 years, then most of these common fuel types would have been carrying moderate to heavy fuels, which under the drought conditions of January 2003 would have become mostly available as fuel. In addition when eucalypt forests and woodlands become stressed in a drought, further flammable material is added to the forest floor, which can increase litter fuel loads by 0.3-0.5 kilograms per square meters.

Another fuel factor which is not described in these equations is levels of flammable bark which is found in Alpine Ash forest and Brittle Gum-Peppermint forest. Generally eucalypt forests with Stringybark or Jarrah fuels, left unburnt for periods longer than 10-15 years, can develop dense ember spotting ahead of a fire front Tolhurst et al (1992), Burrows (1994). In the case of Alpine Ash forests, long distance spotting also occurs at higher fire intensities, depending on size of convection column, upper air instability, and dewpoint temperatures.

**Figure 3. Fuel Build-Up Curves of Main Vegetation/Fuel Types
in Areas affected by 2003 Fires**



LIGHTNING IGNITIONS

Lightning has been a major ignition source of fires in the montane regions of the Victorian and NSW Alps. In Victoria, up to 25% of fires may be started by lightning (Davies 1997). This figure increases to about 35% in NE Victoria, where the bulk of the lightning started fires occurred. Between 60 and 100 lightning started fires can occur in one event. In the recent season in Victoria 87 fires occurred in one event on the 8th January in NE Victoria and Gippsland. All but eight fires were extinguished. This event is comparable with the number of lightning strikes recorded in one event in previous fire seasons. There have been up to two such events in separate fire seasons since 1960 in Victoria; they occurred in 1964/65 and 1984/85. The event in 1965 resulted in 111 lightning strikes being recorded in one afternoon. All but three of the lightning strikes were extinguished. Two of them coalesced into one fire north of Briagolong and then burnt up to the New South Wales border. The other fire occurred at Bindi on the Tambo river. The area burnt by the three fires ended up being 400,000 hectares. Over 100 lightning strikes occurred in January 1985 and eventually 50,000 hectares was burnt (Hodgson pers comm.) The event in 2002/03 ranked as the fourth highest number of lightning strikes in a single event in Victoria (Tolhurst pers. comm.).

Eight out of the total of 87 lightning started fires then went on to merge into one large fire in Victoria. A similar pattern occurred in Kosciuszko National Park and in the ACT where 60 fires started on the 8th January from a belt of lightning strikes that coincided with the passage of a relatively dry cold front. As statistics of the number extinguished in the first 24 hours is unavailable, it is estimated that about 17 fires were not contained and went to burn significant areas of the southern Alps in New South Wales.

It is therefore not unusual once in every fifteen to twenty years, for a significant multiple lightning started fire event to occur. It usually coincides with a significant dry period in the middle of summer, usually from January onwards. A study of the recent fire history and drought

records should have revealed the possibility of such an event recurring. The event in 1964/65 also points to a few uncontained fires leading to a large area being burnt during a prolonged dry summer period. In 1964/65, 3 uncontained fires burnt 400,000 hectares in east Gippsland. In 2002/03, 8 uncontained fires burnt 1,000,000 hectares in NE Victoria and Central Gippsland. In both cases, about an average area between 125,000 and 133,000 hectares per fire was eventually burnt. The eventual magnitude of a small number of fires burning a large area should be given special recognition in planning for such scenarios during prolonged hot summer dry spells.

HISTORICAL PEAKS IN FIRE DANGER

The Macarthur forest fire danger rating integrates five weather variables:

- Seasonal soil dryness
- Recent rainfall
- Temperature
- Relative humidity, and
- Wind Speed

The weather stations recorded four days with very high to extreme fire danger during the period from early January to late February 2003. Very high to extreme fire danger occurred on the following days in both Victoria and New South Wales:

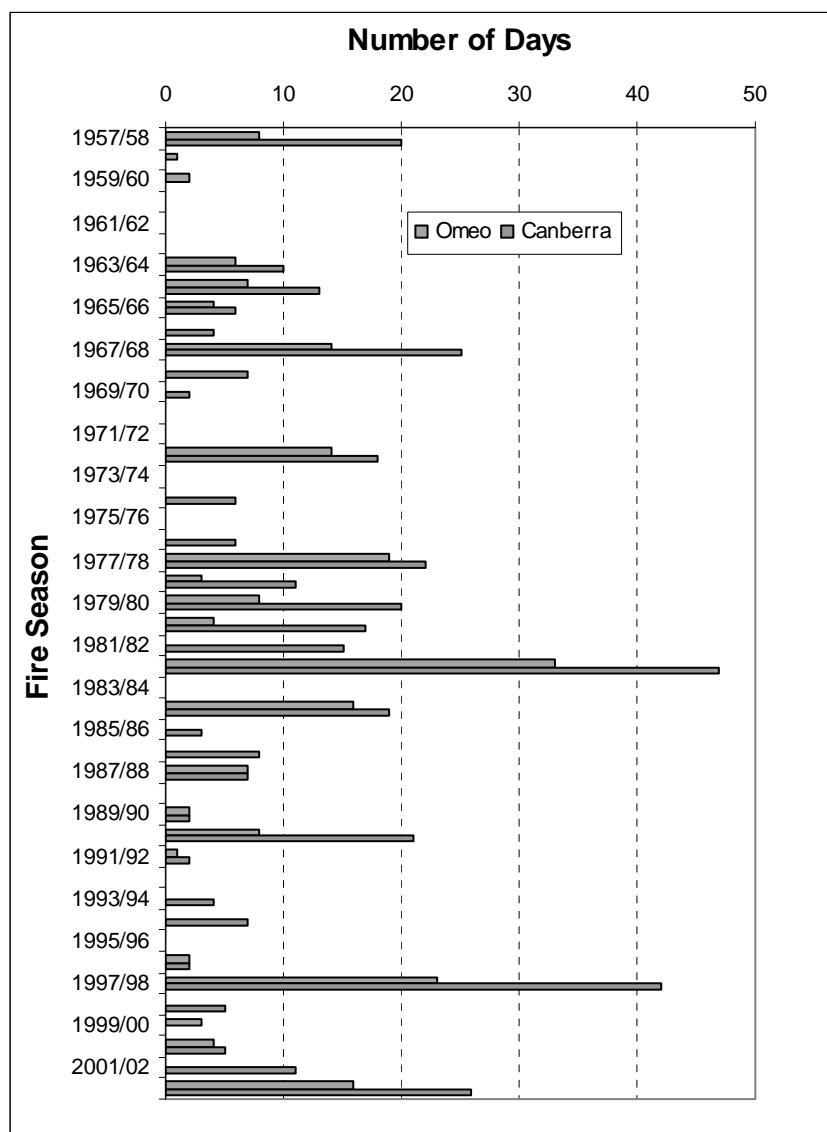
- 17/01/2003
- 18/01/2003
- 26/01/2003
- 30/01/2003

In order to rate the severity of these days in 2003, a historical analysis of combined daily fire danger ratings and soil dryness was undertaken, based on the Omeo and Canberra weather stations. Days with forest fire danger ratings in excess of 30 and soil dryness indices greater than 100m, were selected from the historical fire weather dataset from 1957 to 2003. The latter set of criteria was only applied to the months between November and February, which can be regarded as the peak period of a fire season in SE Australia. Historically severe fires have occurred between October and February in this part of Australia.

The selected dataset was then plotted against each year since 1957 in Figure 4. Reliable weather records for both Omeo and Canberra weather station commence in 1957.

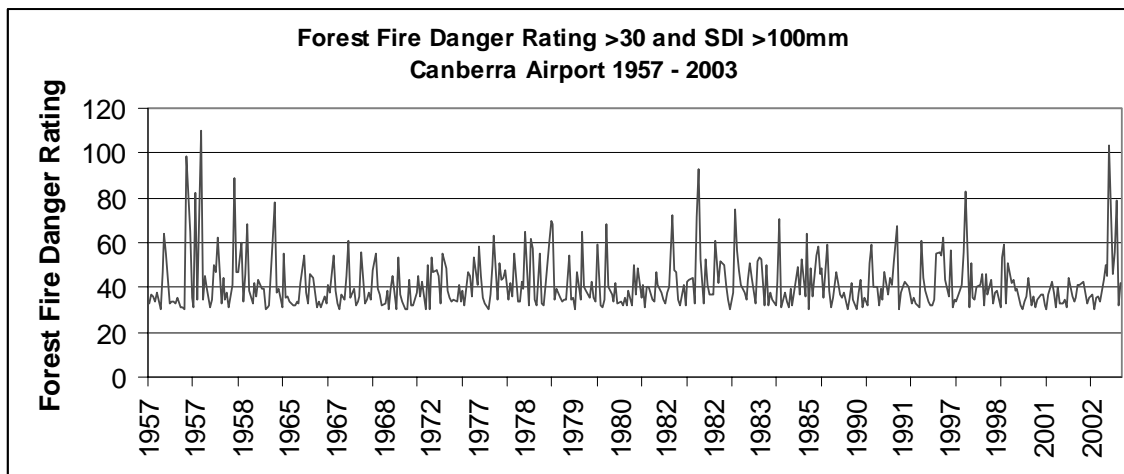
The results of this trend analysis show that the number of days with high soil dryness index and fire danger exceeding 30 in 2002/2003 was the third highest on record in Canberra, being exceeded in 1982/83, and 1997/98. Omeo has consistently fewer such days than Canberra. The frequency of such days was comparable with previous fire seasons, such as 1967/68, 1972/73, 1990/91, and similarly 1982/83 and 1997/98 had significantly more severe days. The data suggests that the occurrence of high to severe fire weather conditions in 2002/03 were comparable with those of previous fire years in both north-eastern Victoria and south-eastern NSW, perhaps being slightly higher than on an average drought year.

**Figure 4. Frequency of Days with Soil Dryness Index >100mm and FFDI >30
Weather Stations – Omeo and Canberra**



In order to rank the peak fire danger on the critical days in 2003, the same subset of data was then plotted as a line chart in Figure 5 for the weather station of Canberra airport. This chart shows the range of high-extreme values of FFDI between 1957 and 2003 and excludes all values of Forest Fire Danger Rating less than 30mm.

**Figure 5. Range of High to Extreme Forest Fire Danger Rating since 1957
Canberra Airport**



Typical peaks of forest fire danger rating during the course of a dry summer range between 50 and 60 with much fewer occurrences between 60 and 100. Most of the peak fire days tend to occur in November and December, with much less occurrence in January. The historical record of peak fire days suggests that there are perhaps 1% of days over a period of forty six years, when there is a combination of severe drought and extreme fire weather.

However in the historical record it is unusual for 4 days of very high to extreme fire danger to occur in the one fire season. Table 1 summarises the days and dates on which very high to extreme fire danger has occurred in January. The 2002/2003 fire season had four days which exceeded a forest fire danger rating of 40, with some of the highest values of forest fire danger and soil dryness. However a comparable number of peak fire days have occurred in previous fire seasons, in 1957/58, and 1982/83. In the recent historical record then it is not unusual for recurrent days of very high to extreme fire danger to occur either in January or February, in drought years. The next most recent fire season in 1997/98 had six days in late January and February, where values of forest fire danger rating were between 40 and 60.

The conclusion from this analysis is that recurrent periods of very high to extreme fire danger have occurred in the past in the montane and sub-alpine regions of Victoria, viz. 1997/98 and 1982/83. Monitoring of soil dryness and moisture stress in the vegetation is a critical part of fire season assessment. From about December onwards, the soil dryness in these regions was approaching critical historical values. If all fires were not suppressed or contained quickly, then a few fires left uncontained could build into massive convection columns driven by severe fire weather conditions and drought induced flammable fuels and vegetation. This scenario had devastating consequences for the vegetation, soils, and fauna within the areas affected by the recent fires on the days with very high to extreme fire weather conditions. A continuous cover of fuels over a wide area also contributed to the coalescence of uncontained fires.

Table 1. Summary Records of Peak Fire Danger between 1957 and 2003 for the month of January recorded at Omeo weather station

Date	Forest Fire Danger rating	SDI
18/1/2003	104	169
30/1/2003	79	175
8/1/1983	75	157
19/1/1958	69	156
14/1/1957	64	150
9/1/1983	56	158
26/1/2003	56	173
1/1/1968	56	163
15/1/1978	55	160
26/1/1979	55	147
15/1/1957	55	151
30/1/1977	53	150
28/1/1985	52	162
23/1/1983	51	168
8/1/2003	50	164
17/1/1985	49	150
3/1/1973	48	169
10/1/1983	48	159
13/1/1957	47	149
14/1/1958	46	151
23/1/1998	46	170
18/1/1998	46	169
21/1/2003	46	171
17/1/2003	45	169
30/1/1983	45	167
7/1/2003	44	163
30/1/1998	43	167
15/1/1985	43	149
22/1/1983	43	167
30/1/1980	43	147
25/1/1958	42	161
1/1/1978	42	167
31/1/1977	41	151
2/1/1998	41	167
16/1/1983	41	163

FIRE SPREAD DURING JANUARY AND FEBRUARY 2003

A simple map of fire spread was prepared using Sentinel Hotspot data supplied by CSIRO Land and Water. An overlay of final fire perimeters was derived from data published on the web by the Department of Sustainability and Environment in Victoria, as well as published maps of fire areas in NSW prepared by the Rural Fires Service and the National Parks and Wildlife Service. Refer to Figure 6 in Appendix 1.

The accuracy of these maps at a fine scale is questionable as the Hotspot data is based on interpretation of temperature signals picked up on 500m resolution MODUS imagery and may not be able to detect low intensity fires in forest or grassland fires burning in light fuels. However at the scale of the map prepared in this report, they provide some insight into the progressive build-up and eventual containment over a period of six weeks.

The Hotspot data was queried within Arcview GIS to represent the progressive spread of fires within five discrete periods:

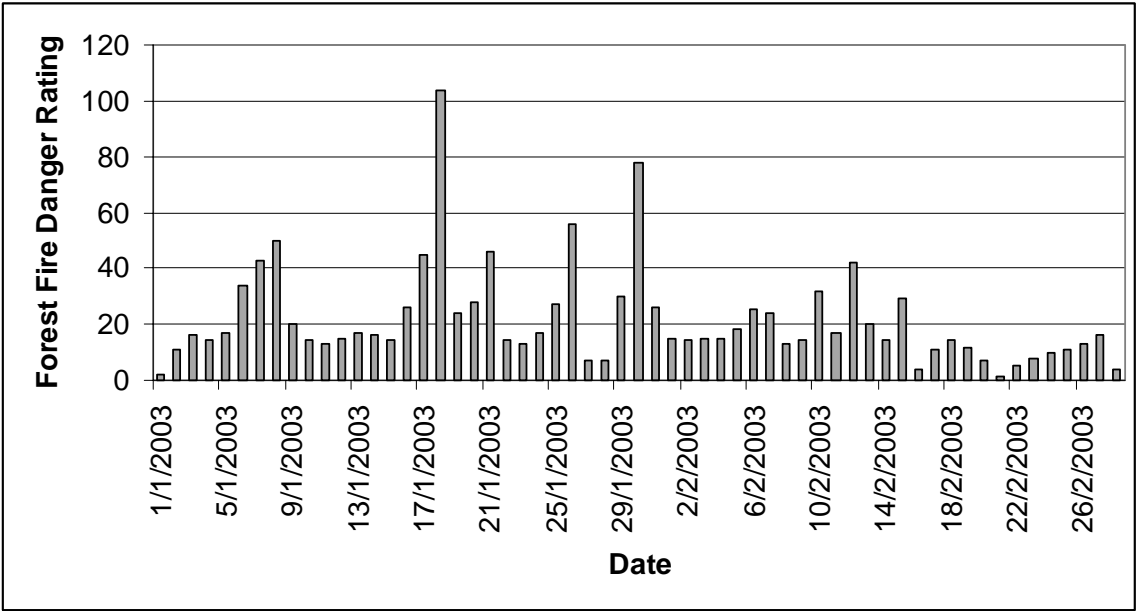
- 4) an initial containment period up to the 16th January – most fires are separate entities, except where close ignitions of fires on the 8th January have merged as part of containment
- 5) a first major breakout from containment lines on the 17th and increased area growth on the 18th, corresponding to the first major run and coalescence of separate fires prior to the 17th January
- 6) a second major run on the 26th January, causing most of the fires to merge into continuous line from Central Gippsland up to the Snowy Plains, near Eucumbene Dam in NSW
- 7) a second major run in NE Victoria on the 30th January, leading to spot-fires in northern Gippsland being lit by lightning strikes well ahead of the fire front
- 8) a further expansion of the fires between the 2nd and 10th February, under moderate to high fire weather conditions
- 9) a final round-up of fires along the southern and eastern flanks in Victoria, and in the Lower Snowy, and Jindabyne areas of NSW. Not all areas within the final perimeter appear to have been burnt in Victoria, according to the Modus imagery. This could be due to lower temperature signatures in areas burning in lower fuels, indicating that MODUS satellite imagery could not detect fire fronts burning at low fire intensities.

This approximate map indicates that major breakouts of containment lines occurred on the 17th January when the Forest Fire Danger rating was between 30 and 45 at elevation between 700 and 1200 metres. It is interesting to note that the Forest Fire Danger Index was between 10 and 15 between 1400 and 1700 metres during the peak period of the runs on 17/01/03. The fires continued to run on the following day when the Forest Fire Danger Rating peaked in both Omeo and Canberra at 104, with the most growth in area occurring in the ACT and in the Jagungal Geehi, and Upper Murray precincts of Kosciuszko National Park. It is notable that the Forest Fire Danger Rating reached a peak value between 10 and 20 between 1400 and 1700 metres.

The next major run on the 26th January enabled the separate fires in Victoria to merge into one major complex. The forest fire danger rating peaked at Omeo at 57 on the 26th January. The fire weather on the 30th January proved to be one of the second worst on record, peaking at 78 in Omeo. The convection column activity was significant enough to start major spotfires downwind of the fires, started by lightning from thunder clouds developed from the convection columns.

From about the 1st February onwards the fire weather settled, enabling containment lines in Victoria and southern New South Wales to be consolidated. Figure 6 summarises the daily peak forest fire danger ratings calculated from 3pm weather readings for the period between January 1st and 28th February in 2003. 68% of the days had Forest Fire Danger Ratings less than 20, 21% had a rating between 20 and 40, with the remaining 10% greater than 40. As there were a greater proportion of lower forest fire danger ratings during this period than high to very fire danger ratings, it is possible that alternative fire strategies could have been employed, particularly as the fires were burning into higher elevation country where fire weather conditions were more moderate.

Figure 6 Trends in Forest Fire Danger Ratings at Omeo Weather Station



A COMMENT ON CLIMATE CHANGE

Some very thoughtful and careful submissions from rural residents highlighted the climate change that has occurred in the Victorian and NSW Alps in the last one hundred years. For the most part of the nineteenth century, a mini ice age occurred in the Alps. The environment was cooler and moister than the latter part of the 20th century. Cold fronts came through with much more intensity, associated with rain and more prolonged cooler temperatures following the passage of a cold front. The author’s experience in 30 years of bushwalking, monitoring fire weather as a fire manager, and analysing historical fire weather records, concurs with the general trend that the environment is getting drier and warmer in south-eastern Australia. There has a been long term decline in depth and extent of snow cover at Spencers Creek near Charlotte’s Pass (Green 2002), with the last five years since 2002 having the lowest five year average since measurement began in 1954.

A recent program on Quantum quoted some recent research which suggests that the hole in the Ozone layer over the Antarctic has caused weather systems to move further south. The latitudinal shift south of low pressure systems then pulls cold fronts further south, which means less intense cold fronts pass through the mountain regions of south-eastern Australia. The author was surveying vegetation at nearly 1500 metres on the afternoon of the 8th January, 2003, at the time the cold front moved through. The storm cells did not appear to have much vertical development and little rain fell during the passage of the storms which lasted for less than half an hour. A similar storm was observed one month earlier, on the 3rd December, in which a series of lightning strikes started fires. The storm front lasted for about half an hour during which

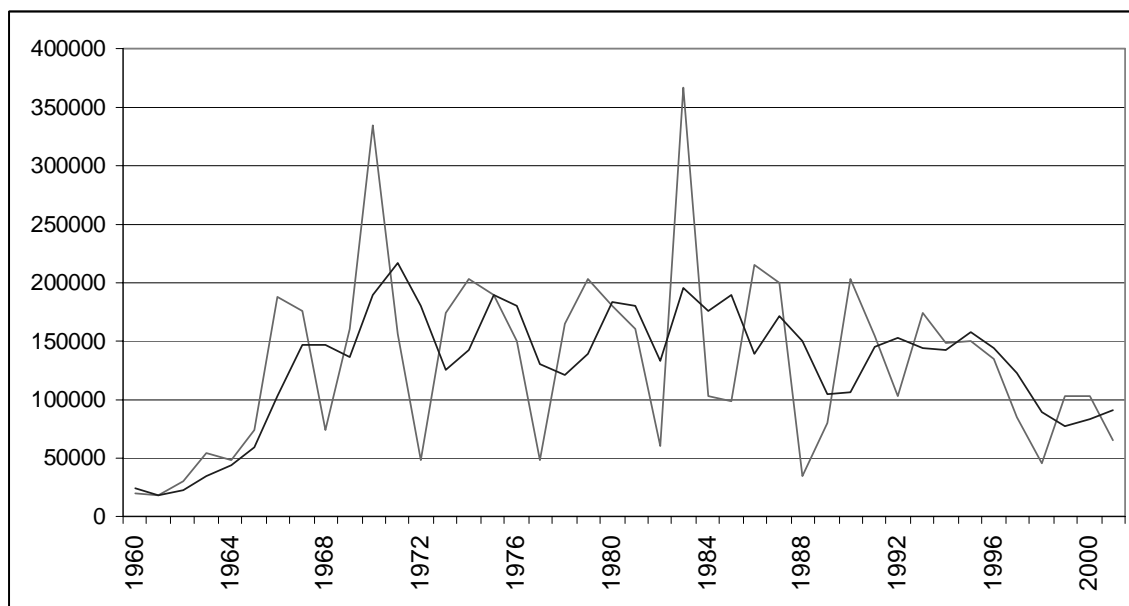
approximately 2mm of rain fell. “Mud” rain was observed on our vehicles that evening, similar to that which fell on the 8th January. Two days later, en route to Canberra via the Booboyan road, the author experienced a second cold front which ushered in little rain. Yet the cold front had an eerie pinkish sheen and glow to it in the afternoon sun, which was very unusual and very rarely seen in 30 years of cloud observations.

FUEL MANAGEMENT

A high number of submissions to the inquiry criticised the recent levels of fuel management on public tenure in both NSW and Victoria. There is widespread concern that fuel management is not being given sufficient attention and priority in land management.

In Victoria, the Department of Sustainability and Environment has set itself targets for fuel management across a wide range of eco-regions and vegetation communities within Victoria. Athol Hodgson (submission 450) produced evidence of the extent of prescribed burning as part of his submission in which he shows a decline in the area burnt in the last ten years. The data is based on Tolhurst’s paper to the Institute of Public Affairs this year (Tolhurst 2003). This table has been reproduced in Figure 7. The black line represents a three year moving average, which reflects the underlying trend in area burnt by prescribed fire.

Figure 7 Levels of Fuel Treatment in Victoria (Tolhurst 2003)

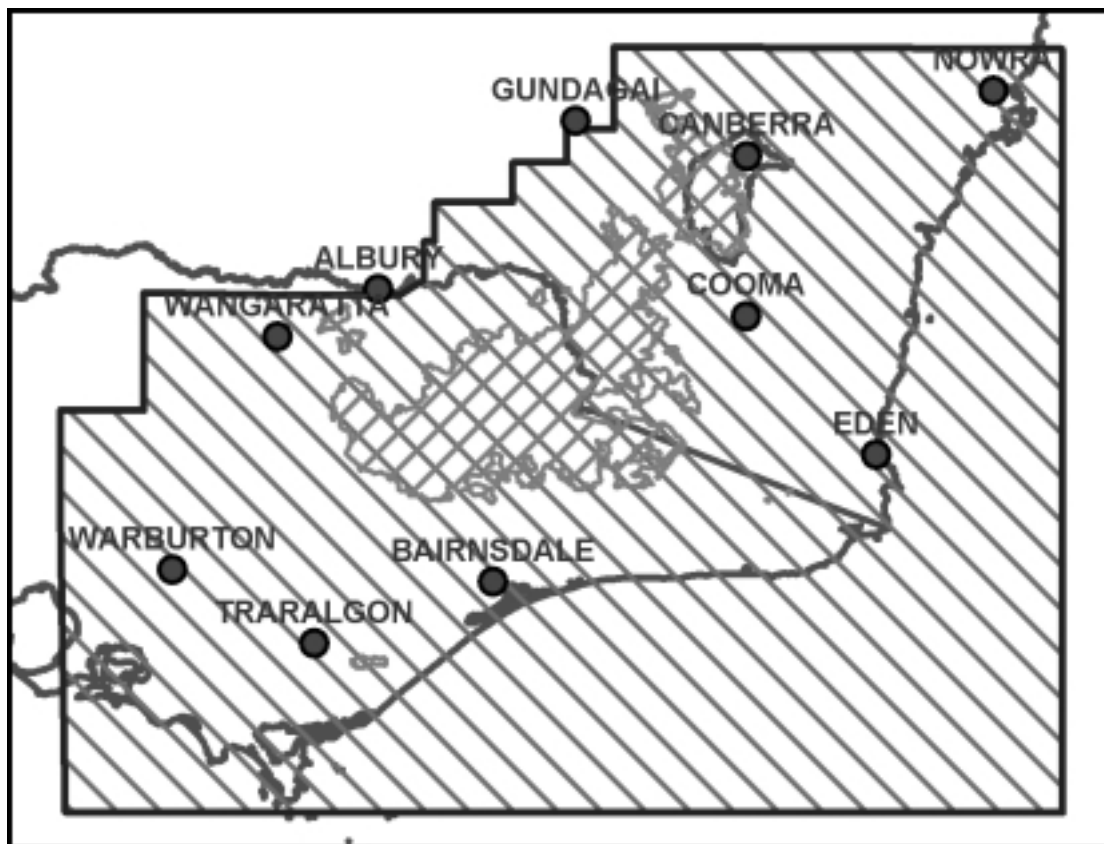


The chart in Figure 7 represents the total area burnt by prescribed burning throughout Victoria. The chart does not reflect the levels of fuel treatment that have been and could be applied within the montane and sub-alpine regions of Victoria. While these statistics are useful to understand the state-wide situation, statistics on the levels of fuel treatment were not publicly available for NE Victoria, Gippsland, and southern New South Wales. The lack of cooperation from the Victorian and New South Wales governments in the present inquiry has limited the scope of analysis into past fuel management in the areas affected by the 2003 fires.

ANALYSIS OF POTENTIALLY TREATABLE FUELS

To enable a scientific analysis of potentially treatable fuels, an alternative method was applied to the areas affected by the January 2003 fires. A study area was drawn up based on south-eastern NSW, which provides a comprehensive approach to estimating annual estimates of fuel treatment. Figure 8 illustrates the area agreed to for the analysis of potentially treatable fuels in south eastern New South Wales and eastern Victoria. The study area covers an area to the south from Nowra on the South Coast of New South Wales, to the south-east from Gundagai and down the Hume Highway to Melbourne, all the way to the eastern Victorian and New South Wales Coast.

Figure 8. Analysis Area for Estimation of Fuel Management Targets



The levels of fuel treatment that could be applied to native vegetation within the study area is based on the following key factors:

- The Type of Fuel Treatment
- Treatable vegetation;
- Seasonal dryness conditions;
- Mosaic of wildfire or prescribed fire burns in the recent past;
- The number of burning days that meets burning prescriptions;
- The complexity of land tenure involved in fuel treatments;
- Well resourced, trained, and skilled fire managers; and
- Political and community will to undertake burning.

TYPE OF FUEL TREATMENT

Tolhurst (2003) has emphasized that fuel treatments have focussed on the more intensive and strategic fuel management in the last ten years, rather than fuel management over a broader area, focussing on ecological burning. The former type of fuel management covers about 20% of the public land area, while the balance (80%) covers the balance of public land area. He argues that there is a case for undertaking more ecological broad area burning, away from intensive strategic fuel management, creating a mosaic of treated country from recently unburnt to very long unburnt.

The author's experience of fuel management in New South Wales mirrors the ideas of Tolhurst, presented in his recent paper to the Institute of Public Affairs conference this year. Much of the fuel management on National Parks in New South Wales tends to focus on the perimeters of reserves, with the result that landscape mosaics of different fuel ages are not created within core areas of reserves. If a broad area mosaic has been created by diligent management of summer wildfires, and subsequent prescribed burning, often these mosaics are erased by large summer wildfires, which overrun the previously created fuels. Incident management teams need to give special attention to the protection of fuel mosaics created previously, as part of reserve or State Forest management. This means that local knowledge and experience, combined with detailed mapping of previous fires, needs to be used more effectively to limit the size of summer wildfires. Otherwise previous fuel management will be written off as ineffective and not beneficial in the broader ecological picture.

However, in the montane and sub-alpine regions of south-eastern New South Wales, there has been little focus given to creating fuel mosaics within fire sensitive vegetation in the sub-alpine areas or in the more fire tolerant montane vegetation types. The assumption has been that these areas are too moist to burn, with a relatively low risk of being burnt by intense wildfires. The recent fire history points to serious widespread intense fires occurring in 1926/27 and in 1939/40. The build-up of available also occurs within the sub-alpine zone, which occurs over time as alpine grasses and shrubs accumulate dead fuel (refer back to Figure 3).

The debate over fuel management has tended to focus on the ecological impacts of fuel management, usually over short return periods of fuel treatment. In particular, the ecological issues of repetitive fuel treatment over a relatively small area have overshadowed the potential impact of large intense summer wildfires, killing large tracts of fire sensitive Snow Gum woodlands or Alpine Ash forests in the sub-alpine zones burnt in the 2003 fires. The loss of oldgrowth Snow woodland/forest or mature and regrowth Alpine Ash forest in 1939 and now in 2003 will take a century for fire killed patches of forest to recover. With the limited number of burning days available in any one year, a strategic assessment will need to be made of the levels of fuel treatment in three broad categories:

- Asset protection
- Strategic burning to limit wildfires
- Broad Area ecological burning

Asset protection burning is an intensive expensive operation, which will tend to treat smaller areas mostly around the perimeters of reserves or close to human assets. Broad scale prescribed burning can be less intensive, and cheaper to manage than the current method of treating perimeter fuels, usually to protect life and property. Strategic fuel management to limit wildfires could be difficult to implement, without at first establishing some anchor points of recently burnt areas, in otherwise heavy fuels. A classic example is the extensive areas of heath and heath forest in Nadgee National Park, south of Eden, which was last completely burnt in 1972/73 fire season. With relatively old fuels, National Parks managers are apprehensive about establishing the first prescribed burn in thirty years in the heart of the reserve.

In coming up with some realistic and practical fuel management targets, a proportional target of area burnt was assigned to each broad management category within treatable vegetation types.

This assignment was based on the author's experience in the management of wildfires and in the practical application of prescribed burning in a range of environments. The approximate proportion of treatment area was assigned to each fuel management category:

- Asset Protection and Strategic (5%)
- Strategic Wildfire (15%)
- Broad Area Ecological Burning (40%)
- Non Treatment (40%)

The non-treatment category recognises that there will be areas of each vegetation type in a reserve which will have special management requirements, threatened species, or could be burnt by summer wildfires of moderate to high intensity, without much damage to soils, fauna habitat, or vegetation structure. Treating approximately 70% of the area of treatable vegetation types is a practical achievable target, which overall could lead to approximately 25% of a region in a given fire cycle.

DEFINITION OF TREATABLE VEGETATION TYPES

Treatable vegetation was defined as having the following attributes

- Dry eucalypt forest or woodland with either a grassy and/or dry shrub understorey; and
- Sufficient accumulation of dry available fuel
- Treatable in late summer, autumn or spring

Less treatable vegetation was defined as having the following attributes

- Generally not treatable in late summer, autumn or spring
- Less available fuels for burning Non-eucalypt dominated rainforest canopy and understorey
- Moist eucalypt forest with either a rainforest or wet shrubby understorey
- Fire sensitive vegetation, adapted to long fire frequencies, more than 25-50 years
- Vegetation along riparian zones
- Fire Sensitive regrowth forests derived from moist forest types

Within the study area, less treatable vegetation includes:

- Rainforests
- Moist montane forests
- Fire sensitive Callitris, Acacia, or Casuarina forests
- Regrowth forests regenerating from recent wildfire or recent harvesting, and
- Riparian vegetation
- Pine or Eucalypt Plantations, except when mature and/or thinned

The less treatable vegetation types also tend to be the areas which burn less frequently and require some protection from summer wildfires. Note that sub-alpine snow gum woodlands and Alpine Ash forests are not included in the less treatable vegetation type category. Hodgson (pers. comm) contends that prescribed burning under Alpine Ash can be achieved with a modicum of effort and careful application of burning prescriptions. Mosaic burning of Snow Gum forests has been a feature of lessee burning in the Victorian Alps for a century or more, particularly when done in autumn. The latter vegetation builds up sufficient fuel around the bases of trees to kill either regrowth, mature, or oldgrowth forest or low forest/woodland.

Table 2 summarises the list of vegetation categorised into the two categories of fuel treatability within south-eastern New South Wales. About 70% of this area contains vegetation which potentially can be treated, with about 30% of the remaining vegetation either being protected from fire or generally not suitable for treatment.

Table 2 Summary of Treatable and Less Treatable Vegetation in the South-eastern section of the Study Area

GpNo_Fuel	Broad Fuel Group Description	Treatable	Area (ha)	Fuel Availability	Fuel Levels
33	Montane/Sub-alpine Carex Fen	N	13,456	Mostly Wet	High
34	Swamp Grasslands	N	2,644	Mostly Wet	High
13	Riparian River Red Gum Forest	N	12,185	Mostly Moist	Moderate
23	Coastal Swamp Forest Complex	N	2,702	Mostly Moist	Moderate
32	Sub-alpine Herbfield	N	85,532	Mostly Moist	Moderate
1	Rainforest	N	37,846	Moist	Low
2	Ecotonal Rainforest/Eucalypt Forest	N	63,937	Moist	High
3	Moist Layered Forest	N	47,706	Moist	High
4	Moist Fern Shrub Forest	N	329,414	Moist	High
5	Montane Fern Herb Forest	N	169,746	Moist	Moderate
28	Estuarine Mudflats	N	2,735	Moist	Negligible
17	Lower Snowy White Box Forest	N	37,064	Dry	Low
21	SWS Acacia/Callitris Woodlands	N	5,129	Dry	Low
22	SC Acacia Rocky Shrubland	N	7,938	Dry	Low
35	Eden Riparian Shrublands	N	7,253	Dry	High
36	Pine Plantation	N	222,102	Dry	High
		Sub-Total	1,047,388	30%	
7	SWS Ironbark Forest	Y	316	Mostly Dry	Moderate
9	Tablelands Dry Grass Shrub Forest	Y	408,644	Mostly Dry	Moderate
12	South Coast Dry Shrub Forest	Y	700,143	Mostly Dry	Moderate-High
16	Dry Heathy Forest	Y	109,375	Mostly Dry	High
18	Savannah White Box Woodland	Y	5,590	Mostly Dry	Moderate
19	Savannah Yellow Box Woodland	Y	11,617	Mostly Dry	Moderate
24	Coastal Swamp Shrubland Complex	Y	9,470	Mostly Dry	High
25	Coastal/Hinterland Dry Heath	Y	12,770	Mostly Dry	High
26	Mallee Heath Complex	Y	40,199	Mostly Dry	High
27	Coastal Dune Complex	Y	5,064	Mostly Dry	High
31	ST Temperate Grasslands	Y	2,762	Mostly Dry	Moderate-High
6	Sub-Alpine Tall Shrub Forest	Y	99,453	Sometimes Dry	High
8	Dry Grass Forest	Y	42,079	Sometimes Dry	Moderate
10	Western Montane Dry Grass Shrub Forest	Y	131,922	Sometimes Dry	Moderate-High
11	Tablelands Valley Floor Grass Forest	Y	309,614	Sometimes Dry	Moderate
14	Eastern ST Montane Grass/shrub Forest	Y	415,155	Sometimes Dry	Moderate-High
15	Frost Hollow Grassy Woodlands	Y	5,739	Sometimes Moist	Moderate-High
20	Sub-alpine Snow Gum Woodland	Y	112,957	Sometimes Moist	High
29	South Coast Escarp Heath	Y	7,325	Sometimes Moist	High
30	Namadgi Heath Complex	Y	11,644	Sometimes Moist	High
		Sub-Total	2,441,838	70%	
		Total Area	3,489,226		

The detail in Table 2 provides strategic fire planners with a better guide as to the overall desired conditions of fuel within a particular region. If the proportion of treatment, such as asset protection, strategic fuel management, is applied to each of the treatable fuel types in the bottom half of the table, this produces an estimate of area of potential fuel treatment for each vegetation type.

Table 3 summarises the overall fuel management targets for each category of fuel treatment, and then provides an annual target, based on a ten year or a fifteen year cycle.

SETTING OF BROAD FUEL MANAGEMENT TARGETS

The detail in Table 2 provides strategic fire planners with a better guide as to the overall desired conditions of fuel within a particular region. If the proportion of treatment, such as asset protection, strategic fuel management, and broad area ecological burning, is applied to each of the treatable fuel types in the bottom half of Table 2, the results are produced in Table 3.

Table 4 summarises the overall fuel management targets for each category of fuel treatment, and then provides annual targets, based on a ten year or a fifteen year treatment cycle.

The net effect of a strategic treatment of fuels over a ten or fifteen year period would amount to nearly 1.6 million hectares of forest being treated, amounting to 45% of the total area of native vegetation. 55% of the vegetation would be left untreated. If an annual cycle of ten years is selected, then this amounts to a target of 155,000 hectares being treated. If a more conservative fuel management cycle is preferred, an annual target of 104,000 hectares could be set. Most of the recent studies of fire behaviour in dry shrubby forest types suggest that the effectiveness of fuel management is very limited once forests are left unburnt for more than fifteen years. This mainly relates to stringybark fuels on tree trunks becoming more available after fifteen years, which increases the propensity for dense ember spotting in forest dominated by rough barked eucalypt trees.

Table 3 Broad Setting of Fuel Management Targets in south-eastern NSW

Category	Overall Area	Annual Target (10 Year Period)	Annual Target (15 Year Period)
Asset Protection	130,000	13,000	8,667
Strategic Wildfire	388,500	38,850	25,900
Broad Area Ecological Burning	962,776	96,278	64,185
Sub-Total	1,481,276	148,128	98,752
% of Total Vegetation	42%	4%	3%
Non-Treated	2,007,900		
Total	3,489,176		

CALCULATION OF AVAILABLE BURNING DAYS

A similar analysis to that undertaken by Tolhurst (2003) was undertaken, using historical weather records from Canberra, Omeo, Cabramurra, Falls Creek, and Coilimblar in eastern Gippsland. Suitable weather for burning is recognised as a major constraint in achieving a successful burn in the field. Suitable weather periods for burning can be found at the start of a fire season, in spring between August and October, and in autumn between late February and April. Suitable weather periods can also be found in the high country between early February and March when stable periods of fire weather can be found in non-drought years.

The estimation of available burning days is based on prescribed burning guides, in Tasmania, Victoria, and New South Wales, which determine a range of suitable litter and grass fuel moistures, and wind conditions during a burn. A factor not considered in this analysis is the likelihood of a more severe run of fire weather which could lead to potential escapes. The time available in this report did not allow more sophisticated analyses to be done, although the burning prescriptions in spring do take account of the likelihood of more difficult post-burn conditions. The prescriptions applied here are also based on the author’s profound knowledge

and experience in applying prescribed fire over a period of twenty years in Tasmania and New South Wales.

Table 4 shows the two sets of weather and fuel prescriptions which were applied to each historical weather dataset, in order to derive a possible number of burning days.

Table 4 Applied Set of Fuel and Fire Weather Conditions

<i>Weather of Fuel Variable</i>	<i>Autumn</i>	<i>Spring</i>
Soil Dryness Index (mm)	30 – 100	25 – 60
Temperature (degrees C)	18 – 30	16-25
Relative Humidity	30-55	40-60
Wind Speed	< 25 km per hour	< 20 km per hour
Rain Falling on Day	None	None
Rain Falling in Last Day	None	None

Results of applying these filtered conditions on the historical weather datasets are summarised in Table 5. The results assume that burning can be carried out on any day during the week.

Table 5 shows that in the lower montane parts of the Victorian and New South Wales Alps that there are 18-23 burning days in an average year. Higher up in the sub-alpine zone the number of burning days falls to about 3 to 5 days a year, if burning is done in February and March, and extends into November during late spring. In East Gippsland and along the South Coast, the average number of burning days increases to between 23 and 30, with the number of burning days increasing with decreasing latitude.

The pattern of burning days in each part of the study area conforms to the patterns of seasonal rainfall. In the western and central parts of the study area, winter and spring rainfall predominates, resulting in less opportunity for spring burning during most fire seasons, except during a dry spring, which occurs about one year in every three, based on the Omeo weather station. In the eastern part of the study area, which includes Eastern Gippsland and the South Coast and Escarpment, there is a bias towards summer rainfall, resulting in a greater number of burning days in spring between Narooma and Nowra, whereas the south-east corner from Bega to Bairnsdale has about equal number of burning days in spring and autumn.

The analysis of burning days also reveals that there were a significant number of burning days in the last five years in the montane regions of the Alps and East Gippsland in both eastern Victoria and southern New South Wales. Over 85 burning days were identified as being potentially suitable for prescribed burning within the last five years, with 70 days in Autumn with the balance of 15 days in Spring. As the Omeo and Canberra weather stations are found at lower elevations in the Alps, there could have been fewer burning days, found at higher elevations. It is estimated about 1/3 the number of burning days could have occurred, amounting to between 20 and 28 days. With the great variation in elevation and topography in the Alpine regions, careful identification of suitable areas for burning could still have been found, based on local knowledge of rainfall patterns. A number of submissions from the Victorian Alps points to a number of suitable burning days being available throughout the Alps in the last five years.

Table 5 Number of Burning Days in Autumn AND Spring at Selected Station

	<i>Falls Creek</i>		<i>Coilinblar</i>		<i>Omeo</i>		<i>Canberra</i>	
<i>Burning Day Parameter</i>	<i>Autumn</i>	<i>Spring</i>	<i>Autumn</i>	<i>Spring</i>	<i>Autumn</i>	<i>Spring</i>	<i>Autumn</i>	<i>Spring</i>
No of Years of Records	8		8		42		47	
Elevation of Station	1550		400		700		680	
Total Number of Burning Days in records	44	0	102	97	576	125	482	164
Average Number of Burning Days	3	0	11	12	11	3	13	5
Average Number in Dry Years	8	0	15	20	23	6	15	9
Average Number in Intermediate Years	3	0	11	12	14	3	8	8
Average Number in Wet Years	1	0	6	1	1	0	5	2
Predominant Months	Feb, March	-	March, April	Sep, Oct	March, April	Sep, Oct	March, April	Sep, Oct

AGENCY CAPABILITY IN MEETING TARGETS

The variability in fire seasons, in terms of dryness, and the basic capability of agencies to undertake burning will determine the final amount of burning that can be achieved over a given return period. Given that the Alpine regions of Victoria and New South Wales have experienced the recent scenario three times in the last forty years, a fifteen year period is assumed to cover a potential area burnt by planned application of prescribed fire. As well as this, certain assumptions have been made regarding the variability of fire seasons in each part of south-eastern NSW, as well as the likely average area to be treated in one day for the three main categories of burning, whether it is asset protection, strategic wildfire, or broad area ecological burning. Table 6 summarises the assumptions made in estimating how much area can be treated in a fifteen year period in two distinct zones, Southern Tablelands, and South Coast, which have two distinct climates.

Table 6 Assumptions in estimating potential area burnt over a fifteen year cycle in SE NSW.

Zone	Southern Tablelands	South Coast
Number of Agency Work Centres	8	6
Number of Burning Days in a Dry Fire Season	12	25
Ratio of Dry, Intermediate, and Moist Fire Seasons	4 : 8 : 3	3 : 10 : 2
Ratio of Number of Burning Days (Dry, Intermediate, and Moist Fire Seasons)	1.0 : 0.65 : 0.15	1.0 : 0.65 : 0.3
Area Treatment – Asset Protection	200	200
Area Treatment – Strategic Wildfire	800	1200
Area Treatment – Broad Area Ecological Burning	6000	8000

The ratio of burning days in moist and intermediate fire seasons, relative to a dry fire season is based on historical weather data and then generalised for a particular part of the region in south-eastern NSW. The actual number of days selected for burning assumes a 70% success rate in picking the right days, and being ready to burn on the selected days. The available number of burning days also assumes that there are sufficient resources to burn every day of the week.

The analysis of forecasted area burnt applies primarily to public land tenure, where there are continuous widespread areas of potentially treated fuel within various classes of public land tenure. In the 2003 fires, most of the fire burnt large areas of public land, with some areas of private land within or adjacent to large areas of public tenure. Because of the range in size and ownership of private land tenure, a much more sophisticated analysis would need to be undertaken, which would take into account parcel size, owners' attitude to fires, and the landscape pattern of private ownership.

DISCUSSION OF RESULTS

Table 7 summarises the forecast area burnt over a fifteen year cycle in south-eastern NSW. The actual area burnt would amount to 44% of the original target. The lower figure of 655,000 hectares is mainly because of the less burnt area achieved in intermediate dry/moist and moist fire seasons. Over a fifteen year period, only 19% of the vegetation could be burnt by prescribed fire, amounting to an average of 44,000 hectares per annum. McCarthy and Tolhurst (2003) undertook a study in Victoria, which demonstrated that a total of 59% of all wildfire studies encountered a fuel reduction burn, which had a measurable supportive effect on fire suppression. The specific fuel management zones occupied only about 20% of the total public estate area in Victoria. The net effect of this suggested management approach is similar in scale to that

recommended by Tolhurst (2003), and may yield benefits in reduction of severe wildfire impacts, particularly in zones where there are identified risks from repeated lightning fires over a 15 to 20 year period.

In this analysis, more emphasis is placed on strategic wildfire, and broad area ecological burning, rather than perimeter asset protection burning. The recent fires in SE New South Wales did however show that burning around assets had a demonstrable effect on lowering damage to those assets. However if wildfire management moves from an emergency response and reactive approach to a more proactive role in managing fuels in the zones away from assets, the latter approach could eventually limit the potential size of intense fires, and lead to management of fires on a more ecological basis, and potentially reduce suppression costs.

A more proactive fuel management approach also necessitates that fire suppression efforts move away from the present bureaucratic emergency response to a fire, where significant funding and resources are provided when an emergency situation is declared. The present Section 44 provisions of the Rural Fires Act in New South Wales are often invoked at an early stage, without at first providing the land management agency the resources to manage the fire in a non-emergency environment. Often incident management teams are brought into an area without the attentive knowledge of the local environment, and can lead to much larger fires, than if operations were kept to a more local level.

In non-drought years, or earlier in summer, lightning fires could be managed to burn out prescribed areas, which could provide useful zones where later fires in much drier conditions could be contained, with a back-up of some recently fuel reduced areas. Management of wildfires in a summer period is generally more expensive than that of prescribed burning undertaken in autumn. There needs to be greater flexibility and provision to manage rather than suppress lightning started fires in non-drought situations in emergency management legislation. There also needs to be greater community understanding and acceptance that not all wildfires in summer are severe fires, and are part of the dynamics of pattern and process in natural landscapes. If these could be managed successfully to preferred burning prescriptions, then the area burnt by managed summer wildfires could be added to the area burnt by prescribed fire in late summer or autumn, and occasionally in spring where the attendant risk of fire escapes is kept low. The overall percentage achievement in fuel management on the ground could be improved, and the desired fire mosaics be kept more in line with management goals. The additional area burnt by managing, rather than putting out lightning started fires, could add 150,000 to 300,000 hectares to the fuel management total, enabling 25% or more of the fuel management target to be reached.

Given the results achieved summarised in Table 7, the levels achieved in asset protection burning are well below the target figure of 130,000 hectares. Additional area burnt in this category of burning is probably more likely to occur on private land. A key limiting factor is that the average size of land parcels is much smaller than that on public land. Further land subdivision in rural areas will only make the task more difficult and complex. It is the author's belief that fuel management targets on private land will generally be well below the target set for asset protection in Table 3, because of the fragmentation of land tenure and poses a particular problem for fuel management. Fire planning in Australia so far has not recognised historical fragmentation of land tenure as a major factor in modifying fuel management and fire regimes. Building houses within forests further complicates a fuel management strategy, requiring further emphasis be placed on asset protection, rather than broad area burning.

Table 7. Summary of Actual versus original target of area burnt by prescribed fire in South-East New Wales

Category	Overall Area	Forecast Target Achieved	% Achievement
Asset Protection	130,000	38,960	30%
Strategic Wildfire	388,500	156,320	40%
Broad Area Ecological Burning	962,776	459,880	48%
Sub-Total	1,481,276	655,160	44%
% of Total Vegetation	42%	19%	
Non-Treated	2,007,900		
Total	3,489,176		

EFFECTIVENESS OF FUEL MANAGEMENT

McCaw (1996) notes that the severity of burning conditions has a profound influence on the effectiveness of fuel reduced areas in moderating fire behaviour. He also notes that most of the field studies have documented the contribution of recently burnt fuels, generally less than three years old in assisting the suppression of wildfires. There are generally few studies where the fuel age is between 4 and 8 years. He also provides an example where 3 year old Jarrah Forest fuels were capable of supporting a high intensity crown fire although long distance spotting potential was reduced (McCaw et. al. 1993). The author also has similar evidence of three year fuels in Sydney Sandstone Forest supporting a crown fire in the 1994 fires in the Blue Mountains, under extreme forest fire danger conditions (FFDI between 60 and 70).

The effectiveness of fuel management relates to the following field conditions:

- the age of the fuels;
- the rate of recovery of fuels after treatment;
- the degree of curing and availability of aerial fuels;
- the fire behaviour conditions;
- the position of fuel reduced areas in relation to the head-fire, flank-fire, or backfire.

Some recent observations of fire behaviour during extreme conditions in Canberra demonstrated that even very low grass fuel loads could carry fast moving fires at very high intensity during the peak fire danger conditions (FFDI >80). To put these observations in perspective, peak fire danger conditions lasted for a period of three to four hours between 1400 and 1700 hours. Once the wind speed dropped in this period, fires would reduce in intensity very quickly. To support this contention, streaky runs of fire were observed in the Murrumbidgee corridor west of Tuggeranong, suggesting that gustiness of wind played a very important part in driving the grass driven fires towards the city, away from the very intense fire

behaviour of the lower Cotter catchment and Mount Stromlo, which had a mixed landscape mosaic of pine plantation and grassland.

Elsewhere in south-eastern New South Wales, fires burnt intensely in low grassy fuels beneath open woodlands under extreme conditions. Once these conditions moderated in late afternoon or evening, low fuel conditions helped to contain the flanks or back edges of fires burning in low fuels.

As the forest fire danger rating subsides to values between 40 and 50, recently burnt fuels start having an effect on lowering the rate of spread and intensity of fires on their flanks. Several well documented studies in Victoria demonstrate the effectiveness of recently burnt areas, generally less than 5 years of age (Rawson et al 1985) have on the overall behaviour of a wildfire at this range of forest fire danger ratings. Long distance spotting potential is also reduced.

As the fire danger rating further drops to between 20 and 30, some further effect on the flame height and rate of spread occurs, in situations where fuels are between 3 and 5 years of age. Some breaking up of the head-fire can occur.

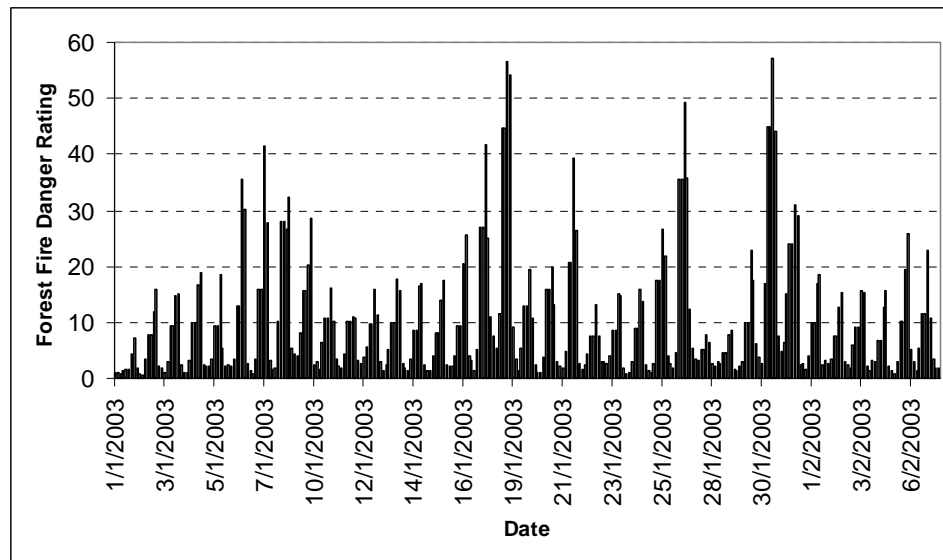
At forest fire danger indices less than 20, which occurs on mild days with little wind, mild temperatures, and moderate relative humidity, vegetation with low fuels less than 12 tonnes per hectare can be worked on safely.

LOW FIRE DANGER PERIODS DURING RECENT FIRES

For fuel management to work during the management of a major wildfire, there needs to be periods when the forest fire danger rating drops below 20 for a sufficiently long enough period for crews to work safely along a fire-trail, or on a constructed rake-hoe line. Figure 9 illustrates the weather sequence from 1st January up until 6th February. The diurnal pattern of forest fire danger rating usually shows an increase in fire danger rating till mid evening and then there is a rapid fall after about 9pm. The period between 9pm and 9am the following day is when fires can be worked on safely. Lower fuel loads in forest will help considerably to reduce spread and intensity while working on fires during this overnight period. There were about 59% of occasions overnight when the Forest Fire Danger Rating was less than or equal to 10. At higher elevations, this relative frequency of low fire danger ratings would have been closer to 66-70% of occasions. Lower fuel loads in strategic zones could have enabled fire fighters to work on fire flanks in slightly worse conditions during the middle of the day when fire danger usually peaks and allowed some strategic flanking of fires to limit the sideways growth of some of the fires. This tactical flanking could have deferred the possible coalescence of fires on the peak days of the 17th, 18th, 26th, and the 30th January. Between the 16th and 18th January there would have been limited opportunity to work in the forest at lower elevations. At higher elevations, fire were observed going out between 9pm and midnight, once the air moisture started being adsorbed by fine fuels on the forest, woodland, or grassy plains. This can have a marked effect on the success of backburning operations, particularly in grass dominated fuels. Lower fuel loads in grassy woodlands and grasslands can considerably help direct attack because of less dense grass tussocks and litter accumulation.

Fuel management has limited impact on major runs of fire once there are extensive head-fires being driven by extreme fire weather conditions in stressed forest vegetation. At this stage, previous asset protection burning was a major factor in reduction of damage to property, and reduced potential losses to human life, through reduction in fire intensity, and reduction in spotting.

Figure 9. Weather Sequence from 1st January till 6th February, 2003. Tuggeranong Automatic Weather Station



LIKELY EFFECTS OF RECENT FUEL MANAGEMENT OF GRAZING ON FIRE BEHAVIOUR IN SUB-ALPINE GRASSLANDS AND WOODLANDS

Fire behaviour in grassland or grassy woodlands relates to four main factors:

- Cured fine needle fuels on the top of a grass fuel bed
- Fuel Moisture Content
- Wind Speed
- Wind reduction factor of canopy

Grass fires will burn when fuel moisture content of the cured component of the grass fuel bed is between 0 and 24% moisture content. Above 24% moisture content, the dead component generally does not sustain fire spread and fires tend to go out. This is a frequent occurrence at high elevations, above 1400 metres, even during the recent 2003 fires in the Victorian and NSW Alps. A critical factor in the rate of spread and intensity is the degree of curing, usually expressed as a proportion of dry grass stems of the total dead and live grass stems.

The spread of a fire seems to be determined by the general dryness and curing of the top layer in a grass fuel bed, usually arising from the rest of the clump. From experimental studies of grass fires in the Northern Territory, total fuel loading did not appear to play a key role in fire spread. The propagating layer in grass fuels tends to be the top layer of the grass fuel bed, which often burns ahead of the lower and more compact grass bed (Cheney pers. comm.). The lower part of the grass fuel bed is a significant factor in fire intensity, and hence heat load on fire sensitive snowgums in a sub-alpine woodland in either the canopy or at the base of snow gums (personal observation). A key factor in the spread of fires across tussocky fuels is the cured component of the fuels, which can be reduced by burning. Within Kosciusko National Park there are extensive areas of snowgrass plains and snowgum woodlands, which can be burnt safely during the later summer and autumn months. If these snowgum plains were considered as potential fire advantages, then some of the open plains could be burnt on a mosaic basis. Hence this would reduce the cured component of the grass fuel bed and reducing the size of the snow grass tussocks, and their potential to burn intensely under snowgums.

Some of the submissions from the High Country contend that a combination of burning and grazing will lead to less fuel loads over a reasonable length of time. From the evidence of the long term plots in the Rocky Valley in the Bogong High Plains, grazing does reduce the overall fuel loads outside of the unburnt and ungrazed plots. These grazing exclusion plots have been established since the 1940's. Moriarty (1993) has an excellent photo series in which he maintains that the build-up of grassland in long unburnt Snowgrass swards leads to rotted inflammable grasslands. He bases his ideas on the graziers' preferred grazing regime to maintain a short, thick, and green sward. This condition is probably only maintained with an intensive grazing and burning regime.

Careful inspection of Moriarty's extensive collection of photographs reveals similar curing levels in the top component of the grass sward, which is what tends to burn in a fast moving grass fire. Grazing does not appear to reduce the curing component and appears to reduce the overall fuel loads, leading to a more discontinuous ground cover. A less continuous grass cover could reduce the risk of smoldering fuels staying alight near the ground and lessen the chances of reignition during the hotter part of the day.

However the issue with grazing is that following burning, much of the palatable herbaceous layer is preferentially eaten, along with snowgrasses, until a full grass sward develops. Wahren et. al (1999) in their detailed plots studies showed that post-fire regeneration is delayed by grazing, and in some instances there are still low levels of ground cover after 15 years. The browsing of the *Poa* and *Danthonia* tussocks also maintain a more open grassy sward, which is a desirable outcome, as it tends to reduce the overall fuel loads. Studies by (Wahren et.al 1999) indicate that grazing in heath dominated woodlands can sometimes reduce the overall grass tussock cover. The issue of dense heath cover under fire sensitive snowgums is a dilemma for alpine reserve management. Leaving these areas to build up dense flammable fuels can inevitably lead to fire killed snowgum trees under moderate to high intensities. Burning the same woodlands can also promote flammable heath understorey.

To illustrate the range of potential fire spread in sub-alpine grassland during the 2003 fires, a trend analysis was undertaken for Mt Hotham weather station in the Victorian Alps. Fuel moisture contents were calculated from Macarthur Grassland Mark V fire danger index to find periods when fire would and would not burn in the sub-alpine environment. The trends in fuel moisture, estimated in three hourly periods are shown in Figure 11. When the estimated fuel moisture content stays above 20%, fires are more likely to go out overnight. The graph shows that there were significant periods of fuel recovery overnight between the 1st January and the 12th January. However in the period between the 13th and the 28th January, fuel moistures stayed lower than 20%. Some fuel recovery periods can be found in the period after the 28th January. These intermittent periods of fuel moisture recovery are usually associated with a stronger easterly wind.

Figure 12. Estimates of fuel moisture content in the period from 1st January and 6th February 2003

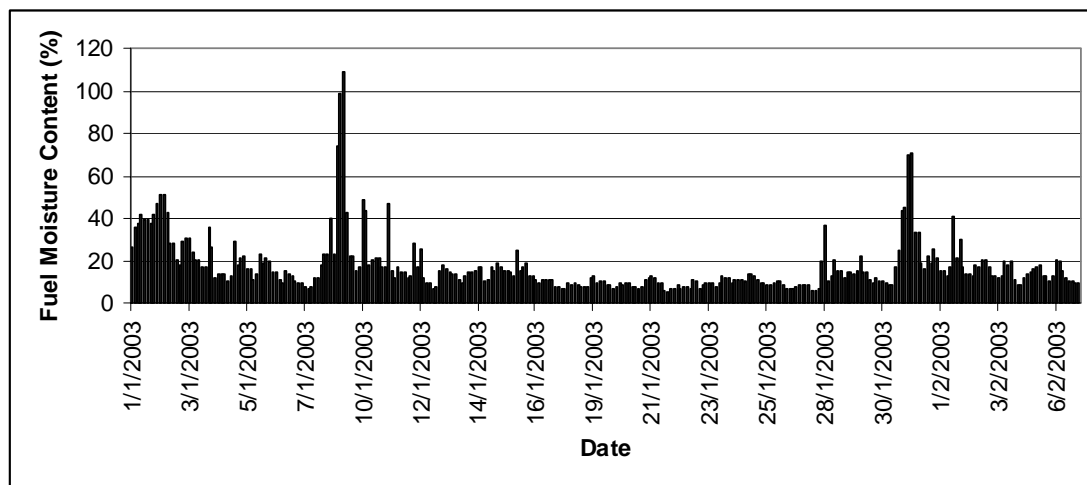
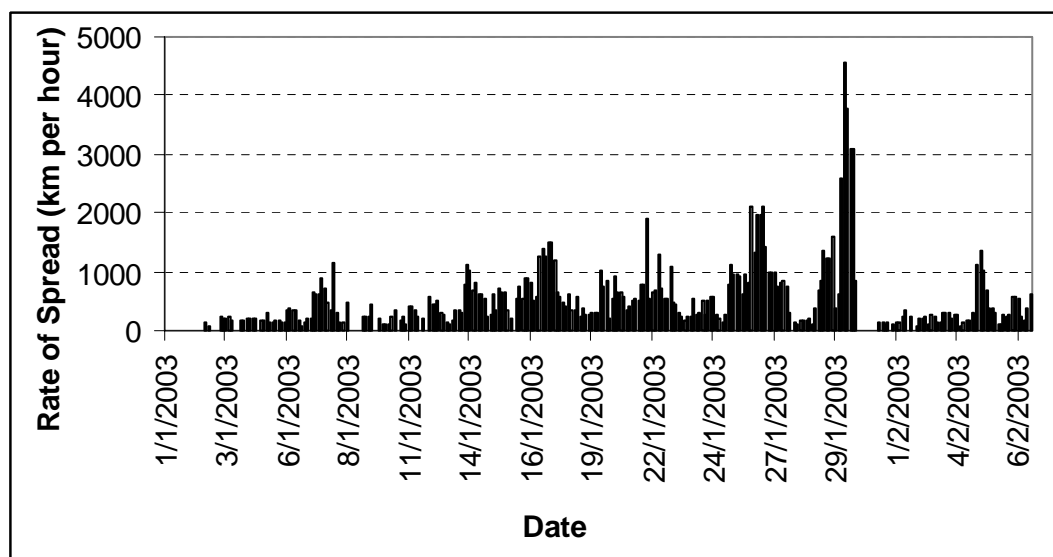


Figure 13 shows the trends in estimated rate of spread at Mount Hotham weather station between the 1st January and the 6th February, using the Macarthur Grassland Fire Danger Mark III equation. The graph shows that high rates of spread were found on the worst fire days on the 17th, 26th, and the 30th January, when rate of spread usually exceeded 1 kilometre per hour. Outside of these peak periods rates of spread were much lower, generally less than 300 metres per hour. The variability in spread during the 2003 fires indicates that burning in sub-alpine environments is possible as a fuel management practice or a tactic during the management of a major fire in the sub-alpine environment.

Figure 13. Estimates of forward rates of spread in sub-alpine environments



Heathland, grassland, alpine bogs, and snow gum woodlands usually occur as a vegetation mosaic. Managing these vegetation mosaics to conserve the ecological integrity of the alpine and sub-alpine area requires active management. Mosaic burns plays a part in creating some fuel reduced zones to increase the chance of late summer fires going out overnight and not reigniting the following day. This enables ground crews to put out any smoldering tussocks overnight.

Recently burnt grasslands generally have less available fuels for a period between three and five years after a fire. It would appear that full recovery of sub-alpine grassland could take

between 5-10 years after a fire. There is a general parallel here with fuel reduction burning in forests – there appears to be some overall benefit from fires burnt in the last 10 years (Tolhurst 1993). The reduction in cured fuel is a significant factor in managing the spread of a fire. The overall fire potential in a recently burnt grassland fuel is reduced because of the higher proportion of green to dead fuel. As a result, fires will burn less quickly and be less intense than in long unburnt grass swards. Even during the fires, there could have been a role for aerial ignition to burn out patches of snow grass plains ahead of the main fire front, if smoke conditions permitted. This can be achieved if forecast temperatures and relative humidity can produce a higher fuel moisture content overnight, causing the fires to self extinguish on dusk in late evening. Old-growth snow gum forests and woodlands could have been protected in this manner.

A PERSPECTIVE ON THE AUSTRALIAN INCIDENT MANAGEMENT SYSTEM

The Australian Incident Management System (AIMS) was designed to improve coordination between the various fire agencies during fire emergencies. The system was brought into Australia in the early 1990's to help improve management of emergency incidents. The system was originally designed in the United States. It is designed to scale up from small incidents to major ones, and the various sections within the incident control system expand accordingly, according to a principle of span of control. Usually if one person is in charge of five people, and that ratio is exceeded, then that role is split between two people and so on.

An incident management system comprises three main sections:

- Operations
- Planning
- Logistics

There is a person in charge of each of these main sections, and an overall incident controller, who oversees the coordination and communication between these three sections. Incident management teams usually set up in a fire control centre, which can be some distance from a fire. The reason for this is that these teams usually require a range of modern technology to function effectively, such as telephones, radio communications, faxes, e-mail, and other support services. Once upon a time a lot of these technologies were unavailable in remote areas, and fire fighters had to put up with simple radio communications, local support networks in rural areas, and simple field technologies, like a pencil and paper, and map and compass.

One of the major issues with an incident management team is that it takes time to set up one properly in a remote location, close to a fire. An incident controller usually has to set up his social networks from scratch, bringing in people from a variety of agencies and backgrounds, and experience. Often people are brought in with credentials and accreditation in the key functions of the incident command system, but not necessarily with the local knowledge. Before these formalised incident management teams came along, there used to be rural social networks in place, where people had trust in one another, and knew how to get a response together quickly. These social networks still exist in rural areas and play an important sociological support role in a cohesive rural community.

From the evidence supplied to the Federal Inquiry from rural constituents, incident management teams were not always in contact with local people from the start, and did not always involve local people with local knowledge in an incident management team. There were often cases where highly experienced yet not accredited people were advised that their services were not required. This can create a lot of angst and frustration in local rural people, who have fought and managed fires without any formal accreditation in fire fighting or management within an incident management team. It would appear that training in the incident management system has not always filtered down to a local level, so that in the event of a major fire emergency, these

local resources could not be readily drawn into the fire fighting effort. A common field situation now is having fire fighters who have been trained on paper, having the right personal safety equipment, yet not having the many years of experience on the fire ground. Right next to them there could be people with the local knowledge of the area, and of the history of fire behaviour, yet lacking the formal accreditation. There were plenty of examples of lack of involvement or exclusion of local bushfire brigades who had the social networks, local knowledge of fire behaviour, the firetrail system, and the lessons learnt from previous large fires. Many of the submissions told of this experience of being excluded.

As a result incident management teams are seen as bureaucratic and insensitive to the local needs of rural communities. Decision-making has been taken away from the local leaders in a rural community, such as the bushfire brigade captains and group captains, in which the local community have entrusted their faith to manage fires on their behalf.

A COMMENT ON FIRE PLANNING

Fire planning within an incident management team presently is focussed on incident action plans in the short term, which usually means in the 12 to 24 hour period. These plans are incredibly detailed and reflect the fire control view of likely scenarios which can unfold in the next 24 hours. Often these plans are out of date and discarded by the time they reach the fire-ground. The present format and detail of an incident action plan needs to be simplified and readily updatable when local fire-ground conditions change. Fire scenario forecasting should be given more attention in the format of an incident action plan, providing field operations with summary risks of threats in a given fire strategy, and the likelihood of success, with the given forecast and possible changes to that forecast.

Closer links between the fire-ground and the planning section within an incident management team, are imperative in a proactive and adaptive management of a fire. This is where the present structure of an incident management team does not enable rapid contingency planning as often the intelligence from the fire-ground is not returning to the command centre in a timely manner to respond to a new fire scenario.

Often there are people placed in planning roles within an incident command team, who have not spent much time on the end of a rakehoe or working with a dozer, and have not been given much opportunity to develop strategic fire assessment skills. Strategic assessments need to be broad based and must include local knowledge of on-ground information. With this detailed local knowledge, blended with what is happening in a broader picture, an accurate fire scenario can be developed. Further training in fire strategy assessment is imperative if incident management teams are going to be successful in limiting the impacts of potentially large blow-up fires.

LOCAL FIRE PLANNING - BUILDING TRUST AND COOPERATION

The real issue here is how to create better relationships and co-operative fire fighting strategies between local people and incident management teams who are largely brought from outside to manage a local situation. A key element in this is local planning for fires, which takes into account:

- The local fire environment
- Local fire risks and threats
- Vegetation and fuels
- Fire history both wild and prescribed fire
- Documentation of assets at risk, both natural and cultural;
- fuel management Plans;
- maintenance and development of the local fire trail system;

- location of natural fire advantages;
- location of water sources for helicopters and tankers, and
- other key facilities, such as halls, fuel and food outlets

The author has had considerable experience in local fire planning, having been involved in co-operative local fire planning since the late 1970's. Having worked with a number of local communities and bushfire brigades in the Blue Mountains, and in Tasmania, the benefits of this local fire planning have been found during fire emergencies, in 1994 and 2001 in the Blue Mountains. These local fire plans form the basis for an integrated fire protection network both within and adjoining natural areas of bushland.

However local fire planning has not found favour within the rural fire services, whose focus presently has been on broader risk management planning. Risk fire management plans are general regional planning documents, which often do not have validated assessments of fire risk and threat, and an evaluation of broad fire scenarios, and how best to deal with them. A local community fire plan is a bottom up approach to fire management, which plans with local rural communities on how best to deal with local and bigger fire scenarios. A local fire plan can also put in place some basic principles of operation, which can be documented for incident management system teams to use, and to establish who are the leaders in the local community, and how best to make use of all people in a local community.

These community fire plans can be integrated into broader risk management plans. When this level of local planning is incorporated into a regional risk management, they provide a useful level of detail, which can bear fruit in a fire incident, whatever its size. They also provide the link between local knowledge and its use in the development of appropriate fire strategies in a major fire incident.

AN EXAMPLE – THE MOUNT TOMAH-BILPIN-KURRAJONG HEIGHTS COMMUNITY FIRE PLAN

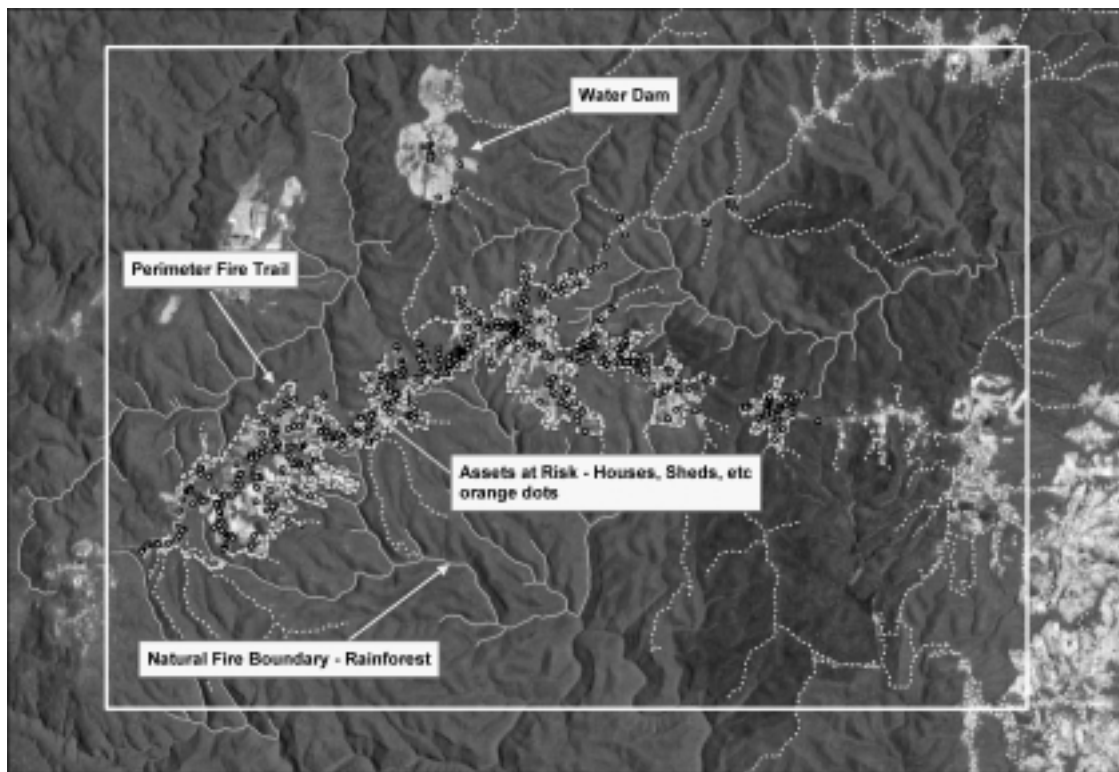
Between 1987 and 1994, the author as part of his job as a fire management officer in the Blue Mountains District, of the National Parks and Wildlife Service, undertook a joint project with local bushfire brigades to develop a community fire plan along the eastern section of Bells Line road between Mount Tomah and Kurrajong Heights. This local plan crossed two local government area boundaries: Blue Mountains and Hawkesbury City Council.

Time was spent on the ground documenting all the necessary information to support a community fire plan with the local bushfire brigade captains, and at the same time informing the community through local meetings what the process of community fire planning was, and how the community could become involved. The results of the community fire planning were annotated onto maps and later information on individual landowners and their assets was entered into a database, including the availability and suitability of privately owned water sources.

Figure 13 shows the basic information in the Bilpin-Kurrajong area, against a backdrop of a SPOT infra-red image of the area. The darker areas on the right hand side of the diagram indicate areas burnt in the January 2001 fires in this area.

Much of this information is now stored on a geographical information system (GIS) which enables rapid retrieval and analysis of data in a local emergency.

Figure 13. Overview Map of Bilpin-Kurrajong Area



CONCLUSIONS

CAUSAL FACTORS

- 1) The risk of multiple lightning strike events in drought years once every fifteen to twenty years in the Victorian and NSW alpine regions should be highlighted in preparation and risk management for such events,
- 2) The fire potential of fires in remote areas during drought years in January and their likelihood of coalescing into major fire complexes, should be considered as highly likely. Such events could occur once every forty to fifty years in the Alpine Regions of Victoria and New South Wales.
- 3) The frequency of severe fire weather days in a drought can be up to 5 or 6 in a sequence, with the ongoing likelihood of no rain-stopping event
- 4) There is a suggestion from the study of the fire weather records and drought that climate change may have played a role in the fire weather recorded in 2003.

FUEL MANAGEMENT

- 1) Further strategic evaluation of fuel management should be undertaken in all regions within south-eastern Australia, based on the results presented in this report
- 2) Management of fuel mosaics, as well as flammable weeds, needs to be adequately funded on a recurrent year basis. Present funding of such programmes within land management agencies may need further boosting of funds to achieve satisfactory targets for fuel management.
- 3) While grazing can play a role in reducing overall fuel loads in the Alps, strategic burning should be given a greater role in the protection and management of fire sensitive forests and woodlands. Fuel management prescriptions, based on ongoing vegetation and fire monitoring, would further refine management of fuels loads within the sub-alpine and montane zones of the Alps, to achieve a variety of fire management objectives
- 4) The effectiveness of fuel management needs further research and documentation during wildfires in a wider range of vegetation types in SE Australia, including fire ages between 4 and 10 years
- 5) There needs to be national standard of fire mapping, which accurately maps the extent, intensity, spread, and overall pattern of prescribed and wildfires in Australia.
- 6) Results of annual fuel management in each State should be publicly reported and audited.

AUSTRALIAN INCIDENT MANAGEMENT SYSTEM

- 1) Training of incident management personal should include how to engage and involve local people in planning and management of fires.
- 2) Training and mentoring in fire scenario planning be given further emphasis is incident management training, to improve strategic planning on fires
- 3) Further refinement in the structure and function of planning within an incident management team to make it more field based, using local intelligence.

- 4) The Australian Incident Management needs further refinement in setting up simple command and control structures, operating closer to the fireground, responsive to the ever changing local fireground conditions and needs of local communities
- 5) National models for community fire planning should be developed, in consultation with State agencies and local communities. Community fire plans then need to be integrated back into incident management.
- 6) National Reporting of the Success of incident management of fires should be prepared on a national basis, as a means of auditing the cost-benefit of incident operations, in terms of the triple bottom line of economic, social and ecological criteria.

REFERENCES

- Burrows N.D. (1994). Experimental development of a fire management model for jarrah (*Eucalyptus marginata*) forest. Unpublished PhD Thesis, Department of Forestry, Australian National University, Canberra
- Davies, C. (1997) Analysis of Fire Causes on or Threatening Public Land (1976/77 – 1995/96). Research Report No. 49. Fire Management Branch. Department of Natural Resources and Environment in Victoria.
- Good R.B. (1994). The Effects and Effectiveness of Fire Management. Biodiversity Series, Paper No. 8. Proceedings of the Conference held 8 - 9 October 1994, Footscray, Melbourne
- Green R (2003). Proceedings of a workshop into Climate Change Impacts on biodiversity in Australia. Sponsored by the Biological Diversity Advisory Committee. CSIRO Sustainable Ecosystem, Canberra.
- Holling CS (ed.) 1978. Adaptive environmental assessment and management. International Series on Applied Systems Analysis 3. John Wiley and Sons. Chichester, 377 pp.
- McCarthy, G.J. and Tolhurst, K.G. (2001) Effectiveness of broadscale fuel reduction burning in assisting with wildfire control in Parks and Forests in Victoria. Fire Research Report No. 51. Fire Management, Dept. Natural Resources and Environment, Victoria. 26pp.
- McCaw L, Simpson G, and Mair G. (1993). Extreme wildfire behaviour in 3 year old fuels in a Western Australian mixed Eucalypt forest. *Australian Forestry* **55**, 99-109
- McCaw W.L., J.E. Neal and RH Smith (1996). Effects of fuel reduction burning on behaviour and suppression difficulty of an intense wildfire in Jarrah (*Eucalyptus marginata*) forest – a case study.
- Moriarty, O. (1993). Conservation or Destruction of Natural Resources of Alpine Regions of South Eastern Australia. Report to the Australian Academy of Science
- Mount A.B. (1972). The derivation and testing of a soil dryness index using run-off data. Forestry Commission, Tasmania
- Noble I, Bary G.A.V and Gill AM (1980). McArthur's Fire danger Meters, expressed as equations. *Australian Journal of Ecology* **5**, 202-203
- Rawson R, P. Billing, B Rees (1985). Effectiveness of Fuel-Reduction Burning. Fire Protection Branch Research Report No. 25. Victorian Department of Conservation and Environment.

Tolhurst K. (1993). Prescribed Burning in Practice: Policy and Practice. Paper to the "Bushfire Prevention – Are We doing Enough" Conference. Institute of Public Affairs, Melbourne

Wahren C.H., W.A. Papst, and RJ Williams (1999). Post-fire regeneration in Victorian alpine and sub-alpine vegetation. Paper presented to Australian Bushfire Conference, Albury.

Walker, J. (1981). Fuel Dynamics in Australian Vegetation. Fire and the Australian Biota. Australia Academy of Science Conference 1979.

APPENDIX 1

Figure 1a Historical Trends in Soil Dryness – Omeo Weather Station 1957-2003

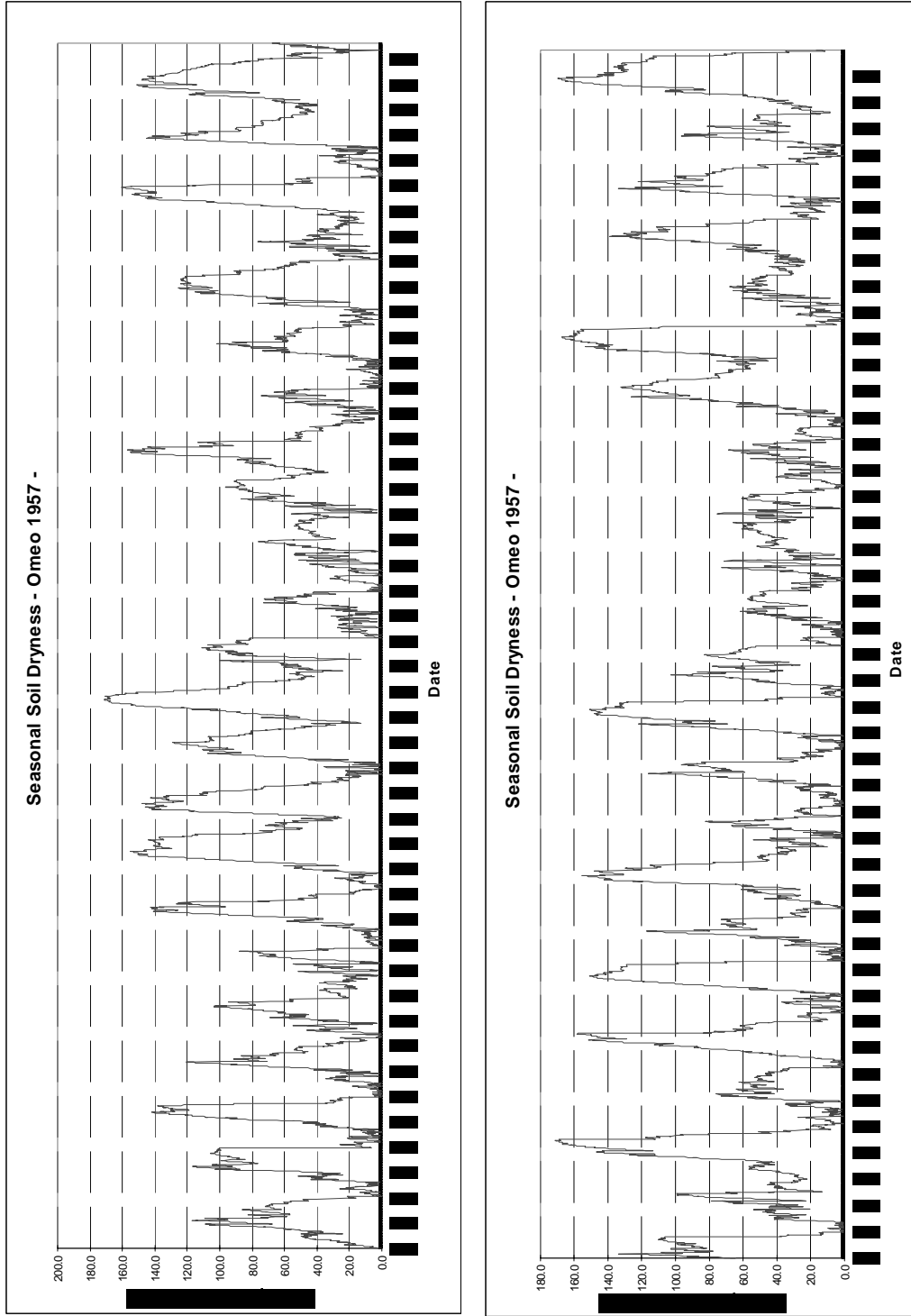


Figure 1b Historical Trends in Soil Dryness – Canberra Weather Station 1957-2003

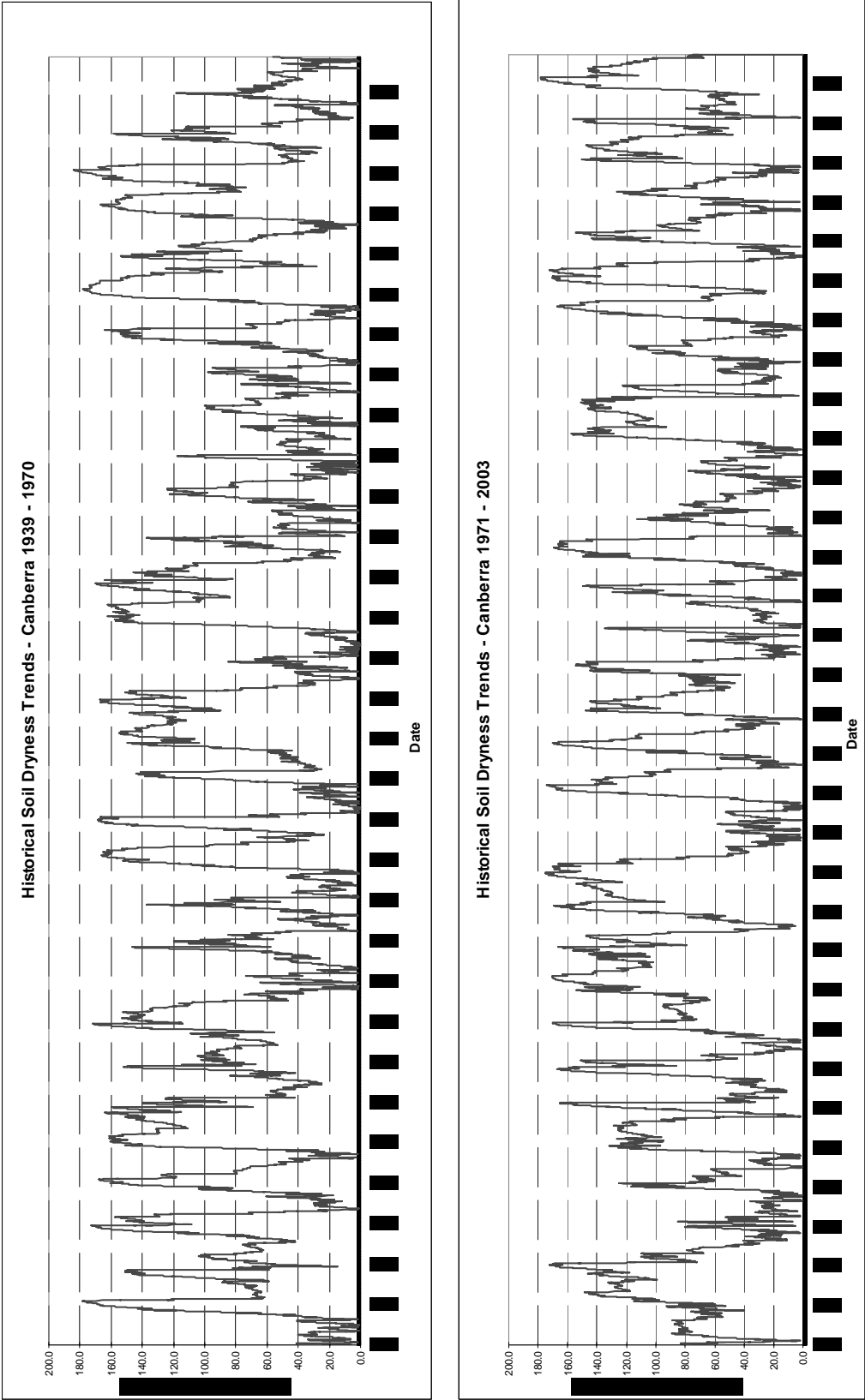


FIGURE 6 MAP OF PROGRESSIVE SPREAD OF FIRES DURING JANUARY AND FEBRUARY 2003

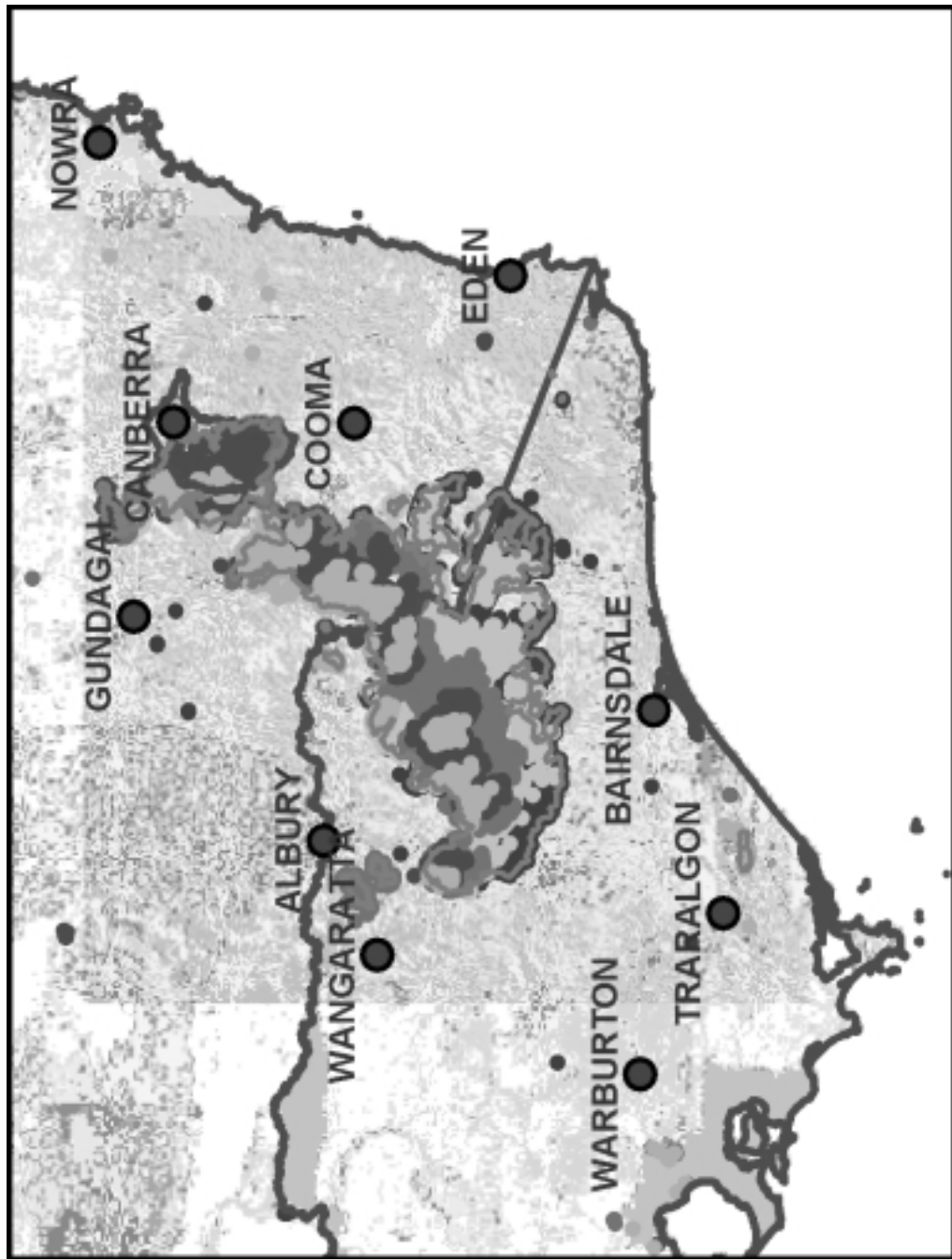
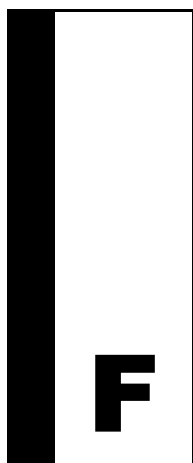


TABLE 6. STATISTICS OF POTENTIAL FUEL MANAGEMENT TREATMENT IN SE NSW

Code No	Broad Fuel Group Description	Treatable	Total Area (ha)	Asset Protection	Strategic Wildfire	Broad Area	Untreated	Fuel Condition	Fuel Levels	Fire Frequency	Intensity
1	Rainforest	N	37,846	0		0	37,846	Moist	Low	25-100	Low
2	Ecotonal Rainforest/Eucalypt Forest	N	63,937	0		0	63,937	Moist	High	25-50	High
3	Moist Layered Forest	N	47,706	0		0	47,706	Moist	High	30-100	High
4	Moist Fern Shrub Forest	N	329,414	0		0	329,414	Moist	High	15-50	Moderate-High
5	Montane Herb Shrub Forest	N	169,746	8,487	25,462	67,898	67,898	Partially Moist	Moderate	15-50	High
6	Sub-Alpine Tall Shrub Forest	Y	99,453	4,973	14,918	39,781	39,781	Partially Moist	High	20-50	High
7	SWS Ironbark Forest	Y	316	16	47	126	126	Mostly Dry	Moderate	15-30	Moderate
8	Dry Grass Forest	Y	42,079	2,104	6,312	16,831	16,831	Sometimes Dry	Moderate	3-15	Moderate
9	Tablelands Dry Grass Shrub Forest	Y	408,644	20,432	61,297	163,457	163,457	Mostly Dry	Moderate	12-30	High
10	Western Montane Dry Grass Shrub Forest	Y	131,922	6,596	19,788	52,769	52,769	Sometimes Dry	Moderate-High	12-30	Moderate-High
11	Tablelands Valley Floor Grass Forest	Y	309,614	15,481	46,442	123,846	123,846	Sometimes Dry	Moderate	6-20	Moderate
12	South Coast Dry Shrub Forest	Y	700,143	35,007	105,021	280,057	280,057	Mostly Dry	Moderate-High	8-15	Moderate-High
13	Riparian River Red Gum Forest	N	12,185	609			11,575	Mostly Moist	Moderate	3-15	Moderate
14	Eastern ST Montane Grass/shrub Forest	Y	415,155	20,758	62,273	166,062	166,062	Sometimes Dry	Moderate-High	12-26	High
15	Frost Hollow Grassy Woodlands	Y	5,739	287	861	4,592	4,592	Mostly Moist	Moderate-High	5-25	Moderate
16	Dry Heathy Forest	Y	109,375	5,469	16,406	43,750	43,750	Mostly Dry	High	10-30	High
17	Lower Snowy White Box Forest	N	37,064	0		0	37,064	Dry	Low	15-30	Moderate
18	Savannah White Box Woodland	Y	5,590	280	839	2,236	2,236	Mostly Dry	Moderate	5-20	Moderate
19	Savannah Yellow Box Woodland	Y	11,617	581	1,743	4,647	4,647	Mostly Dry	Moderate	5-20	Moderate
20	Sub-alpine Snow Gum Woodland	Y	112,957	5,648	16,944	45,183	45,183	Mostly Moist	High	25-100	High
21	SWS Acacia/Callitris Woodlands	N	5,129	0		0	5,129	Mostly Dry	Low	25-50	High
22	SC Acacia Rocky Shrubland	N	7,938	0		0	7,938	Mostly Dry	Low	20-40	Moderate
23	Coastal Swamp Forest Complex	N	2,702	0		0	2,702	Mostly Moist	Moderate	15-40	Moderate
24	Coastal Swamp Shrubland Complex	Y	9,470	473	1,420	3,788	3,788	Mostly Dry	High	7-25	High
25	Coastal/Hinterland Dry Heath	Y	12,770	638	1,915	5,108	5,108	Mostly Dry	High	12-25	High
26	Mallee Heath Complex	Y	40,199	2,010	6,030	16,080	16,080	Mostly Dry	High	12-25	High
27	Coastal Dune Complex	Y	5,064	253	760	0	4,051	Mostly Dry	High	7-25	High
28	Estuarine Mudflats	N	2,735	0		0	2,735	Moist	Negligible	-	-
29	South Coast Escarp Heath	Y	7,325	0		2,930	4,395	Mostly Moist	High	12-25	High
30	Namadii Heath Complex	Y	11,644	0		4,658	6,987	Mostly Moist	High	25-40	High
31	Native Grasslands	Y	2,762	0		0	2,762	Mostly Dry	Moderate-High	3-12	Moderate
32	Sub-alpine Herbfeld	N	85,532	0		0	85,532	Mostly Moist	Moderate	25-40	Moderate
33	Montane/Sub-alpine Fen	N	13,456	0		0	13,456	Mostly Wet	High	3-15	High
34	Swamp Grasslands	N	2,644	0		0	2,644	Mostly Wet	High	3-15	Moderate
35	Eden Riparian Shrublands	N	7,253	0		0	7,253	Mostly Dry	High	12-25	High
36	Pine Plantation	N	222,102	0		0	222,102	Mostly Dry	High	-	-
	Totals		3,489,226	130,102	388,478	1,039,207	1,931,439				
			10 Year Freq	13,010	38,848	103,921	155,779				
			15 Year Freq	8,673.5	25,898.5	69,280.5	103,852				



Appendix F – Report on communication issues

Brian Parry & Associates Pty Ltd, September 2003



Report on Communication Issues

Prepared by: -

Brian Parry & Associates Pty Ltd

For: -

The House of Representatives

Select Committee into

Recent Australian Bushfires

25th September, 2003



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Glossary of Terms

AFAC:	Australasian Fire Authorities Council
Closed User Group:	A system utilising satellite telephones for direct contact with a designated group of other users
Comcen:	Communication Centre
Command:	The direction of resources in relation to one agency
Control:	The responsibility for overall management of an incident
Duplex:	A method of operation for communication between two radio stations in two directions simultaneously, utilising two radio frequencies
EMA:	Emergency Management Australia
Fire Reporting System:	A telephonic system enabling fire calls to be received simultaneously, at a number of locations utilising normal subscriber telephones
GRN:	Government Radio Network
HF:	High Frequency radio
ICS:	Incident Control System – a management structure which has been adopted universally by Australian firefighting agencies
IMT:	Incident Management Team – the group of management personnel that head the four functional areas within the Incident Control System (Incident Control, Operations, Planning & Logistics)
ISHC:	Interoperability Spectrum Harmonisation Committee
Mobile unit:	An authorised vehicle that is fitted with equipment
Patching:	The facility to link separate radio conversations utilising different radio channels
PMR:	Private Mobile Radio Network
Repeater:	Receiver / transmitter equipment for automatically relaying radio signals
Simplex:	A method of operation for communication between two radio stations in only one direction at a time utilising one frequency
SMR:	State Mobile Radio. This acronym also refers to 'trunked' radio within this report.
Tactical:	Decisions made at the fire front for the purpose of implementing the strategies set by the IMT
Talkaround:	A system used for fireground communications utilising low power output radios working through a repeater
UHF:	Ultra High Frequency radio
UHF CB:	Citizens Band Radio – dedicated 40 channels in UHF band
Uncontrolled Network:	A radio system which permits unsupervised conversation between stations on the network
VHF:	Very High Frequency radio



1. Executive Summary

On the 26th August, 2003 the “House of Representatives Select Committee on Recent Australian Bushfires” commissioned Brian Parry & Associates Pty Ltd to provide advice in relation to matters raised in submissions and in evidence to the Committee. The advice being sought was primarily in relation to rural fire brigade communications and interagency communications, including the action taken by individual brigades in developing informal systems to overcome perceived problems with agency systems.

The most notable bushfires during the past two seasons occurred in Victoria, New South Wales and the Australian Capital Territory. Because the major fire incidents were located in south eastern Australia, some would contend that the report is somewhat biased. Not surprisingly, most of the submissions and evidence placed before the Committee directly related to the perceptions that people formed before, during and after these fire incidents.

There is no guarantee that other states and territories would fare any better if fires of the same intensity had occurred within their respective jurisdictions.

Unfortunately, from these three jurisdictions, there was not a commitment to cooperate in regard to a review of the evidence that had been presented to the Committee. A similar attitude was adopted by the Australasian Fire Authorities Council. The cooperation of many member organisations on an agency basis was extremely helpful. They provided advice in general terms, but with obvious pride, about communication initiatives that they have, or are in the process of implementing, to ensure that the operational effectiveness of their fire services is not compromised by inadequate communications.



Many written submissions and hearing transcripts were read and further clarification of points was undertaken. Time restricted the number of face to face interviews and these were generally limited to groups that had made detailed submissions. Many of the concerns raised were supported by numerous other submissions on the same issues.

On preparing the report, a brief overview of the existing communication systems, used for non-urban firefighting, in each state has been provided. There is a growing tendency towards 'whole of government radio networks', and while these may suit many agencies, it could be contended that the time and current climate dictates, that on a national basis, emergency services must plan to work together, and closer. Communications across agencies is one of the major elements in establishing this cooperative climate. The report recommends that action be taken to develop a national radio system and the Australian Communications Authority has indicated support for such a proposal, subject to all states committing to the proposal. **(see recommendation 5 - page 22)**

The member organisations of AFAC have committed to the management of incidents through the use of an 'Incident Control System'. Working within this system at multi agency incidents has tremendous benefits which have been touched on briefly within the report. The use of the system is further strengthened if the communications are planned to fit in with the management structure.

The communication systems that have been developed by the states and territories to ensure that adequate coverage is available for firefighters, utilises a diverse range of radio technology within a number of radio spectrums. A basic explanation of the characteristics of these frequency bands has been included in the



report, because matching the equipment to the geography of the area is critical to the performance of the network.

From the submissions and evidence presented to the inquiry, twelve major issues have been identified. These issues attracted numerous submissions and necessitated further investigation. While some of the issues raised were relevant to one incident or agency, it may also have relevance to how other agencies operate. Some recommendations have been provided where appropriate, based upon the available information.

- Issue 1. Dissatisfaction expressed **(page 26)**
- Issue 2. Support for the retention and use of UHF CB **(page 27)**
- Issue 3. Inadequate radio coverage during recent major events **(page 28)**
- Issue 4. Failure to achieve interoperability **(page 30)**
- Issue 5. Failure to accept local knowledge **(page 31)**
- Issue 6. Survivability of communication sites **(page 32)**
- Issue 7. Ground to air communications **(page 33)**
- Issue 8. Conveying fire information **(page 34)**
- Issue 9. Complaints about radio congestion **(page 36)**
- Issue 10. Use of scanners and listen only radios **(page 37)**
- Issue 11. Inadequate telephone coverage **(page 37)**
- Issue 12. Communications planning **(page 38)**

Other issues and innovations were also raised within the consultancy and were considered worthy of reporting as they do relate to communications. Very little was stated within the submissions or evidence to the Committee about data radio communications and the current use level, outside of the urban areas, seems to be minimal though, this could be an issue that needs to be considered in progressing the national communications concept.



Satellite telephones are now being used to a limited extent. This medium does hold potential though for an increasing range of applications for emergency service uses and does warrant further investigation.

The future direction of radio communications will probably be toward the use of 'Software Defined Radios'. The report provides a brief overview of this technology which is still under development. Many brigades, particularly in New South Wales, have queried the move to UHF communications which have resulted in a need for many repeaters to be set up. This equipment is proving to be expensive and still did not meet the operational needs during recent fires.

When submissions by the House of Representatives Select Committee were initially sought, the focus was clearly on 'direct' fire related matters. Throughout our investigations, however, much has been said about the ongoing cost of repeater site rentals. With some justification, brigades are querying why they pay for the use of the site and then appear to protect it from fire without cost to the site owner. These are usually located in the worst locations from a firefighter safety perspective.

Finally, the concept of a 'national emergency radio network' is outlined as an essential tool for natural disasters and other incidents that necessitate management under a national structure.

Many of the matters covered in the report caused a considerable amount of anxiety for people during, and after the fires. In many cases they are matters that can be fixed for the future without any significant injection of funds. Where there is a need for expenditure on radio equipment, it is extremely important that everyone works together to ensure that, further down the track, we can communicate with each other on an agency and national level. This ties in ultimately with the defence of Australia.



2. Project Overview

The House of Representatives appointed a Select Committee on the Recent Australian Bushfires to “identify measures that can be implemented by Governments, industry and the community to minimise the incidents of, and impact of bushfires on, life, property and the environment.”

The final public hearing by the Select Committee occurred in Canberra on Friday the 22nd of August, 2003.

The House of Representatives Select Committee commissioned Brian Parry & Associates Pty Ltd on 26th August, 2003 to provide advice in relation to communication matters raised in evidence to the Committee.

Specifically, the Committee requested that a brief be prepared on the communications systems generally in use within rural fire services within the states and territories, the problems and difficulties encountered in using these systems in major fire control operations, the communications systems used to coordinate fire fighting response from the various fire fighting and land management agencies within states, problems encountered with communications between agencies from different states and possible solutions to the problems identified. Of a more general nature, the report is to include information on the extent and use of informal systems that have been put in place by individual brigades or groups, to overcome perceived problems within agency systems. Based on the evidence previously received by the Committee, the report was to include advice on the practicality and benefits that may be gained by the introduction of a national radio network for use by the fire fighting authorities and land management agencies should they be required to operate interstate. By direction, the report is to include a general overview of the systems being used without providing a catalogue of



communication equipment, or the procedures used in rural fire fighting.

Initially, the submissions by various organisations and individuals and the transcript of the various hearings conducted by the Committee were evaluated. Subject to the content, and need for further clarification, direct contact was made with the relevant parties to obtain further supporting comment apropos the communications systems. Where considered relevant, technical advice was sought from other sources. This was particularly necessary because of the requirement to return the brief by the 26th September, 2003 to enable tabling within the House of Representatives by November 6th 2003.

3. Applied Methodology

From the outset, it was evident that within the time constraints, it would not be possible for all of the respondents to be contacted personally in regard to communication issues. Within the transcript of the hearings and the written submissions there was a high level of commonality in the concerns that were raised.

Initially the written submissions were studied and the major communication issues were listed. Time did not allow for reading all of the submissions so there was a reliance upon a “keyword” scan carried out by the clerical staff supporting the House of Representatives Select Committee.

A similar process was then undertaken in regard to the evidence given verbally to the inquiry. This once again involved a study of the transcript from the hearings, assisted once again by the use of a “keyword” search of the various volumes of evidence.

With due regard to the objectives of the contract, a list of primary subjects was compiled for closer investigation. In compliance with



the brief some other issues, which were deemed to be relevant and important, were also listed for investigation and reporting.

Some face to face interviews were carried out in Melbourne, Sydney, and Canberra and on the south coast of New South Wales.

These interviews included meetings with some senior officers of emergency services and other organisations. Extensive consultation was carried out by telephone and further information was gleaned through use of the email system.

Support for the project was very good in the main, though it was disappointing that some government departments refused to provide any assistance. Other information was provided from personnel within the emergency services, private citizens and outside agencies, often with a request that they not be identified.

4. Overview of Existing Communication Systems

4.1 South Australia

A 'whole of government' approach to radio communications has been adopted and the government has insisted that all departments comply. The system recently chosen is using the UHF band and is not compatible with the fire services in adjoining states.

The fire service is allowed access to a limited number of channels. This is usually adequate for minor incidents but for any major incident that leads to overcrowding, local user advice is that it can cause a 'shut down'. Each station is fitted with a radio so that contact is maintained from there with the resources responded to the incident.

Representations were made to the Committee by the private forestry industry about the communications change within South Australia. Commercially, both Radiata Pine and Blue



Gums are cultivated in the area, and the growers, up until recently, were an integral part of the fire fighting effort. With the recent move to the GRN UHF system the fire fighting service has become isolated from the grower support.

The vehicles of the brigades adjacent to the Victorian and New South Wales borders carry a radio that can access the interstate local networks. Additionally, some of the vehicles are fitted with a UHF CB transceiver.

4.2 Tasmania

Rural fire fighting responsibility is shared in Tasmania, principally between the Tasmanian Fire Service and a combined administration of Forestry and National Parks. This complements the fire management role of local “Mac” teams (multi agency committee).

Communication throughout the state is achieved by using the 70 – 80 MHz portion of the radio spectrum, this being VHF low to mid band. The frequency range is ideal because of the mountainous terrain.

The fire service operates thirty repeater sites across the island state and this is complemented by a further 30 repeaters available through Forestry / National Parks, whose radio system is fully accessible through the fire service radio sets. The State Emergency Service and local councils are all working in this same radio band.

The normal working arrangement for the fire service radios is duplex, and at an incident, a simplex channel may be nominated for fireground communications between attending units. A command channel may also be nominated, if this is found to be desirable, at the incident.



Portable repeaters are available for deployment, should this be considered necessary, to overcome incident locality problems. There can be delays of an hour or more in having this equipment transported to a suitable location to overcome “black spots”.

It is unusual for Tasmania to send resources to another state during a major incident, except for personnel who can participate in the Incident Management Team. Nevertheless, Tasmania would support the concept of developing a communications system that would feature a block of frequencies for this purpose. Disparity of equipment may be negated by initialising a ‘back to back’ rebroadcasting facility. When necessary, this technology is already used to resolve local coverage problems.

Within the Midlands farming area, the fire appliances are equipped with UHF CB radio. This equipment is used extensively for communicating with the landholders. There is a level of dependence upon these people to back up the brigades, so coordination and control is achieved through the use of CB radio. In this way, the local communities are also kept apprised of the location and other information about fire events.

4.3 Queensland

The primary fire fighting authority throughout Queensland is Queensland Fire & Rescue Service. The service has two elements, urban for the major population centres and rural for the remainder of the state. The 1500 rural brigades are very well supported by the forestry and mining interests. There is also a very close working relationship maintained with the State Emergency Service and Councils.

The radio communications systems employed by the Service utilises both UHF and VHF. The urban services work through



a UHF system but throughout regional Queensland, the rural brigades are working in the 70 – 80 MHz VHF band with good results. This frequency range is well suited for working in the rougher terrain.

There are a number of communication centres established throughout the state. The Service has a very strong commitment to ensuring that whenever a vehicle is deployed, there will be a means of maintaining contact, with a preference for radio. When considered necessary, additional (portable) repeaters will be deployed, though it is accepted that there may be some delays in setting this equipment up. Cross patching (rebroadcasting) of radios that are on different systems is also achievable.

In keeping with the commitment of ensuring communications, the Service is currently constructing 3 mobile communication platforms which will be available for deployment across the State.

The vastness of the state dictates that there will always be some difficulty in providing complete radio coverage. In a development unlike any other fire service in Australia, in conjunction with a private telecommunications provider, a 'closed user group', utilising satellite telephones, is being introduced. For an annual fee this will provide unlimited satellite telephone use for the Service throughout Queensland. The plan is that each vehicle will eventually carry this equipment with a terminal in each Communications Centre. (Further details are provided elsewhere in this report.)

Queensland Fire & Rescue Service has not opted for involvement in trunked radio or a form of government radio network. Such a system is currently under consideration, but as a service, in the interest of national interoperability, the



view is that the Commonwealth should dictate the protocols for all government or trunked radio networks to ensure compatibility. This is not achievable at present.

Fireground (tactical) communications are achieved by the use of either VHF, or more commonly, through the use of UHF radios. The vehicles do have dual fit radios and channels that are available for this use, that are also accessible for other agencies.

Cross state border communications with New South Wales are achieved by the Queensland appliances carrying a NSW radio in any areas where interoperability is considered necessary.

All rural vehicles carry and use UHF CB. This provides access to a very big network of people and is considered really important, particularly for the Class 1 rural brigades. From time to time, deliberate interference is experienced through this medium, but generally speaking, discipline is good. It is almost vital for providing warnings to the rural population and as a line of communication for coordinating the assistance of the farming community during any incident.

The Service has recognised that with the directions that they have taken, "technology without training is dangerous". With radios now available that can access up to 1,000 channels, there is the possibility in a tight situation for a radio user to become excited and choose an incorrect channel. In so far as possible, the technology is being kept simple and the accent is upon training for such situations.

4.4 Australian Capital Territory

The firefighting responsibility for rural fires in the Australian Capital Territory rests with the ACT Fire Brigade in the built up areas, and



with the ACT Bushfire & Emergency Services for the remainder of the Territory. Various land managers have responsibility for carrying out preventative works, but the responsibility for bushfire fighting outside of the built up area rests with the Chief Fire Control Officer.

The Bush Fire & Emergency Service has a radio system that consists of 4 main VHF duplex operational channels and UHF is used at command level. The primary operational channel is located at Mt Tennant and this is a solar powered base. The UHF channel is capable of transmission through this site and another at the northern end of the ACT.

The Bush Fire & Emergency Service channels are controlled from the Emergency Services Bureau complex in Canberra. From that location, radio communications are maintained with Forests, Cityscape, ACT Parks & Conservation and the ACT Fire Brigade Channels. When necessary, direct communication is available to NSW Ambulance, NSW Fire Brigades and Yarrolumla Council. The Comcen, by 'patching', can link users operating on different frequencies.

There is a current proposal for a major upgrade of the communications network available to the Bush Fire & Emergency Service. As part of the upgrade, interoperability is to be a major consideration for not just the agencies working within the Australian Capital Territory, but also for those with adjoining responsibilities, and with other agencies across Australia if a consensus can be obtained nationally on how this could be implemented.

4.5 Western Australia

The responsibility for rural fire fighting in Western Australia is shared between the Department of Conservation and Land Management (DCLM), the Fire and Emergency Services Authority



(FESA) and the Bush Fire Brigades, dependant upon the location of the incident. The bush fire brigades are formed and operate under the local council. The three services work very well together, sharing the access to 100 channels within the VHF spectrum.

The services fully utilise access to each others' repeater sites.

The Fire and Emergency Services Authority operates both an urban and a rural service. Every effort is made to ensure that there is at least two, if not three modes of communication available to each brigade responding to an incident. The primary mode of radio communication for rural incidents is via VHF, and in some areas this is enhanced through a satellite telephone system. The fire service also provides a command channel with direct communication back to the Comcen. In this way many of the inter-operative issues are overcome.

There is also a very effective HF radio system which is also supported by satellite phone provisions.

Although it is not an "approved" system, many of the 'farmer brigades' use UHF CB radio to stay in touch with each other and the land owners, during fire fighting operations. With or without approval, the UHF CB system is an important fall back measure should other communications fail.

Fire fighting resources, because of the distances involved, tend to only participate in providing assistance on an intra-state basis so national interoperability is not considered to be a problem.

4.6 New South Wales

In New South Wales, government departments, authorities and instrumentalities operate a total of 42 separate radio networks, and not surprisingly, even though amongst that total there is a



'Government Radio Network' (GRN), a whole of government radio system is under consideration.

Initially the government radio network did not have the capacity to cope with major incidents. This was recognised by the Police when the system was first proposed, and even though the coverage has improved, they still have not migrated to that system. The main users are the State Emergency Service, NSW Ambulance, NSW Fire Brigades and to a lesser extent, the NSW Rural Fire Service.

The responsibility for fire suppression throughout country New South Wales, is in the first instance, largely determined by the tenure of the land. State Forests and the National Parks and Wildlife Service, though basically land managers for specific purposes, have a responsibility for the control of fire on their respective estates. The NSW Fire Brigades provide fire protection throughout the more populated cities and towns state-wide, including the bush or grasslands around and within the urban fringe.

The NSW Rural Fire Service is the primary fire suppression service throughout country New South Wales, providing protection for most of the rural holdings, crown land, and any other land that is not included in the state forests or national parks aggregations. Each of these services has its own communications system and whilst interoperability is achieved on a local area basis, as a whole, this is not the case.

The NSW Fire Brigades, for communications throughout the state, utilise the GRN in all areas covered by the service footprint. Outside of this the primary line of communication is by a UHF PMR system. In some of the more remote areas, back up communications are provided by the use of satellite telephones. This is particularly important because of the state-wide Hazmat



responsibilities of the Service. Interoperability at fireground level is generally by local arrangement. In some cases this is achieved by a capability to switch channels to a rural fire service PMR service, while in other cases, the NSW Fire Brigade appliance has the capability of speaking at the fire front through the RFS fireground VHF system. Where there is a commitment to work together, the brigade personnel from both services will make some arrangement to ensure communications.

Both the National Parks & Wildlife Service and State Forests operate independent radio communication networks utilising the VHF band. On a local basis, there are some arrangements made for accessing each other's channels but this does not seem to be coordinated at a state level. Both services have not migrated to the GRN because most of their respective estates fall outside of the GRN footprint.

The NSW RFS moved from the VHF band as the primary line of communication when the GRN was introduced in 1995. Operationally the system was not capable of carrying the amount of traffic generated during a major incident, so it became necessary for private mobile radios (PMR) to be introduced on a district basis in the UHF band, whilst still retaining access to the GRN. While the change to UHF PMR has been reasonably successful in the Sydney, Newcastle, Wollongong area and west of the Great Dividing Range, there are still significant problems being experienced in utilising this band for communications in the mountainous areas. To assist in overcoming the problems on a district basis, the older VHF system may have been retained, UHF CB systems have been developed, or backup communication is achieved through working through the other agency's networks. At a command level where discreet or extended communications are required, extensive use is being made of the mobile telephone system. (The cost of mobile telephone calls are frequently an



impost on brigade finances, contributing to the need for constant fundraising.)

Some districts use the low power output VHF system developed by the RFS for fireground communications, and to a limited extent, interoperability. The decision has recently been taken to provide these radios without the 'talkaround' facility which has a slightly higher power output. The immediate reaction from the brigades is a concern that this limits the effectiveness of this mode of communication where the terrain is hilly and heavily vegetated.

For those brigades that do not have access to the RFS VHF fireground system, the UHF CB network has been extensively used for fireground communication, with particular emphasis on interoperability.

4.7 Victoria

The entire metropolitan area of Melbourne is serviced for both structural and bushfires by the Metropolitan Fire & Emergency Services Board. The primary means of communication is by UHF radio. The remainder of the state receives urban and rural fire protection from the Country Fire Authority or the Department of Sustainability and Environment. Most of the fire fighting on the freehold rural land is carried out by the CFA and the VHF band is used extensively for this purpose.

In rural Victoria for smaller incidents, the communication network is operated from the home of the Group Communications Officer (sub-bases) initially, and depending upon the severity of the situation, it may escalate to being oversighted at group level. Usually a fire station is the group headquarters. More serious incidents would see the communications being controlled from one of the permanently staffed stations.



The callout of the brigades, up until now, has been by the use of pagers or a telephone (fire) reporting system. The CFA was involved with Telstra back in the 1970's in producing the first "Fire Reporting System" and fire services across Australia have since benefited from that technology and subsequent refinements.

The use of 'listening sets' has also contributed to the efficiency of brigade callouts over the years, and even though they are not officially recognised by the Service, they help maintain the interest and morale of many firefighters as well as their families.

Changes to the communication system will soon occur with the introduction of a new Country Call Centre facility at Ballarat. This will negate the need for the sub-bases, and they will be phased out. This is change that is inevitable because the technology now enables the communications to be more centralised and with the socio-economic influences on volunteer's time, while it may not suit everyone it will suit the majority of volunteers that currently fulfil the onerous 'Communications Officer' role.

Victoria is also well served by the State-wide Mobile Radio Network (SMR). The system was developed by the Victorian Government in conjunction with Motorola and is managed by Telstra. It was widely used originally by various utilities such as gas and water, and it is still widely used by the Department of Sustainability and Environment (DSE), and to a lesser extent by the CFA. It is through the SMR that interoperability is achieved during fire fighting operations.

The VHF radio fitted to the CFA and DSE vehicles incorporates the SMR facility which can be activated by the use of a switch. This then allows the operator to dial the identified number on the microphone hand piece for whatever unit or base is required. As a general rule each appliance carries two radios so that one can remain on the operational channel whilst the other uses the SMR facility.



There are numerous VHF channels available to the CFA on a state-wide basis, and each region has its own primary operational channel. Should it be necessary, because of the amount of radio traffic resulting from a number of smaller incidents, or due to the complexity of operational traffic, additional channels can be made available. Similarly, separate channels can be organised by the CFA for brigade use between units on the fireground.

Many of the CFA vehicles and stations have UHF CB radios installed. These sets have been purchased by individual brigades and are now accepted by the Service, provided that they are not used for command or control communications. The brigades respect the direction that has been set and use them for internal brigade business, including; ensuring that their families are kept apprised of the brigade's commitments.

Brigades in the more remote areas are now being provided with satellite telephones. The introduction of this technology overcomes many of the safety concerns of the brigades that are less fortunate in the availability of communication options.

4.8 Northern Territory

The Northern Territory Police, Fire & Emergency Services have adopted a whole of government policy for communications and the indications are that it works extremely well. The radio communications primarily involve the use of UHF and HF, coupled with satellite services, to overcome the distances that the agencies need to work across.

In each of the major population centres, 'Comcens' have been established and any 'outage' at one location can be reasonably well covered from elsewhere to ensure that the communications support to the personnel in the field can be continued. For operational purposes, most of the information is carried by voice



communication, but within the system there is adequate capability for the transfer of data.

Interoperability problems on a territory basis are minimised because all of the services are co-located and controlled through the main control room in Darwin. The concept of a national communications system though, holds a high level of appeal because the Territory is vulnerable to major natural disasters and incidents, including the geographic proximity to the south East Asian region.

5. Interoperability

Interoperability describes the ability of different agencies to effectively communicate operational information from one agency to one or more other agencies, usually (but not exclusively) by radio.

Within this report, interoperability is further defined as being 'tactical' when referring to communications at the fire front, 'command' when the communication is at senior agency field officer / fire control centre level, with the further scope for interoperability at a 'strategic' level for incidents on a state or national basis.

Australia must work toward developing a National Strategic Radio System whereby, in any major incident, agency commanders and their respective communication centres can achieve full community interoperability.

Recommendation 1

That the Commonwealth, State and Territory Governments commit to the development, in conjunction with representative bodies of all emergency services, to a National Strategic Radio System as an essential element in the protection of Australia.



6. Relationship of ICS to Communications

Throughout Australia, most of the emergency services and land management agencies directly involved in fire suppression have opted for the use of an 'Incident Control System'. By doing this, it has enhanced the interoperability of trained staff for situations where assistance is required during major incidents from other services, both intra-state and inter-state.

The benefits of utilising ICS includes; a widely recognised chain of command and assignment of responsibilities, standard terminology and systems for controlling personnel and equipment resources at any critical incident. It is also a means of ensuring that the workload is manageable to all of those who are working, both within the management structure and in the field. This is achieved by the introduction of span of control mechanisms based upon research through numerous major incidents.

While the ICS structure is to a large extent 'standardised', it is flexible in its implementation in that it can be scaled up or down as dictated by the incident.

The ease of implementation of ICS is enhanced by the experience gained in having personnel from numerous agencies deployed to incidents, both within and external to their own organisation and geographic area.

Just as ICS is flexible, it is essential that the communications systems involving all elements of the incident management structure are easily adaptable to the situation. There does need to be a basic communications framework that meets the requirement of the four functional areas of the incident control system, (these being control, operations, planning & logistics) as part of the planning process of any of the combat authorities. This will include

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planning for the use of various radio networks that will be available during the incident, with due regard to the ability for transfer of operational information at both fireground and command level.

7. Radio Propagation Characteristics

Within this report the radio bands that have been mentioned include HF (high frequency), VHF (very high frequency) and UHF (ultra high frequency). It is important that the difference between these bands, and in particular the characteristics that apply to each of these is understood. Each has its application and maximum effectiveness is not going to be gained by trying to operate a radio system in a band that does not suit the local conditions and cannot achieve an acceptable level of performance.

Basically, the higher the frequency the more direct the radio waves will travel between a transmitter and a receiver. In a basic short distance transmission between two radio sets across level ground, ultra high frequency (UHF) would be ideal. In this band, and under these conditions, an optimal level of performance would probably be achievable. Other performance limiting characteristics for UHF transmissions are; heavy vegetation, thick smoke and heat. UHF networks are highly acclaimed for their clarity of signal on a 'day to day' basis. In a bushfire situation, vegetation, smoke and heat are all present and can drastically reduce the performance of the network.

Over the same distance, but with a couple of hills or mountains in between, a performance level of good quality may be achievable by the use of radio repeaters on high points, that enable the signal to be carried, still virtually as a 'line of sight' transmission, albeit that it is diverting through one or more repeaters.

Close to the same level of performance may be available by use of a radio in the very high frequency (VHF) range, because in this band, there is a higher degree of curvature of the radio signal than



there is when using UHF. VHF signals can also be influenced by vegetation, smoke and heat but to a lesser degree than UHF.

Both VHF and UHF emit a signal that is referred to as a 'ground wave' because of the characteristic of tending to follow the curvature of the earth. VHF mid band, from an operational perspective, is preferred by firefighters for working in difficult terrain.

Some reference has also been made to the use of high frequency (HF), primarily in some of the larger states. HF has a capability of emitting either a 'ground wave' signal or a 'sky wave' signal. The type of signal tends to vary according to the type of antenna that is used. When the objective is to achieve a 'ground wave', it can be anticipated that, dependent upon the power output, the signal may travel further than most VHF signals. The bigger advantage though, in these situations, is that it is capable of working around obstacles more so than VHF, and markedly so, by comparison with UHF. The other type of signal (skywave) that can be generated by a HF radio relies upon the signal travelling skyward up to the ionosphere from where it is reflected back to earth. This enables the signal to travel much greater distances across the earth's surface.

Traditionally, HF radio has been a very noisy band within which to work, but supporting communications equipment has now advanced to the point where some exceptionally good results are being achieved, especially when the HF radio spectrum is used in conjunction with satellite communications.

Though this is a simplistic overview of radio wave propagation, this should highlight the operational constraints that needs to be considered when selecting radio equipment for distribution to the emergency services. Technology does allow for equipment, in the various radio bands, to work in harmony and utilise the advantages



of each. In such situations, regard must still be given to the known characteristics of each band.

8. Issues from Submissions & Evidence

The following list of issues have been summarised on a priority basis. The list has been compiled according to the number of times that it was raised for presentation to the House Representatives Select Committee on the Recent Australian Bushfires. This cannot, however, be construed as necessarily indicating the importance of each issue, as in many cases there is a high probability that people would not have raised particular concerns that they knew had already been mentioned by other respondents.

It is also important to note at this juncture that as the title of the Committee included 'Recent Australian Bushfires', input from states that had not had major fires in the past few years was of course significantly less than the input relative to the fires during the immediate past 2 seasons in New South Wales, Victoria, ACT, and to a lesser extent, Western Australia.

Issue 1

Dissatisfaction expressed that all agencies involved in an operation could not communicate on the one radio network at a command level;

Background

Throughout the written submissions, and in evidence, numerous people made reference to the lack of understanding in objectives and roles of the various agencies at major fire incidents. In some ways, the greater the number of agencies involved, the more the problem was exacerbated. Many of the comments originated from people outside of the emergency service organisations, but clearly with a vested interest and understandable concern for their own property.

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This clearly is a planning issue and it became evident during the consultancy that the development of an 'Incident Action Plan' is not always supported by the preparation of a 'Communications Plan'. The planning process in fact should be considered well in advance of the incident, with due regard for the means of communication available throughout the area.

Even with the development of a communications plan, in many cases the incident management team would require that interoperability be achieved by communicating back through the incident management team and liaison officers at the appropriate communications centre. Where this is the case, it does place a heavy onus of responsibility on the members of the incident management team to ensure that operational communications of this nature are handled expeditiously. If this is not achievable then clearly some other arrangement, by way of access to a common radio channel, is required.

In identifying communications at this level as being 'command', strictly speaking, this level of communications is striving to achieve coordination between divisions as well as involved agencies.

Recommendations 2 & 3

- a. That through the state and territory agencies a greater emphasis be placed on pre-incident and incident preparation of communication plans as a means of ensuring effective interoperability between agencies at command and tactical levels.*
- b. That the speed of transfer of operational information between agencies at command level be regularly monitored to ensure that operational objectives are not being compromised.*

Issue 2

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Support for the retention and use of UHF CB radios throughout the fire services;

Background

In previous years some fire services have actively set out to discourage brigades from the use of CB radio, principally when CB radio was operated in the 27 MHz range. For rural fire fighting, the attitude has now changed with some services encouraging the installation of the equipment, while others are condoning its use for other than operational communications.

Via the submissions, transcript of evidence and subsequent inquiries, it is evident that on numerous occasions during the last season, UHF CB proved to be invaluable to brigades when they found that they had lost all other means of communication. The service was also used for the initial reporting of fires, reports on the progress of fires and in particular the proximity to assets, tactical communication between the vehicles and personnel working at the fire front. It proved to be critical as a means of alerting the community to the situation by either direct communication or use of the facility by landholders as a listening device. Clearly, at this point in time, this is the only nationally available radio system that has wide-spread access and acceptability.

The people that are speaking in strong support of this means of communication are well aware of the risks associated with the use of an 'uncontrolled' network and its susceptibility to abuse. The defence that is provided, is that they have experienced very little deliberate interference and that through local planning, and with access to 40 channels, procedures are in place to overcome such problems. The use of the network by vehicle mounted radios and handheld units has wide acceptance in most states for the essential 'chatter' channel at the fire edge, more so than any other recognised and dedicated radio system for this fireground



application. With such wide-spread use within the fire services and rural landholders throughout Australia, the system is achieving interoperability at a very practical level.

The use of this equipment for this purpose should continue.

Recommendation 4

That the use of UHF CB between units on the fireground be included in communications planning for intra-state and interstate deployments.

Issue 3

Inadequate radio coverage during recent major events;

Background

Many of the major fires in recent times have been fought in very steep and heavily vegetated terrain. Wide spread comment has been received about people from different services standing side by side, with some achieving good communications, while others found their service poor or inaccessible. There are a number of factors that would influence such differentiation in performance but fairly consistently, it seems that communication was achievable by use of VHF radio in difficult country while UHF services failed. (reference is made elsewhere in this report about the advantages / disadvantages of radio communications in the various bands). The forced migration of fire services to the use of UHF radio systems in mountainous terrain has in itself become a major occupational health and safety issue. No radio system though, can guarantee 100% coverage; hence the need for a back-up communication system at all times.

Some emergency services have made huge financial commitments to developing high performance UHF networks, installing numerous repeaters at accessible high points, still without achieving complete coverage of their respective areas. For such situations, further financial commitment has then been required to



overcome the black spots by introducing satellite phones or some other technological solution.

Some form of radio communication is achievable virtually anywhere these days, but basically the network needs to be based upon the development of a system that best suits the terrain within which it primarily is required to work. Minor exceptions can be handled through various methods, by which apparatus in varying wave bands can be linked to form an integral network. Such systems can become daunting for casual users, a concern raised by some of the fire services operational staff.

In designing any radio network for use within the emergency services, there must be due consideration given to the arduous circumstances under which the equipment and operator may be required to work. The system needs to be kept as simple as possible and there needs to be adequate training to ensure that in stressful circumstances, the failure of the communications system is not attributable to operator error.

Recommendation 5

That state and territory agencies review on a district basis, the suitability of the current allocated radio spectrum to ensure that as far as possible, firefighter safety is not being compromised through inadequate communications.

Issue 4

Failure to achieve interoperability via communications at fireground level;

Background

This issue has already been touched upon in Issue 2, where UHF CB radio is used extensively for communication at this level. Some agencies do have dedicated UHF and VHF systems specifically for this purpose, utilising low power transmissions, that



can in some cases achieve enhanced performance by use of the 'talk around' channels. Elsewhere throughout Australia, and as part of the communications planning, a specific channel on the main network will be nominated by the communications centre for tactical chatter at the fireground level. The disparity between fire services and other agencies involved in firefighting is so wide that it is difficult to see how the problem could be overcome within the short term. This has become a 'day to day' issue within some states, whilst others are quite comfortable with the arrangements that they have in place.

Given the increase in recent years of the number of occasions when assistance is moved from state to state, there is a need for commonality in those situations and this can most efficiently be achieved at this time by the utilisation of the UHF CB network. In the longer term, use of this system may prove to be impractical.

Recommendations 6 & 7

- a. That as a short term objective, the use of '40' channel UHF CB equipment be adopted for coordination and interoperability of communications at fireground level.*
- b. That as a longer term objective a national communications plan be developed and incorporate the provision of low powered VHF channel allocations for the purpose of ensuring compatible fireground communications between all agencies on a national basis.*

Issue 5

Failure to accept local knowledge during firefighting operations;

Background



This subject presented numerous times throughout the submissions and evidence provided to the Committee. It was also raised as part of the investigation and is addressed here on the basis that so many people considered it to be a communications failure.

Without doubt, in many communities there is a wealth of local knowledge that can be of benefit during major fire fighting operations. Many of the people with this knowledge have previously worked in a paid or voluntary capacity within one of the many agencies or authorities involved in the firefighting effort. The advice that they can provide is valuable, but the level of value needs to be ascertained prior to the onset of an incident. The incident management team, during an incident, is not going to be in a position to carry out an assessment of the value of the advice that such individuals can contribute.

Once again this is a matter that needs to be addressed as part of the planning process. The evaluation of the person's knowledge could be provided through the agency with which there was a previous association.

There are also difficulties associated with involving people during the incident who may have been away from the firefighting scene for an extended period of time. As with everything else, in firefighting, there is a continual change process involving communications, equipment, occupational health and safety issues and management accountability, to name but a few. While not all change sits comfortably with everyone, it is expected that change does in some way improve the system.

On the other hand, with the changes that have been implemented and in particular, the introduction of ICS, there is a tendency for decisions to be made without due regard to fire history, land use, known fire paths and fire behaviour. It is a challenge for an incident management team to bring all this together, and clearly



without regard for local knowledge, many have failed in some of the severe incidents of the last few years.

There is a need for local knowledge to be considered within the planning process. It is not clear though, how this information should be communicated. Perhaps through community briefings.

Recommendation 8

That through state and local organisations with operational planning responsibilities, consideration be given to means by which local knowledge could better be utilised during fire fighting operations.

Issue 6

Survivability of communications sites during major bushfires;

Background

Recent fires in mountainous and heavily vegetated areas have rendered a number of communication sites unserviceable for prolonged periods of time. Mobile telephone towers, two way radio transmitter and repeater sites, commercial radio and television installations have all suffered losses to valuable equipment and 'down time' from their normal operations. In some situations the fire has caused loss of power to the site and the situation has then been further exacerbated when 'stand-by' batteries have been exhausted or 'stand-by' generators have run out of fuel.

The firefighting effort can be totally frustrated by the loss of these communication systems. The lives of fire fighters may also be placed at considerable risk where there is a reliance on the performance of this equipment for fire fighting communications.

The situation of losing communications is a major occupational health and safety concern for fire fighters. It can and does lead to further loss of assets to the fire. These situations should be avoidable because in most cases, the fuel levels could be



controlled by either burning or mechanical means without major environmental degradation of the area. Common sense needs to prevail!

Recommendation 9

That the Federal Government, in conjunction with the respective State and Territory Governments, issue the necessary directives to ensure that the survivability of essential communication installations during fire incidents is ensured by strategic fuel management around the assets.

Issue 7

Ground to air communications at the fire front;

Background

During the submissions, and to a lesser extent through the evidence presented to the Committee, fire fighters complained of not having direct communications from the fireground to the air support resources engaged in water bombing or reconnaissance work. Some agencies that normally have access to their own air resources can maintain communications from the fireground to the aircraft, but as a general rule the practice is frowned upon. During water bombing operations an 'Air Attack Supervisor' would normally direct the aircraft to the target in compliance with the request from the 'Air Operations Manager'. The air operations manager within the ICS structure is working in conjunction with the 'Operations Officer', and it is totally inadvisable for air resources to be prioritised or directed from any other location once the management structure is up and running.

The cause for concern is justifiable and directly relates to a failure of the incident management or handling of radio traffic within the communications centre. This is a critical area for the safety of ground crews and poor performance of the responsible personnel should not be tolerated by the incident management team. The

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answer though, is to fix the problem rather than change a system that will also create problems.

The performance of the air operations team is a critical area for audit by the 'Safety Officer'. If the level of support to the fireground is inadequate then steps needs to be taken immediately to correct this anomaly.

Recommendations 10 & 11

- a. That the management of air operations continue as described within the current ICS management structure with variation only permitted under exceptional circumstances.*
- b. That state and territory agencies be alerted to the concerns raised to the Committee indicating communication difficulties in regard to communicating operational information from the fire front to aircraft.*

Issue 8

Conveying fire information to the local community;

Background

Throughout the written submissions to the Committee and to a lesser degree through the evidence, concern was raised about the need for better briefings to be available to the local community on the location of the fire and the actions being taken to limit the spread and protect the community. Through the interview process a number of people actually commented on how well they were kept informed. Obviously, at some incidents, the information flow to the community and firefighters was much better than it was at others. It is an important communication issue that, when well handled, can provide huge benefits to the IMT.



There can be little doubt that where the initiative was taken in providing scheduled briefings at a nominated location for local residents, it was well appreciated. People who felt that their property was directly under threat were reluctant to attend these briefings and indication are that in a number of such situations, a short briefing was provided utilising the wide spread availability of the UHF CB network throughout the rural areas.

It has been difficult to ascertain within the communications consultancy how detailed local media releases from the communications centre actually were, or if they were being prepared on a more global basis for distribution. It is pleasing that within the written submissions, special mention was made of the excellent service provided by a regional ABC radio station in keeping the listening audience informed of fire developments, largely on a scheduled basis.

Insufficient information was made available for any further comment or recommendation in regard to keeping the community informed. Suffice to say that in some areas, the performance was somewhat unsatisfactory.

Issue 9

Complaints about radio congestion at both fireground and command level;

Background

Complaints in regard to this matter were not relevant to all states and territories. It would seem as though this is a matter that is well managed during most incidents by the development of an effective communications plan. It is clear that at fireground level, on some recent incidents, there were too many users for the available channels. At this level the systems do not operate as a controlled net and with so many people involved in a property protection role,



many calls needed to be repeated when time and radio traffic permitted. The people who normally handle the radio, of necessity, became involved in other tasks. This then impacted upon the radio system.

At a command level and trying to cope with an asset protection role, there was an obvious need for further diversification of channels. These radios operate as a controlled net, hence each call from a mobile requires a response from the control operator. This can mean that if 60 mobiles are operating on the one network then the average transmission time can be as low as 30 seconds per hour, per vehicle. This further reinforces the need for interoperability communications to be relayed through the Comcen, rather than introduce other agencies onto the main operational fire channels. It also highlights the need for communication training on protocols and operating procedures.

Planning of communication networks, including that required for additional resources moving into the area, must be documented and promulgated well ahead of the incident. Senior field officers need to have some input into this planning process and to be aware of the communications structure proposed for various scenarios.

Recommendation 12

That at state and territory level, all organisations ensure that district communication plans have regard for the amount of radio traffic that may be generated under the most severe conditions.

Issue 10

Use of scanners and 'listen only' radios;

Background

Some firefighters, their families and members of the general public, have for some time, used this sort of apparatus as a means of being aware of call outs, requests for additional crews, the



locations of fires and other operational issues. The use of this type of equipment has been condoned in some areas and encouraged in others but through information provided to the Committee, this information source was not as effective during the last season. Through the Committee, requests were made for the local operating channel information to be made available, even published, so that the practice could continue into the future.

Insufficient information has been forthcoming to permit any further comment or recommendation in regard to this matter.

Issue 11

Inadequate telephone infrastructure in bushfire prone areas;

Background

The recent bushfires have caused major disruption to power distribution throughout the areas. Within 8 hours of the power being lost, telephone communications failed. This is because there is usually an 8 hour battery back up capability and if power has not been restored in this time, telephone services shut down. It does seem that this meets the Telstra customer service delivery standard but it is totally inadequate in the face of a major fire or some other form of disaster. It seems as though the problem is common to both the mobile telephone network and the standard telephone system.

Management of emergency incidents involve numerous agencies, not all of which have access to a two way radio system. To be able to function effectively these agencies need telephonic communication.

Through the investigation, advice was provided that very few telephone or mobile phone facilities now have automatic generators to cope with power outages, with full reliance now on the 8 hour battery back up. Further advice is that if the power is



expected to be out longer than the 8 hours, then a contractor is required to deliver an emergency generator to the site to facilitate the resumption of telephone service. The events of the past fire season have proven this system to be totally inadequate.

Recommendation 13

That the Federal Government be requested to investigate, and where necessary, enhance the provision of emergency power for the purpose of restoring telephone and mobile telephone services or expeditiously in areas affected by fire or other natural disaster.

Issue 12

Communications planning;

Background

This matter was not raised openly in either the submissions or evidence placed before the Committee. It did become evident though, during the investigation phase, that very few of the people that commented on communication issues had actually seen a documented 'communications plan'. Some agencies do have written plans, perhaps the best example of which is that produced by the Department of Conservation and Land Management in Western Australia. **(See Annexure 1.)**

This framework, in conjunction with other relevant information, should be included within a standing 'Operations Plan'. The planning of communication for future incidents should be undertaken on a collaborative basis involving all of the agencies likely to be involved in any future fire incident. In this way, each agency has a degree of ownership in the plan. Once developed, the plan needs to be tested and regularly reviewed to ensure that it remains current.

It is from this standing 'Operations Plan' that the basic operational communication framework (similar to Annexure 1) is downloaded



and modified to meet the operational needs of any particular incident.

Unless the basic framework is developed well ahead of the incident, time will be lost or a communications plan will not be promulgated to the people involved at the various levels of the suppression effort.

The communications plan, at each level, must meet the operational needs; hence it is inadvisable that preparation of the plan be left for development by technical staff without input from operational personnel.

With some jurisdictions not providing input to the Inquiry or subsequent investigation of matters raised, it is difficult to determine the extent of the communication planning problems. Suffice to say that at some incidents, communication planning has been far from satisfactory.

Recommendation 14

That state and territory agencies ensure that on a district basis, communications are addressed within the District Operations Plan with a capability of easy adoption to the Incident Action Plan for a particular incident.

9. Alternative Communication Methods

9.1 Data Radio Communications

Up until this point in time, the use of data transmitted by radio within the non-urban fire services has been very limited and as such, is on the periphery of this brief.

The current development of a Digital Radio System utilising a Motorola system named "Smartzone" is probably the way forward for data, paging and vehicle location systems. This seems to be the path being taken by the Northern Territory Police, Fire &



Emergency Services though it is unclear to what extent this will benefit bushfire fighting.

Previous attempts by other emergency services to utilise data and voice transmissions across one radio network have not proven to be satisfactory. Invariably these services have resorted to a dual radio fit to ensure satisfactory results.

It is anticipated that with the rapid improvement in technology directed toward the provision of data services, major advances will be achieved within the next few years, probably justifying a 'hasten slowly approach' to this medium. Most of the technology is being directed toward 'Narrowband Data' and with refinement, this has the potential to fulfil all of the desired data and messaging requirements of rural fire services. The scope for service delivery will be enhanced even further if all agencies work cooperatively to ensure standardisation and compatibility of equipment.

It is believed that the Australasian Fire Authorities Council is in the process of developing a national position in regard to radio interoperability. If this is the case, then it would be advisable for the future of data radio transmission for fire services to be incorporated within any resulting policy.

Recommendation 15

That the Australasian Fire Authorities Council be requested to determine protocols and standards on a national basis for the adoption and implementation of mobile data services by all firefighting agencies with a view to ensuring national compatibility.

9.2 Satellite Telephones

Some state and territory fire services are using satellite phones as a means of improving other communication mediums. Probably the best example of this is where satellite phones are being used



in conjunction with HF communications in remote and difficult areas. The common perspective still seems to be that they are bulky, difficult to use and expensive. Technology has improved for the first two points and the cost of purchasing and utilising this as a communications system is becoming more cost effective, depending upon the type of application for which it is intended for use.

The Queensland Fire & Rescue Service is currently involved, in conjunction with Optus, in developing a 'closed user group' utilising satellite telephony. As part of the project, an annual subscription has been negotiated which will cover unlimited use by all of the QFRS units.

The intention is that a terminal will be installed in each communications centre with a mobile terminal facility also being available for field deployment. A dome antenna will be fitted on the vehicles and usage of the system is primarily expected to be for strategic command communications. The initial cost of purchasing and installing the satellite phone units in each vehicle will prove to be quite expensive, but the introduction of the system virtually guarantees communication to all units, wherever they are deployed. This represents a major safety initiative for firefighters.

Since the introduction of a national radio system is probably still some years away, as an interim measure at command level, consideration should be given to the installation of satellite phones for key agency personnel within their vehicles with terminal equipment being installed in each agency head office at state level. This could be developed as a 'closed user group' network on an Australia-wide basis, ensuring interoperability on a short term basis at least.

Projected technological development of third and fourth generation mobile telephones is also not that far away and it is anticipated



that through the CDMA network, these telephones may be able to offer similar features to the satellite telephone 'closed user group' technology.

Recommendation 16

That the Australasian Fire Authorities Council be requested to consider the development of a 'closed user group', utilising satellite telephony, as an interim measure for achieving interoperability between member agencies on a national level.

9.3 'Software Defined' Radio

This is a totally new concept in radio communications which is currently being developed by the United States Military. The introduction of this type of technology could revolutionise the two-way radio industry because, regardless of the operating band, and using computerised software, this type of radio will automatically align to a base station. This would mean that there is no need for a spectrum to be allocated for the use of these radios. This type of technology *may* be available in 5 to 8 years time.

10. Associated Costs of Radio Networks

10.1 Establishment Costs

Numerous brigades spoke of the enormous amount of funding that is being consumed in developing and maintaining communication networks for firefighting. They do understand the need for reliable communication systems, but quite a few expressed a concern that not all changes bring about an improvement in communications.

In particular, within New South Wales, with the high 'fail' rate of UHF primary networks in difficult terrain during the recent fires, it is not surprising that the basis for the move to the UHF band is being widely criticised when other agencies were not required to make the move from VHF. As such, when working alongside personnel from land management agencies that are still working within the



VHF band, the deficiencies of the UHF system become very obvious.

It would be wrong to assume by these comments that the system is unsatisfactory right throughout the state. There was some very positive comment received about the performance of the network west of the Dividing Range and within the Sydney, Newcastle, Wollongong area. While there is always going to be a 'fringe' area, it is important to not divide a district in the provision of radio coverage.

It is not known if similar problems are being experienced elsewhere.

Recommendations 17 & 18

- a) That consideration is given to enhancing the performance of the UHF PMR network within NSW to overcome local performance deficiencies where UHF is considered to be the appropriate band.*
- b) That through areas of difficult terrain within NSW, where UHF PMR performance is sub-standard, consideration be given to the re-introduction of a VHF system as the primary network, preferably in the mid-band spectrum.*

10.2 Repeater Sites

In order to gain reasonable performance from a UHF radio network operating in mountainous country, it is essential that there be a number of repeaters introduced to assist in moving the signal through the steep terrain. Many of the repeater sites are controlled by other agencies who contribute very little to the firefighting effort (in NSW alone, these agencies include but are not limited to, National Parks & Wildlife Service, State Forests, NSW Police, Transgrid & other electricity authorities, Telstra & other communication carriers, Snowy Mountains Hydro Electricity



Authority, Sydney Catchment Authority, Civil Aviation etc,) including the protection of their own assets. These agencies, in addition to achieving their fire protection at the expense of the volunteer service, are then charging the firefighting services exorbitant rental to have the repeater equipment installed at the sites that the agencies control. This has been identified as being totally inequitable by brigade personnel who asked that the House of Representatives Select Committee into the Recent Australian Bushfires be made aware of the situation in the hope that a more equitable solution will be forthcoming.

Recommendation 19

That nationally, for the purpose of communications for the Police, Ambulance and Fire Brigades, any rental costs associated with the use of radio sites under the care, control or management of Federal, State, Territory or Local Government be waived, other than for the ongoing cost associated with the use of power at the site.

11. National Emergency Channel

It seems as though there is an accepted point of view across all of the emergency service organisations, Australia-wide, that there is a need for radio frequencies to be set aside as a means of ensuring interoperability between the various states and agencies. This need was first identified back in 1974 after Cyclone Tracey, and the Australian Communications Authority (ACA) issued a block of 64 channels to fulfil this purpose. The combined Police forces of Australia took control of all 64 channels and this situation remains unchanged. Currently the Police, on a national basis, have identified a need once again for channels where they can communicate between services and with other emergency service organisations, but it seems highly unlikely that they will surrender all or any of the 64 channels that previously had been set aside for this very purpose.



In discussions with the ACA, it was indicated that whilst this is a very complex issue, the ACA is sympathetic to the need for interoperability at a senior level and on a nation wide basis.

At the behest of the NSW Government, representatives of the States and Territories gathered a few years ago and established the "Inter-government Spectrum Harmonisation Committee" (ISHC). This Committee has met 6 times, and collectively, there is a spirit and willingness to cooperate in the development of a national strategic radio network. Outside of the meetings though, the objective is quickly lost as demonstrated by the current situation with both the NSW and Victorian Governments currently procuring totally incompatible equipment within the same radio band. This is the same culture and behaviour that has prevailed since the allocation of the 64 frequencies back in 1974.

It seems as though the states and territories are being driven by the need for short term fixes for current problems. If the national approach is ever going to succeed, then the states and territories will need to adopt a long term approach to the matter.

The fact that radio equipment is being purchased to work within a designated radio band does not in any way guarantee interoperability with other users within that same band. The technology as it exists at this time, through different suppliers, is totally different and incompatible with that of other manufacturers. Whilst it may appear to be a restrictive trade practice, to achieve the desired outcome of a national radio network, all of the radio hardware will need to be purchased from the one manufacturer and virtually at the same time. The procurement cycle must be synchronised.

Given the current world situation, it is quite conceivable within the next 10 years or so, a natural disaster or some other incident may



necessitate the deployment of emergency service personnel and equipment to the extremities of mainland Australia. In such a situation it would be extremely beneficial, if not essential, for the national radio system to be operational at command level across many agencies. For this to be achievable, the move needs to be made now by way of irreversible commitment by the states, territory and federal governments to plan and procure the necessary infrastructure and hardware.

If such a radio system is to be developed then it will be essential that one organisation fulfils the coordination role. Most agencies and many individuals would contend that this coordination role should be adopted by Emergency Management Australia, which already has a coordination role in the handling of natural disasters and other incidents including providing the interface with the Australian Defence Forces. Indications are that Emergency Management Australia does not see this as part of its charter, hence there may be a need for some review of the current legislation to secure involvement of that organisation in this process.

Debriefings after a number of recent world-wide incidents have identified the failure to provide a fully interoperable communication system across agencies as being a limiting factor in the management of these incidents.

Recommendations 20 & 21

- a. That the Commonwealth, in cooperation with the State and Territory Governments, give serious consideration to adopting a national radio communications network.*
- b. That the coordination of the deliberations be assigned to Emergency Management Australia.*



**The following Diagrams have been reproduced courtesy of the
Department of Conservation & Land Management, Western Australia.**

Annexure 1.



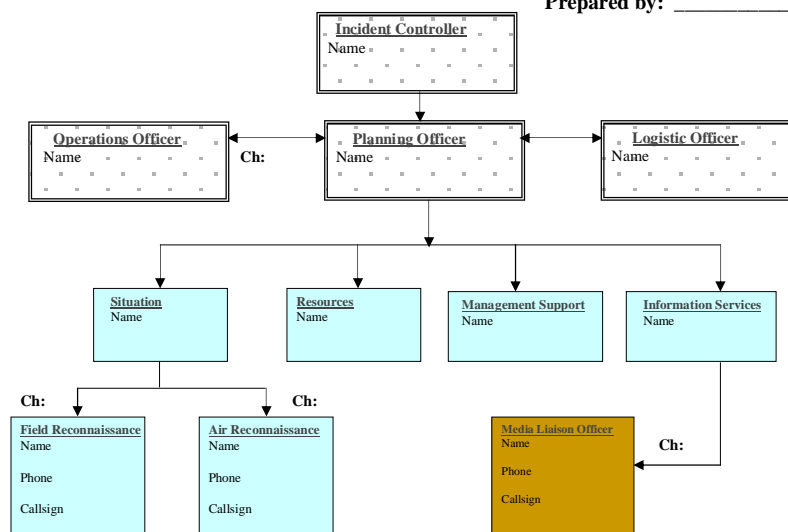
Planning Section Communications Plan

Incident Name: _____

Shift Date: _____

Time: From _____ to _____

Prepared by: _____



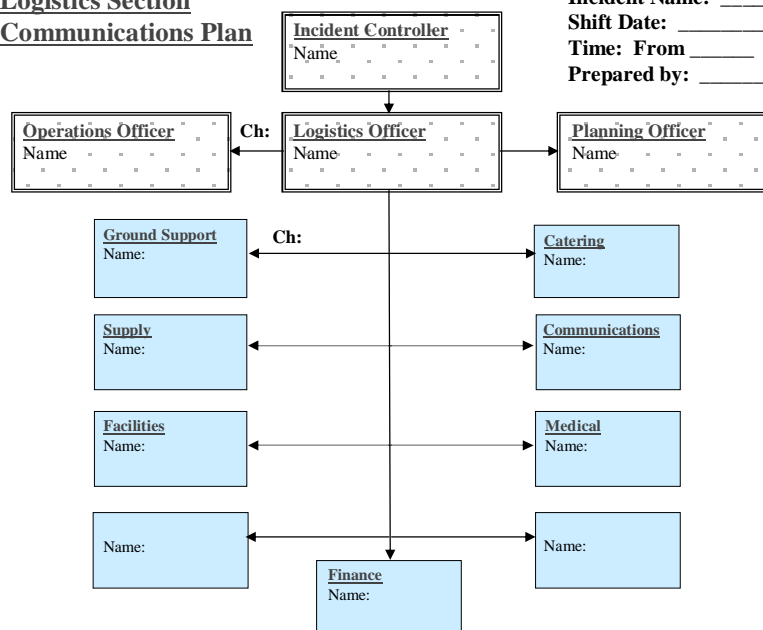
Logistics Section Communications Plan

Incident Name: _____

Shift Date: _____

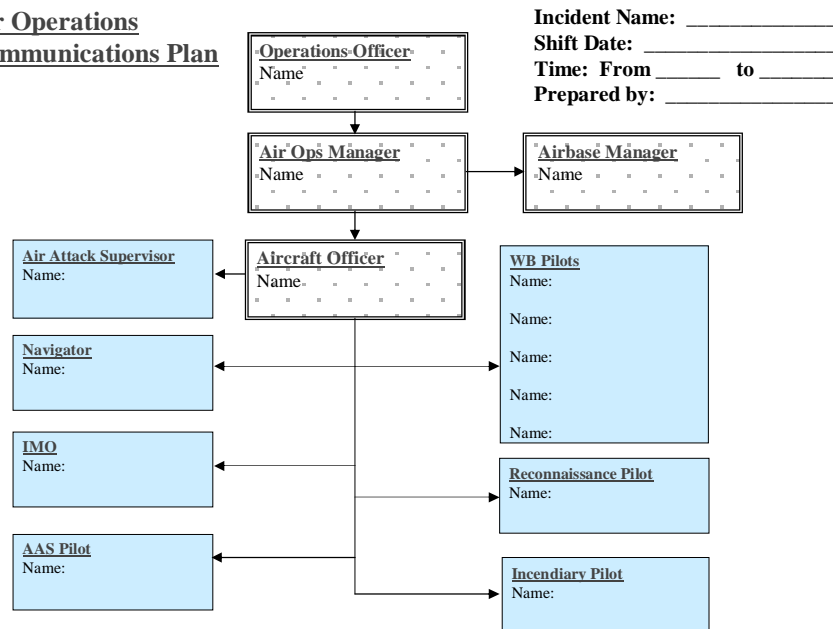
Time: From _____ to _____

Prepared by: _____

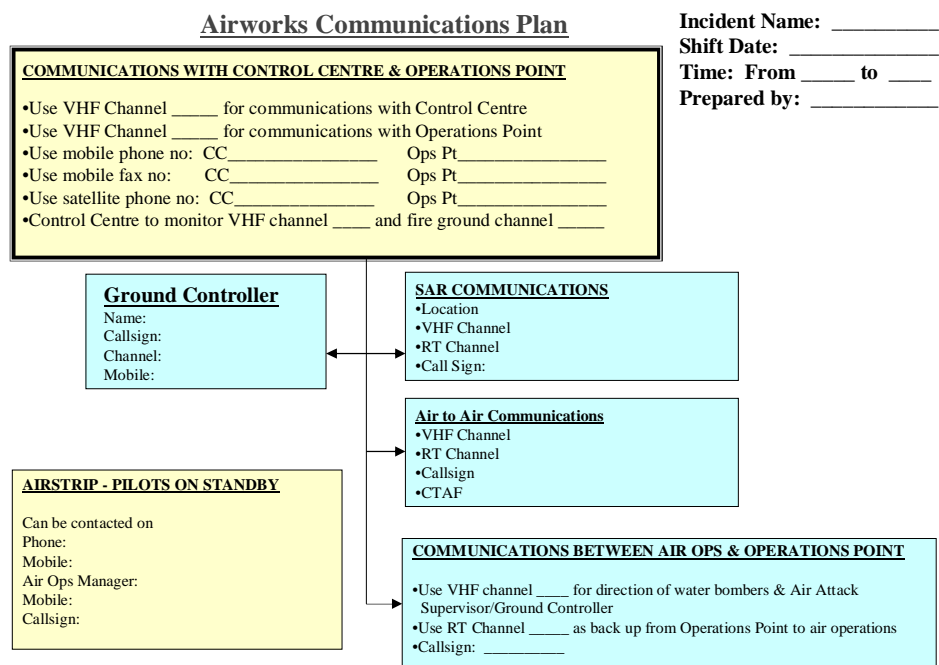




Air Operations Communications Plan



Airworks Communications Plan





Communications Plan Contacts List

Incident Name: _____

Shift Date: _____

Time: From _____ to _____

Prepared by: _____

Org.	Name	Location	Phone Ext.	Fax No.	Callsign	Channel	Other Contact (Mobile/Sat Ph)

PREPARED BY: _____

ICS 7.1 7/02 **CONTROL CENTRE COMMUNICATIONS PLAN**

District _____ Incident Number _____ Date ____/____/____ for Period ____ hrs to ____ hrs Time Prepared _____

Phone Lines In	1.	2.	3.	4.	5.	6.	7.
Fax Lines	1.	I/O	2.	I/O	3.	I/O	4.
Radio Channel	CC ↔ Ops						
	CC ↔						

ICS Roles

Role	Name	Phone (& extension)	Mobile Phone	Location/Room No.	Callsign	Channel
Incident Controller						
Safety Officer						
Liaison Officer						
Planning Officer						
Situation Officer						
Resources Officer						
Information Services Officer						
Management Support Officer						
Logistics Officer						
Supply Officer						
Facilities Officer						
Ground Support Officer						
Catering Officer						
Communications Officer						
Finance Officer						
Medical Services Officer						

Duty Roles

District Duty Officer						
Regional Duty Officer						
Departmental Duty Officer						

Other Organisations & Roles

Organisation / Role	Name	Phone (& extension)	Mobile Phone	Location/Room No.	Callsign	Channel
Airbase						

[illegible]

