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JOINT SELECT COMMITTEE ON BUSHFIRES

REPORT ON THE INQUIRY INTO THE 2001/2002 BUSHFIRES

Together with the Minutes of Proceedings

June 2002

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TERMS OF REFERENCE

The committee's terms of reference are to examine:

(a) Hazard reduction and other fire prevention measures.

(b) The environmental impact of bushfire management and control on biodiversity and biophysical processes and the application of research, technology and management techniques to minimise the impacts.

(c) The causal factors of the bushfires including an investigation of land use decisions, development planning, and the responsibilities of property owners that will reduce bushfire risk and the environmental impact of bushfire management.

(d) The adequacy of equipment available to, and training of, Rural Fire Brigades.

(e) The adequacy or otherwise of building regulations currently in operation in New South Wales with particular emphasis on the Australian community bushfire safety standards for houses.

(f) The use of aircraft in firefighting.

(g) The adequacy of changes made to bushfire planning and fighting, development planning and other relevant matters since the 1994 bushfires.

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CHAIRMAN'S FOREWORD

The bushfire event of Christmas 2001 – January 2002 was a massive test of the changes made to the management of bushfire fighting in NSW since 1994.

In December 2001, as the Christmas bushfire emergency began to take hold of the State, the *Report of the Interdepartmental Committee on Environmental Assessments for Bush Fire Hazard Reduction* (IDC Report), was presented to the Minister for the Environment. As a result of this report, a Bill proposing significant reforms to approval processes for hazard reduction has been progressing through the NSW Parliament, parallel with the investigations of the Joint Select Committee Inquiry into Bush Fire.

This Inquiry is one of three called for in the aftermath of the fires, and, as such, its findings and recommendations should be considered in conjunction with those of the Police Inquiry (TRONTO) into criminal activity related to the fires and the Coronial Inquiry, together with the IDC Report.

During the limited time specified for this Inquiry, 199 submissions were received. These submissions confirmed, almost unanimously, that all aspects of bushfire fighting, coordination, equipment, technology, communications and training in NSW had improved significantly since the 1994 fires. There were also a number of suggestions for further reforms and fine-tuning of the fire service agencies and improvement of the management of bushfire prone land by major state land holders. Many of these suggestions have been reflected in the recommendations.

Hazard reduction – how much of it, how often, by what means and where it should be conducted – was the critical issue for the Inquiry, interlaced as it is with environmental concerns, including ecologically sustainable development, the preservation of biological diversity and community health and safety.

The Inquiry has concluded that this is a significant area for further research, and the committee unanimously endorses the projected establishment of a National Centre for Cooperative Research into bushfire causes and effects.

The committee also endorses the simpler and more disciplined approach to hazard reduction enshrined in the proposed 2002 amendments to the *Environmental Planning and Assessment Act 1979* and the *Rural Fires Act 1997*.

There has been a massive increase in urban development in close proximity to bushland parks and reserves. This expansion of the urban-bush interface has created new difficulties in the task of keeping people and property safe, while preserving the unique bushland environment which attracts them to live in these areas. The committee sees a clear need for greater community engagement in bushfire management planning and property protection.

Some land owners expressed concern in their submissions regarding the issue of liability for loss or injury arising from the conduct of hazard reduction work. The committee has asked the Minister to clarify the position under the current legislation.

This committee was able to complete its report in the investigations and report in the very short time allocated partly because of the solid foundation of earlier bushfire related

investigations, including the Inquiry into the NSW Rural Fire Service conducted by General Purpose Standing Committee No 5 of the Legislative Council in 2000.

As chairman, I wish to express my appreciation for the passion and commitment with which committee members approached the Inquiry. The quality and tenacity of their questions were instrumental in teasing facts out of intricate and often emotional issues.

Finally, the committee has asked to join me in acknowledging the dedication and diligence of the staff, who brought together the complex evidence and various views of witnesses in such a way as to ensure a balanced and comprehensive record of the Inquiry and its outcomes.

Mr John Price MP
Chairman

PART A

SUMMARY OF FINDINGS AND RECOMMENDATIONS

PART A – SUMMARY OF FINDINGS AND RECOMMENDATIONS

1 HAZARD REDUCTION AND OTHER FIRE PREVENTION MEASURES.

1.1 FINDINGS – HAZARD REDUCTION

- The committee notes that hazard reduction in bushfire prone areas is government policy and that all land owners and their agents are responsible for implementing appropriate measures, including hazard reduction, to protect their own and adjacent property from the threat of bushfire.

- The committee notes that no submissions were received from State Rail Authority, the Road Transport Authority or the Department of Sport and Recreation, although these organisations are responsible for the management of significant areas of land within New South Wales.

- The committee acknowledges that implementation of hazard reduction must have regard to the principles of ecologically sustainable development.

- The committee accepts that there are varied views and evidence related to the extent and frequency of hazard reduction burning required to provide effective protection from fire without compromising biodiversity or causing irreparable damage to the environment, and that this is an area for ongoing research.

- The committee accepts that lower fuel levels will sustain fires of lower intensities at the fire front and higher fuel levels will sustain fires of higher intensities at the fire front for any given fire danger index.

- The committee endorses the risk management approach to hazard reduction.

- The committee endorses a Statewide planning framework for bushfire risk management, which allows for the adoption of different mitigation activities to reflect regional and district differences in topography, climate, ecology, and land-use.

- The committee accepts that the protection afforded by strategic hazard reduction may be variable, depending on prevailing weather conditions, and that extremely dry, hot and windy conditions such as those prevailing at Christmas 2001 may enable dangerous fires to burn in the presence of recent hazard reduction.

- The committee notes that it is neither possible nor practical to eliminate all possibility of wildfire outbreak, given the historical role of fire in the evolution of Australia's unique ecology.

- The committee acknowledges the broad variance of climatic conditions, topography, flora and fauna throughout New South Wales, and endorses the emphasis on local level planning for hazard reduction utilising asset protection zones, wildfire strategic advantage zones and heritage management zones in addition to responsible hazard reduction activities within individual tenures.

- The committee endorses the legislative changes made to streamline the approval process for hazard reduction, as recommended by the Interdepartmental Committee on Environmental Assessments for Bush Fire Hazard Reduction Proposals.

- The committee accepts that hazard reduction may be effected by a range of activities, including any one or a combination of burning, slashing, mechanical intervention, grazing, etc, and that the appropriate method or combination of methods will be selected at local level by the Bushfire Management Committee to reflect local environment, land-use and seasonal conditions.

- The committee also recognises that bushfire risk can be mitigated through the adoption of appropriate land use zoning, building controls and bushfire prevention activities.

- The committee acknowledges the importance of hazard reduction burning as a key training activity for all firefighting personnel and volunteers to foster the understanding of the dynamics of fire management and the use of fire as a land management tool.

- The committee acknowledges the example of effective use of the zoning approach to hazard reduction presented by the Kurrajong Heights Rural Fire Brigade.

- The committee notes that the various land agencies apply varying hazard reduction regimes to their land holdings in line with their primary mission. Coordination of their prevention activities in a landscape context across tenures should be encourage in future.

- The committee notes that the National Parks and Wildlife Service has acknowledged that it has not carried out the full extent of its planned annual program of hazard reduction in many of its reserves and parks, and that this is a matter of concern for land holders whose property adjoins National Parks and Wildlife Service tenure, and for fire fighters within those districts.

- The committee accepts that there will be occasions when weather conditions or other variables will make it inadvisable to conduct hazard reduction burning on a given day. However, the committee does not accept that postponed burns may then be completely abandoned.

- The committee endorses and supports the power of the Commissioner of the Rural Fire Service to vary the declaration of commencement of a fire season in any district of the State of New South Wales, to reflect actual conditions.

1.2 RECOMMENDATIONS – HAZARD REDUCTION

1. That all public and private owners and/or managers of land in bushfire prone areas of New South Wales are made aware of their responsibilities to protect their own and neighbouring properties from bushfire through active implementation of appropriate hazard reduction regimes and the application of appropriate standards in building construction and maintenance.

2. That by 30 March 2003, all state land management agencies should prepare schedules, identifying those areas within their tenures where hazard reduction activity has been planned but postponed in the previous 36 months.

3. That all state land management agencies apply the necessary resources to ensure that their annual planned programs of hazard reduction are achieved in each reserve OR, where planned hazard reduction by means of controlled burning is postponed more than twice in any reporting year, that contingency/catch-up plans

are developed and implemented within a reasonable time-frame to be negotiated with the appropriate Bushfire Management Planning Committee.

4. That the Bushfire Coordinating Committee should develop a Statewide communications strategy to generate and disseminate educational and information materials about the bushfire management process for the general public and for all stakeholders involved in bushfire management. The strategy should accommodate specialised information activities related to bushfire management undertaken by individual land management agencies in NSW.

5. That the National Parks and Wildlife Service should develop and implement a Statewide strategy for community information, education and engagement in regard to the responsible management of parks and reserves, including the training of key personnel in large group facilitation and consultation.

6. That the NSW Rural Fire Service should offer assistance to local government bodies to assist in catch up activities, such as mapping and hazard reduction. Where individual councils seek to apply a levy to undertake such work, the Department of Local Government should give such applications sympathetic consideration.

7. That implementation of the Government's strategy to streamline the approval process for hazard reduction be evaluated by December 2003 by a review panel convened by the Commissioner of the NSW Rural Fire Service. The review panel membership is to include (but is not limited to) representatives of volunteer fire fighters, private land holders, local government representatives and other Government stakeholders.

8. That the reporting procedures by all land managers for the implementation of hazard reduction be standardised and adopted by the Bushfire Coordination Committee.

9. That performance audits of implementation of Bushfire Risk Management Plans be undertaken by the Commissioner of the NSW Rural Fire Service in accordance with a Strategic Audit Plan to be approved by the Minister for Emergency Services.

10. That consistent with the emphasis on coordinated bushfire fighting, there be ongoing cooperation between the planning and operational arms of the land management agencies and the firefighting authorities in the implementation of hazard reduction plans as well as in firefighting activities.

11. That all developments approved in fire prone areas from the date of proclamation of the Rural Fires and Environmental Assessment Legislation Amendment Bill 2002, should make provision for a property protection zone within the area of the proposed development in accordance with the planning guidelines in the *Planning for Bushfire Protection* booklet.

12. That land management agencies, including National Parks and Wildlife Service, State Forests and Department of Land and Water Conservation, develop Village Protection Strategies as part of their Bushfire Management Plans for all settlements adjacent to their lands.

13. That the Minister for the Environment, in appointing community members to NPWS parks advisory committees, consider amending the criteria for community membership of to ensure that each committee has a member with firefighting knowledge and experience.

1.3 FINDINGS – FIRE TRAILS

- The committee heard that fire trails and tracks are sometimes inadequate in extent and location; are not well maintained; may be blocked by logs, mounds or other obstructions or locked off by gates and fencing.

- The committee accepts that security is an issue for fire trails, as they provide access to vulnerable areas and the opportunity for fires to be started deliberately or accidentally in sensitive areas.

- The committee notes that fire trails can also be used by people dumping rubbish, which can itself constitute a fire hazard.

- Inappropriate or intensive use of fire trails by recreational groups using horses or four-wheel drive vehicles may also cause environmental damage.

- Responsible use by appropriate recreational groups in some locations can be beneficial in improving security.

- Neglected or poorly maintained fire trails impede quick access required by firefighters during a bushfire, and can create dangerous conditions for crews if no turning spaces are provided.

- Fire trails which are poorly designed, constructed or maintained can cause problems with drainage and soil erosion.

- Where new trails have to be bull-dozed in emergency conditions, unintended damage to the environment can occur.

- Mapping and maintenance of fire trails are not consistently done across all networks.

- The committee notes that no uniform system is in place for the identification, marking, maintenance and mapping of the fire trail network across the state.

1.4 RECOMMENDATIONS – FIRE TRAILS

14. That the Commissioner of the NSW Rural Fire Service arrange for an audit of the adequacy of the strategic fire trail networks across the tenures of all state land management agencies, including an assessment of the security and condition of each trail, in accordance with a Strategic Audit Plan to be approved by the Minister of Emergency Services and the Ministers responsible for each agency.

15. That a cyclic maintenance plan for all fire trails on State owned land be developed by each of the land management agencies .

16. That maps of fire trails within their land holdings be updated by the land management agencies and submitted to the local Bushfire Management Committee, with changes of condition, or any closures and additions to the network notified annually by 30 August each year.

17. That a Statewide system of identifying, mapping and marking of registered fire trails be developed by the Bushfire Coordinating Committee.

18. That land management agencies be encourage to explore with appropriate recreational groups, where suitable, arrangements for maintenance and clearance of fire trails.

1.5 FINDINGS – FUEL LOADS

- The committee accepts that, at present, fuel is the only one of the "fire triangle" elements (heat/ignition, air, fuel) which can be effectively managed by human intervention.

- The committee accepts that in the most extreme conditions relating to heat and air, such as strong winds, high temperatures and very low humidity, fire can still burn across land with very low fuel loads, albeit at reduced intensities at the fire front than in the presence of higher fuel loads.

- The committee accepts that the effects of fuel on fire behaviour will differ, depending on the type and structure of the vegetation, the level of moisture in the fuel, and the terrain.

- The committee also recognises that there are factors other than planned hazard reduction burning, such as drought, storms, grazing and fire history, which also affect the accumulation of fuel.

- The committee acknowledges that fuel arrangement, including vertical fuels supplied by shrubs and loose bark, as well as litter on the ground, must be evaluated together with the fuel load in determining fire hazard.

- The committee acknowledges that fuel is not evenly distributed over any given area of land, and that accurate measurement of fuel loads is difficult.

- The committee accepts that recent research undertaken by the CSIRO (Project VESTA) indicates that the interaction between fuel structure (litter, shrubs, bark), wind speed and fire spread is extremely complex.

- The committee acknowledges that knowledge of local conditions is critical in determining when hazard reduction should take place, and what form of hazard reduction is most appropriate.

- The committee notes that opportunities to reduce unacceptable fuel loads through hazard reduction burning are often limited by unfavourable weather conditions, and that planned burns may be postponed many times, leading to further build up of fuel load to the point when attempting to hazard reduce by burning may result in a fire of dangerous intensity.

- The committee notes that the process of assessing fuel condition and determining where strategic hazard reduction burns should take place is an important aspect of the training of fire fighters, and is a major activity of the volunteers in Rural Fire Brigades.

1.6 RECOMMENDATIONS – FUEL LOADS

1. That the Audit of streamlined approval process for hazard reduction burning to be carried out by December 2003 specifically examine the number, extent and reasons for any delays in executing an approved burn.

2. That the NSW Rural Fire Service ensure that training materials for fire fighters be regularly reviewed to ensure that the findings of verified research studies into fire behaviour (such as Project VESTA) are incorporated in service delivery training and in training manuals at the first available opportunity.

3. That the Commissioner of the NSW Rural Fire Service prepare a report on the implications of findings of Project VESTA for firefighting, as soon as the project is complete and its findings confirmed. and their implications for firefighting in NSW as soon as practicable.

4. That the issue of fuel load as an element of the fire cycle be referred to the proposed national Cooperative Research Centre for bushfire management for further investigation.

5. That all District Bushfire Management Committees consider the relevant Management Plans of land management agencies with adjoining tenures, with particular attention to National Parks and Wildlife Service parks and reserves, and jointly identify areas where dangerously high fuel loads have accumulated because scheduled burns have not taken place, to develop priority.

2 THE ENVIRONMENTAL IMPACT OF BUSHFIRE MANAGEMENT AND CONTROL ON BIODIVERSITY AND BIOPHYSICAL PROCESSES AND THE APPLICATION OF RESEARCH, TECHNOLOGY AND MANAGEMENT TECHNIQUES TO MINIMISE THE IMPACTS.

2.1 FINDINGS – BIODIVERSITY

- That the frequency, spatial extent and intensity of bushfires have implications for biodiversity and that the impact varies depending on the flora and fauna type and population of different locations.

- That many organisations, including the major land management agencies, universities, and the CSIRO, are engaged in research on the environmental impact of fire on biodiversity and biophysical processes.

- The committee notes that total fire exclusion from a forest area may lead to extreme fuel build up over lengthy periods, both in terms of fine ground fuel litter and in shrubby understorey growth, and that this also constitutes a change in habitat and ecology with possibly deleterious impacts on some flora and fauna.

- The evidence presented to the committee demonstrates a need to better coordinate the interpretation of existing scientific knowledge to enable land managers and firefighting agencies to utilise it in developing land management measures, including bushfire management, which minimise negative impact on biodiversity.

- That land management agencies and firefighting authorities are required to conduct bushfire management primarily to protect life and property, and in accordance with the principles of ecological sustainability, without compromising the safety of life and property.

- That the evidence presented to the committee in the course of the inquiry demonstrates the linkages between fire regimes and biodiversity. The challenge facing land managers is to ensure fire management practice is based on sound fire science.

- The committee recognises the important stewardship role that all legislators have to promote laws that respect biodiversity.

- That the aims of Bush Fire Risk Management Planning are primarily to protect lives and property, and also to minimise the impact of both hazard reduction and potential bushfires on biodiversity and biophysical processes.

- That the zoning system used in Bush Fire Risk Management Planning and Reserve Fire Management Planning may result in localised negative effects on biodiversity because of the concentration of repetitive hazard reduction works in asset protection zones and strategic wildfire control zones. However, this is acceptable given that these zones typically cover a minor proportion of most landscapes and identified areas of particular ecological significance will not be included in them.

- That the zoning system (Asset Protection Zones, Strategic Wildfire Control Zones And Heritage Protection Zones) equates to international best practice in bushfire

management and offers the best balance in achieving concurrent objectives of protection for people and property and biodiversity conservation.

- That mechanical intervention using earthmoving equipment and the use of fire retardants play an important role in wildfire suppression, but may have significant environmental impacts.

- That further research is required into appropriate post fire restoration following aggressive fire suppression intervention.

2.2 RECOMMENDATIONS – BIODIVERSITY

1. the New South Wales Government endorse the zoning approach involving Asset Protection Zones, Wildfire Strategic Advantage Zones and Heritage Management Zones, as defined in Bushfire Risk Management Plans and Reserve Fire Management Planning, for bushfire hazard reduction.

2. the Bush Fire Coordinating Committee develop a set of agreed guidelines to minimise the impacts on the natural and cultural heritage of wildfire suppression, particularly in relation to the use of earthmoving equipment and fire retardants.

3. the NSW Government supports a national approach to research and technology development as a critical component of continually improving the effectiveness and environmental sensitivity of fire management.

4. the NSW Government welcomes the establishment of a national Cooperative Research Centre devoted to bushfire management, and supports the involvement of major land management agencies and NSW Firefighting authorities as foundation participants.

5. it would be advantageous to bring together all research currently being conducted into the implications for biodiversity and biophysical processes of frequency and intensity of bushfires, and that the NSW Bushfire Coordinating Committee be required to consider how this might be achieved.

6. any community education and information activity relating to bushfire management should address the fact that, in developing acceptable fire management practices, there will be a need to understand and manage perceived tensions between the objectives of preserving biodiversity and protecting life and property, while maintaining a clear understanding that where there is any doubt, the preservation of life and property is always paramount.

7. streamlined processes be established as an integrated part of all fire management plans, to ensure that appropriate rehabilitation is implemented where fire control works have been undertaken on private and public land.

2.3 FINDINGS – BIOPHYSICAL PROCESSES

- Fire can severely impact soil structure, by destroying the organic matter in the soil, and by exposing the soil to erosion through the impact of wind and rain, and by the loss of essential nutrients and trace minerals through heat and leaching.

- In water supply catchment areas, soil erosion can impact water quality and flow as eroded soil, ash and debris is deposited in streams and dams.

- Riparian systems must be adequately protected from bushfire.

- The committee noted that controlled, cool burns for hazard reduction purposes minimises soil damage, by leaving the soil structure and humus content intact, while destroying the flammable fine fuel litter.

- However, the committee also noted that too frequent low intensity burning may have long term impact on soil stability through the repeated removal of protective litter and shrub cover.

- A submission from the Department of Health noted that there was as yet no conclusive evidence that the Christmas 2001 bushfires had caused an increase in asthma or other breathing difficulties over the period, although a study is currently in progress.

2.4 RECOMMENDATIONS – BIOPHYSICAL PROCESSES

1. That protection zones continue to be maintained around riparian zones of water courses and lakes throughout the State.

2. That the Bushfire Coordinating Committee develop guidelines that will enable fire control works to be undertaken in such a way as to minimise environmental impacts.

3. That the Department of Health be asked to furnish to the Commissioner of the NSW Rural Fire Service a copy of the report of their current study into the incidence of asthma coincidental with major bushfire events, as soon as it becomes available.

2.5 RECOMMENDATIONS – APPLICATION OF RESEARCH, TECHNOLOGY AND MANAGEMENT TECHNIQUES TO MINIMISE THE IMPACTS

1. That a more coordinated approach to all fire-related research, and to the dissemination of validated findings be supported by the NSW Government.

2. That the NSW Government supports the establishment of the proposed National Bushfire Cooperative Research Centre as the focus of developing practical information about all aspects of fire management and fire suppression for the use of land managers and fire-fighters.

3. That the Commissioner of the NSW Rural Fire Service seek access to any analysis of the massive fire events currently raging through the western part of the USA, in order to apply any key lessons to fire management within NSW where appropriate.

4. That the Commissioner of the NSW Rural Fire Service,in assessing the adequacy of the bushfire management planning process at district level, consider the degree to which contingency planning for post-fire restoration work has been included in bushfire management plans.

5. That a review be undertaken by National Parks and Wildlife Service of any research into the impact of massive water bombing on sensitive conservation areas.

6. That the Minister for the Environment explore at Federal level, the viability of the establishment of a funded program similar to that within the US National Fire Plan, an for “burned area rehabilitation and restoration works”.

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3 THE CAUSAL FACTORS OF THE BUSHFIRES INCLUDING AN INVESTIGATION OF LAND USE DECISIONS, DEVELOPMENT PLANNING, AND THE RESPONSIBILITIES OF PROPERTY OWNERS THAT WILL REDUCE BUSHFIRE RISK AND THE ENVIRONMENTAL IMPACT OF BUSHFIRE MANAGEMENT.

3.1 FINDINGS – CAUSES OF IGNITION

- The investigation of point of ignition events and location, and whether the 2001-02 fires were the result of natural causes or deliberate or accidental human activity is part of the brief of the Coroner's Inquiry, and specifically excluded from the Joint Select Committee's terms of reference.

- Investigation of criminal activity, including possible incidents of arson or fire-bugging, is the brief of the Police Inquiry code-named Tronto, and will not be addressed by the Joint Select Committee on Bushfires.

3.2 FINDINGS – ATMOSPHERIC CONDITIONS

1. The committee notes that the bushfires during the period from 3 December 2001 to mid-January 2002 were exacerbated by the extreme weather conditions, featuring 16 consecutive days of high temperatures, very low humidity and strong winds which prevailed in the Sydney Basin area as well as along the South and Central Coast areas

2. These conditions were conducive to significant spotting of the fires over long distances, which made hazard reduction and protective zones less effective, and enabled multiple ignition points and rapid fire-spread over numerous fronts.

3. The committee notes that wet, mild autumns and winters of the kind NSW has been experiencing in recent years have severely limited the number of days suitable for hazard reduction, and make it difficult for the successful conduct of a full program of prescribed hazard reduction burns.

4. The committee notes that every state land manager reported incidents of fire ignition on their own tenure, as well as fires crossing from other tenures, so that fire management was conducted on a landscape basis rather than within individual tenures during the 2001-02 fires.

3.3 FINDINGS – LAND USE DECISIONS AND DEVELOPMENT PLANNING

- The *Environmental Planning and Assessment Act 1979* is the central legislation covering land use control and development planning.

- Through Local Environment Plans and Development Control Plans, local councils are able to introduce planning conditions to regulate the development of residential areas.

- The committee is aware that, in the preparation of a draft Local Environment Plan, a local council was required to take into account s.117. Directions G20 – Planning in Bushfire Prone Areas – which requires consideration of such things as provision of perimeter roads, creation of fire radiation zones, specification of minimum lot depths,

minimisation of the perimeter of the area facing the hazard, provision of adequate access roads, etc.

- The committee heard evidence that Councils have been inconsistent in their approach to specifying bushfire protection measures within planning instruments, and this has led to instances of inappropriate development in bushfire prone areas.

- Direction G20 was replaced in 1991 with a planning guide, *Planning for Bushfire Protection*, prepared jointly by the Department of Urban Affairs and Planning and the NSW Rural Fire Service, and updated in 2001 to provide further guidance to Councils assessing development applications.

- The committee notes that research into building and development safety in bushfire prone areas is ongoing, and will be progressively reflected in further editions of the planning guide.

3.4 RECOMMENDATIONS – LAND USE DECISIONS AND DEVELOPMENT PLANNING

1. The committee endorses the new and improved Planning Guide, *Planning for Bushfire Protection* now issued jointly by PlanningNSW and the NSW Rural Fire Service.

2. The committee proposes that information sessions be conducted by the NSW Rural Fire Service and PlanningNSW for local council members and officers dealing with development applications to ensure they are fully aware of the provisions of the Guide and of the provisions of the Amendment Act 2002.

3. The committee supports the implementation of the new statutory provision for s.149 certificates issued by councils to identify properties in bushfire prone areas so that purchasers of such property are aware of the risk.

3.5 FINDINGS – RESPONSIBILITIES OF PROPERTY OWNERS

- The committee notes that development in the Sydney Basin over the last 30 years has seen a considerable increase in urban populations within a 150 kilometre radius of Sydney, along the Central and South Coasts, and East into the Blue Mountains. Consequently, there are now large numbers of people living in areas adjacent to bushfire prone parklands, forests and reserves.

- The committee notes that, while priority will always be given to the preservation of life and property during a fire, that the increasing number of residents living close to the bush in bushfire prone locations requires a greater concentration of firefighting resources at these places to defend them. This reduces the number of fire fighters able to be deployed on direct attack at the fire front.

- Although community education and public awareness programs are conducted by the NSW Rural Fire Service, the events of the Christmas 2001 bushfire emergency demonstrate the need to improve the knowledge and capacity of individual land holders to take steps to prepare for bushfire and prevent loss of life and assets.

- The committee heard evidence that houses lost during the 2001 fires were generally those where no preparation for fire had occurred. It also heard that the training and equipment provided through the Community Fire Unit Program to individual house-holders were instrumental in the saving of many threatened buildings.

- The committee notes that excellence in firefighting, demonstrated by the firefighting teams from around Australia and New Zealand during the Christmas 2001 emergency, may have deflected the attention of the community from the importance of preventive and protective activity by individuals.

3.6 RECOMMENDATIONS – RESPONSIBILITIES OF PROPERTY OWNERS

1. The committee acknowledges the work of the NSW Rural Fire Service and the NSW Fire Brigade in community education, and recommends further emphasis be given to educating communities residing in bushfire prone areas about the steps they can take to prepare for bushfires, protect their own property, and prevent loss of life.

2. The committee supports the expansion of the NSW Fire Brigades Community Fire Unit Program and the NSW Rural Fire Service Community Fire Guard Program and the allocation of appropriate resources to this end.

3. The committee acknowledges that fire-awareness and fire-safety education is the responsibility of a range of Government departments and authorities in addition to the land management agencies and the firefighting authorities. The committee recommends a coordinated approach, similar to the Water Safety campaigns, directed at the general community, in addition to specific bushfire protection programs targeted at communities in fire risk areas.

4. The committee recommends that the NSW Rural Fire Service prepare and distribute information about the statutory requirements of the hazard reduction approval process and potential legal and liability issues for individual land owners in the conduct of hazard reduction burning on their own property.

5. The committee recommends that the legal responsibility of owners and occupiers for any loss or injury arising out of those persons performing hazard reduction in accordance with the Rural Fires Act be referred to the Crown Solicitor for advice. The extent of the cover provided by the usual house and contents policy of insurance for this type of loss or injury should be investigated.

6. The committee recommends that the NSW Rural Fire Service examine and report to the Minister upon the availability of members of the NSW Rural Fire Service or other protected persons, including officers of local councils, to carry out hazard reduction work on behalf of owners and occupiers so as to afford them the protection contained in s.128 of the *Rural Fires Act 1997* or s.731 of the *Local Government Act 1993*.

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4 THE ADEQUACY OF EQUIPMENT AVAILABLE TO, AND TRAINING OF, RURAL FIRE BRIGADES.

4.1 FINDINGS – EQUIPMENT

- The committee notes that there has been a significant increase in firefighting equipment quantity and quality provided to rural fire brigades since 1994, and that this was generally acknowledged in submissions received by the Inquiry.

- Supports the finding of the Upper House Inquiry into the NSW Rural Fire Service in 2000 that:

  … there is a wide range of vehicles available to suit all terrains…that the current range of tankers and equipment available are appropriate and adequate based on on-going research.

- Notes that there are some 15 categories of tanker with variations designed to meet the topographic, geographic and demographic needs of the brigades to which they are supplied.

- Notes that funds of $550M have been allocated to the NSW Rural Fire Service since 1994. Including $155M for the purchase of 1,844 tankers, and the tanker upgrade and replacement program is proceeding as scheduled.

- Notes that there are concerns about the suitability of certain materials used in the manufacture of some tankers, such as plastic fittings.

- Notes that the level of recurrent funding for the NSW Rural Fire Service has increased from a base of $50.7million allocated in 1994-1995, to $120.7million in 2002-2003.

- Acknowledges that the NSW Rural Fire Service has progressed significantly in the area of communications since the 1994 bushfire emergency, and now utilises a multi-tier communications system consisting of a network of the GRN, Private Mobile Radio, Ultra High Frequency and Very High Frequency radios, which continues to evolve.

- Notes that the NSW Rural Fire Service, in keeping with its commitment to the safety of fire fighters, has initiated the development and use of more effective protective clothing that enhances resistance to radiated heat while allowing body heat to escape.

4.2 RECOMMENDATIONS – EQUIPMENT

1. That the current strategy of replacement and upgrade of tankers and other equipment continue, with a full review of adequacy of equipment to be undertaken in conjunction with a stocktake in June 2003.

2. That the use of plastics in firefighting vehicles be reviewed.

3. That there is a continuing focus on ensuring compatibility of all equipment amongst the firefighting services of the various States of Australia.

4.3 FINDINGS – TRAINING

- The committee acknowledges that in 2000-01, 45,000 active firefighting volunteers dedicated almost 240,000 person hours to formal training at district level, with many also attending courses at state and regional level, and endorses the finding of the Upper House Inquiry of 2000 that: *…the provision of training has greatly improved and increased … and that the training meets the health, safety and welfare requirements of volunteers, and provides appropriate skills to perform effective fire suppression.*

- Notes that the conduct of hazard reduction burning is an essential aspect of the training of all fire fighters.

- Notes the importance of training local personnel in the conduct of command centres during bushfire emergency so that strategic decisions are made in full awareness of local conditions.

4.4 RECOMMENDATIONS – TRAINING

1. That appropriate training for firefighters should continue to be provided at all levels.

2. That all active firefighters be encouraged to participate in hazard reduction burning exercises in order to obtain practical experience in fire behaviour.

3. That training related to working effectively and safely with aircraft in fire detection and suppression activities be a mandatory component of advanced fire fighter training.

5 THE ADEQUACY OR OTHERWISE OF BUSHFIRE REGULATIONS CURRENTLY IN OPERATION IN NSW WITH PARTICULAR EMPHASIS ON THE AUSTRALIAN COMMUNITY BUSHFIRE SAFETY STANDARDS FOR HOUSES.

5.1 FINDINGS

- The committee supports the governments initiatives to strengthen planning guidelines in order to minimise the impact of bushfires on residential property.

- The committee supports the *Planning for Bushfire Protection* guidelines and amendments to legislation that will require councils to map bushfire prone areas and implement standards for the construction of buildings in line with this guideline.

- The committee supports the proposed requirement for councils to consult with the NSW Rural Fire Service on any proposed new zoning in a bushfire prone area, or any development application that is not consistent with the *Planning for Bushfire Protection* guidelines.

- The committee notes that the Australian Standard for construction in bushfire prone areas (AS3959) was introduced into the Building Code of Australia in 1999.

- The committee notes evidence suggesting that some councils have imposed additional requirements, often inconsistent with those set out in AS3959-1999 when issuing development consents.

- The committee notes that the Building Code of Australia now deals with the issue of radiant heat as well as ember penetration, but that research indicates that the standard may have other weaknesses that need to be addressed.

- The committee recognises the need for local councils to encourage owners of existing buildings in bushfire prone areas to upgrade the protection of their homes if they do not meet the AS3959 requirements.

- The committee notes that protective measures for buildings include garden design, access to water such as swimming pools and storage tanks, and selection of fire-resistant plants and other landscaping materials.

- The committee acknowledges the effort of the firefighting services to inform and educate urban communities in bushfire prone areas on the importance of bushfire preparedness for their homes.

5.2 RECOMMENDATIONS

1. That the Australian Buildings Code Board examine the weaknesses in the Australian Standard identified by the CSIRO, and amend the standard as appropriate.

2. The committee recommends the development of standard training programs for council staff dealing with development applications in bushfire prone areas to ensure the efficient and uniform application of the *Planning for Bushfire Protection* guidelines, and BCA/AS 3959 – 1999.

3. That the Minister for Planning examine the apparent conflict between the *Environmental Planning and Assessment Act* and regulations (s.80A and cl.98 respectively) which require as a condition of consent that building work be carried out in accordance with the Building Codes Australia, and the new s.79BA inserted by the NSW Rural Fires and *Environmental Legislation Amendment Bill 2002* which allows development consent to be granted where it does not comply with Planning for Bushfires Protection 2001 provided there has been consultation with the Commissioner of the NSW Rural Fire Service as to protective measures.

4. That the *Planning for Bushfire Protection Guidelines* continue to be reviewed and updated as new research about fire impact on buildings come to hand, and re-issued or affirmed at least every two years.

5. That the Royal Botanic Gardens in conjunction with National Parks and Wildlife Service, State Forests and local councils consider issuing a guide to plants suitable for use in bushfire prone areas, and to develop a nursery labelling system to identify the combustibility of plants.

6. That PlanningNSW together with relevant local councils and the NSW Rural Fire Service, give consideration to encouraging homes in bushfire prone areas to install fireproof rainwater storage tanks.

7. That the NSW Rural Fire Service, together with local councils, develop strategies to encourage owners of properties in bushfire prone areas to upgrade and improve the bushfire preparedness of existing buildings.

8. That the Commissioner of the NSW Rural Fire Service undertake discussions with the Insurance industry regarding the introduction of a system of rebates in premiums, or similar incentives, for building insurance to reflect the degree of bushfire preparedness of individual dwellings, in the same way that premiums are adjusted when standard security measures are in place.

6 THE USE OF AIRCRAFT IN FIREFIGHTING.

6.1 FINDINGS

- The committee notes that whilst the importance of the use of aircraft during fire management operations should not be understated, it should also be recognised that they are but one tool in the management of bushfires. Without the backup support of ground crews, fire bombing alone may be a waste of time and money.

- Aircraft play a pivotal role in fire management including, but not limited to, the reconnaissance of fires; transport of both crews and equipment; early detection of fires; and aerial incendiary dropping.

- The committee notes that there are a variety of views on the most effective ways to use aircraft in firefighting.

- The committee notes that the real value of using helicopters lies in transport of crews and equipment and in fire reconnaissance, especially in steep and difficult terrain.

- The most effective use of aerial fire bombing is in the early stages of fire development or the “initial attack phase”.

- The committee notes that consideration needs to be given to turnaround times, and the availability of fuel, water and/or retardants when using aerial fire bombing.

- The committee notes that unless large quantities are dropped at short intervals, water used alone is ineffective.

- The committee notes that during the 2001/02 campaign, 109 aircraft were utilised (an unprecedented level of aircraft use in New South Wales).

- The committee notes that aircraft hiring and tasking is not coordinated, except during times of extreme fire activity.

- The committee agrees that the safety of “people on the ground” is a poorly understood feature of water-bombing.

- There is a need for an agreed inter-agency protocol for the use of aircraft, and this should be considered in developing a Statewide approach to the use of aircraft in firefighting.

- There is a need for an agreed protocol for “good indicators on when to stand down

- There is a need for a coordinated Statewide analysis of requirements for firefighting aircraft for the initial attack and the totality of the fire season.

- The committee notes that due to the purchase price of $30M for heavy aircraft and the infrequent fire seasons where such aircraft are required, the procurement of purpose-built heavy aircraft (eg Erickson Air Crane) are not considered economically viable. However, a national or zonal approach (a combination of SE Queensland,

coastal NSW, Victoria and the south east of South Australia) could collectively make effective use of high capacity aircraft.

- The committee notes that there is a wide variety of aircraft types with different capabilities and that employing these aircraft is expensive. Therefore, it is essential that the aircraft be *deployed appropriately to maximise both cost effectiveness and efficiency.*

- The committee acknowledges the advantages of military aircraft for transportation of crews and equipment and reconnaissance of fires, and further notes that the Commissioner of the NSW Rural Fire Service is empowered to call upon military aircraft to assist at time of emergency.

- The committee acknowledges the success of the Erickson Air Crane in protecting property during the bushfire crisis.

- The committee notes that the Australasian Fire Authorities Council is developing the National Aerial Firefighting Strategy on behalf of the Commonwealth, State and Territory Governments, and that the NSW Rural Fire Service is actively participating in the process.

6.2 RECOMMENDATIONS

1. That aircraft continue to be used during bushfire emergencies as a complementary firefighting tool when and where the need arises as determined by the NSW Rural Fire Service after consultation with the Incident Controller.

2. That the State's firefighting agencies and authorities adopt a Statewide approach be agreed upon to include, but not be limited to:

    - an agreed interagency protocol for the use of aircraft;

    - good indicators on when to stand down aircraft; and

    - a coordinated approach to the distribution of available aircraft across agencies when conditions deteriorate suddenly.

3. That further consideration be given to safety issues for ground crews and aircraft personnel in relation to aerial firefighting.

4. That a central training program be developed by the NSW Rural Fire Service for all personnel who occupy aircraft management roles in Incident Management Teams, to ensure that they undertake thorough training on the management of aircraft in firefighting.

5. That the Commissioner of the NSW Rural Fire Service continue to explore the usage of military aircraft for firefighting operations.

7 THE ADEQUACY OF CHANGES MADE TO BUSHFIRE PLANNING AND FIGHTING, DEVELOPMENT PLANNING AND OTHER RELEVANT MATTERS SINCE THE 1994 BUSHFIRES.

7.1 FINDINGS

The committee was apprised of the following specific changes and improvements:

- The *Rural Fires Act* was introduced, following the Coronial Inquiry into the 1994 bushfires, to integrate the 142 separate bushfire services into a single rural fire service and to provide a cohesive and coordinated command structure from volunteers to the Commissioner.

- District fire control staff were transferred from the employment of local government to the State on July 1 2001 to resolve a dual accountability issue which was of concern to the Coroner in 1994, and was raised again in the Legislative Council Inquiry in 2000.

- The level of training has increased and training courses now provided include specialist courses in areas such as four wheel driving, aircraft management and first aid.

- 83% of all fire fighters are now certified to basic fire fighter level, and 100% of group officers are certified to group leader level.

- The health and safety of fire fighters is a priority area, and the development of personal protective equipment has been the subject of intensive research. The supply of certified boots, goggles, gloves, hats and overalls are now standard issue.

- A chaplaincy service and critical incident support teams have been established throughout NSW to provide support to volunteers and their families in time of crisis and difficulty.

- A new Award has been negotiated to recognise the special conditions under which staff involved in emergency service work operate.

- Two fixed wing and two rotary wing aircraft specially prepared for firefighting in Australian conditions are on term contracts for the duration of each bushfire season, while an aircraft register is maintained which allows quick access to a range of additional appropriately equipped aircraft.

- Other aircraft with bushfire fighting capabilities are maintained by National Parks and Wildlife Service and State Forests, and are available to assist in coordinated bushfire fighting activities.

- Funding has increased significantly, from $50.7M in 1994/95 to $120.7M for 2002/03.

- $155M has been spent since 1994 upgrading the tanker fleet, and 1,844 have so far been purchased to replace old equipment. The tanker upgrade program is on track, with $12M spent on retro-fitting of protective fuel lines and cabin water sprinkling systems on the existing fleet.

- $14.9M has been spent on an integrated Private Mobile Radio Network to provide dedicated fire-ground communications for volunteer firefighters.

- For NSW Fire Brigades, over $2.2 billion in funding has been provided since 1994, with $80M allocated to buy or rebuild more than 300 fire engines, and $43M to construct or renovate 37 fire stations and training centres.

- 140 fixed or mobile community fire units have been commissioned to work on bushfire prevention and firefighting preparation in communities on the urban bush interface, with over 80 new applications to establish additional units received since January 2002.

- The committee acknowledges the performance improvement in fire combat and suppression arising from the extensive reforms to the two firefighting services in NSW.

- The committee notes the numerous acknowledgments, received in almost half of the submissions, that there was significant improvement, by comparison with 1994, in every aspect of the coordination, communication and management of the Christmas 2001 fire emergency, including the mobilisation and coordination of the interstate and international volunteers.

- The committee notes that a number of submissions raised issues relating to fire suppression accountability between the NSW Fire Brigade and NSW Rural Fire Service arising out of the rapid increase in urbanised population and village clusters in previously rural areas along the coast land north and south of Sydney, and into the Blue Mountains. Existing geographical boundaries may no longer be appropriate.

- The committee notes that the urban expansion described above can result in fragmented and discontinuous firefighting activity to defend lives and property as a first priority, rather than focusing on a concerted attack on a fire front.

- The committee notes that excellence in fire suppression, as demonstrated during the Christmas 2001 emergency, may create a community reliance on fire fighters to stop fires, rather than a community responsibility to prevent fires.

7.2 RECOMMENDATIONS

1. That the government acknowledge the significant operational improvements already evident from the reform and consolidation of command of the firefighting services in NSW, and endorse the continuation of the reform strategy.

2. That the implications of the expanding urban-rural interface for fire prevention and fire suppression activity be investigated by the Fire Services Joint Standing Committee, with reference to PlanningNSW and the Department of Local Government.

3. That the issue of community and individual responsibility for protection of their own lives and property through appropriate preparation be addressed through a coordinated Statewide Community Communication Strategy and Information Framework which enables locally specific details to be provided along with more general information.

4. That the NSW Rural Fire Service, through the District Bushfire Management Plan Committees, actively promotes further cooperation amongst all the stakeholders in all phases of bushfire prevention and suppression, including the adoption of a landscape approach to hazard reduction, rather than an individual tenure approach.

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PART B

BACKGROUND TO THE INQUIRY

PART B – BACKGROUND TO THE INQUIRY

8 ESTABLISHMENT OF THE INQUIRY

8.1 BACKGROUND

From 3 December 2001 to mid-January 2002, NSW experienced a bushfire season of considerable intensity. The New South Wales Director of the Bureau of Meteorology, Mr Kevin O'Loughlin, described weather conditions throughout the period as extraordinary, featuring high temperatures, very low humidity and strong gusty winds. There were 20 consecutive days without rain, 18 of which were classified as very high to extreme fire danger according to the Bushfire Danger Index.

While similar conditions have been experienced every 10 years or so – in 1939-40, 1952, 1957, 1968. 1977, 1988 and 1994, the conditions in the Sydney Basin in the summer of 2001-02 are acknowledged to have been severe beyond previous experience. During the 1994 fires, for example, only four days were classified as extreme fire danger, by comparison with the 18 days in that range recorded by the weather bureau at Richmond during the 2001-02 event.

With some 450 fires blazing – some so intense as to merit the label "fire storm" – the effectiveness of the reform of the firefighting services and fire prevention practices triggered by the 1994 bushfires was put to the test.

During the emergency period, more than 29,000 volunteer and salaried personnel were deployed from 50 agencies or organisations from every state and territory in Australia, and from New Zealand. 1,695 firefighting equipment units and 109 aircraft were used.

Overall, 754,000 hectares of bushland was burnt; 109 residential premises were destroyed, over 7,000 head of livestock were killed and hundreds of kilometres of rural fencing were destroyed. However, no lives were lost.

On 31 December, in the midst of the emergency, and with new fires being reported daily in many parts of the State, the NSW Police Service commissioned a Task Force named TRONTO, to address *…criminal activity relating to bushfires…*, including incidents of deliberate lighting of fires.

8.2 ESTABLISHMENT OF THE COMMITTEE

On 12 March 2002, following a motion put by The Hon. Bob Debus MP, Attorney General, Minister for the Environment, Minister for Emergency Services, and Minister Assisting the Premier on the Arts, the Legislative Assembly resolved to appoint a Joint Select Committee on Bushfires.

Mr Debus moved:

(1) That a joint select committee of the Legislative Assembly and Legislative Council be appointed to consider and report upon the recent bushfires with particular regard to the following matters:

    (a) Hazard reduction and other fire prevention measures.

(b) The environmental impact of bushfire management and control on biodiversity and biophysical processes and the application of research, technology and management techniques to minimise the impacts.

(c) The causal factors of the bushfires including an investigation of land use decisions, development planning, and the responsibilities of property owners that will reduce bushfire risk and the environmental impact of bushfire management.

(d) The adequacy of equipment available to, and training of, Rural Fire Brigades.

(e) The adequacy or otherwise of building regulations currently in operation in New South Wales with particular emphasis on the Australian community bushfire safety standards for houses.

(f) The use of aircraft in firefighting.

(g) The adequacy of changes made to bushfire planning and fighting, development planning and other relevant matters since the 1994 bushfires.

(2) That the committee, where possible, shall not duplicate examination of the evidence currently before the Coroner's inquiry.

(3) That the committee shall consist of seven members, as follows:

(a) Three from the Government, two being members of the Legislative Assembly and one a member of the Legislative Council; and

(b) Two from the Opposition, one being a member of the Legislative Assembly and one a member of the Legislative Council; and

(c) Two Independent or crossbench members, one being a member of the Legislative Assembly and one a member of the Legislative Council, who shall be nominated in writing to the Clerk of the Legislative Assembly and Clerk of the Legislative Council by the relevant Party leaders and the Independent and crossbench members respectively by Monday 18 March 2002.

(3) That at any meeting of the committee four members shall constitute a quorum.

(4) That such committee have leave to sit during the sittings or adjournment of both houses; to adjourn from place to place; have leave to make visits of inspection within New South Wales; have power to take evidence and send for persons and papers.

(5) That the committee shall report by 28 June 2002.

On 19 March 2002 the Legislative Council agreed to the resolution subject to the following amendment:

(1) That the motion be amended by omitting paragraph 3(b)(iii) and inserting instead:

(iii) 1 Crossbench member chosen by ballot in accordance with Standing Order 236.

(2) That Paragraph 2 of the motion be amended to reflect the result of the ballot.

Membership of the committee as agreed by both Houses was:

- Mr J C Price MP (Chairman), Member for Maitland, Australian Labor Party
- The Hon. E T Page MP, Member for Coogee, Australian Labor Party
- Mr R H L Smith MP, Member for Bega, Liberal Party
- Mr G R Torbay MP, Member for Northern Tablelands, Independent
- The Hon. J S Tingle MLC, Shooters' Party
- The Hon. R Colless MLC, National Party
- The Hon. A B Kelly MLC (Deputy Chairman), Australian Labor Party

8.3 TERMS OF REFERENCE

The terms of reference for the committee, as agreed by both Houses, were enshrined in the motion. They are restated at the beginning of this report at page ix.

The committee met for the first time on 20th March 2002.

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9 CONDUCT OF THE INQUIRY

9.1 CALL FOR SUBMISSIONS

The committee publicly called for submissions on any or all of the terms of reference, through display advertisements placed in the week beginning 23 March in a range of news publications, including:

- The Sydney Morning Herald;
- The Daily Telegraph;
- The Land;
- Western Magazine (Dubbo);
- Country Leader (New England); and
- Town and Country Magazine (South Coast).

Information, including the invitation to submit material to the committee, was also posted on the NSW Parliament website. The text of the advertisement is attached at Appendix 1.

The closing date for submissions was Friday 12 April 2002, however it was agreed to extend the submission period for interested parties who were unable to meet the original time-frame and who informed the committee of their intention to lodge a submission prior to the original closing date.

Notified submissions continued to be received by the committee up to Friday 3 May 2002, with 68 arriving between 13 April and 3 May. All submissions received by the committee, whether or not they arrived within the allocated time-frame, were considered in the preparation of the report.

Submissions, received both electronically and in hard copy, were registered, copied and circulated to committee members as soon as signed hard copies were received.

A total of 199 submissions were received from individuals, organisations and government departments. A full list of submissions received appears at Appendix 2.

9.2 PUBLIC HEARINGS

The committee held public hearings at Nowra on 22 April and in Sydney on 2,3 and 31 May, with a final hearings day to hear clarifying evidence from key agencies on 3 June 2002. A full list of organisations and witnesses who appeared before the committee appears at Appendix 3.

- 22 April (Nowra) hearing 15 witnesses were heard, speaking to 7 submissions.
- 2 May Hearing 14 witnesses were heard, speaking to 8 submissions.
- 3 May Hearing 7 witnesses were heard, speaking to 5 submissions.

- 31 May Hearing 7 witnesses were heard, speaking to 6 submissions.
- 3 June Hearing 8 witnesses were heard, speaking to 4 submissions.

10 SCOPE OF THE COMMITTEE'S WORK

The scope of the work of the committee was partially determined by the need to complement the work of the two other investigations concurrently established to examine the December 2001 – January 2002 fires: the Police inquiry code-named TRONTO, and the Coroner's Inquiry mandated by the extent of damage to property consequent on the fires.

The committee also took into account action already proposed by the Inter-Departmental Committee [IDC] whose report was submitted in December 2001 in the midst of the bushfire emergency. The IDC's task was to address issues raised regarding inter-agency coordination of policies and practices impacting the approval process to conduct bushfire hazard reduction.

10.1 CONCURRENT INVESTIGATIONS.

The three investigations established as a direct result of the severity of the bushfire emergency were given separate but necessarily over-lapping briefs.

Two of them – the Joint Select Committee on Bushfires and the NSW Police Service Inquiry – were to consider specified issues relating to the causal events and the conduct of fire suppression activity during the fire period. For example, the Joint Select Committee's terms of reference require investigation of

> *…causal factors including land use decisions, development planning, and the responsibilities of property owners that will reduce bushfire risk and the environmental impact of bushfire management,*

At the same time, the Terms of Reference also state

> *The committee shall not duplicate the work of the Coroner's inquiry.*

- **The NSW Police Service Inquiry**

Strike Force TRONTO, the Police Inquiry, was also to examine causes, but to focus on criminal activity related to the fires, as an input to the Coroner's Inquiry. Strike Force TRONTO commenced work on 31 December 2001, with the following terms of reference, under the case title of *NSW Bushfires-December 2001*:

1. *To coordinate and assist the Local Area Command response to criminal activity pertaining to bushfires including reports of arson, looting and fraud, and*

2. *To provide a coordinated report for the information and attention of the NSW State Coroner looking at the causes and origins of fires.*

The outcomes of both these investigations are to be referred to the Coroner's Inquiry to ensure that all issues of concern have been adequately addressed.

- **The Coroner's Inquiry**

The Coronial Inquiry, automatically triggered by the degree of property damage and the severity of the fire event, is due to commence on 1 July 2002. It will examine the two

reports, including any recommendations for further investigation, before its terms of reference are determined, so as to ensure duplication is avoided and further investigative effort is targeted appropriately at areas of continuing concern.

10.2 PREVIOUS INQUIRIES, REPORTS AND RECOMMENDATIONS

The committee took into account the reports and recommendations of previous Inquiries including:

- Cabinet sub-Committee on Bushfire Management and Control, March 1994;
- Select Committee on Bushfires published in November 1994;
- The Coronial Inquiry into the 1994 Bushfires (August 1994 – February 1996);
- Bush Fire Coordinating Committee Report, May 1996;
- Auditor-General's Report 1998;
- Legislative Council's Inquiry into the NSW Rural Fire Service –June 2000;
- Policy Review Report December 2001; and
- Briefing Paper no. 5/02 on Bush Fires – February 2002.

♦ **Cabinet sub-Committee on Bushfire Management and Control, March 1994**

With particular attention to implementation of its recommendations relating to the effectiveness of the local level Bushfire Management Committees and development of plans for bushfire operations and fuel management.

♦ **Select Committee on Bushfires published in November 1994**

Particularly the effectiveness of implementation of its recommendations relating to:

- the equipment, communications, training and cooperation of the various firefighting authorities.
- building regulations for bushfire prone areas
- land use decisions, development planning and the responsibilities of property owners
- hHazard reduction.

♦ **The Coronial Inquiry into the 1994 Bushfires (August 1994 – February 1996)**

This Inquiry made 125 detailed recommendations, and was particularly concerned about the inadequacy of hazard reduction:

The evidence satisfied the Court conclusively that throughout NSW during the period 1989-93, the fuel load was not managed as intended by Parliament and high fuel loads were principally responsible for the intensity of the uncontrollable fires.[1]

♦ **Bush Fire Coordinating Committee Report, May 1996**

This report recommended significant changes to the structure of the NSW Rural Fire Service to clarify the lines of command, and also proposed the replacement of the *Bush Fires Act 1949* with a new *Rural Fires Act*, which was proclaimed in 1997. Other recommendations included ones relating to training, equipment, hazard reduction, land use planning and development. The Joint Fire Services Standing Committee was established in 1996 to oversee the development of cooperative firefighting arrangements between the NSW Rural Fire Service and NSW Fire Brigades

♦ **Auditor-General's Report 1998**

A performance audit report, entitled *Rural Fire Service: The Coordination of Bushfire Fighting Activities* was handed down in December 1998. The report commended all concerned on progress made since 1994 in improving cooperation amongst all stakeholders, and made a number of recommendations for further improvements. Of these, three fall within the Terms of Reference of the current Inquiry:

- The effectiveness of aircraft in bushfire suppression;
- the adequacy of training of firefighters;
- the need to improve hazard reduction strategies and to support local communities in this regard.

♦ **Legislative Council's Inquiry into the NSW Rural Fire Service –June 2000**

Conducted by General Purpose Standing Committee No. 5, this Inquiry focussed on the adequacy of fire suppression services provided by the Rural Fire Service, and noted significant improvements in all areas. Its recommendations largely supported the direction of the continuing improvement programs, and suggested a greater focus of training.

♦ **Policy Review Report December 2001**

Prepared by the Inter–Departmental Committee on Environmental Assessments for Bush Fire Hazard Reduction Proposals, this report focussed on clarifying and simplifying the approval process for hazard reduction. It triggered amendments to both the *Environmental Planning and Assessment Act 1979* and the *Rural Fires Act 1997* in regard to hazard reduction approval processes.

[1] NSW Coroner, NSW Bushfire Inquiry 1996, Findings, Vol. 4, at p.362

♦ **Briefing Paper no. 5/02 on Bush Fires – February 2002**

Prepared by the NSW Parliamentary Library Research Service, this informative document summarises the history of bushfire and the ongoing reform of bushfire management in NSW.

10.3 NEW ACTIONS AND REFORMS ANNOUNCED PRIOR TO THE INQUIRY

The committee noted that concern about bushfires is an ongoing matter for Australian communities in general, and has taken into account that investigations and action to address various aspects of effective fire suppression and fire prevention are under way in a variety of educational and research organisations as well as in a number of state and federal government departments with environmental or emergency responsibilities.

Because of the very short time allocated for the committee to complete its tasks, it has chosen simply to note such activity or proposals, and to recommend the referral of matters to agencies both within and outside the NSW State Government Sector where appropriate.

10.4 NEW SOUTH WALES GOVERNMENT INITIATIVES

The committee noted that on 30 May 2002 the Minister for Planning and the Minister for Emergency Services and the Environment have introduced into Parliament the *Rural Fires and Environmental Assessment Legislation Amendment Bill* containing a number of amendments to the *Environmental Planning and Assessment Act 1979* [EPAA], the *Rural Fires Act 1997,* the *Threatened Species Conservation Act 1995* and the *National Parks and Wildlife Act 1974.*

The amendments are in accordance with the recommendations of the Policy Review Report, prepared in the year prior to the outbreak of the fires which are the subject of this report, by the ***Interdepartmental Committee on Environmental Assessments for Bush Fire Hazard Reduction Proposals.*** These recommendations were endorsed by the State's Bush Fire Coordinating Committee and presented to the Minister for the Environment in December 2001.

The main purpose of the amendments is to:

- Strengthen the powers of the Commissioner of the NSW Rural Fire Services in relation to hazard reduction – specifically the right to enter any land – private or public – to carry out hazard reduction work required under the local Bushfire Plan when owners have failed to do so.

- To ensure that emergency firefighting activities do not require approval under the EPAA.

- To streamline the approval process for hazard reduction work through a system of Codes of Practice.

- To strengthen the requirement that local councils consult the NSW Rural Fire Service when considering development proposals in bushfire prone areas, and to simplify and coordinate all the existing state planning controls for development in bushfire hazard zones.

The package of measures was announced in January 2002, and the amendments to the Rural Fires Act 1997, and the Environmental Planning and Assessment Act 1979 were before Parliament during the preparation of this Report.

In accordance with the proposed amendments, planning guidelines for developments proposed for bushfire prone areas were to be issued for the use of councils, town planners, developers and home owners. These guidelines, *Planning for Bushfire Protection 2001*, are generally available on the NSW Rural Fire Service website. A copy is attached at Appendix 5.

10.5 FEDERAL/NATIONAL INITIATIVES

- Establishment of a national **Bush Fire Cooperative Research Centre**, announced on Monday 1 April 2002 by Federal Minister for Science, Mr Peter McGauran. The purpose of the CRC is to coordinate all the current research into bushfires and enable it to be used to assist firefighting. The Centre is to be located in Melbourne at the Box Hill headquarters of the Australasian Fire Authorities Council, the peak body for fire-fighting organisations in Australia and New Zealand. The Centre is expected to be established by December 2002, and the NSW Rural Fire Service and NSW National Parks and Wildlife Service have been invited to participate in the Centre as members of its founding echelon of key agencies.

- The Building Council of Australia [BCA] and the Australasian Building Codes Board [ABCB] – have reviewed Australasian building standards and codes to address fire danger and reissued AS 5939, which specifies fire resistance standards for construction materials to be used in bushfire prone areas.

- Development of a coordinated, national strategy on the acquisition and use of aircraft in bushfire fighting.

10.6 INTERNATIONAL RESEARCH

A number of submissions were received which described international research and practice regarding hazard reduction, effective prevention and suppression of bushfires, and into changes in global atmospheric conditions which may increase fire risk.

For example, some research conducted under the auspices of NASA (National Aeronautics and Space Administration) indicates that major forest fire events may generate enough particle pollution to affect the composition of clouds and inhibit the formation of rain, thus exacerbating the dry weather conditions which are already a causal factor in such fires.

In the course of the Inquiry, news began to break of massive multi-fronted wildfires burning out of control through nearly two million acres of drought-stricken countryside in Colorado, USA. On 24 June 2002, it was announced that Australian firefighters were expected to travel to the USA to help fight these fires, now burning across several States.

Because fire exclusion and fire suppression skills and technology have become increasingly effective, and nature conservation has been interpreted as “leaving the forest alone”, there are growing numbers of incidences of forest areas in both the USA and in Europe becoming choked with fuel in the form of understorey growth, previously kept in check by occasional naturally occurring fire.

> *Following the catastrophic fire events of 2000 in the US, the US Government allocated massive funding increases (in the order of US$1billion) to mechanically thin forest understorey in high risk Ponderosa forest, to return it to a condition where low intensity burning can once again be used to maintain the forest in healthy condition.*[2]

It is apparent that the environmental impact of total fire exclusion, swift suppression of all wildfire outbreaks and of "locking up" wide areas of forest land, should also be subject to assessment.

[2] State Forests NSW, Submission No. 146 at p.36

11 CHANGES MADE TO FIRE-PREVENTION AND FIREFIGHTING AFTER THE 1994 BUSHFIRES

The terms of reference of the current inquiry require the committee to address *the adequacy of changes made to bush fire planning and fighting, development planning, and other relevant matters since the 1994 bushfires.*

11.1 THE 1994 BUSH FIRE EMERGENCY

For 20 days between late December 1993 and into January 1994, more than 800 individual fires raged across 800,000 hectares of land, threatening the urban fringe of Sydney as well as numerous towns and villages along the coastal plains and ranges of New South Wales.

At the height of the firefighting campaign, coordinated by the then Department of Bush Fire Services, some 20,000 people (most of them volunteers) were involved in the most complex and intensive emergency operation in the State's modern history. Three lives and 205 homes were lost.

11.2 THE 1994 CORONIAL INQUIRY

An extensive Coronial Inquiry into the fires was conducted between August 1994 and February 1996, and the former Deputy State Coroner, John Hiatt, presented his final report to the government on 28 February 1996.

The Coroner's principal recommendation was that, in order to establish a clearly defined command structure for volunteer firefighters in circumstances which require firefighting across the boundaries of several bushfire districts, the government should introduce an integrated command structure under the umbrella of a new Rural Fire Service. He went on to propose that local government should have no role in the administration and management of the NSW Rural Fire Service, and that ultimately the rural and urban fire services should be amalgamated.

The government did not support the last two propositions because this would have undermined local administrative and community responsibility and led to many volunteers leaving the bushfire fighting movement.

The government's response to the Coroner's findings was

- to establish the New South Wales Rural Fire Service (to replace the former Department of Bush Fire Services); and

- to ensure closer cooperation between the NSW Rural Fire Service and the NSW Fire Brigades.

A Ministerial Task Force was established to examine the major issues impacting the efficient and effective operation of the two Services. As a result, the Fire Services Joint Standing Committee was established in August 1996, with representatives of both services, to oversee the development of cooperative firefighting arrangements. This committee was given legislative standing by the government in 1998.

In the meantime, the Coroner's report was referred to the Bush Fire Coordinating

Committee [BFCC], the most senior operational body in the State dealing with bushfires and then comprising representatives of all firefighting and land management agencies. The BFCC's task was to establish the New South Wales Rural Fire Service.

11.3 THE RURAL FIRES ACT 1997

The BFCC's recommendations were incorporated into the draft exposure Rural Fires Bill which was released for public comment as part of a wide ranging process of community consultation.

Over 1200 submissions and letters were received on the exposure bill. The vast majority (87%) either supported or gave qualified support to the bill. Only 4% of the submissions did not support the draft legislation.

Following incorporation of appropriate changes, the draft bill passed through the New South Wales Parliament, and the *Rural Fires Act 1997* was proclaimed on 1 September 1997. This statute comprehensively reformed the principles and regulatory framework contained in the former antiquated *Bush Fires Act 1949*.

In accordance with the Coroner's recommendation, the Act established the NSW Rural Fire Service to provide for a cohesive and integrated management structure for the delivery of fire services to rural fire districts throughout NSW. The NSW Rural Fire Service entity comprised the Commissioner and staff, Fire Control Officers, Deputy Fire Control Officers and all volunteer rural fire fighters in NSW.

The Act also defines the territorial and jurisdictional responsibilities of the NSW Rural Fire Service. In response to the Coroner's recommendations for improved levels of accountability across the service, the Act reinforced the command structure through the introduction of mandatory service standards for the administration, management and performance of the Service. The newly constituted NSW Rural Fire Service developed and issued policies and procedures in the form of Service Standards to establish uniform standards for training, equipment and safety for volunteers throughout the State.

The *Rural Fires Act* also preserves the principle of local responsibility for local matters in that Rural Fire Brigades are formed locally and day to day local issues continue to be administered by Fire Control Officers, Captains and other brigades officers on the ground. The capacity to flexibly adapt the Service Standards to meet local needs and conditions has been maintained.

The *Rural Fires and Environmental Assessment Legislation Amendment Bill 2002*, before Parliament as this Report was being written, strengthens the capacity of the NSW Rural Fire Service to prevent bushfires as an adjunct to previous legislative amendments which strengthened the NSW Rural Fire Service's firefighting capabilities.

The amendments include measures to ensure that appropriate hazard reduction is carried out by all landowners, by empowering the Commissioner of the NSW Rural Fire Service to receive performance reports, conduct audits, intervene directly to conduct hazard reduction activities if an owner has failed to do so.

These measures seek to remove perceived complexities in the approval processes for hazard reduction activities, while ensuring responsible ecological management.

PART C

DISCUSSION

PART C – REPORT AND DISCUSSION

12 HAZARD REDUCTION AND OTHER FIRE PREVENTION MEASURES.

12.1 BACKGROUND

Hazard reduction – how much of it, how often, by what means and where it should be conducted – was the critical issue for the Inquiry.

Are we doing a better job of hazard reduction than prior to the 1994 fires? The Coronial Inquiry into those fires found that fuels in NSW were not being managed as intended by Parliament.

In addition to a variety of opinions about what constitutes a "safe" fuel load, and how fuels behave in different conditions, there was considerable concern about the management across tenures of fire trails in NSW.

12.2 HAZARD REDUCTION IS NOT BEING DONE

The review of the Interdepartmental Committee on Environmental Assessments for Bushfire Hazard Reduction Proposals fully investigated claims that perception of complexity of the approval process for hazard reduction, including long delays in the environmental assessment stage, was a disincentive to implementation. Although measures to streamline the process have been developed as part of the Amendment Bill currently before Parliament, this Inquiry was told of delays in approvals of as much as six years, with several months being more common.

A significant number of submissions received by the Inquiry expressed concern that responsible bodies, such as local councils and state land management agencies, including the Sydney Catchment Authority, the Department of Sport and Recreation, National Parks and Wildlife Service [NPWS], the Department of Land and Water Conservation, the Roads and Traffic Authority and State Rail, – had failed to conduct appropriate hazard reduction. For example: private land-owner, Terry Miller, writing of the Boxing Day 2001 fire that damaged his Orangeville property, burning up from the Werriberri/Monkey Creek, a 5(d) Special Uses reserve. He says:

> *In our 20 odd years of living here, at no time that I am aware of has any of the past or present catchment authorities or National Parks ever ventured down the rear of this property and no hazard reduction has ever been carried out.* [3]

The Grose Wold Residents' Bushfire Protection Committee said, in regard to land adjacent to Grose Wold which they believe to be managed by the Department of Land and Water Conservation:

> *We are concerned that no hazard reduction has taken place in Woods Creek Reserve (320 hectares of Crown Land) since the 1994 fires.*[4]

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3 Terry Miller, Werriberri Park Orchard, Submission No. 75 at p.2

4 Grose Wold Residents, Submission No. 144 at p.3

The Grose Wold group further expressed concern that the Reserve is about to pass to NPWS management:

> *We have observed a number of situations in which national parkland assigned to the department of National Parks and Wildlife has been allowed to develop without correct and proper management, particularly regarding fire hazard reduction.* [5]

Although it is apparent that approved programs of hazard reduction burning often fail because of unsuitable atmospheric conditions on the day (too wet or too dangerous), the committee is concerned at the number of submissions that spoke of long and repeated postponements and even abandonment of planned hazard reduction burns.

A CSIRO study still in progress for Western Australia's Department of Conservation and Land Management (Project VESTA 2000) found that planned hazard reduction actions occur on less than one in four planned occasions, with weather the uncontrollable variable.

> *Fire is fussy and will only perform as require on rare occasions. Despite the best intentions hazard reduction programs are perpetual underachievers.*[6]

The Director-General of NPWS told of only six days in the hazard reduction season prior to the 2001-02 fires when it was possible to carry out burns as planned. He acknowledged that it was necessary to apply the resources to ensure that hazard reduction targets were met in future.

Ironically, the same conditions that prevent burning during the autumn and winter months – frequent rainy days with insufficient dry days in between to allow the vegetation to dry out enough for ignition – also promote vegetation growth, so that when the next fire danger season arrives there is more fuel on the ground.

While the Inquiry accepts these difficulties, it does not accept that land owners and managers should be permitted to default on their responsibilities. They will need to develop, resource and implement contingency plans to ensure that the intent of approved hazard reduction programs – to protect lives and property from fire – can be achieved within a reasonable time if the original target date was not achieved.

12.3 HOW FREQUENTLY SHOULD HAZARD REDUCTION BY BURNING BE DONE?

The nature of the Australian landscape and ecology owes much to fire, both naturally ignited wildfire and fires lit deliberately or accidentally by humans over thousands of years.

The landscape continues to evolve, with fire an essential factor in the reproductive cycle of some of Australia's unique and specialised plant species.

During the course of the Inquiry there was extended discussion about what frequency of hazard burning was both "safe" for the environment and gave adequate protection for lives and property against uncontrolled wildfire.

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5 Grose Wold Residents, Submission No. 144 at p.8

6 A F Grimwade, Submission No. 71 at p.2

Different land management agencies proposed different regimes for hazard reduction, each one designed to protect the core purpose of the agency.

For example, Mr Bob Smith, Chief Executive of State Forests, in his letter accompanying the State Forests submission, says:

> *Being responsible for the management of fire vulnerable assets worth $1.5billion … fire management cost plus loss factors are a central part of State Forests commercial management. Over expenditure on fire risk management would impinge on State Forests ability to meet its commercial objectives, and under expenditure would expose the organisation to risk of unsustainable asset losses … cost efficiency is a key factor given consideration by staff when managing fire suppression operations.*[7]

For State Forests, the risk assessment for fire management focuses on the economic value of each stand, or cell, of timber, which depends on its age and readiness for market. Mature, well-managed plantations have a current standing value of $30,000 per hectare, or $30M per 100 hectares, with crop maturity cycles ranging from 30 years for pine plantation to around 60 years for eucalyptus.

State Forests is a Government Trading Enterprise, operating a commercial timber production business and paying dividends to the Government of NSW. It has environmental and social obligations also in the management of its 2.5million hectares of forest and plantation estate.

It employs a variety of hazard reduction techniques, including fire, mechanical such as the making of fire trails, slashing and chopper-rolling, grazing to reduce grass fuels, and community education to promote responsible fire use.

The key firefighting strategy is "*thorough preparedness, early detection, quick suppression*".

As one of NSW's gazetted firefighting authorities, State Forests maintains extensive firefighting personnel and resources, including fire towers, mapping services and specially equipped aircraft, which are used as needed in the management of fires across all tenures.

State Forests uses a modified form of the hazard reduction zoning system preferred by the District Bushfires Committee: Zone 1 – Asset Protection, Zone 2-Strategic Fire Advantage Zone 3 – Land Management and Zone 4 – Fire Exclusion. The Zone 3 strategy has been modified to encompasses a range of types of burning to meet forest management objectives in relation to the timber "crop".

> *Over the five-year period leading up to the 2001 fire season, State Forests conducted more than 380,000 hectares of hazard reduction burning. State Forests reduces forest fuels through managed grazing on more than 480,000 hectares of forests and plantations annually.*[8]

During the 3 June Hearing, Committee Member, the Hon John Tingle questioned Mr Bob Smith about both frequency and extent of hazard reduction burning:

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[7] State Forests NSW, Submission No. 146 (covering letter by Commissioner Koperberg)

[8] State Forests NSW, Submission No. 146 at pp. 27-28

> ***The Hon. JOHN TINGLE:*** *Returning to fire hazard reduction, Mr Smith, you stress in the letter accompanying the submission—which I refer you to even though I suppose it is not technically part of your submission—the unequivocal opinion and experience of State Forests as land managers that properly planned and implemented hazard reduction burning programs are effective in reducing the number of fires that start, reducing the rate at which they spread and reducing their intensity and spotting potential. This brings us back to what I believe is the most vexed question of this inquiry: How much is enough? We have heard evidence that State Forests, for instance, hazard reduced 4 per cent of its tenure area and National Parks reduced about 1 per cent. It has been suggested that the figure should be 7 per cent. You speak about properly planned and implemented hazard reduction, but how do you know how much you have to do? Can you be sure that you have done the right amount?*
>
> ***Mr SMITH:*** *In terms of whether it is enough, I do not think you know until after the event. State Forests' approach is risk management: we try to assess the full risk of the assets that we have to protect and do hazard reduction to ensure that that occurs. As Mr Dodds said, sometimes we can do more and sometimes we can do less. But over a 10-year period when we have gone through the full weather cycle, we would expect to be able to hazard reduce all the areas with a moderate risk fire potential, particularly our plantation assets. In terms of whether it is successful, we do after-burn monitoring to ensure that the hazard reduction activity that we have undertaken—whether it is slashing or hazard reduction—met the objectives of that particular plan. There is follow-up to ensure that. If it is not successful, we do it again in many cases … There is a strategic approach to undertaking an activity that maximises our ability to manage a wildfire if it comes from that direction.*[9]

For State Forests, the broad acre hazard reduction program must be considered in the context that the asset it protects is broad acre "cells" of harvestable trees, and the intervals for burning off are at least partly dictated by the stage of growth of the tree crop, as well as by more general ecological considerations.

It is possible to argue that State Forests has achieved a defensible compromise in the way it manages fire on its lands. The move towards plantation forestry activity rather than harvesting trees in native forests is illustrated by the growing focus on softwood plantations – clearly a more predictable and reliable crop than logging in native forests if economic benefit is a high priority. It is also easier to manage an environment where all the vegetation is of a similar age and single species.

Once land is converted to commercial plantation cropping purposes, ecological and conservation issues become secondary in its management. Protection from wildfire, however, assumes greater importance, so the concern expressed in State Forests' submission about the failure of neighbouring land owners to conduct hazard reduction is understandable.

Between 1994 and 2001, 719,000 hectares of State Forest reserve were transferred to NPWS. While complete data was not available regarding the condition of the land on transfer, including frequency and extent of hazard reduction activity, sample data shows that no uniform strategy had been applied. Some areas had been hazard reduced over

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9 Transcript of Hearing, Monday 3 June 2002 at p.11

as much as 11% of their total area, others by 1% or less in the three or four years prior to transfer.

However, State Forests has been investigating the long-term effects of low-intensity fuel-reduction burning since 1960, in the Bulls Ground State Forest. While conceding that the small plot sizes used in this study may skew results, in that the plots may be more rapidly repopulated by plants and animals from neighbouring unburnt areas, the preliminary results indicate that permanent changes in vegetation do appear to occur as a result of frequent burning, even at low temperatures, and that this change in available habitat is likely to impact the type and occurrence of fauna. The final report of this research is due to be submitted during 2002, and will provide essential factual input to the frequency debate.

Where ecological conservation is a prime concern, as with NPWS, selection of an appropriate scope and frequency of a hazard reduction program is even more problematic.

It was argued that a cool hazard reduction burn was less environmentally destructive than a hot wildfire. This issue is taken up in more detail in the section of the report on *environmental impacts of bushfire management*, below.

Frequencies proposed for effective hazard reduction varied widely – from every three years, to five, seven, 10 or 12 years.

It was also proposed that some land should not be hazard reduced at all, to ensure the survival of rare species that lived only in dense understory shrub.

Commissioner Koperberg, however, regarding hazard reduction as a means to prevent wildfire, or to facilitate fire suppression, told the Inquiry that in the extreme weather conditions of the Christmas 2001 fires he had seen a fire double back and burn again across land it had burnt less than 12 hours previously.

Committee member, The Hon Rick Colless MLC, stated that he had seen a fire, driven by a strong wind, burn across a ploughed paddock.

While it was generally accepted that high intensity wildfire was immediately more destructive than a controlled burn, evidence was tendered to the committee that low frequency, high intensity fire has a place in evolution of dynamic ecosystems. Professor Rob Whelan of the University of Wollongong, when asked to comment on *the destruction to the environment of …wildfires*, provided in his answers to questions taken on notice:

> *A single high-intensity fire certainly causes greater mortality of animals than a single low-intensity fire. However, it is not true to say that wildfires are destructive. Populations recover even if individuals die. For wildlife ecologists, the most remarkable feature of animal responses to high-intensity fire is the number of animals that survive and the ways in which they do so….The interpretation of this is that the fauna have evolved with periodic high-intensity fires as part of their environment.*[10]

[10] Prof. Rob Whelan, Answers to Question on Notice at p.3

Asked what the most desirable frequency for fire treatment of land might be to maintain biodiversity while protecting people and property from bushfire threat, Professor Whelan said:

> *… different fauna respond differently to habitat density, different vegetation types recover differently after fires, and there is a scarcity of scientific information.*[11]

The Inquiry has concluded that this is a significant area for further research, and the committee unanimously endorses the projected establishment of a National Centre for Cooperative Research into bushfire causes and effects.

12.4 RECOMMENDATIONS

The committee recommends that:

1. **all public and private owners and/or managers of land in bushfire prone areas of New South Wales are made aware of their responsibilities to protect their own and neighbouring properties from bushfire through active implementation of appropriate hazard reduction regimes and the application of appropriate standards in building construction and maintenance.**

2. **by 30 March 2003, all state land management agencies should prepare schedules, identifying those areas within their tenures where hazard reduction activity has been planned but postponed in the previous 36 months.**

3. **all state land management agencies apply the necessary resources to ensure that their annual planned programs of hazard reduction are achieved in each reserve OR, where planned hazard reduction by means of controlled burning is postponed more than twice in any reporting year, that contingency/catch-up plans are developed and implemented within a reasonable time-frame to be negotiated with the appropriate Bushfire Management Planning Committee.**

4. **the Bushfire Coordinating Committee should develop a Statewide communications strategy to generate and disseminate educational and information materials about the bushfire management process for the general public and for all stakeholders involved in bushfire management. The strategy should accommodate specialised information activities related to bushfire management undertaken by individual land management agencies in NSW.**

5. **the NPWS should develop and implement a Statewide strategy for community information, education and engagement in regard to the responsible management of parks and reserves, including the training of key personnel in large group facilitation and consultation.**

6. **the NSW Rural Fire Service should offer assistance to local government bodies to assist in catch up activities, such as mapping and hazard reduction. Where individual councils seek to apply a levy to undertake such work, the Department of Local Government should give such applications sympathetic consideration.**

[11] Prof. Rob Whelan, Answers to Question on Notice at p.4

7. implementation of the Government's strategy to streamline the approval process for hazard reduction be evaluated by December 2003 by a review panel convened by the Commissioner of the NSW Rural Fire Service. The review panel membership is to include (but is not limited to) representatives of volunteer fire fighters, private land holders, local government representatives and other Government stakeholders.

8. the reporting procedures by all land managers for the implementation of hazard reduction be standardised and adopted by the Bushfire Coordination Committee.

9. performance audits of implementation of Bushfire Risk Management Plans be undertaken by the Commissioner of the NSW Rural Fire Service in accordance with a Strategic Audit Plan to be approved by the Minister for Emergency Services.

10. consistent with the emphasis on coordinated bushfire fighting, there be ongoing cooperation between the planning and operational arms of the land management agencies and the firefighting authorities in the implementation of hazard reduction plans as well as in firefighting activities.

11. all developments approved in fire prone areas from the date of proclamation of the Rural Fires and Environmental Assessment Legislation Amendment Bill 2002, should make provision for a property protection zone within the area of the proposed development in accordance with the planning guidelines in the *Planning for Bushfire Protection* booklet.

12. land management agencies, including National Parks and Wildlife Service, State Forests and Department of Land and Water Conservation, develop Village Protection Strategies as part of their Bushfire Management Plans for all settlements adjacent to their lands.

13. the Minister for the Environment, in appointing community members to NPWS parks advisory committees, consider amending the criteria for community membership of to ensure that each committee has a member with firefighting knowledge and experience.

12.5 FIRE TRAILS

A number of submissions raised issues about the adequacy of the State's fire trail network, in terms of the extent of the network, the location of individual trails, the maintenance of the trails' surface, and accessibility. The committee heard that fire trails may be blocked by logs, mounds or other obstructions or locked off by gates and fencing.

Security is an issue for fire trails because: they provide access to vulnerable areas and the opportunity for fires to be started deliberately or accidentally. Similarly, they can be used by people dumping household or building rubbish, which can be an additional fire hazard, as well as a blockage on a trail that may be needed during a fire emergency.

Some landowners, concerned about environmental damage caused through inappropriate or intensive use of fire trails by recreational groups using horses or four-wheel drive vehicles, have sought to exclude such users by erecting barriers.

The committee heard evidence that responsible use by appropriate recreational groups in some locations can be beneficial in improving security and maintaining road surfaces.

Fire trails are an important element of effective firefighting strategy, providing known containment lines as well as access to fire locations. If a fire trail is neglected or poorly maintained, time is lost while it is mechanically re-opened. Such can create dangerous conditions for crews if no turning spaces are provided.

Poorly maintained trails, or ones that are bulldozed hurriedly during an emergency can cause problems with drainage and soil erosion.

Different land management agencies have different protocols for mapping and maintenance of the fire trails within their tenure, and do not necessarily consult with each other even when their tenures abut.

With the District Bushfire Management Committee structure in place, with a prime duty to ensure that all planning to manage bushfires is done at a district and landscape level, rather than within individual tenures, it is appropriate to introduce a uniform system for the identification, marking, maintenance and mapping of the fire trail network across the state.

12.6 RECOMMENDATIONS – FIRE TRAILS

The committee recommends that:

1. **the Commissioner of the NSW Rural Fire Service arrange for an audit of the adequacy of the strategic fire trail networks across the tenures of all state land management agencies, including an assessment of the security and condition of each trail, in accordance with a Strategic Audit Plan to be approved by the Minister of Emergency Services and the Ministers responsible for each agency.**

2. **a cyclic maintenance plan for all fire trails on State owned land be developed by each of the land management agencies .**

3. **maps of fire trails within their land holdings be updated by the land management agencies and submitted to the local Bushfire Management Committee, with changes of condition, or any closures and additions to the network notified annually by 30 August each year.**

4. **a Statewide system of identifying, mapping and marking of registered fire trails be developed by the Bushfire Coordinating Committee.**

5. **land management agencies be encourage to explore with appropriate recreational groups, where suitable, arrangements for maintenance and clearance of fire trails.**

12.7 FUEL LOADS

Although the issue of fuel loads is closely linked to hazard reduction, especially in terms of decisions about frequency of hazard reduction and the calculation of fire risk in any given area, the committee focused considerable attention on attempting to ascertain what constitutes an acceptable fuel load. At present, fuel is the only one of the “fire triangle” elements (heat/ignition, air, fuel) which can be effectively managed by human intervention.

In the most extreme conditions relating to heat and air, such as strong winds, high temperatures and very low humidity, fire will burn across land with very low fuel loads, which in milder conditions would form an effective barrier.

The effects of fuel on fire behaviour will differ, depending on the type and structure of the vegetation, the level of moisture in the fuel, the arrangement of the fuel, and the terrain. For example, fire burns rapidly where there is an abundance of fine, dry fuel, and is encouraged to crown where there is understorey shrub, loose bark and other flammable material reaching up towards the forest canopy. Similarly, because fire burns more readily up a slope, and is less likely to burn in deep, generally moister gully areas, different levels of fuel load would be considered safe in different locations.

The rate of accumulation of fuel can also be affected by factors, such as drought, storms, grazing and fire history, and estimates of fuel loads need to take into account that fuel will not be evenly distributed across a landscape.

Fuel arrangement, including vertical fuels supplied by shrubs and loose bark, as well as litter on the ground, must be evaluated together with the fuel load in determining fire hazard.

Evidence provided to the committee by CSIRO fire expert Dr Phil Cheney, outlined the complexity of the issue of fuels:

> ***Mr CHENEY:*** *Any discussion of the effectiveness of fuel reduction burning has to have a little explanation of the relationship between fuels and fire behaviour, and to define the different factors that we are talking about. In terms of rate of spread, the important fuel factors of those that affect the flame length and the rate of ignition. These include fuel fineness, the bulk density of the fuel bed—which is a combination of the total fuel load and the height of the fuel bed—the continuity or spacing of fuels, particularly if they are clumped as are many natural fuels, and the fraction of dead and green material within the fuel bed.*
>
> *All of these factors are not independent, they are usually co-related to each other, and apart from fuel fineness everything increases in time as fuels accumulate after burning. They are also difficult to measure numerically and because of that, in the past the fire science convention has been to use fuel load or the available fuel load, that is, the amount of material that actually burns, and define the fuels as those fuels below six millimetres in diameter. But there are problems in that the fuel that actually burns has to be predicted in advance—you do not know until you have had the fire just how much is going to burn because it depends on moisture levels at different levels and the different strata of the fuel. We are currently working towards replacing fuel load with a numerical index which takes in many more factors and which should give better predictions for fire spread.*
>
> *The next factor to consider is the layering of the fuels, and this actually defines the fuel type. The simplest example is a grass fuel which is a single layer of fuel. The key factors that affect the spread of fire in grasslands are the continuity of the fuel bed, whether it is patchy, and the fraction of green material. Fires will not burn until there is more than 50 per cent dry matter in the grass sward and in grass the fuel load, although it is important in affecting the intensity of the fire, it is relatively unimportant in affecting its rate of spread. In shrublands you are starting to get a slightly more complex fuel; you have a surface layer on the ground of fallen leaf material, often very fine and compact, there is a near surface layer of low shrubs where the litter falls from above are suspended on grasses and shrubs, and the elevated fuels which are the tall shrubs. The rate of spread in this case is primary dependent on the near surface*

fuels and the elevated fuels. The best predictor variable, which is directly related to fire spread, is the height of the shrubs.

When we get into a dry forest with a tall shrubby understorey we have probably the most complex fuel type you could get because you have a surface litter bed which contains about 60 per cent of the total fuel load; you have a near surface layer of low shrubs, suspended litter and bark within them; you have the shrub layer, depending on the forest type; you have a contribution from the bark and the trees; and eventually if the fire intensity is high enough it will involve the canopy of the trees. The fire spread involves all of those factors. The critical one is really the surface and near-surface fuel layer depths and the continuity and the height of the shrub layers. So if we are considering a fuel reduction program it needs to be targeted to the layer that mostly affects the fire spread.

In some fuel types, say, grass and dense shrubland, any fire intensity is likely to remove all of the fuel within that layer. Within forests you can target to remove layers selectively, depending on the conditions, either the surface fuel layer or include the shrub layer involved with that. If these layers are removed a fire which is burning in heavy fuels coming onto an area that has been fuel reduced will carry its momentum primarily on the bark layer of stringy barks for some distance before it falls out of the canopy and comes to the ground. In our forests the tree canopies are so widely spaced that you cannot support a crown fire in the tree canopy unless it is supported by an intense fire underneath it.

The period that fuel reduction remains effective depends on the rate that the key layer takes to build up to its full potential for that site. In a tall shrub land, which may reach its full potential in something greater than 20 years in terms of the heights of the shrub and the amount of dead material in it, the effect of fuel reduction will persist for up to a period of 20 years in some degree. In recent experiments we found that in tall shrub layers in Western Australia fires in fuels 10 to 15 years old burnt significantly slower than fires in fuels 18 to 20 years old.[12]

Dr Cheney also reported preliminary results of research undertaken by the CSIRO (Project VESTA), which indicate that the extremely complex interaction between fuel structure (litter, shrubs, bark), wind speed and fire spread may generate much more severe fire conditions than hitherto assumed in the training provided to firefighters.

Opportunities to reduce unacceptable fuel loads through hazard reduction burning are often limited by unfavourable weather conditions, and planned burns may be postponed many times, leading to further build up of fuel load to the point when attempting to hazard reduce by burning becomes dangerous. Because this is a common issue amongst all land managers, the committee is of the opinion that alternative strategies must be developed, when controlled burning is not an option. Submissions offered a variety of alternatives, including grazing of steep, inaccessible slopes by goats secured in a portable electric barrier; selective hand clearing in areas close to buildings; mechanical removal in forest areas with heavy shrub undergrowth.

The process of assessing fuel condition and determining where strategic hazard reduction burns should take place is an important aspect of the training of fire fighters, and is a major activity of the volunteers in Rural Fire Brigades. Again, understanding of local conditions is a key input to this activity.

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12 Hansard Transcript 3 June 2002 at p.6

12.8 RECOMMENDATIONS – FUEL LOADS

The committee recommends that:

1. **the Audit of streamlined approval process for hazard reduction burning to be carried out by December 2003 specifically examine the number, extent and reasons for any delays in executing an approved burn.**

2. **the NSW Rural Fire Service ensure that training materials for fire fighters be regularly reviewed to ensure that the findings of verified research studies into fire behaviour (such as Project VESTA) are incorporated in service delivery training and in training manuals at the first available opportunity.**

3. **the Commissioner of the NSW Rural Fire Service prepare a report on the implications of findings of Project VESTA for firefighting, as soon as the project is complete and its findings confirmed. and their implications for firefighting in NSW as soon as practicable.**

4. **the issue of fuel load as an element of the fire cycle be referred to the proposed national Cooperative Research Centre for bushfire management for further investigation.**

5. **all District Bushfire Management Committees consider the relevant Management Plans of land management agencies with adjoining tenures, with particular attention to NPWS parks and reserves, and jointly identify areas where dangerously high fuel loads have accumulated because scheduled burns have not taken place, to develop priority.**

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13 THE ENVIRONMENTAL IMPACT OF BUSHFIRE MANAGEMENT AND CONTROL ON BIODIVERSITY AND BIOPHYSICAL PROCESSES AND THE APPLICATION OF RESEARCH, TECHNOLOGY AND MANAGEMENT TECHNIQUES TO MINIMISE THE IMPACTS.

A number of submissions asserted that the twin objectives of life and property protection from bushfires using hazard reduction burning and ecological conservation were not incompatible.

Professor Rob Whelan, Director of the Institute of Conservation Biology at the University of Wollongong said, in both his submission and opening statement before the 31 May Hearing, that the relationship between fire and biodiversity was extremely complex.

> *At the time of the 1994 fires, and then again at the time of these fires, I was offended, I guess, by the flurry of ill informed and simplistic criticism of various groups in the press… that followed each of those fires. I am still offended by the pretence that this is a simple problem and can be met with a simple solution. It is not. In fact, in my whole research career, I have been dealing with the complexity of fire responses of plants and animals, so that was what really motivated me to make a submission.*
>
> *I tried to examine why it was that this simplistic response appeared. It seems to me that all commentators and critics lost sight of the fact that management actions for a parcel of land, whatever the land is, need to be tied to the objectives of that land. For a lot of the national park land and other conservation lands such as conservation lands within the State Forest Estate, the objective is to protect and conserve natural heritage and that natural heritage includes the native plants and animals … So, this is a very complex situation, with no simple solutions, and we have known this for decades … We have known that the problem of conserving native plants and animals, and also protecting human life and property, is a challenging one and a complex one ...*
>
> *I am frankly surprised at the emphasis given to frequent hazard reduction burning, in this debate, that has been running at the moment. The reason I am surprised at it, is that the research community in the area of fire ecology has accepted for many years, that a broad scale application of frequent hazard reduction burning or frequent burning of any sort, frequent wildfires would be just as bad, the high frequency of that is going to have detrimental impacts on biodiversity conservation.*
>
> *… the research frontier in that area now is looking at other aspects of fires and the impact of other aspects of fires and frequency, namely, the effect of burning in different seasons of the year, the effect of different levels of patchiness of a fire. Those are issues that are now occupying the attention, worldwide, of fire ecologists, because there was an acceptance that if one applies high frequency fire, effectively, across a whole landscape, it will be detrimental for the biota, for some elements of the biota.*
>
> *… The intention as I understand it, of several agencies, including the Rural Fire Service of focusing attention close to life and property areas, is to make it possible to defend people and properties in areas (adjacent to National Park reserves). ..if you are an agency like the National Parks and Wildlife Service, compromising in that boundary zone, your primary conservation objective for the socio-economic benefit…. in itself, that does not also achieve the other side, which is preventing the fire from burning through that protection zone at the boundary and into the reserve. No*

guarantees with wildfires, and so while we might be satisfying one management objective quite rightly by focusing our attention on the boundaries, we have got to find a better way than just that boundary area, to protect against frequent wildfires within reserves.

The Hon J.S. TINGLE: *Are we suggesting in fact, that we may be facing two needs which are incompatible?*

Professor WHELAN: *Or may need different types of solutions and to my mind, a big emphasis on reducing the number of ignitions somehow would go a long way to helping us out, because it is not to say we do not need to do the hazard reduction, we would continue to do that, to protect installations and protect other resources...*

Committee members questioned Professor Whelan about acceptable frequencies for the conduct of prescribed burning.

The Hon A.B. KELLY: *One of the people this morning, Kurrajong, some of the submissions suggest hazard reduction should be done say every three years to be effective, but the people this morning from Kurrajong said that they way they do theirs, where it is possible, I know this is not possible everywhere, is that they get enough land that they can stagnate it, if you like, and do it in a mosaic pattern, so you might have one block that they do, every five or six years, say six years, and then another block behind that that they do every six years, so effectively-*

Professor WHELAN: *They all sort of alternate.*

The Hon A.B. KELLY: *– they only come round every twelve years to each block.*

Professor WHELAN: *Yes.*

The Hon A.B. KELLY: *But they have still got that sort of buffer. They do not actually burn the same block every six years, they might do this one or the next one.*

Professor WHELAN: *Yes. I think that is a really nice idea, that is well worth exploring, and one would hope that the Bushfire Management Committees would be the groups that could explore that for a particular area, because it is going to be site specific, how possible that is.*[13]

Professor Whelan said the 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. He said:

The urban areas of Sydney and Wollongong are ringed by large conservation areas; a World Heritage Area, several national parks and water catchments. As stated in their Corporate Plan, the principal objective of the agency responsible for most of these lands, the National Parks and Wildlife Service, is to protect and conserve natural and cultural heritage. This includes conservation of biodiversity and species and communities that are listed as vulnerable and endangered.[14]

13 Transcript of Hearing, Friday 31 May Hearing at pp. 33-34

14 Prof. Rob Whelan, University of Wollongong, Submission No. 133 at p.2

Professor Whelan said there was a lack of knowledge about the detailed fire responses of many vulnerable and endangered animal and plant species. Conservation of biodiversity was likewise challenged by insufficient information.

In his submission Professor Whelan said that although incomplete, research has revealed many plant and animal species that are threatened by too frequent fires even though they evolved with fire as a natural disturbance.

> *Some plant species have seeds that are protected from the heat of fire in the soil or in cone-like fruits, but the adult plants themselves die when burned, even in a low intensity fire. It is the 'juvenile period' (the time needed for the new recruits to develop a seed bank of their own) that is critical for these species. A second fire occurring during this time could spell extinction. The juvenile period can exceed 10 years for some species.*[15]

He said that although it is undoubtedly true that fuel reduction can reduce fire intensity and rate of spread, achieving sufficient fuel reduction may require such frequent burning (perhaps every five years or even less in some vegetation types) that the primary conservation objective of the land must be compromised.

Professor Whelan strongly recommended the establishment of a unified research effort in fire and biodiversity to be integrated with the Commonwealth proposal to establish a national bushfire research centre to study all aspects of managing and preventing bushfires.

The submission by State Forests of New South Wales underlined the lack of relevant scientific research programs that examined the impact of hazard reduction burning. It said that much of the completed and current ecology research dealt with flora and fauna life cycle analysis and responses to fire rather than the impacts of hazard reduction burning. The submission said that small plot scale research did not closely simulate the outcomes of hazard reduction over larger areas. The submission said it was not valid to extrapolate the findings of such research to predict the impact of hazard reduction burning regimes.

State Forests said that long term high cost research programs would be required but that over the last decade such programs had been rarely designed due to the anticipation that they would fail to attract funding support. The submission cited the Eden Burning Study Area experiments commenced by State Forests in 1987 as the only long-term operational scale experimental program being conducted in NSW into the impact of hazard reduction burning programs. The report on the outcomes of this continuing study is in preparation and should be released during 2002.

State Forests said that fire ecology research into the life-cycles of flora and fauna and their responses to fire provide useful information to assess the typical "fire free" periods required by different ecological communities to re-establish their pre-fire populations and regenerative capacity. It said that fire intervals are considered too short if one or more of the species in a community is unable to maintain viable populations over time as a result of that fire frequency. State Forests said the application of this research in NSW was in its infancy and that fire regime guidelines in various forms in agency management plans

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[15] Prof. Rob Whelan, University of Wollongong, Submission No. 133 at p.3

are in fact yet to be tested hypotheses. These guidelines, it said, were based on " worst case scenario" assumptions, which in its opinion were likely to be over-conservative.

Mr Noel Cheyney, a CSIRO Research Scientist who specialises in fire behaviour, and consultant for State Forests, commented as follows on the aspect of different ages after fires in his evidence:

> ***Mr Cheyney:*** *The balance for ecological management I believe is getting the right proportions of different ages after fire and maintaining those across the landscape to suit as many of the environmental benefits as possible. It is a truism that you cannot have everything on the same piece of land. As I said earlier, an area for flora and fauna that requires burning every couple of years in many people's minds is just as important as areas which are long unburnt and hold different flora and fauna.*[16]

NPWS in their submission gave examples of the environmental impact of different fire regimes. The first example concerned the Royal National Park. The 2001-02 fires burned about 65 per cent of the area of the park and occurred relatively soon after extensive fires in 1988 and 1994. As a result of this NPWS said that a considerable proportion of the park is now subject to a regime of high frequency fire on average of 8 years or less. The bulk of vegetation in these reserves, says the Service, is a complex mosaic of heaths, woodlands and open forests with strong shrubby and floristic affinities. NPWS said that considerable local and international research indicates that floristic diversity may decline when intervals between fire are about 8 years or less or fire is absent for more than 30 years. In the case of the Royal National Park NPWS interprets the present fire regime "to be threatening to biodiversity at the level of the whole landscape" and that decline of common species of plants and condition of animal habitats have occurred as a result.

NPWS said that the Blue Mountains National Park provided a contrasting scenario. The area was extensively burnt in 2001-2 and prior to that by a wildfire of similar extent in 1977. Considerable prescribed burning had occurred in the past 7 years. The average interval between fire over the bulk of the landscape is between 10 and 30 years. NPWS said that the 2001-02 fires and some recent prescribed fires in 1999-2000 can be considered to have been highly beneficial to biodiversity as they had extensively re-burned areas last burned in 1977, a fire interval of about 24 years.

The committee also noted the reports on the forest fires raging in Arizona and Colorado as this report was being compiled. The environmental destruction there, as fires are fuelled on undergrowth allowed to grow uncontrolled for periods of up to 40 years, invites speculation about the ultimate cost to biodiversity of NOT carrying out planned hazard reduction.

13.1 BIOPHYSICAL PROCESSES

Fire can severely impact soil structure, by destroying the organic matter in the soil, and by exposing the soil to erosion through the impact of wind and rain, and by the loss of essential nutrients and trace minerals through heat and leaching.

In water supply catchment areas, soil erosion can impact water quality and flow as streams and dams receive washaway soil and become silted.

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[16] Transcript of Hearing, Monday 3 June 2002 at p.14

Ash and debris from bushfires can also impact water quality.

The Committee noted that controlled, cool burns for hazard reduction purposes appears to minimise soil damage, by leaving the soil structure and humus content intact, while destroying the flammable fine fuel litter.

However, the committee also noted that too frequent low intensity burning may have long term impact on soil formation and stability through the removal of protective litter and shrub cover.

In considering the impact of fire on other biophysical processes, the committee focused on impact on the soil, including destruction of humus in nigh intensity fire, exposure of soil to the impacts of wind and rain, causing dispersion and erosion of top soil, the destruction or leaching out of essential minerals and trace elements from unprotected soils, and the impact of siltation as well as wind-borne contaminants on water courses, particularly those important to water supply catchment areas.

A submission from the Department of Health noted that there was as yet no conclusive evidence that the Christmas 2001 bushfires had caused an increase in asthma or other breathing difficulties over the period, although a study is currently in progress.

Data collected from 50 hospital emergency departments demonstrated a significant increase in attendances for asthma, chronic bronchitis and respiratory distress in adults during the Christmas 2001 bushfire period compared to the same period for the previous three years. However, the Department regards these indications as preliminary, and before attributing the effect to bushfires is undertaking a more definitive analysis of the impacts of particle pollution on health The analysis is expected to be completed by early 2003.

13.2 APPLICATION OF RESEARCH, TECHNOLOGY AND MANAGEMENT TECHNIQUES TO MINIMISE THE IMPACTS

Professor Whelan said that land managers with reserves containing some plant species with long juvenile periods and some animal species that require dense understorey vegetation are faced with a compelling prediction that too frequent fires applied uniformly across the landscape will reduce biodiversity. Nevertheless, says Professor Whelan, they are expected to contribute to the protection of lives and property of neighbours and to conserve biodiversity within conservation reserves. He says that one strategy, which showed promise, is directing fire management activities at the boundaries between urban areas and adjacent bushland. To determine whether this can be effective at protecting people and houses he urged the collection and analysis of relevant data. This current practice however did not appear to defend large bushland areas from fire burning into them. This was an increasing problem for near city national parks, he said.

In its submission under the heading "Planning to minimise environmental impacts" State Forests said that its Regional Fuel Management Plans "identify threatened species and/or habitats that are likely to occur in areas that are deliberately burnt and likely, as individual organisms or sites to be affected by prescribed burning and present in such limited numbers or sites that regional populations may be affected." It said Regional Plans direct the preparation of site specific plans that minimise adverse impacts on these species or habitats.

NPWS is also currently involved in producing fire management plans for all fire prone reserves in the state. This totals about 220 plans, of which all but 17 were complete at the time of the Inquiry. NPWS reports that a major impetus for this planning project is biodiversity conservation.

In an Abstract of its approach the Service says this project represents the first attempt by the Service to systematically develop and implement wide-ranging principles of biodiversity conservation that encompass contemporary concepts of fire ecology, vegetation dynamics and conservation biology.

> *The fire-planning approach currently under implementation hinges on three elements: definition of clear objectives for conservation, presence of reasonable information about the distribution of biodiversity within a reserve, and concise guidelines demarcating desirable from undesirable fire regimes. The latter guidelines are intended to summarise relevant information about the fire ecology of broad groups of biota. The intention of these guidelines is to stimulate thinking about appropriate fire regimes rather than to function as a rote prescription. The focus is on demarcating the domain (thresholds) of desirable fire regimes for biodiversity rather than definition of some optimum set of fire regimes .*
>
> *It is emphasised that use of thresholds for biodiversity is a first step, rather than an ultimate step, in planning for conservation. By summarising available knowledge, such guidelines provide a platform for monitoring and experimental management. The latter steps are a mandatory part of the process of learning from our actions and experiences.*

In his paper, *Thresholds for biodiversity: the National Parks & Wildlife Service approach to planning of fire management for conservation,* Dr Bradstock said that the body of knowledge concerning fire science was expanding rapidly and that summaries of such knowledge were available at various reference sites. Despite these aids, he said, the application of available knowledge in planning is poor.

> *In part this may reflect lack of time for professional and non-professional people to digest, synthesise and apply the fruits of knowledge to their patch. For many people the task is understandably massive and bewildering. In part it also reflects a failing of professional scientists, whose business it is to keep abreast of such knowledge, to assist practitioners by summarising concepts, developments and case studies that will be of importance to their patch. In short, lack of knowledge, while important in many instances, is not the most pressing problem. Rather it is inadequate use of existing knowledge that is more pressing.*[17]

In general, the variety of views, theories and anecdotal material presented to the committee indicates that there is an urgent need for a more coordinated approach to all fire-related research, and to the dissemination of validated findings.

The committee supports the establishment of the proposed National Bushfire Cooperative Research Centre as the focus of developing practical information about all aspects of fire management and fire suppression for the use of land managers and fire-fighters.

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[17] Dr Ross Bradstock, Senior Research Scientist, NPWS to 1999 NCC Fire Management Conference, Paper on *Thresholds for biodiversity: the National Parks & Wildlife Service approach to planning of fire management for conservation*, at p.13

The committee also considers that access to any analysis of the massive fire events currently raging through the western part of the USA, sometimes through areas of brush up to 40 years old, will be invaluable to those authorities responsible for land and fire management.

In regard to the application of technology and management techniques to minimise environmental impacts of firefighting and fire prevention activity, the Nature Conservation Council of Australia highlighted the importance of factoring post-fire restoration work into bushfire management plans.

The NCC noted that little research was available on the impact of massive water bombing on sensitive areas, even when retardants were not in use.

In the US – and this was announced prior to the massive fires currently ravaging Arizona and Colorado – under the National Fire Plan, an amount of US$102,668,000 has been allocated for "burned area rehabilitation and restoration works" in 2002.

While some funding is available through the NSW Rural Fire Service for such works, not much emphasis has hitherto been placed on planning restoration, and allocating resources to it. Further investigation of the costs and outcomes of such work should be undertaken with a view to considering the development of a such a program within Australia.

13.3 RECOMMENDATIONS – BIODIVERSITY

The committee recommends that:

1. the New South Wales Government endorse the zoning approach involving Asset Protection Zones, Wildfire Strategic Advantage Zones and Heritage Management Zones, as defined in Bushfire Risk Management Plans and Reserve Fire Management Planning, for bushfire hazard reduction.

2. the Bush Fire Coordinating Committee develop a set of agreed guidelines to minimise the impacts on the natural and cultural heritage of wildfire suppression, particularly in relation to the use of earthmoving equipment and fire retardants.

3. the NSW Government supports a national approach to research and technology development as a critical component of continually improving the effectiveness and environmental sensitivity of fire management.

4. the NSW Government welcomes the establishment of a national Cooperative Research Centre devoted to bushfire management, and supports the involvement of major land management agencies and NSW Firefighting authorities as foundation participants.

5. it would be advantageous to bring together all research currently being conducted into the implications for biodiversity and biophysical processes of frequency and intensity of bushfires, and that the NSW Bushfire Coordinating Committee be required to consider how this might be achieved.

6. **any community education and information activity relating to bushfire management should address the fact that, in developing acceptable fire management practices, there will be a need to understand and manage perceived tensions between the objectives of preserving biodiversity and protecting life and property, while maintaining a clear understanding that where there is any doubt, the preservation of life and property is always paramount.**

7. **streamlined processes be established as an integrated part of all fire management plans, to ensure that appropriate rehabilitation is implemented where fire control works have been undertaken on private and public land.**

13.4 RECOMMENDATIONS – BIOPHYSICAL PROCESSES

The committee recommends that:

1. **protection zones continue to be maintained around riparian zones of water courses and lakes throughout the State.**

2. **the Bushfire Coordinating Committee develop guidelines that will enable fire control works to be undertaken in such a way as to minimise environmental impacts.**

3. **the Department of Health be asked to furnish to the Commissioner of the NSW Rural Fire Service a copy of the report of their current study into the incidence of asthma coincidental with major bushfire events, as soon as it becomes available.**

13.5 RECOMMENDATIONS – APPLICATION OF RESEARCH, TECHNOLOGY AND MANAGEMENT TECHNIQUES TO MINIMISE THE IMPACTS

The committee recommends that:

1. **a more coordinated approach to all fire-related research, and to the dissemination of validated findings be supported by the NSW Government.**

2. **the NSW Government supports the establishment of the proposed National Bushfire Cooperative Research Centre as the focus of developing practical information about all aspects of fire management and fire suppression for the use of land managers and fire-fighters.**

3. **the Commissioner of the NSW Rural Fire Service seek access to any analysis of the massive fire events currently raging through the western part of the USA, in order to apply any key lessons to fire management within NSW where appropriate.**

4. **the Commissioner of the NSW Rural Fire Service,in assessing the adequacy of the bushfire management planning process at district level, consider the degree to which contingency planning for post-fire restoration work has been included in bushfire management plans.**

5. **a review be undertaken by NPWS of any research into the impact of massive water bombing on sensitive conservation areas.**

6. **the Minister for the Environment explore at Federal level, the viability of the establishment of a funded program similar to that within the US National Fire Plan, an for "burned area rehabilitation and restoration works".**

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14 THE CAUSAL FACTORS OF THE BUSHFIRES INCLUDING AN INVESTIGATION OF LAND USE DECISIONS, DEVELOPMENT PLANNING, AND THE RESPONSIBILITIES OF PROPERTY OWNERS THAT WILL REDUCE BUSHFIRE RISK AND THE ENVIRONMENTAL IMPACT OF BUSHFIRE MANAGEMENT.

14.1 BACKGROUND

Although the investigation of point of ignition events and location, and whether the 2001-02 fires were the result of natural causes or deliberate or accidental human activity is part of the brief of the Coroner's Inquiry, with investigation of criminal activity associated with the fires being managed by the Police Inquiry code-named TRONTO, the committee received many submissions offering opinion, frequently arising from media reports.

The committee will be guided by the above mentioned expert investigations in defining the actual causes of individual fires

14.2 ATMOSPHERIC CONDITIONS

The committee notes that the bushfires during the period from 3 December 2001 to mid-January 2002 were exacerbated by the extreme weather conditions, featuring 16 consecutive days of high temperatures, very low humidity and strong winds which prevailed in the Sydney Basin area as well as along the South and Central Coast areas

Some submissions indicated that conditions varied across the State, and that the severity of many fires was the consequence of a combination of plenty of fuel on the ground together with hot, dry and windy conditions.

These conditions were conducive to significant spotting of the fires over long distances – up to 3 kilometres according to one report – which made hazard reduction and protective zones less effective, and enabled multiple ignition points and rapid fire-spread over numerous fronts. In such conditions, fires were seen to burn twice across the same area within 24 hours, or even, as reported by Committee member, the Hon Rick Colless MLC, "Across a ploughed field, burning on the organic matter in the soil."

Every state land manager reported incidents of fire ignition on their own tenure, as well as fires crossing from other tenures, so that fire management was conducted on a landscape basis rather than within individual tenures during the 2001-02 fires.

14.3 LAND USE DECISIONS AND DEVELOPMENT PLANNING

One of the striking characteristics of the 2001-02 fires was the impact on deployment of firefighting services necessitated by the rapid expansion of development in the Sydney Basin. There are now large numbers of people living in areas adjacent to bushfire prone parklands, forests and reserves, and, at the time of the fires, areas along the Central and South Coasts were also thronged with holiday makers.

Firefighters, of necessity, were deployed defensively to protect lives and property threatened by fire, rather than being able to go on attack. Although only a close perusal of the Section 44 reports into the conduct and progress of each fire will yield a definitive picture of how this impacted on the firefighters' capacity to attack the fires, it should be

noted that increase in urban populations in close proximity to bushland reserves increases the risk of fire to human lives and property.

As Commissioner Koperberg pointed out, the majority of houses lost during the 2001 fires were generally those where no preparation for fire had occurred.

In the Blue Mountains, houses have been built to capture views, frequently at the heads of gullys, on ridges and facing north west. When the access to these house is also difficult and the water supply not secure, the danger of loss or damage from fire is extreme.

As Ms Sue Goldsmith of Blaxland said in her submission:

> *Please fly over the Blue Mountains and see pockets of houses dotted amongst trees on ridges, where we have allowed thenm to build, and realise how the task of protecting all residents each year from fire is an impossibility. How would anyone know where a fire was going to start? Should they burn the whole National Park every year? Please no!*
>
> *Should Councils be made responsible if they allowed residential development in fire prone areas.*[18]

The Local Government and Shires Association indicated that councils have been inconsistent in their approach to specifying bushfire protection measures within planning instruments, and this has led to instances of inappropriate development in bushfire prone areas. In particular, there have been instances of SEPP 5 developments, without adequate access roads or protection zones, permitted in bushfire prone areas

The events of the Christmas 2001 bushfire emergency demonstrate the need to improve the knowledge and capacity of individual land holders to take steps to prepare for bushfire and prevent loss of life and assets. Community education and public awareness programs are conducted by the NSW Rural Fire Service and NSW Fire Brigades, and there has been a significant upsurge in interest by residents in affected areas wanting to establish a Community Fire Brigade Unit (over 80 new applications since January 2002) or to join the Community Fire Guard.

Well-prepared and knowledgeable residents, whose property is protected appropriately and has a reasonable protection zone around it, stand an excellent chance of coming through a serious fire, especially if sufficient hazard reduction has been done to slow the fire down before it reaches a built-up area.

While giving evidence to the committee on 2 May, a retired Warragamba resident was asked if a recent hazard reduction at the end of his property had been a benefit in his work to keep his house safe.

> ***Mr BARBER:*** *It is benefit with a capital "B". As a matter of fact conditions would have been a bit different if the catchment authority had not burnt down below where we live. We are on about a 20 foot cliff and if they had not burnt there, there was probably about half a metre of fuel laying on the ground because no action had been taken for probably 15 years and it was building up and up. Luckily they had done it*

[18] Sue Goldsmith, Submission No. 34 at p. 1

and that made our job easier. We were quite confident. They closed the road. They said "Everybody is out" and they were not: we were still there but we were quite confident we could handle it.

The Hon. RICK COLLESS: *When the fire came into the burnt area could you notice a reduction in its ferocity?*

Mr BARBER: *My word, yes. We just had a moment of panic and we realised we had it in hand and there was no problem with our emergency tank, pump and all the nasties in our trailer, covered with wet bags and everything and we had no worries at all. We were putting out spot fires either side all the time and that kept us busy.*

The Hon. RICK COLLESS: *What suggestions would you have to somebody that was building a new house in your area in relation to fire prevention measures that should be built into a new construction?*

Mr BARBER: *Give all these shrubs and trees away. We like them but in the paddock area. It is important to keep under the house clean. It is a help just to have lawns. We have not got any shrubs in the garden at all, just lawn.*

The Hon. JOHN TINGLE: *Mr and Mrs Barber, the committee heard in a previous hearing referring to the south coast that most households were simply not prepared to deal with a fire. Your submission says that you have 44 gallon drums filled with water to push over the cliff, a plastic lined trailer to fill with water and you have cleaned out the shed of paints and things. They are extraordinary and unusual preparations you have made and I congratulate you on them. What lead you to go to such lengths? Obviously you are concerned about fire but not many people concerned about fire would go to that length?*

Mrs BARBER: *It is our third bushfire.*[19]

The Barbers stayed with their property while other around them evacuated. They saved two houses as well as their own. It is of concern to the committee that the Barbers also reported that they received no communication from any authority about the progress of the fire or evacuation arrangements.

14.4 RECOMMENDATIONS

The committee:

1. endorses the new and improved Planning Guide, *Planning for Bushfire Protection* now issued jointly by PlanningNSW and the NSW Rural Fire Service.

2. proposes that information sessions be conducted by the NSW Rural Fire Service and PlanningNSW for local council members and officers dealing with development applications to ensure they are fully aware of the provisions of the Guide and of the provisions of the Amendment Act 2002.

[19] Transcript of Hearing, Thursday 2 May 2002 at p.52

3. supports the implementation of the new statutory provision for s.149 certificates issued by councils to identify properties in bushfire prone areas so that purchasers of such property are aware of the risk.

4. acknowledges the work of the NSW Rural Fire Service and the NSW Fire Brigade in community education, and recommends further emphasis be given to educating communities residing in bushfire prone areas about the steps they can take to prepare for bushfires, protect their own property, and prevent loss of life.

5. supports the expansion of the NSW Fire Brigades Community Fire Unit Program and the NSW Rural Fire Service Community Fire Guard Program and the allocation of appropriate resources to this end.

6. acknowledges that fire-awareness and fire-safety education is the responsibility of a range of Government departments and authorities in addition to the land management agencies and the firefighting authorities. The committee recommends a coordinated approach, similar to the Water Safety campaigns, directed at the general community, in addition to specific bushfire protection programs targeted at communities in fire risk areas.

The committee recommends that:

7. the NSW Rural Fire Service prepare and distribute information about the statutory requirements of the hazard reduction approval process and potential legal and liability issues for individual land owners in the conduct of hazard reduction burning on their own property.

8. the legal responsibility of owners and occupiers for any loss or injury arising out of those persons performing hazard reduction in accordance with the Rural Fires Act be referred to the Crown Solicitor for advice. The extent of the cover provided by the usual house and contents policy of insurance for this type of loss or injury should be investigated.

9. the NSW Rural Fire Service examine and report to the Minister upon the availability of members of the NSW Rural Fire Service or other protected persons, including officers of local councils, to carry out hazard reduction work on behalf of owners and occupiers so as to afford them the protection contained in s.128 of the *Rural Fires Act 1997* or s.731 of the *Local Government Act 1993*.

14.5 RESPONSIBILITIES OF PROPERTY OWNERS

The development in the Sydney Basin over the last 30 years has seen a considerable increase in urban populations within a 150 kilometre radius of Sydney, along the Central and South Coasts, and East into the Blue Mountains. Consequently, there are now large numbers of people living in areas adjacent to bushfire prone parklands, forests and reserves.

While priority will always be given to the preservation of life and property during a fire, that the increasing number of residents living close to the bush in bushfire prone locations requires a greater concentration of firefighting resources at these places to defend them. This reduces the number of fire fighters able to be deployed on direct attack at the fire front.

Although community education and public awareness programs are conducted by the NSW Rural Fire Service, the events of the Christmas 2001 bushfire emergency demonstrate the need to improve the knowledge and capacity of individual land holders to take steps to prepare for bushfire and prevent loss of life and assets.

The committee heard evidence that houses lost during the 2001 fires were generally those where no preparation for fire had occurred. It also heard that the training and equipment provided through the Community Fire Unit Program to individual house-holders were instrumental in the saving of many threatened buildings.

The committee notes that excellence in firefighting, demonstrated by the firefighting teams from around Australia and New Zealand during the Christmas 2001 emergency, may have deflected the attention of the community from the importance of preventive and protective activity by individuals.

14.6 RECOMMENDATIONS – RESPONSIBILITIES OF PROPERTY OWNERS

The committee:

1. acknowledges that the work of the NSW Rural Fire Service and the NSW Fire Brigade in community education, and recommends further emphasis be given to educating communities residing in bushfire prone areas about the steps they can take to prepare for bushfires, protect their own property, and prevent loss of life.

2. supports the expansion of the NSW Fire Brigades Community Fire Unit Program and the NSW Rural Fire Service Community Fire Guard Program and the allocation of appropriate resources to this end.

3. acknowledges that fire-awareness and fire-safety education is the responsibility of a range of Government departments and authorities in addition to the land management agencies and the firefighting authorities. The committee recommends a coordinated approach, similar to the Water Safety campaigns, directed at the general community, in addition to specific bushfire protection programs targeted at communities in fire risk areas.

The committee recommends:

4. that the NSW Rural Fire Service prepare and distribute information about the statutory requirements of the hazard reduction approval process and potential legal and liability issues for individual land owners in the conduct of hazard reduction burning on their own property.

5. that the legal responsibility of owners and occupiers for any loss or injury arising out of those persons performing hazard reduction in accordance with the Rural Fires Act be referred to the Crown Solicitor for advice. The extent of the cover provided by the usual house and contents policy of insurance for this type of loss or injury should be investigated.

6. **that the NSW Rural Fire Service examine and report to the Minister upon the availability of members of the NSW Rural Fire Service or other protected persons, including officers of local councils, to carry out hazard reduction work on behalf of owners and occupiers so as to afford them the protection contained in s.128 of the *Rural Fires Act 1997* or s.731 of the *Local Government Act 1993*.**

15 THE ADEQUACY OF EQUIPMENT AVAILABLE TO, AND TRAINING OF, RURAL FIRE BRIGADES.

15.1 EQUIPMENT

There has been a significant increase in both the quantity and quality of firefighting equipment provided to rural fire brigades since 1994, and that this was generally acknowledged in submissions received by the Inquiry.

All evidence given supported the finding of the Upper House Inquiry into the NSW Rural Fire Service in 2000 that:

> *… there is a wide range of vehicles available to suit all terrains…that the current range of tankers and equipment available are appropriate and adequate based on on-going research.*

Funds of $550M have been allocated to the Rural Fire Service since 1994. including $155M for the purchase of 1,844 tankers, and the tanker upgrade and replacement program is proceeding as scheduled. There are some 15 categories of tanker with variations designed to meet the topographic, geographic and demographic needs of the brigades to which they are supplied. Submissions told of replacement of vehicles manufactured in the 1940s and ‘50s.

Although there were reports of delays in replacing vehicles in some areas and concerns about the suitability of certain materials used in the manufacture of some tankers, such as plastic interior fittings, there was universal acknowledgment that visible and practical progress was being made and an understanding of the need to apply prioritisation to the allocation of equipment.

In 2002-03. the NSW Rural Fire Service will receive operational funding of $120.7M. In1994-95, the amount was $50.7M

Although communications equipment and processes are seen to have improved since the 1994 bushfire emergency, with a multi-tier communications system now in use, consisting of a network of the GRN, Private Mobile Radio, Ultra High Frequency and Very High Frequency radios. However a number of difficulties with centralised decision making and slow responses were raised in submissions. These instances have been referred to the Commissioner.

In keeping with its commitment to the safety of fire fighters, the NSW Rural Fire Service has initiated the development and use of more effective protective clothing that enhances resistance to radiated heat while allowing body heat to escape. Several submissions from firefighters acknowledged the quality of the protective clothing now issued to them.

As Commissioner Koperberg pointed out, problems with minor components in equipment, or compatibility of interstate firefighting equipment with NSW fixtures were being progressively addressed.

The committee was generally satisfied that planned improvements and equipment upgrades were proceeding to schedule.

15.2 RECOMMENDATIONS – EQUIPMENT

The committee recommends that:

1. **the current strategy of replacement and upgrade of tankers and other equipment continue, with a full review of adequacy of equipment to be undertaken in conjunction with a stocktake in June 2003.**

2. **the use of plastics in firefighting vehicles be reviewed.**

3. **there is a continuing focus on ensuring compatibility of all equipment amongst the firefighting services of the various States of Australia.**

15.3 FINDINGS – TRAINING

The committee acknowledges that in 2000-01, 45,000 active firefighting volunteers dedicated almost 240,000 person hours to formal training at District level, with many also attending courses at State and Regional level, and endorses the finding of the Upper House Inquiry of 2000 that *… the provision of training has greatly improved and increased … and that the training meets the health, safety and welfare requirements of volunteers, and provides appropriate skills to perform effective fire suppression.*[20]

The committee notes that the conduct of hazard reduction burning is an essential aspect of the training of all fire fighters. It also notes the importance of training local personnel in the conduct of command centres during bushfire emergency so that strategic decisions are made in full awareness of local conditions.

15.4 RECOMMENDATIONS –TRAINING

The committee recommends that:

1. **appropriate training for firefighters should continue to be provided at all levels.**

2. **all active firefighters be encouraged to participate in hazard reduction burning exercises in order to obtain practical experience in fire behaviour.**

3. **training related to working effectively and safely with aircraft in fire detection and suppression activities be a mandatory component of advanced fire fighter training.**

[20] Report on the Inquiry into New South Wales Rural Fire Service, Legislative Council General Purpose Standing Committee No. 5, Report No. 6, June 2000 at p.64

16 THE ADEQUACY OR OTHERWISE OF BUILDING REGULATIONS CURRENTLY IN OPERATION IN NEW SOUTH WALES WITH PARTICULAR EMPHASIS ON THE AUSTRALIAN COMMUNITY BUSHFIRE SAFETY STANDARDS FOR HOUSES.

Section 80A(11) of the *Environmental Planning and Assessment Act 1979* provides that a development consent is subject to such conditions as may be prescribed by the regulations.

Clause 98 of the Environmental Planning and Assessment Regulations 2000 prescribes, in relation to a development consent that involves building work, that the work must be carried out in accordance with the requirements of the Building Code of Australia.

The Building Code of Australia provides design and construction standards for new buildings and the refurbishment of existing buildings. It is a nationally uniform building code, which has been adopted by all Australian states and territories. It sets minimum standards for design and construction of buildings in relation to health, safety and amenity. The code contains both performance-based standards and prescriptive standards. The former requires buildings constructed in designated bushfire prone areas to be designed and constructed to reduce the risk of ignition from a bushfire while the front passes. The prescriptive or deemed to satisfy provisions require compliance with Australian Standard AS 3959 – 1999: Construction of buildings in bush-fire prone areas.

In 1999 a new version of AS 3959 was published which contained measures to improve the performance of structures subjected to radiant heat and possible flame contact as well as for burning debris. The previous version only addressed attack from burning debris. The Australian Building Codes Board [ABCB] in its submission said that research and development of several issues dealt with in the standard is ongoing. One of these is the methodology for assessment of bushfire attack.

The ABCB stress that mandated construction standards must be supported by other strategies such as subdivision planning, community education initiatives, mitigation strategies, site and building maintenance and emergency response operations.

The Australian Property Institute in its submission and evidence said that conditions in development consents often imposed a higher standard than was set out in AS 3959 in respect of bushfire propensity. The Institute believes the reason for this is that bushfire committees for separate local government areas give varying advice to the council as the consent authority when the development application is referred to the fire committee for comment. The Institute says the possible reasons for this are that fire committees consider the standard is inadequate or that local circumstances dictate other requirements.

The Institute supports clear guidelines in building regulations applied on a statewide basis.

On this issue the ABCB is of the view that standards for construction of buildings in bushfire prone areas should be applied in a nationally consistent manner with appropriate allowance for different climatic conditions and vegetation types.

> *National consistency in technical building requirements contributes to a more efficient and effective building and construction industry, whilst achieving a level of risk mitigation commensurate with community expectations.*
>
> *A nationally consistent approach also allows prioritisation and coordination of research activities on a scale that would be impossible in an environment with a plethora of locally developed standards.*[21]

Ms Susan Holiday, Director General, Planning New South Wales, in her evidence said that the point made concerning the additional requirements being imposed by councils will have to be looked into but that we had to accept that there are many different circumstances where there are individual situations that cannot be prescribed from Sydney.

Following a question from the committee Ms Holiday acknowledged that one of the biggest challenges concerned existing unsuitable buildings in bushfire prone areas.

> ***Ms HOLIDAY:*** *I think that is one of the biggest challenges because obviously there is no obligation under the SEPP or anything that we can force existing home owners either to change their houses or reconstruct their houses to meet what is now modern practice. We have learnt a lot. It has to be acknowledged that since 1984 when we first issued our 117 direction and guidelines to councils that we have learnt an enormous amount and technology and science has improved significantly. I think it is part of the education program that we need to support and Rural Fire Service and ourselves are looking at what more we can do to educate the community about the importance of these issues. It is very easy to go into a beautiful bushy area and say, well, there has not been a fire here for five years, there never will be, and to be, in a sense, potentially complacent about the importance not only of protecting your property but also of adjusting your property to come up to modern standards.*
>
> *We think the obligation under section 149 to notify potential purchasers that the area is in a bushfire hazard area will alert potential owners. It might be that bringing your house up to standard or at least ensuring that you are well prepared is something that every home owner will want to do, particularly if they are interested in selling their property and being a responsible member of that community. I think the local community network that the Rural Fire Service generates and trying through an education program of talking to that community and talking about responsible homeownership will help people over time adjust their properties and adjust the maintenance regime of their properties to pick up some of the more modern practices. But I do not see how we can go back and require property owners to change the materials or to force them to update their properties. It is more a question of making them responsible so that they will want to over time invest in upgrading their properties.*[22]

The committee considers this issue should be examined by the Minister to see what options, such as insurance rebates, or programs might be appropriate to encourage persons in bushfire prone areas to upgrade their properties to meet the specifications and requirements of AS 3959.

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21 Australian Building Codes Board, Submission No. 151 at p.

22 Transcript of Hearing, Friday 3 May 2002 at p.17

The Sutherland Shire Council in their submission say that it is not possible to assess the adequacy of the existing bushfire construction standards at this time because the current standard was only called up for use in NSW from January 2000. The submission says that while the Sutherland Shire has implemented bushfire construction requirements since 1994 the localities where dwellings constructed to these standards are located have yet to be impacted upon by a major fire.

The major NSW land managers in their submissions or evidence to the committee generally endorsed the contents of the Australian Standard.

However an examination of Australian Standard 3959-1999 by Mr Peter Ellis of CSIRO Forestry and Forest Products, has disclosed some possible weaknesses that bear examination. At the request of the committee he provided the following summary.

1. *The risk of loss of property during bushfires depends not only on separation distances between houses and vegetation and construction standards but also on the standard of maintenance of house and garden, resident preparedness, access and resources including water. In bushfire-prone areas it is possible to minimise, but not eliminate, this risk.*

2. *Most houses are destroyed by ignition from embers which penetrate through gaps or through windows that are broken by radiant heat or by airborne debris. Other causes include the ignition of external timbers, combustion of adjacent sources of fuel and house-to-house spread.*

3. *A "sensible" separation distance between a house and "the bush" (viz un-managed vegetation) is required not only to ensure that the structure is not damaged or ignited by radiant heat, but also to reduce:*

    - *the numbers of embers landing on the structure,*
    - *the risk of damage to windows by air-borne debris,*
    - *the risk to residents so that they can extinguish external ignition points, and*
    - *the risk to fire-fighters attending the home.*

4. *The Planning for Bushfire Protection 2001 document prescribes minimum separation distances (Tables 4.1 and 4.2) between New developments and "bush", which are based on a model of radiant heat in front of a bushfire (Ellis 2000). The expected intensity of the bushfire is calculated for the given vegetation type carrying its theoretical equilibrium fuel load, and slope, and for a fire danger rating of "extreme". For Infill development this Planning document prescribes minimum separation distances which are dependent on category of bushfire attack, and hence vegetation type and slope (Table A3.3). The document recommends that Australian Standards AS3959-1999 be applied for all cases within areas defined as bushfire prone. The aim of the standard is to prescribe four levels of construction, which will correspond with four categories of bushfire attack. Where construction standards and separation distances cannot be met the Planning for Bushfire Protection 2001 document states that an applicant may achieve "a more appropriate performance standard" in consultation with Rural Fire Service officers.*

5. *The application of Planning for Bushfire Protection, in conjunction with the AS3959-1999 document, has the aim of matching the standard of construction*

with the category of potential bushfire attack. Thus the documents have the potential to reduce the risk of damage to or loss of structures and the loss of human life.

6. *However, in some situations, the application of Australian Standard AS3959-1999 at the minimum separation distances recommended (Tables 4.1 and A3.3) in Planning for Bushfire Protection could result in a structure being sited such that the modelled radiant heat exceeds its design standards. In these cases the model shows that standard windows, which are allowed in Construction Levels 1 and 2, will be inadequate.*

7. *Australian Standards AS3959-1999 is based on construction standards alone and does include consideration of the additional factors listed above (Point 3). This allows buildings which are built to higher standards to be sited at correspondingly closer distances to "bush". Closer siting implies that residents who evacuate buildings in panic or under direction may be exposed to higher levels of radiation and heat than would otherwise be the case. Thus it is possible that if structures are sited at the minimum distances prescribed in Table A3.3 that structures, residents and fire-fighters will be exposed to additional risks which are not acknowledged in the standard.*

8. *The NSW Rural Fire Service recognise possible shortcomings in the application of AS3959-1999. They also recognise the need to address the issues of assessment of bushfire attack and the inadequacy of the available fire-retardant treatment for timber.*

Standards Australia AS3959-1999 does not prescribe minimum separation distances between houses. This may be a weakness as house-to-house spread is a significant cause of property damage during bushfires.

A full copy of the information provided to the committee by Mr Ellis as attached at Appendix 6.

The committee agrees that the possible weaknesses in AS3959-1999described in this overview will need examination by the Australian Buildings Code Board.

The committee notes that new section 79BA of the Rural Fires and Environmental Assessment Legislation Amendment Bill 2002 prevents development consent being granted for building work on bushfire prone land unless the consent authority is satisfied that the development conforms to the specifications and requirements of Planning for Bushfire Protection 2001 or has consulted with the Commissioner of the New South Wales Rural Fire Service.

Under this provision the consent authority can depart from the requirements of *Planning for Bushfire Protection 2001* (one requirement of which is compliance with BCA and AS 3959) provided that it has consulted with the Commissioner concerning the relevant protective measures to be taken. This provision conflicts with the requirements of section 80A of the Environmental Planning and Assessment Act and clause 98 of the Environmental Planning and Assessment Regulations because under those provisions a development consent that involves building work is subject to the mandatory requirement that it is carried out in accordance with the Building Code of Australia.

The committee also notes new section 79BA does not oblige the consent authority to include in its consent the protective measures proposed by the Commissioner, simply to consult upon them.

16.1 RECOMMENDATIONS

The committee recommends:

1. that the Australian Buildings Code Board examine the weaknesses in the Australian Standard identified by the CSIRO, and amend the standard as appropriate.

2. the development of standard training programs for council staff dealing with development applications in bushfire prone areas to ensure the efficient and uniform application of the *Planning for Bushfire Protection* guidelines, and BCA/AS 3959 – 1999.

3. that the Minister for Planning examine the apparent conflict between the *Environmental Planning and Assessment Act* and regulations (s.80A and cl.98 respectively) which require as a condition of consent that building work be carried out in accordance with the Building Codes Australia, and the new s.79BA inserted by the NSW Rural Fires and *Environmental Legislation Amendment Bill 2002* which allows development consent to be granted where it does not comply with Planning for Bushfires Protection 2001 provided there has been consultation with the Commissioner of the NSW Rural Fire Service as to protective measures.

4. that the *Planning for Bushfire Protection Guidelines* continue to be reviewed and updated as new research about fire impact on buildings come to hand, and re-issued or affirmed at least every two years.

5. that the Royal Botanic Gardens in conjunction with National Parks and Wildlife Service, State Forests and local councils consider issuing a guide to plants suitable for use in bushfire prone areas, and to develop a nursery labelling system to identify the combustibility of plants.

6. that PlanningNSW together with relevant local councils and the NSW Rural Fire Service, give consideration to encouraging homes in bushfire prone areas to install fireproof rainwater storage tanks.

7. that the NSW Rural Fire Service, together with local councils, develop strategies to encourage owners of properties in bushfire prone areas to upgrade and improve the bushfire preparedness of existing buildings.

8. that the Commissioner of the NSW Rural Fire Service undertake discussions with the Insurance industry regarding the introduction of a system of rebates in premiums, or similar incentives, for building insurance to reflect the degree of bushfire preparedness of individual dwellings, in the same way that premiums are adjusted when standard security measures are in place.

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17 THE USE OF AIRCRAFT IN FIREFIGHTING.

17.1 BACKGROUND

Aircraft were initially used for the transport of crews in and around fires and to insert them into what would otherwise be inaccessible terrain. As the fire-bombing capacity of aircraft became more widely recognised, research was undertaken into the development of more effective systems.

While the importance of the use of aircraft during fire management operations should not be understated, it should also be recognised that they are but one tool in the management of bushfires. Without the backup support of ground crews, the use of aircraft alone is ineffective.

Aircraft play a pivotal role in fire management including, but not limited to, the reconnaissance of fires; transport of both crews and equipment; early detection of fires; and aerial incendiary dropping. Throughout the inquiry, it became apparent to the committee that there are differing views on the most effective ways to use aircraft in firefighting.

During the 2001-02 campaign, 109 aircraft were utilised (an unprecedented level of aircraft use in New South Wales).

17.2 THE ROLE OF AIRCRAFT IN FIRE FIGHTING

Since 1994, the use of aircraft has increased considerably and a strong emphasis has been placed on flexibility, particularly in:

- the effective integration of aircraft into fire management with dedicated personnel to manage aircraft;
- improved communications; and
- training in effective and safe use of aircraft.

Fire fighting aircraft (including both helicopters and fixed wing) are used in:

- fireground reconnaissance;
- detection of fires;
- transport of crews and equipment;
- aerial incendiary dropping;
- remote sensing for hotspots;
- aerial ignition;
- equipment insertion;

- fire mapping;
- air attack supervision; and
- water and foam/retardant dropping.

The use of aircraft in the 2001-02 fire season *demonstrated that appropriate use of aviation resources significantly enhances the fire protection capabilities of fire combat agencies.*[23] The early detection of fires and the rapid initial attack by aircraft aided containing fires, with serious potential, to small areas.

Aircraft are increasingly providing a greater role in fire management. Aircraft are no longer limited to fire bombing. They now provide valuable assistance to ground crews in implementing strategies to impede the progress of a fire.

17.3 STATEWIDE APPROACH TO THE USE OF AIRCRAFT

Currently, in NSW, the hiring and tasking of aircraft is not coordinated, except in times of extreme fire activity.

There is a need for an agreed interagency protocol for the use of aircraft, and this should be considered in the development of a Statewide approach to the use of aircraft in firefighting.

17.4 NATIONAL APPROACH TO THE USE OF AIRCRAFT

The Australasian Fire Authorities Council[24] [AFAC] is developing a "National Aerial Firefighting Strategy" on behalf of the Commonwealth, State and Territory Governments'. It is expected that the AFAC will provide a report to the government (Cwth) by June 2002.

> *The project will be conducted in two stages. The first of these is to identify the current capacity for aerial fire suppression as it exists around the nation. This will establish the basic level of coverage throughout the nation. Additionally, the need to provide "High performance aircraft will be addressed, as well as options for the funding of this equipment. The final step in this first stage is to establish protocols for sharing these resources on a "mutual aid" basis in times of emergency.*
>
> *The second phase of the project is to review the range of technologies and strategies available to determine whether there is a need for coordinated national approach to aerial firefighting and the best means to provide it.*[25]

The committee supports the State's participation in the development of the National Aerial Firefighting Strategy.

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23 National Parks and Wildlife Submission No.120 at p.54

24 The peak body representing all firefighting agencies in Australia.

25 Australasian Fire Authorities Council, AFAC Newsletter, Number 4, May 2002.

17.5 FIRE BOMBING

♦ What is Fire Bombing?

Fire bombing is described as *the dropping of liquids from aircraft to assist in the suppression of fires*.[26]

The liquids, usually a mixture of di-ammonium phosphate, ammonium sulphate, or Class A foam, are dropped from aircraft onto the fire.

♦ The Effectiveness of Fire Bombing

The use of aircraft has been demonstrated to be effective in the suppression of a fire, particularly in remote and/or inaccessible terrain. However, backup of ground crews to complete mop-up operations are essential for effectively extinguishing the fire. In their submission to the committee, NSW Rural Fire Service states:

> *... they **must** be supported by ground based troops, and their usage **must** be confined to fires with intensities not much more than about 3500 kw/m. If the intensity is any higher, using aircraft is a complete waste of time, money and effort.*[27]

While fire bombing slows a fire's development, it rarely puts a fire out. State Forests reiterate this in their submission to the committee:

> *Fire bombing is ineffective at stopping the forward spread of Eucalypt forest fires of moderate to high intensity ... and is also ineffective for containment of long lines of active fire, even at lower intensities.*[28]

Other factors to be considered are the turnaround times and the availability of fuel, water and/or retardants.

> *Turnaround times are critical to firebombing effectiveness. Distance to the fire, response time, availability of fuel, water, foam or retardant are key factors affecting the potential success of fire suppression and need to be actively considered.*[29]

Fire bombing is most effective in:

- limiting the spread of fire in remote or inaccessible situations pending on the arrival of ground crews;
- direct support of ground crews in:
  - assisting in back burning operations by dowsing "jump-overs".

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[26] State Forests NSW, Submission No. 146 at p.50

[27] NSW Rural Fire Service, Submission No. 149 at p.31

[28] State Forests NSW, Submission No. 146 at p.51

[29] National Parks and Wildlife, Submission No. 120 at p.54

- preparation of short lengths of temporary control lines by laying foam in areas that have no vehicle access.

- defending property at imminent threat of flame impingement; and

- selective protection of high value assets in settled areas, plantations or areas of special conservation value.

State Forests in their submission to the committee, state that the widespread usage of aircraft in fire bombing *ultimately provided little or no benefit to reducing fire extent or damage to assets, yet added significantly to the cost of suppression.*[30]

Extensive research and experience in the suppression of wildfires in Australia and overseas shows that for fire bombing to be efficient and effective:

> *… it is mandatory that the most suitable aircraft or combination of aircraft types be chosen; that aircraft are available at call, rapidly despatched and travel time is short; that effective ground support and administration systems are in place; that air operations are effectively integrated into the total fire organisation; and that competent personnel direct the fire bombing operations.*[31]

It is evident that when a fire is burning under weather conditions such as those experienced over the 2001-02 Christmas period, if it is not contained within five to ten minutes it will rapidly burn out of control regardless of readily available access to aircraft. Under conditions like these, fire bombing is considered to be totally ineffective.

The committee notes that the most effective use of aerial fire bombing is in the early stages of fire development or the "initial attack phase".

The committee also notes that consideration needs to be given to turnaround times, and the availability of fuel, water and/or retardants when using aerial fire bombing and that unless large quantities are dropped at short intervals, water used alone is ineffective.

17.6 TYPES OF AIRCRAFT USED

Fire management aircraft used within NSW are sourced as follows:

- five contracted aircraft (three agricultural fixed wing and two medium helicopters);

- casually hired aircraft (commercial fleet of helicopters, light fixed wings and agricultural aircraft); and

- aircraft owned or cross-hired by National Parks and Wildlife Service and State Forests of NSW.

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30 National Parks and Wildlife Submission No. 120 at p.54

31 AFAC Position Paper on the Use of Aircraft for Fire Bombing in Australia at p.1

- **Helicopters**

Typically, helicopters involved in support fire operations were light helicopters with a smaller number of medium-sized machines. However, during the 2001-02 fire season where conditions were severe, larger helicopters (such as the Erickson Air Crane) were used.

The use of the larger helicopters is supported by NPWS during periods of severe conditions, particularly in rural areas where sufficient fuel and water supplies exist to maintain efficiency, and in property protection roles along the urban interface.

- **Light Fixed Wing**

The use of fixed wing in fire bombing needs to be well planned as not all agricultural aircraft are capable of delivering fire chemicals effectively. The aircraft needs to be equipped with "fire type" drop doors rather than fertiliser spreading doors, which do not allow the chemicals to flow from the aircraft quickly enough to be effective.

Suitably equipped fixed wing agricultural aircraft are preferred over the larger, purpose built fire bombers, as they do not require the more significant ground resources which are not readily available throughout New South Wales.

- **Heavy Aircraft**

With a purchase price of $30M for an Air Crane combined with the infrequent fire seasons where heavy aircraft are required, the procurement of large purpose built fire bombers is not considered economically viable. It is far more cost effective to lease the Air Cranes, a view shared by State Forests, who see little application for large capacity purpose built fire bombers in its areas of operations. They further state that:

> *In the predominantly rural districts in which State Forests manages land, the continued use of light to medium helicopters and other agricultural type aircraft remains State Forests preferred option for fire management purposes.*
>
> *... A fleet of smaller capacity aircraft would offer an increased likelihood of effective and efficient use in most years than would be the case for a single large capacity aircraft.*[32]

In their submission to the committee, the NSW Rural Fire Service states that it does not favour the introduction, on a routine basis, of a heavy single purpose water-bombing aircraft, nor does it seek to own its own aircraft.

Due to the costs of heavy aircraft and the infrequent fire seasons where such aircraft are required, the procurement of purpose-built heavy aircraft (Air Crane) are not considered economically viable. However, a national or zonal approach (a combination of SE Queensland, coastal NSW, Victoria and the south east of South Australia) could collectively make effective use of high capacity aircraft.

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[32] State Forests NSW, Submission No. 146 at p.52

17.7 USE OF MILITARY AIRCRAFT

Military aircraft, such as the RAN Seahawk, are suitable for support functions, for example the movement of ground crews and equipment. During the 2001-02 fire season, the Defence Force provided invaluable support in the Shoalhaven area.

At the Public Hearing, held in Nowra on 22 April 2002, Mr Barry Russell, Civil Engineer, Shoalhaven City Council stated:

> *The Australian Defence Force provided outstanding local support during the Shoalhaven fire. In fact they provided food and accommodation for approximately 500 evacuees from both Huskisson and Sussex Inlet and they provided food and accommodation on an ongoing basis for the out-of-area firefighters who attended the Shoalhaven from both interstate and overseas. They also provided excellent aerial support through the Royal Australian Navy [RAN] aircraft, provided fuelling facilities, and provided support for the civil aviation operations that were running from the air base. We believe that there is a greater role for the Australian Defence Force to play, particularly in the area of incident management and especially in the fields of logistics, communications, intelligence, conversion of military helicopters for water bombing, and personnel management.*[33]

Shoalhaven City Council cite practical training for military personnel and financial benefits as other advantages in utilising Australian Defence Force [ADF] aircraft.

In their submission to the committee, the Shoalhaven City Council raised the concern over the expenses in the hire and deployment of specialist equipment from overseas, when the same capability was available in-country, through the Department of Defence. They question why the ADF does not have more involvement in situations such as these. They state that:

> *This cooperation has a number of benefits in that it provides practical training for military personnel, it uses an in-country resource and develops expertise for future incidents.*[34]

The committee acknowledges the advantages of the use of military aircraft for transportation of crews and equipment and reconnaissance of fires.

The committee notes that the Commissioner of the NSW Rural Fire Service is empowered to call upon military aircraft to assist at times of emergency, such as when the State's resources are used to capacity.

17.8 INTERNATIONAL AIRCRAFT USAGE

Aircraft are used for firefighting in the United States of America, Canada, Indonesia, Croatia and Thailand.

The United States has a large range of readily available aircraft for the sole use of firefighting from small waterscooping aircraft to large converted airliners and military

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33 Transcript of Proceedings, 22 April 2002, Russell at p.42

34 Shoalhaven City Council Submission No. 117 at p.5

aircraft. With the widespread belief that aircraft are an effective firefighting tool alone, it could be assumed that the United States would not have a significant wildfire problem.

In their submission to the committee, the NSW Rural Fire Service raise the issue of the effectiveness of aircraft usage overseas.

In mid-2000, the fires were so extensive and long lasting that Australia deployed about *80 trained incident managers for a six-week period*[35] to aid and relieve American crews. It is evident that many countries depend more on aircraft (without the back up of ground crews) than on traditional firefighting.

The NSW Rural Fire Service emphasises this in their submission:

> *Indonesia ... Water bombing was very largely ineffective because there was almost no ability to back up with ground resources. On areas of peat soil, waterbombing was completely ineffective, as was ground based fire fighting.*
>
> *Thailand ... that Royal Forests Department had acquired two waterbombing aircraft some years ago but that following review of their use and applicability for fire suppression, the aircraft were handed over to the Royal Navy, and no longer used as a fire management tool. Reasons cited for this action were that the aircraft were not effective.*[36]

They further state that:

> *… the presence of a substantial number of aircraft simply does not, and cannot, eliminate fire activity in very adverse fire seasons.*[37]

The committee notes that the US experience of growing dependence on aircraft use to fight large-scale fires may lead to a neglect of the basic fundamentals of firefighting.

17.9 SAFETY OF GROUND CREWS

Plain water, retardant and/or foam mixtures dropped from a fast moving aircraft can easily knock down large branches of trees and, in some cases, fell an entire tree. Either of these cases is more than sufficient to immediately kill a person should they be hit by either falling debris or the actual drop.

In their submission to the committee, NSW Rural Fire Service state that trials undertaken in Western Australia (Project Aquarius) and in Victoria demonstrated:

> *… that plain water dropped just above tree-top level from fixed wing aircraft smashed down large Jarrah trees.*
>
> *… during foam dropping trials in a Pine plantation, 20 metre tall trees were smashed to pieces.*[38]

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35 NSW Rural Fire Service Submission No. 149 at p.33

36 NSW Rural Fire Service Submission No. 149 at p. 35

37 NSW Rural Fire Service Submission No. 149 at p.35

Further, they state that:

> *... about 10% of all wildland fire fatalities in North America now are a direct result of aerial firefighting. These stem from aircraft crashes, direct hits with water and retardant from low flying aircraft and firefighters being struck by objects dislodged by water/retardant hits.*[39]

The committee notes the NSW Rural Fire Service's concern over the safety of ground crews and agrees that the safety of the ground crew is paramount when coordinating aerial fire bombing.

17.10 RECOMMENDATIONS

The committee recommends:

1. that aircraft continue to be used during bushfire emergencies as a complementary firefighting tool when and where the need arises as determined by the NSW Rural Fire Service after consultation with the Incident Controller.

2. that the State's firefighting agencies and authorities adopt a Statewide approach be agreed upon to include, but not be limited to:

- **an agreed interagency protocol for the use of aircraft;**
- **good indicators on when to stand down aircraft; and**
- **a coordinated approach to the distribution of available aircraft across agencies when conditions deteriorate suddenly.**

3. that further consideration be given to safety issues for ground crews and aircraft personnel in relation to aerial firefighting.

4. that a central training program be developed by the NSW Rural Fire Service for all personnel who occupy aircraft management roles in Incident Management Teams, to ensure that they undertake thorough training on the management of aircraft in firefighting.

5. that the Commissioner of the NSW Rural Fire Service continue to explore the usage of military aircraft for firefighting operations.

The committee supports:

6. the State's participation in the development of the National Aerial Firefighting Strategy.

38 NSW Rural Fire Service Submission No. 149 at p.35

39 NSW Rural Fire Service Submission No. 149 at p.35

18 THE ADEQUACY OF CHANGES MADE TO BUSHFIRE PLANNING AND FIGHTING, DEVELOPMENT PLANNING AND OTHER RELEVANT MATTERS SINCE THE 1994 BUSHFIRES.

The committee notes the numerous acknowledgments, received in almost half of the submissions, that there was significant improvement, by comparison with 1994, in every aspect of the coordination, communication and management of the Christmas 2001 fire emergency, including the mobilisation and coordination of the interstate and international volunteers.

The *Rural Fires Act* was introduced, following the Coronial Inquiry into the 1994 bushfires, to integrate the 142 separate bushfire services into a single rural fire service and to provide a cohesive and coordinated command structure from volunteers to the Commissioner.

While significant improvements in cohesion and coordination have been attested to by the majority of submissions received by the Inquiry, some questions were raised about an over-centralisation of decision making particularly at the fire-ground, resulting in delays of critical decisions. There is anecdotal evidence that at least one fire might have been contained up to two weeks earlier had decisions about back burning been taken at local level.

The committee is of the opinion that further attention needs to be paid to training and empowering incident control staff at local level, including special attention to the management of s.44 declared fires.

District fire control staff were transferred from the employment of local government to the State on July 1 2001 to resolve a dual accountability issue which was of concern to the Coroner in 1994, and was raised again in the Upper House Inquiry in 2000. An evaluation of the success of this change is currently being conducted.

The level of training has increased and training courses now provided include specialist courses in areas such as 4-wheel driving, aircraft management and first aid. Most submissions commented favourably on the increased emphasis on training.

83% of all fire fighters are now certified to basic fire fighter level, and 100% of group officers are certified to group leader level.

The health and safety of fire fighters is a priority area, and the development of personal protective equipment has been the subject of intensive research. The supply of certified boots, goggles, gloves, hats and overalls are now standard issue.

A Chaplaincy service and critical incident support teams have been established throughout NSW to provide support to volunteers and their families in time of crisis and difficulty.

A new Award has been negotiated to recognise the special conditions under which staff involved in emergency service work operate.

Two fixed wing and two rotary wing aircraft specially prepared for firefighting in Australian conditions are on term contracts for the duration of each bushfire season, while an

aircraft register is maintained which allows quick access to additional appropriately equipped aircraft.

Other aircraft with bushfire fighting capabilities are maintained by NPWS and State Forests, and are available to assist in coordinated bushfire fighting activities.

Funding has increased significantly, from $50.7M in 1994-95 to $120.7M for 2002-03, including a special allocation of $4.5M specifically to streamline the approval processes for hazard reduction.

$155M has been spent since 1994 upgrading the tanker fleet, and 1,844 have so far been purchased to replace old equipment. The tanker upgrade program is on track, with $12M spent on retro-fitting of protective fuel lines and cabin water sprinkling systems on the existing fleet.

$14.9M has been spent on an integrated Private Mobile Radio Network to provide dedicated fire-ground communications for volunteer firefighters.

For NSW Fire Brigades, over $2.2 billion in funding has been provided since 1994, with $80M allocated to buy or rebuild more than 300 fire engines, and $43M to construct or renovate 37 fire Stations and training centres.

140 fixed or mobile community fire units have been commissioned to work on bushfire prevention and firefighting preparation in communities on the urban bush interface, with over 80 new applications to establish additional units received since January 2002.

The committee acknowledges the performance improvement in fire combat and suppression arising from the extensive reforms to the two firefighting services in NSW.

The committee notes that a number of submissions raised issues relating to fire suppression accountability between the NSW Fire Brigade and NSW Rural Fire Service arising out of the rapid increase in urbanised population and village clusters in previously rural areas along the coast land north and south of Sydney, and into the Blue Mountains. Existing geographical boundaries may no longer be appropriate.

The committee notes that the urban expansion described above can result in fragmented and discontinuous firefighting activity to defend lives and property as a first priority, rather than focusing on a concerted attack on a fire front.

The committee notes that excellence in fire suppression, as demonstrated during the Christmas 2001 emergency, may create a community reliance on fire fighters to stop fires, rather than a community responsibility to prevent fires.

18.1 RECOMMENDATIONS

The committee recommends that:

1. the Government acknowledge the significant operational improvements already evident from the reform and consolidation of command of the firefighting services in NSW, and endorse the continuation of the reform strategy.

2. the implications of the expanding urban-rural interface for fire prevention and fire suppression activity be investigated by the Fire Services Joint Standing Committee, with reference to PlanningNSW and the Department of Local Government.

3. the issue of community and individual responsibility for protection of their own lives and property through appropriate preparation be addressed through a coordinated Statewide Community Communication Strategy and Information Framework which enables locally specific details to be provided along with more general information.

18.2 OTHER RELEVANT MATTERS

♦ **Liability of owners or occupiers for loss or damage caused by hazard reduction**

The committee noted several submissions in which land owners claimed that the risk of being held personally liable for damage to other people's property should a hazard reduction burn get out of control constituted a significant disincentive to carry out prescribed burning.

Section 128 of the *Rural Fires Act* indemnifies "protected persons" against any liability arising from anything done or omitted to be done in good faith for the purposes of the Act.

The protected persons are

- the Minister;
- the Commissioner Rural Fire Service;
- any member of the Service or member of the Bush Fire Coordinating Committee or Advisory Council;
- a member of the Bush Fire Management Committee; and
- the Commissioner of NSW Fire Brigades, the Commissioner constituting the Forestry Commission, the Director General NPWS and any persons acting under the authority of those persons.

A similar form of protection was afforded by section 48 of the previous Bush Fires Act 1949. The significant difference is that section 48 indemnified any person acting in the execution of the Act. It will be seen that section 128 of the current Act does not protect an owner of occupier from liability in respect of loss or damage arising from hazard reduction activities that they might be obliged to carry out under section 63 of the Act.

Parliamentary Debates on the *Rural Fires Act* do not clarify why owners or occupiers were not given protection in respect of the consequences of performing hazard reduction duties required of them by the Act. Some protection at law might arise from the fact such persons are carrying out a statutory duty to reduce bushfire hazards although if this is the case why was section 128 necessary? One obvious need for section 128 was in respect of those circumstances requiring immediate action by the NSW Rural Fire Service to protect life or property. However the section also indemnifies the NSW Rural Fire Service and other protected persons in respect of loss or damage arising from anything done in

the execution of the Act including carrying out any hazard reduction work that the owner or occupier may have failed to do.

Section 731 of the *Local Government Act 1993* contains similar protection from liability of councils, councillors and employees of councils in regard to things done in good faith for the purpose of this or any other act. Local councils of course now have hazard reduction functions under the *Rural Fires Act*.

One would have to conclude from the present legislative provisions that owners or occupiers, if shown to be negligent, may be held legally liable in respect of loss or damage arising from hazard reduction performed by them even though they had an obligation to carry out that work.

Mr Phil Koperberg, Commissioner, in correspondence to the committee dated 20 June 2002 said the provisions of the Rural Fires Act were not intended to provide indemnity to the owners or occupiers of land who in a private capacity were discharging their legislative obligations in terms of bushfire management, particularly hazard reduction by fire. He said:

> *Clearly to indemnify private land holders against litigation or other action whilst discharging their lawful responsibility, would be to seriously dilute the onus of responsibility so far as taking measures to prevent the escape of a prescribed burn onto adjoining lands, is concerned.*
>
> *I believe the broader community would have serious concerns if private land holders not part of the formal firefighting structure be indemnified for losses arising out of their unilateral actions.*

However the concerns expressed to the committee from some members of the public who addressed this issue have rather been with their own legal situation. Ms Marilyn Hood in her submission states:

> *I would suggest that the Committee takes a good look at the question of liability as outlined above: what person in their right mind would consent to a controlled burn with the prospect of being sued "BIG TIME" should it go pear shaped.*

The current practice of the NSW Rural Fire Service is to encourage owners and occupiers to take out public liability insurance. This type of insurance is intended to cover any claims that might be made by other members of the public for personal injury or property damage arising out of the negligence of the owner or occupier in the course of hazard reduction work.

The usual house and contents policy of insurance may provide adequate cover in these circumstances although that would need to be examined as contracts of insurance vary with the insurer. Some may contain exclusion clauses in the event of a person failing to meet specific legal requirements. This may be pertinent in the event of hazard reduction being conducted otherwise than in accordance with a bushfire risk management plan applying to the land.

The issue of legal liability for hazard reduction warrants as much clarification as practicable so as to remove any uncertainties that might act as a disincentive to public participation.

18.3 RECOMMENDATIONS

The committee recommends that:

1. the Minister for the Environment and the Minister for Emergency Services seek advice from the Crown Solicitor on the legal responsibility of owners and occupiers for any loss or injury arising out of such persons performing hazard reduction in accordance with the Rural Fires Act. The extent of the cover provided by a house and contents policy of insurance for this type of loss or injury should be investigated.

2. the NSW Rural Fire Service examine and report to the Minister upon the availability of members of the NSW Rural Fire Service or other protected persons, including officers of local councils, to carry out hazard reduction work on behalf of owners and occupiers so as to afford them the protection contained in s.128 of the *Rural Fires Act 1997* or s.731 of the *Local Government Act 1993*.

18.4 INFORMATION AND EVACUATION ARRANGEMENTS FOR PEOPLE WITH DISABILITIES AND THEIR CARERS.

Several submissions raised the issue of elderly or disabled people who are particularly vulnerable during emergencies because of their impaired mobility, and who may not be able to signal their need for assistance.

The Sutherland Shire Carers and Consumers Forum cited cases of past fire events during which members were alone and unable to raise an alarm; of the longer than usual time required to evacuate, and of inability to respond to let emergency workers know they were at home.

The Forum has discussed the issue with DoCS and with the local Home Care Branch, who agree that this is an issue, and that a register of those people who are particularly at risk because they live in high risk areas characterised by difficult access and proximity to bushland.

The local Home Care Branch has agreed to maintain and update a register of people and house holds affected, but resources may need to be applied to compile the first edition and ensure that it holds all the information the State Emergency Service may require.

18.5 RECOMMENDATION

1. The committee recommends that resources be allocated by State Emergency Services to the establishment of a register within each fire district, to record details of frail and disabled people who may need special assistance during an emergency.

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PART D

MAJOR THEMES OF SUBMISSIONS RECEIVED (BY GEOGRAPHICAL AREA)

PART D – MAJOR THEMES OF SUBMISSIONS RECEIVED (BY GEOGRAPHICAL AREA)

KEY TO TERMS OF REFERENCE

1. Hazard reduction and other fire prevention measures.
2. The environmental impact of bushfire management and control on biodiversity and biophysical processes
3. The application of research, technology and management techniques to minimise the impacts.
4. The causal factors of the bushfires including an investigation of land use decisions,
5. Development planning,
6. The responsibilities of property owners that will reduce bushfire risk
7. The environmental impact of bushfire management.
8. The adequacy of equipment available to, and training of, Rural Fire Brigades.
9. The adequacy or otherwise of building regulations in New South Wales
10. The use of aircraft in firefighting.
11. The adequacy of changes made to bushfire planning and fighting, development planning and other relevant matters since the 1994 bushfires

✚ Refer to Rural Fire Service ♦ Identified – To Be Addressed ● Refer to Police/Coroner ■ Partly: more research needed

✓ communications -strategy required

Region	Issue Raised in Submission	Term of Reference	Addressed in Current Reforms & Changes? Yes / No
Sydney	Problems with SEPP5 development in bushfire prone areas.	5	Yes
	Lack of adequate hazard reduction (particularly by NPWS) and insufficient resources to maintain appropriate fuel levels.	1	Yes
	Concern with frequency of hazard reduction on biodiversity.	2	Partly
	Supportive of aircraft.	10	Yes
	Concern regarding development in bushfire prone areas.	5	Yes
	Insurance premium to reflect bushfire preparedness.	6	♦
	Maintenance of fire trails.	1	Yes

Region	Issue Raised in Submission	Term of Reference	Addressed in Current Reforms & Changes? Yes / No
Sydney (cont.)	Building standards in fire prone areas.	9	Yes
	Funding for research needed into bushfires and effects on biodiversity.	3	Partly
	Need for regulations to cover development in bushfire prone areas.	5 & 9	Yes
	Lack of uniformity in development covenants in bushfire prone areas.	5	Yes
	Success of firefighting effort by Rural Fire Service.	11	Yes
	Maintenance of biodiversity.	2	Yes
	Impacts of hazard reduction on health, eg: asthma sufferers.	2	Partly
	Support for aerial water-bombing.	10	Yes
	Criticism of management of hazard reduction by main land agencies.	1	Yes
	Criticism of management of native forest levels by NPWS.	2	Yes
	Support for strategic fuel reduction burning.	1	Yes
	Need for cross country (4WD) bulk water tankers.	8	✚
	Insufficient public information provided on the Deua fire.		✚
	State and Federal fire funding required for fire research.	3	Yes
	Retain current environment controls	2	Yes
	Support for planning for bushfire protection.	2 & 11	Yes
	NPWS unjustly singled out for criticism; figures about total hectares of hazard reduction meaningless; fuel reduction at perimeters important.	1 & 2	Yes
	Retention of native vegetation important for ecosystems.	2	Yes
	Ecological burns are the only type of prescribed fire suitable for large tracts of bushland.	2	Partly
	Expand efforts to educate and involve the community in bushfire protection.		✚

Region	Issue Raised in Submission	Term of Reference	Addressed in Current Reforms & Changes? Yes / No
Sydney (cont.)	Hazard reduction should be mandatory on a regular basis in all areas of native vegetation within 300m of urban development.	1	Yes
	Community fire units should have access to nearby fire trails so trail gates can be opened before arrival of main fire fighters.	1 & 11	Yes
	Adequate funding should be provided for community fire units.	11	Yes
	Burning intervals of three years a generally accepted standard for hazard reduction but need to establish balance between fuel management and biodiversity management.	1 & 2	■
	Councils have inadequate access to environmental skills which are in short supply.	4 & 5	Yes
	Use of aircraft, especially Sky Cranes have proved their effectiveness.	10	Yes
Blue Mountains	Support of hazard reduction.	1	Yes
	Need for community preparedness in bushfire prone areas.	6	Partly
	Prohibition on development in fire prone areas.	5	Yes
	Concern about residential development of ridge tops.	4 & 5	Yes
	Need for emergency water strategy.		Not specifically
	All hazard reduction should be handed over to Rural Fire Service.	1 & 6	Yes
	Lack of communication with residents.		✓
	Need to identify threatened species by location.	2 & 11	Yes
	Support for “Elvis” [Erickson Air Crane] type helicopters. and Support for use of aircraft in firefighting.	10	LAP Yes
	Excessive fuel in Grose Valley.	1	Yes
	Support for mosaic HR burns.	1 & 7	Yes
	Impediments to hazard reduction approvals.	1 & 2	Yes
	Fuel minimisation adjoining built-up areas is the best weapon.	1 & 11	Yes

Region	Issue Raised in Submission	Term of Reference	Addressed in Current Reforms & Changes? Yes / No
Blue Mountains (cont.)	Need for better arson policing.		●
	Better town planning and building codes required.	5 & 9	Yes
	Inadequacy of bushfire vehicles to withstand fire.	8	Yes
	Aircraft are not the bushfire panacea but are excellent for intelligence gathering if used by a trained observer.	10 & 8	Yes
Central West	Lack of hazard reduction in Warragamba catchment/ Cumberland Plains Woodland.	1	Yes
	Lack of adequate hazard reduction by NPWS.	1 & 2	Yes
	Need to streamline hazard reduction process.	1 & 7	Yes
	Need for better maintenance of fire trails.	1	Yes
	NPWS and SCA should pass hazard reduction responsibilities to the Rural Fire Service.	1	Yes
	NPWS inadequately resourced, trained and supervised in bushfire fighting.	11	No
	praise for Rural Fire Service on dedication and compliance.	8 & 11	Yes
	No hazard reduction in 20 years by SCA and NPWS in Werriberri and Monkey Creek.	1	Yes
	Evacuation policy unclear and emergency management procedures too bureaucratic and centralised.		✚
South Coast	Insufficient hazard reduction by NPWS.	1 & 2	Yes
	Bushfire preparedness and community education.	6& *	Partly
	Buffer zones.	1 & 5	✓
	Need to maintain biodiversity.	2 & 7	Partly
	Planning for bushfire prone areas.	4 & 5	Yes
	Lack of maintenance of fire trails by NPWS.	1 & 6	Yes
South Coast (cont.)	Hazard reduction by NPWS only in areas of high value such as coastal villages.	1 & 5	Yes

Region	Issue Raised in Submission	Term of Reference	Addressed in Current Reforms & Changes? Yes / No
	Opposition to broad acre hazard reduction.	2 & 7	Yes
	Support of ecological bushfire research.	3 & 6	■
	Support for residents remaining to protect homes.	6	Yes
	Better planning guide required for development – development in bushfire prone areas an increasing problem.	5 & 6	Partly
	Broad scale hazard reduction a threat to biodiversity conservation.	2 & 7	Yes
	Future subdivisions must contain adequate fuel reduction zones within each subdivision.	4 & 5	Yes
Central Coast – Mid North Coast	Advocacy of large fixed wing water-bombing aircraft.	10	partly
	Support of hazard reduction.	1	Yes
	NPWS preventing hazard reduction.	1 & 2	Yes
	Endangered species declarations preventing hazard reduction.	1 & 2	Yes
	Pre-training before appointment to rural fire brigade.	8	✚
	Maintenance of details of isolated properties.		Referred to SES
	Recruitment of more women into the Rural Fire Service.		No
	Buffer zones required between national parks and residential development.	1, 2 & 5	Yes
	Need for an Erickson Air Crane.	10	partly
	Requirements of “Planning for Bushfire Protection” should be mandatory for Councils.	4 & 5	Yes
	Lack of commitment of Gosford Council to hazard reduction.	1	No

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APPENDICES

APPENDIX 1 – ADVERTISEMENT CALLING FOR SUBMISSIONS

Parliament of New South Wales

JOINT SELECT COMMITTEE ON BUSHFIRES

Call for Submissions

A Joint Select Committee has been appointed to consider and report upon the recent bushfires with particular regard to the following matters:

(a) Hazard reduction and other fire prevention measures.

(b) The environmental impact of bushfire management and control on biodiversity and biophysical processes and the application of research, technology and management techniques to minimise the impacts.

(c) The causal factors of the bushfires including an investigation of land use decisions, development planning, and the responsibilities of property owners that will reduce bushfire risk and the environmental impact of bushfire management.

(d) The adequacy of equipment available to, and training of, Rural Fire Brigades.

(e) The adequacy or otherwise of building regulations currently in operation in New South Wales with particular emphasis on the Australian community bushfire safety standards for houses.

(f) The use of aircraft in firefighting.

(g) The adequacy of changes made to bushfire planning and fighting, development planning and other relevant matters since the 1994 bushfires.

The Committee, where possible, shall not duplicate examination of the evidence currently before the Coroner's inquiry.

Interested individuals and organisations are invited to make a submission (in writing, typed or on disk) to assist the inquiry process. Submissions should be addressed to:

The Committee Manager
Joint Select Committee on Bushfires
Parliament House
Macquarie Street
Sydney NSW 2000

Alternatively, submissions can be sent by facsimile to 02 9230 3091 or e-mailed to bushfires.committee@parliament.nsw.gov.au. For further information contact Merv Sheather on 02 9230 2227.

The closing date for submissions is Friday 12 April 2002.

Chairman

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APPENDIX 2 – LIST OF SUBMISSIONS RECEIVED

No.	Name, Position, Organisation / Department
1	Stephen Ashley
2	Erich Schutte
3	John Bicknell, West Wind Orchard
4	Margarett Hogg, Hon. Secretary, Mittagong Branch of the Liberal Party
5	Col Adams, Aerial Services Pty Ltd
6	Kevin McManus
7	Kurt Lance
8	Apelu Tielu, Agriculture, Fisheries & Forestry Australia
9	Marilyn Hood
10	Peter Rixon
11	Emily Upthegrove
12	Gordon McMillan
13	John Powell
14	Ilona Renwick
15	Don Boehm
16	R Jensen
17	Edwin Pigott, Edwin H. Pigott Pty Ltd
18	SJ Griffiths
19	AG Colley
20	Betty Moore, Councillor, Inverell Shire Council
21	Patricia White, Solicitor
22	Keith Muir, Director, Colong Foundation for Wilderness
23	Mike Purtell
24	John Wallace, Sales Associate, Simplex Manufacturing
25	CN Dent, Chairman, Lostock Bushfire Brigade
26	Charles Swanson
27	Helen Ford
28	Garth Dyer
29	Lance Norman
30	Wilson Tuckey, Minister for Regional Services Territories and Local Government
31	Timothy Street
32	MT Hallett

No.	Name, Position, Organisation / Department
33	WA & MT Powell
34	Sue Goldsmith
35	John Morgan
36	Jim McCredie
37	Pat Klein
38	Laura Bennett, Mayor, Office of the Mayor, Ku-ring-gai council
39	Les Howard
40	Peter Black, Chief Pilot, Aircair Moree Pty Ltd
41	Raymond Ravenscroft
42	David Paull, Western Conservation Alliance
43	Maurice Horsburgh
44	Annette Ireland
45	Alan Faulkner
46	John McDermott, McDermott Aviation
47	Ian Smith
48	J Hutson, Crookwell Air Spreading
49	Jill Curnow
50	John & Enid Barber
51	Ross Jones, Executive Director, Northern Sydney Regional Organisation of Councils
52	F Harris
53	P Wagstaff
54	AR Neilsen
55	BJ & PM Mortimer
56	Graeme Lockyer, President, Iluka Chamber of Commerce
57	John Gallard
58	Crispin George
59	Corina Fangmeier
60	Bob Davies, Honorary Manager, Baden-Powell Scout Centre
61	Ed Biel, Wakana Orchard
62	Peter Whelan, Coalition for Fire Control
63	Paul Griffiths
64	Edy Fassler, President, Intravend Import-Export
65	Phil Gant, Phil Gant Architect

No.	Name, Position, Organisation / Department
66	NAF Franklin
67	John Snell, Secretary, Access for All
68	Christine Finlay
69	Phil Hurst, Executive Officer, Aerial Agricultural Association of Australia
70	D & N Jarman
71	AF Grimwade
72	BR & JW Jessop
73	David Hill
74	Alan Oates
75	Terry Miller, Werriberri Park Orchard
76	Jason
77	Oakdale Public Meeting
78	Rowan Moore
79	Anonymous
80	Christine Lord
81	Herbert Bolles
82	Colin Davidson
83	Bede Craft
84	Greg Stephenson
85	Iain Bailey, Industrial Officer, NSW Fire Brigade Employees' Union
86	Duncan Marshall
87	Mark Pardini, TransElec International
88	Michelle Leishman, President, STEP Inc
89	J W Rayner, General Manager, Sutherland Shire Council
90	Nick Jones, Sales Director, ExecuJet Australia
91	Peter Sproule, HC Sproule & Son
92	John Hindmarsh, Jinden Pastoral co
93	Henry Johnston
94	Colin Johnson, Forest Air Helicopters Pty Ltd
95	Kevin Gosling, Helix Aviation Pty Ltd
96	Tracey Austin, Country Womens Association of NSW
97	Beth Williams, National Parks Association of NSW, Armidale Branch
98	Malcom Jones, MLC, Outdoor Recreation Party

No.	Name, Position, Organisation / Department
99	Judy Messer, Vice-Chairperson, Nature conservation Council of NSW
100	Andrew Cox, Executive Officer, National Parks Association of NSW
101	Neville Dunn, Dunn Aviation
102	Graeme Head, Chief Executive, Sydney Catchment Authority
103	Tony Lord
104	Ron Allen
105	Russell Ainley, Executive Director, Forest Products Association
106	Bernie O'Sullivan, Manager, Government Relations, NSW Farmers Association
107	J Mills
108	Heather Dunnett
109	L W Mills
110	Andrew Harvey
111	G W Holden
112	Beryl Anderson
113	William Bean
114	Vic Jurkis
115	Maryrose Whale, Ride Secretary, South Coast Association of Trailhorse Riders
116	Ivan Wells
117	Greg Pullen, Economic Development Manager, Shoalhaven City Council
118	Jenette Hindmarsh
119	Jack Milton
120	Brian Gilligan, Director-General, NSW National Parks and Wildlife Service
121	Heather Harrison
122	Peter Webb, Member for Monaro
123	Louise Hayward, Environmental Projects Officer, Ku-ring-gai Council
124	Ian Barnes, Chairman, Institute of Foresters Australia
125	Bruce Danson
126	Lynda Beck
127	Peter Russell, Director, Heli-Aust Pty Ltd
128	Peter Arnold
129	Peter Ellis, CSIRO, Forestry and Forest Products
130	RG & JJ Marshall
131	John Sheehan, President, Australian Property Institute (NSW Division)

No.	Name, Position, Organisation / Department
132	Martin Simms, Secretary, NSW Farmers Association – Bega Branch
133	Rob Whelan, Director, Institute for Conservation Biology
134	I D MacDougall, Commissioner, NSW Fire Brigades
135	Brian Williams, Captain, Kurrajong Heights Rural Fire Brigade
136	Bob & Olive Young
137	Brian Kerr
138	Robert Crews, Morbald Pty Ltd
139	Petria Cameron
140	RA Free, Bushfire Management Consultant
141	Reginald Hillier
142	Peter Mackay, General Manager, Field Air (Sales) Pty Ltd
143	Philip McNamara, Director-General, State Emergency Services
144	Donald Brown, Grose Wold Residents
145	Keith Jordon, Executive Officer, NSW Rural Fire Service Association
146	Bob Smith, Chief Executive, State Forests of New South Wales
147	Maurie Unicomb
148	Jenny Crossman, Secretary/ Treasurer, Landcare and Feral Animal Control Group
149	Phil Koperberg, Commissioner, New South Wales Rural Fire Service
150	Bob Debus, Attorney-General, Minister for the Environment, Minister for Emergency Services and Minister Assisting the Premier
151	Ivan Donaldson, Executive Director, Australian Building Codes Board
152	Colin Pays, Managing Director, Pay's Air Service Pty Ltd
153	Michelle Coates, Hill Top Rural Fire Service
154	Rod Chevis, Director, Chevis Agriservices and Consulting Pyt Ltd
155	John Wardell
156	Jennifer Strauss, Australian Federation of University Women Inc
157	Peter Fisher, Peter Fisher Forestry Services
158	Sue Holliday, Director-General, PlanningNSW
159	Glen & Donna Pye
160	Ron Gillis
161	Owen Croft, Chair, Northern Tablelands Region, NPWS Advisory Committee
162	Lisa Corbyn, Director General, NSW Environment Protection Authority
163	James Tedder, Three Valleys Branch of National Park Association
164	L Cahill

No.	Name, Position, Organisation / Department
165	Geoff Hamilton
166	Ron Messer
167	Elaine Malicki, Cr
168	Brenton Taylor, Executive Director, Local Government and Shires Association
169	Laurie Norton
170	JM Bennett
171	Michael McLean
172	Greg Sullivan
173	Keith Campbell
174	Neville Gilmartin
175	Brendan Hill
176	Ernie & Marie Goodsir
177	CP Gabel
178	Ian Shaw
179	Bob Smith, Director-General, Department of Land and Water Conservation
180	Kevin Browne
181	Bob Kemnitz
182	Steve Katerinka
183	Janine Darling
184	Chris Regan
185	Matthew Harper, Emergency Management Officer, Blue Mountains City Council
186	Aron Gingis, Managing Director, Australian Management Consolidated Pty Ltd
187	Joe Scimone, Manager, Engineering Services, Wollongong City Council
188	, NSW Health
189	Felicity McGregor
190	Peter Mayman
191	Mark Christie, Chief Executive, Geospatial and Environmental Consultants Australia
192	Kathleen Smith, President, Great Lakes Environment Association Inc
193	Marie Taylor
194	DB Macarthur
195	Scott Franks
196	Craig Butler, Building Approvals & Environment Protection Manager, Penrith City Council
197	AJ Snow

No.	Name, Position, Organisation / Department
198	Peter Holding, Cunningar Agricultural Trust
199	Sue Roach, Sutherland Shire Carers & Consumers Forum

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APPENDIX 3 – LIST OF WITNESSES

ORGANISATION	REPRESENTATIVE
Access for All	Mr John Snell, Secretary Mr Neil Waddell, Chairman Mr Terry Hart, Treasurer Ms Catherine Lawler
Australian Building Codes Board	Mr Ivan Donaldson, Executive Director
Bendalong Group	Mr Peter Hudson, Landholder
Department of Land and Water Conservation	Mr Bob Smith, Executive Director
Environmental Protection Authority	Mr Joe Woodward, Assistant Director-General, Operations Mr Nigel Routh, Director, Air Policy Mr Chris Eiser, Director, Atmospheric Sciences
Forest Producers Association	Mr Russell Ainley, Executive Director
Institute of Foresters	Mr Ian Barnes
Kurrajong Heights Rural Fire Brigade	Mr Brian Williams, Captain
Local Government and Shires Association	Mr Warren Taylor, Manager, Advice and Development
National Parks & Wildlife Service	Mr Brian Gilligan, Director-General Mr Robert Conroy, Executive Director, Central Mr Ross Bradstock, Principal Research Scientist Dr Tony Fleming, Director, Southern Directorate Mr Tim Shepherd, Manager, Far South Coast Region Ms Diane Garrood, Manager, South Coast Region
Nature Conservation Council	Mr Terry Barratt, Shoalhaven Representative Mr Andrew Stanton, NCC Bushfire Officer
Northern Sydney Regional Organisation of Councils	Mr Ross Jones, Exeuctive Director Cr Stephen Pringle, Mayor of Hornsby

ORGANISATION	REPRESENTATIVE
NSW Farmers Association	Mr Alan Brown, Executive Councillor Mr Bernie O'Sullivan, Manager, Govenrment Relations Mr Noel Watson, Bega Branch Mrs Ellen Green, Bega Branch Mr Eric Johnson, Bega Branch
NSW Fire Brigade	Mr Ian MacDougall, Commissioner
NSW Rural Fire Service	Mr Phil Koperberg, Commissioner Mr Peter Ryan, Chief Superintendent, Region South
Planning New South Wales	Ms Sue Halliday, Executive Director, Regional NSW
Private Citizens	Mr John Barber Mrs Enid Barber Mr Kurt Lance Mr Ken Pullen
Regional Alliance of Jervis Bay	Cr Sally Gjedsted, Inaugural President
Rural Fire Service Association	Deputy Captain Keith Jordan, Executive Officer Superintendent Peter Kinkead, Singleton Fire Control Centre
Shoalhaven City Council	Mr Barry Russell, City Services Manager
State Forests	Mr Bob Smith, Executive Director Mr Phil Cheney, Team Leader Mr Stephen Dodds, Regional Manager, Southern Mr Paul de Mar, Manager, Fire Management & Air Services Branch Mr John Fisher, Deputy General Manager, Native Forests Division
Sydney Catchment Authority	Mr Graeme Head, Chief Executive Officer
University of Wollongong	Professor Rob Whelan, Director, Institue for Conservation Biology

APPENDIX 4 – MINUTES OF PROCEEDINGS

No. 1

Minutes of Proceedings of the Joint Select Committee on Salinity

Wednesday 20 March 2002
at 9.45am
Parliament House

Members Present

Mr Price	Mr Colless	Mr Kelly
Mr E Page	Mr Smith	Mr Tingle
Mr Torbay		

Also in attendance: Mr Russell Grove, Clerk of the Legislative Assembly, Mr Leslie Gonye, Clerk-Assistant (Committees), Mr Mervyn Sheather, Serjeant-at-Arms and Ms Kylie Rudd, Parliamentary Officer.

Election of Chairman

Nominations called for the office of Chairman were sought. Mr Kelly nominated Mr Price, seconded by Mr Page.

Resolved that Mr Price be elected Chairman of the Joint Select Committee on Bushfires.

Election of Deputy Chairman

Nominations for Deputy Chairman were sought. Mr Price nominated Mr Kelly, seconded by Mr Page.

Resolved that Mr Kelly be Deputy Chairman.

Staffing

The Clerk-Assistant (Committees) introduced the officers of the Secretariat. Mr Mervyn Sheather, Serjeant-at-Arms, to be the committee Manager, Ms Kylie Rudd, Parliamentary Officer and Ms Cassandra Adams, Assistant Committee Officer, to provide procedural, clerical and keyboard support. The Clerk-Assistant (Committees) advised that a Project Officer be seconded, and that a resume had already been received from Ms Angela Bollard.

Procedural Motions

The committee considered and agreed upon the following Procedural Motions:

1. That arrangements for the calling of witnesses and visits of inspection be left in the hands of the Chairman and the committee Manager.
2. That, unless otherwise ordered, parties appearing before the committee shall not be represented by any member of the legal profession.
3. That, unless otherwise ordered, when the committee is examining witnesses, the press and public (including witnesses after examination) be admitted to the sitting of the committee.
4. That persons having special knowledge of the matters under consideration by the committee may be invited to assist the committee.
5. That press statements on behalf of the committee be made only by the Chairman after approval in principle by the committee or after consultation with Committee members.
6. That, unless otherwise ordered, access to transcripts of evidence taken by the committee be determined by the Chairman and not otherwise made available to any person, body or organisation: provided that witnesses previously examined shall be given a copy of their evidence; and that any evidence taken in camera or treated as confidential shall be checked by the witness in the presence of the committee Director or another officer of the committee.

7. That the Chairman and the committee Manager be empowered to negotiate with the Speaker through the Clerk of the Legislative Assembly for the provision of funds to meet expenses in connection with advertising, operating and approved incidental expenses of the committee.
8. That the Chairman be empowered to advertise and/or write to interested parties requesting written submissions.
9. That upon the calling of a division or quorum in the House during a meeting of the committee, the proceedings of the committee shall be suspended until the committee again has a quorum.
10. That the Chairman and the committee Manager make arrangements for visits of inspection by the committee as a whole and that individual members wishing to depart from these arrangements be required to make their own arrangements.
11. That pursuant to Standing Order 338, evidence, submissions or other documents presented to the committee which have not been reported to the House not be disclosed or published by any Member of the committee or by any other person.

The Chairman referred to the Timetable as circulated by the Clerk-Assistant (Committees), as was adopted as follows, schedules permitting:

23 March,2002	Advertise for submissions
13 Apri,2002	Submissions Close
18 April,2002	Regional visit to hear evidence
23 April,2002	Regional visit to hear evidence
2 May,2002	Sydney hearing
7 May,2002	Committee meeting to discuss draft report
31 May,2002	Final hearing in Sydney to take final submissions from key agencies, e.g., Rural Fire Service and NPWS
7 June,2002	Finalise report
28 June,2002	Deliver Final Report

The Clerk-Assistant (Committees) circulates the resume received from Ms Angela Bollard.

The Chairman agreed to interview Ms Bollard and requested the Clerk-Assistant (Committees) to seek out further suitable candidates.

The Clerk-Assistant (Committees) circulates the advertisement seeking submissions to the committee.

The committee confirmed the closing date of 12 April,2002, for submissions and placing of the advertisement in the Sydney Metropolitan and Regional newspapers.

To also write to the Shires Association, Public Sector bodies and the Local Government Association to seek submissions from interested persons departments and organisations

The committee discussed that a Coronial Inquiry is to be held into the bushfires deaths, and confirmed that the committee will have convened before the inquiry begins.

There being no further business the committee adjourned at 10.30am, sine die.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 2

Minutes of Proceedings of the Joint Select Committee on Bushfires

Thursday 11 April 2002
at 10.00am
Parliament House

Members Present

Mr Price (Chairman) Mr Colless Mr Kelly

Mr E Page	Mr Smith	Mr Tingle
Mr Torbay		

In attendance: Mr Mervyn Sheather, Committee Manager, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Briefing

The committee met with Mr Phillip Koperberg,Commissioner, Department of Rural Fire Service for a briefing concerning the recent bushfires management.

Administration Matters

Mr Price, Chairman, advised the committee that the selection of Ms Angela Bollard, as Project Officer.

Proposed hearing and meeting dates

The Chairman sought agreement from the committee to hold hearings at Nowra on 22 April, 2002 and at Dubbo on 23 April, 2002, after the review of the received submissions.

Both of these hearing would be subject to the substance contained within the received submissions to the committee.

The committee deliberated.

There being no further business, the committee adjourned at 11:50 am, Sine die.

Mr John Price M.P.	Mr Merv Sheather
Chairman	Committee Manager

No. 3

Minutes of Proceedings of the Joint Select Committee on Bushfires

Monday 22 April 2002
at 8.45am
Shoalhaven City Council

Members Present

Mr Price (Chairman)	Mr Colless	Mr Kelly
Mr E Page	Mr Smith	Mr Tingle
Mr Torbay		

In attendance: Mr Mervyn Sheather, Committee

Hearings

The press and public were admitted.

By direction of the Chairman the Manager read the committee terms of reference and Legislative Assembly Standing Orders Nos: 332,333, and 334 relating to the examination of witnesses.

Chief Superintendent Peter Ryan, Regional Manager for Region South, New South Wales called and sworn as a witness.

The witness acknowledged receiving a summons under the Parliamentary Evidence Act 1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334.

The witness was examined by the committee.

Evidence concluded the witness withdrew.

Dr Tony Fleming, Director, Southern Director, National Parks and Wildlife, called and affirmed as a witness.

Mr Tim Shepherd, Manager, Far South West Region, National Parks and Wildlife Service, called and sworn as a witness.

Ms Diane Garood, Manager, South Coast Region, National Parks and Wildlife Service,Called and affirmed as a witness.

The witnesses severally acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334.

The witnesses were then examined by the committee.

Evidence concluded the witnesses withdrew.

Mr Peter Ross Hudson, spokesman for the Bendalong and District Environment Association, called and sworn as a witness.

Cr Sally Gjedsted, Inaugural President of the Regional Alliance of Jervis Bay, and Independent Councillor Shoalhaven, called and sworn as a witness.

Mr Terence Stuart Barratt, Nature Conservation Council of New South Wales,Representative to Shoalhaven and Illawarra Water Management Committee, Member ACF, NKPA and Bomaderry Creek, called and affirmed as a witness.

The witnesses acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334.

The witnesses were then examined by the committee.

Documents tabled exhibits marked A,B,C & D circulated to Members of the committee to assist with matter raised in evidence. Documents included as part of evidence.

Evidence concluded the witnesses withdrew.

Mr Barry Gordon Russell, Civil Engineer, Shoalhaven City Council, called and affirmed as a witness.

The witness acknowledged having received a summon issued under the Parliamentary Evidence Act,1901, together with a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334.

The witness was examined by the committee.

The witness used overhead projection of items contained in the previously received submission as part of his evidence.

Evidence concluded the witnesses withdrew.

Mr Terence William Hart, Treasurer, Access for All, called and sworn as a witness.

Mr John Charles Snell, Secretary, Access for All, called and sworn as a witness.

Mrs Catherine Margaret Lawler, Member, Access for All, called and sworn as a witness.

The witnesses acknowledged having received a summons under the Parliamentary Evidence Act,1901, together with a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

Mr William Samuel Green, Member, New South Wales Farmers Association, called and sworn as a witness.

Mr Noel Vincent Watson, Member, New South Wales Farmers Association, called and sworn as a witness.

The witnesses acknowledged having received a summons issued Parliamentary Evidence Act,1901, together with Legislative Assembly Standing Orders Nos: 332,333 and 334.

The witnesses were then examined by the committee.

Evidence concluded the witnesses withdrew.

Mr Eric George Johnston, Member, New South Wales Farmers Association, called and sworn as a witness.

The witness acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, together with a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

The committee deliberated.

There being no further business, the committee adjourned at 4.20pm, sine die.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 4

Minutes of Proceedings of the Joint Select Committee on Bushfires

Thursday 2 May 2002
at 9.00am
Parliament House

Members Present

Mr Price (Chairman)	Mr Colless	Mr Kelly
Mr E Page	Mr Smith	Mr Tingle
Mr Torbay		

In attendance: Mrs Angela Bollard, Project Officer, Mr Mervyn Sheather, Committee Manager, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Hearings

The press and public were admitted.

By direction of the Chairman the Manager read the committee Terms of Reference and Legislative Assembly Standing Orders Nos: 332,333, and 334 relating to the examination of witnesses.

Mr Phillip Christian Koperberg, Commissioner, New South Wales Rural Fire Services, called and sworn as a witness.

The witness acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witness was examined by the committee.

Evidence concluded the witness withdrew.

Mr Brian John Gilligan, Director-General, National Parks and Wildlife Service, called and affirmed as a witness.

Mr Robert James Conroy, Executive Director, National Parks and Wildlife Service, called and affirmed as a witness.

Mr Ross Andrew Bradstock, Principal Research Scientist, National Parks and Wildlife Service, call and affirmed as a witness.

The witnesses severally acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

Mr John Blair Sheehan, President, Australian Property Institute, called and sworn as a witness.

Ms Gail Kaye Sanders, Executive Officer, Executive Officer, Australian Property Institute, called and sworn as a witness.

The witnesses severally acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

Mr Ivan James Donaldson, Executive Director, Australian Building Codes, called and sworn as a witness.

The witness acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witness withdrew.

Mr Bernard John O'Sullivan, Manager, Government Relations, New South Wales Farmers Association, called and sworn as a witness.

Mr Alan James Brown, Executive Councillor, New South Wales Farmers Association, called and sworn as a witness.

The witnesses severally acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

Mr Colin Joseph Woodward, Assistant Director-General Operations, Environment Protection Authority, called and sworn as a witness.

Mr Nigel Lawrence Routh, Director Air Policy, Environment Protection Authority, called and sworn as a witness.

Mr Christopher Ray Eiser, Director Atmospheric Science, Environment Protection Authority, called and sworn as a witness.

The witnessess severally acknowledged having received a summons under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos :332,333 and 334 relating to the examination of witnesses.

The witnesses were then examined by the committee.

Evidence concluded the witnesses withdrew.

Mr John Ashbury Barber, Retired Engineer and Mrs Enid Shirley Barber,Retired, called and sworn as witnesses.

The witnesses severally acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

Mr Graeme Charles Head, Chief Executive Officer, Sydney Catchment Authority, called and sworn as a witness.

The witness acknowledged having received a summons issued under the Parliamentary Evidence Act,1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witness withdrew.

The committee deliberated.

The committee adjourned at 3.44pm, until Friday 3 May, 2002 at 9.00am.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 5

Minutes of the Proceedings of the Joint Select Committee on Bushfires

Friday 3 May 2002
at 9.00 am
at Parliament House

Members Present

Mr Price (Chairman)	Mr Colless	Mr E Page
Mr Smith	Mr Tingle	Mr Torbay

In attendance: Ms Angela Bollard, Project Officer, Mr Mervyn Sheather, Committee Manager, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Apologies

Apology received from Mr Kelly.

Hearings

The press and public were admitted.

By direction of the Chairman the committee Manager read the Terms of Reference and Legislative Assembly Standing Orders Nos: 332, 333 and 334 relating to the examination of witnesses.

Dr Judy Ann Messer, Environmental Advocate, Nature Conservation Council, called and sworn as a witness.

Mr Andrew David Stanton, Bushfire Project Officer, Nature Conservation Council, called and sworn as a witness.

The witnesses acknowledged having received having received a summons issued under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders Nos: 332, 333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

Mr Arnold Keith Jordan, Executive Officer, Rural Fire Service Association, called and sworn as a witness.

Mr Peter William Kinkead, Superintendent, New South Wales Rural Fire Service and State Secretary Rural Fire Service Association, called and sworn as a witness.

The witnesses acknowledged having received a summons under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders Nos: 332, 333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

Mr Ian MacDougall, Commissioner, New South Wales Fire Brigades, called and sworn as a witness.

The witness acknowledged having received a summons under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders Nos: 332, 333 and 334 relating to the examination of witnesses.

The witness was examined by the committee.

Evidence concluded the witness withdrew.

Cr Steven Bruce Scott Pringle, Mayor, Hornsby Shire Council, called and sworn as a witness.

Mr Ross Jones, Executive Director, Northern Sydney Regional Organisation of Councils called and sworn as a witness.

Mr Robert John Ball, General Manager, Hornsby Shire Council, called and sworn as a witness.

The witnesses severally acknowledged having received a summons issued under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders Nos; 332, 333 and 334 relating to the examination of witnesses.

The witnesses were examined by the committee.

Evidence concluded the witnesses withdrew.

The committee deliberated.

The committee adjourned at 12.42pm, until Friday 10 May, 2002 at 9:00am.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 6

Minutes of the Proceedings
of the Joint Select Committee on Bushfires

Friday 10 May 2002
at 9.00 am
at Parliament House

Members Present

Mr Price (Chairman), Mr Colless, Mr E Page
Mr Smith, Mr Torbay

In attendance: Ms Angela Bollard, Project Officer, Mr Mervyn Sheather, Committee Manager, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Apologies

Apology received from Mr Kelly and Mr Tingle.

Minutes

Minutes of the previous meeting was deferred.

Hearings

Mr Colless moved for an additional hearing day to include additional witnesses. Seconded Mr Smith.

Draft Report

The committee deliberated on the contents of the draft report.

The Committee adjourned at 9:58am until sine die.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 7

Minutes of the Proceedings
of the Joint Select Committee on Bushfires

Friday 31 May 2002
at 9.00 am
at Parliament House

Members Present

Mr Price (Chairman)	Mr Colless	Mr Kelly
Mr E Page	Mr Smith	Mr Tingle
Mr Torbay		

In attendance: Ms Angela Bollard, Project Officer, Mr Mervyn Sheather, Committee Manager, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Hearings

The press and public were admitted.

By direction of the Chairman the Committee Manager read the Committees Terms of Reference and Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

Mr Kurt Albert Lance, Retired, Hawkesbury Fire Brigades called and sworn as a witness.

Mr Kenneth Arthur Pullen, Manager, Hawkesbury Fire Brigade called and sworn as a witness.

The witnesses acknowledged having received a summons issued under the Parliamentary Evidence Act 1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined.

Evidence concluded the witnesses withdrew.

Mr Brian Williams, Company Director, Kurrajong Heights Rural Fire Brigade called and sworn as a witness.

Mr Phillip Michael Hurst, Deputy Chairman, Kurrajong Heights Rural Fire Brigade called and sworn as a witness.

The witnesses acknowledged having received a summons issued under the Parliamentary Evidence Act 1901, and a copy of the Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined.

Evidence concluded the witnesses withdrew.

Mr Robert John Whelan, Professor, Institute of Conservation Biology Department of Biological Sciences, University of Wollongong, called and sworn as a witness.

The witness acknowledged having received a summons issued under the Parliamentary Evidence Act 1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witness was examined.

Evidence concluded the witness withdrew.

Mr Ian Barnes, Professional Foresters Association, called and affirmed as a witness.

The witness acknowledged having received a summons issued under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders No: 332,333 and 334 relating to the examination of witnesses.

The witness was examined.

Evidence concluded the witness withdrew.

Mr Bob Smith, Director General, Department of Land and Water Conservation, called and affirmed as witness.

Mr Edward Joseph Cummins, Senior Reserve Management Officer, Department of Land and Water Conservation called and affirmed as a witness.

Mr Timothy Wilkinson, Co-ordinator, Land Assessment and Management, Sydney South Western Region, Department of Land and Water Conservation, called and sworn as a witness.

The witnesses acknowledged having received a summons issued under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined.

Evidence concluded the witnesses withdrew.

The Committee deliberated.

The Committee adjourned at 3.55 p.m. until Monday 3 June, 2002 at 9.00 a.m. in Room 814/5 at Parliament House.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 8

Minutes of Proceedings
of the Joint Select Committee on Bushfires

Monday 3 June, 2002
at 9:00am
in Room 814/5 at Parliament House

Members Present

Mr Price (Chairman)	Mr Colless	Mr Kelly
Mr E Page	Mr Tingle	Mr Torbay

Also in attendance: Ms Angela Bollard, Project Officer, Mr Mervyn Sheather, Committee Manager, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Apologies

Apologies were received from Mr Smith.

Minutes

Minutes of previous meeting was deferred.

Hearings

The press and public were admitted.

By direction of the Chairman the Manager read the Committees Term of Reference and Legislative Assembly Standing Orders Nos: 332,333, and 334 relating to the examination of witnesses.

Mr Bob Smith, Chief Executive, State Forests, called and reminded that he was still under Oath, from his evidence of the previous hearing of the Committee.

Mr Paul James de Mar, Manager, Fire Management and Aircraft Services, State Forests, called and affirmed as a witness.

Mr John Thomas Fisher, Deputy General Manager, State Forests, called and affirmed as a witness.

Mr Noel Phillip Cheney, CSIRO, Division of Forestry and Forest Products, Research Scientist, Consultant to NSW State Forests, called and sworn as a witness.

The witnesses acknowledged having received a summons issued under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witnesses were examined.

Evidence concluded the witnesses withdrew.

Mr Phillip Christian Koperberg, Commissioner, New South Wales Rural Fire Service, recalled as a witness and reminded that he was still under oath from the previous hearing of the Committee.

The witness was examined.

Evidence concluded the witness withdrew.

Mr Brian Gilligan,Director-General, National Parks and Wildlife Service, recalled as a witness and reminded by the Chairman that he was still under oath from the previous hearing of the Committee.

The witness was examined.

Evidence concluded the witness withdrew.

Mr Russell Alan Ainley, Executive Director, New South Wales Forests Products Association, called and sworn as a witness.

The witness acknowledged having received a summons issued under the Parliamentary Evidence Act, 1901, and a copy of Legislative Assembly Standing Orders Nos: 332,333 and 334 relating to the examination of witnesses.

The witness was examined.

Evidence completed the witness withdrew.

The Committee deliberated.

The Committee adjourned at 3:55 pm, sine die.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 9

Minutes of Proceedings
of the Joint Select Committee on Bushfires

Wednesday 19 June, 2002
at 12:30 pm
at Parliament House

Members Present

Mr Price (Chairman)	Mr Colless	Mr Kelly
Mr E Page	Mr Tingle	Mr Torbay
Mr R Smith		

In attendance: Mr Mervyn Sheather, Committee Manager, Ms Angela Bollard, Project Officer, Mr Jim Jefferis, Project Officer, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Minutes

Minutes of previous meetings were confirmed.

Draft Report

The Chairman brought up the Draft report of findings and recommendations for deliberation by the Committee.

Table of contents – as moved, amended, and agreed to, carried.

Summary of Findings and Recommendations-as moved,amended and agreed to. Fire Trails – Findings and Recommendations, as moved, amended. Amendments agreed to, moved Mr Page seconded Mr Torbay, carried.

Section Fuel Loads – Finding as moved agreed to. Fuel Load-Recommendations as moved, amended, moved Mr Kelly seconded Mr Page, carried.

Section Biodiversity – Findings, as moved, agreed to, carried..

Section Biodiversity –Recommendations, as amended, moved Mr Page agreed to Mr Kelly, carried.

Section Biophysical Processes – Findings, as amended, moved Mr Page seconded by Mr Tingle, agree to, carried.

Section Biophysical Processes – Findings, Recommendations, as amended, moved Mr Kelly seconded Mr Tingle, agreed to, carried.

Land Use Decisions and Developments Planning, as amended, moved by Mr Page seconded by Mr Kelly, agree to, carried.

Land Use Decisions and Developments Planning – Recommendations, as amended, by Mr Kelly seconded Mr Torbay, agreed to, carried.

Responsibilities of Property Owners – Findings, as amended, agreed to.

Responsibilities of Property Owners – Recommendations, as amended by Mr Kelly, seconded by Mr Page agreed to, carried.

The Adequacy or Otherwise of Bushfires Regulations currently in operation in New South Wales with Particular Emphasis on the Australian Community Bushfire Safety Standards for Houses –

Findings, as amended, agreed to.

Recommendations, as amended, agreed to.

The Adequacy of Equipment Available to, and Training of, Rural Fire Brigades –

Findings equipment, as moved, agreed to.

Recommendations – Equipment, as amended, agreed to.

Findings – Training, as amended, agree to.

Recommendations – Training, as amended, agreed to.

The Use of Aircraft in Firefighting –

Findings, as amended, agreed to.

Recommendations, as amended, agreed to.

The Committee deliberated.

The Committee adjourned at 2.05 p.m., until Tuesday, 25 June, 2002 at 3.45 p.m.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

No. 10

Minutes of Proceedings
of the Joint Select Committee on Bushfires

Tuesday 25 June, 2002
at 3:45 pm
at Parliament House

Members Present

Mr Price (Chairman)	Mr Colless	Mr Kelly
Mr E Page	Mr Smith	

In attendance: Ms Angela Bollard, Project Officer, Mr Mervyn Sheather, Committee Manager, Ms Cassandra Adams, Assistant Committee Officer and Ms Kylie Rudd, Parliamentary Officer.

Apologies

Apologies received from Mr Tingle and Mr Torbay.

Minutes

Minutes of the previous meeting as circulated were confirmed.

Draft Report

The Committee further deliberated on the amended Draft Report.

The Committee further considered the Draft Report and Part C,Major Themes of Evidence Tendered at the Hearings, Part D, Report and Discussions, and the final structure and collation of the Final Report.

Mr Kelly moved, seconded by Mr Price, and agreed to by the other Members of the Committee that the amended Draft report be the Report from the Committee..

Mr Price then thanked the Members of the Committee, and staff for their assistance.

Mr John Price M.P.
Chairman

Mr Merv Sheather
Committee Manager

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APPENDIX 5 - PLANNING FOR BUSHFIRE PROTECTION 2001

APPENDIX 6 – THE ADEQUACY OF THE AUSTRALIAN STANDARDS AS3959-1999 CONSTRUCTION OF BUILDINGS IN BUSHFIRE-PRONE AREAS