National Bushfire Management Policy Statement for Forests and Rangelands

Prepared by The Forest Fire Management Group for The Council of Australian Governments

Acknowledgements

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Cover photographs

Main: 2009 fuel reduction burn in high elevation, long unburnt native forest, Namadgi National Park, ACT (photo: Neil Cooper, ACT Parks and Conservation Service).

Small left: First day of Bushfire Cooperative Research Centre (CRC) multi-agency task force at Wandang, Victoria, one week after February 2009 Black Saturday fires (photo: Bushfire CRC).

Small middle: Epicormic regrowth following planned fire (photo: Bushfire CRC).

Small right: Forest fuel reduction burn on Stoneford Road, Victoria, in April 2010 (photo: Parks Victoria).

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Foreword

Australia and many other fire-prone parts of the world have experienced an increase in bushfires over the past decade. The bushfires have increased in intensity and caused more damage. There is increasing debate within Australia and overseas about how best to reduce bushfire risk. This debate is occurring against a backdrop of a changing climate and a growing, more urbanised population. It is informed by the Victorian Bushfires Royal Commission into the 2009 Black Saturday Bushfires which led to the deaths of 173 people and destroyed over 2000 homes.

Central to this debate is the role fire plays in maintaining and enhancing biodiversity. Sustainable long-term solutions are needed to address the causes of increased bushfire risk. Greater investment in prevention and preparedness is essential.

This policy statement and supporting strategies have been developed by all Australian governments to guide the evolution of effective and ecologically sustainable fire regimes within Australia. It builds on experience gained across Australia and assists in developing a more coordinated approach. This policy lays the foundation for future bushfire management in Australia, and ensures that Australia will continue to be a global leader and innovator of bushfire management.

The policy focuses on the management of fire in forests and rangelands. While it largely covers public lands, the general issues and principles apply more widely. The policy places priority on the protection of life, as well as the need for due consideration of the important responsibility of governments to address the purpose for which they set aside the bushland that surrounds many urban areas. The purpose being that all Australians, now and in the future, should benefit from the roles of these lands in the provision of ecosystem services such as conserving biodiversity, heritage and carbon, producing water and timber, and hosting recreation and tourism opportunities.

The vision inspiring this policy is that:

> *Fire regimes are effectively managed to maintain and enhance the protection of human life and property, and the health, biodiversity, tourism, recreation and production benefits derived from Australia's forests and rangelands.*

To achieve this vision for the enhanced management of fire in the landscape, actions must fall under four strategic objectives:

- Effectively Managing the Land with Fire.
- Involved and Capable Communities.
- Strong Land, Fire and Emergency Partnerships and Capability.
- Actively and Adaptively Managing Risk.

'...appropriate use of planned fire to protect communities and their assets, and to protect and conserve natural and cultural values.'

Kinglake Road, Victoria, one week after the February 2009 Black Saturday fires (photo: Bushfire CRC).

To deliver these objectives, fourteen national goals have been identified:

1. Maintain Appropriate Fire Regimes in Australia's Forests and Rangelands.
2. Balance the Environmental Impacts of Fire.
3. Promote Indigenous Australians' Use of Fire.
4. Community Engagement.
5. Public Awareness and Education.
6. Integrated and Coordinated Decision Making and Management.
7. Employment, Workforce Education and Training.
8. Bushfire Risk Mitigation.
9. Bushfire Response.
10. Safety in Fire Operations.
11. Bushfire Recovery.
12. International Responsibilities.
13. Risk Management.
14. Investing in and Managing Knowledge.

Knowledge of the costs and benefits of alternative bushfire management strategies is incomplete. While community expectations of land and fire managers are high, they vary in terms of what is most valued from forests and rangelands.

Fire prone parts of the world have always had, and will continue to have, bushfires. The current approach to bushfire management is ineffective due to changes to settlement, demographics and climate. The approach has a response and recovery focus, which is necessary for dealing with immediate challenges, but is unsustainable as a stand-alone solution.

'Greater investment in prevention and preparedness is essential.'

Sustainable long-term solutions are needed to address the causes of increased bushfire risk. Greater investment in prevention and preparedness is essential. This requires the appropriate use of planned fire to protect communities and their assets, and to protect and conserve natural and cultural values. It also implies greater efforts to improve overall understanding of bushfire risk by governments, agencies and communities, and to encourage an acceptance of living with fire.

This statement was jointly developed by governments under the auspices of two ministerial councils[1], in consultation with land management and rural fire agencies. The statement was endorsed by all members of the Council of Australian Governments (COAG), including the Australian Local Government Association, during late 2011 and early 2012.

In endorsing this statement, governments committed to implementing the policies it outlines for the benefit of present and future generations of Australians. COAG acknowledged that implementation of policies requiring funding will be subject to budgetary priorities and constraints in individual jurisdictions; however the principles identified in this document will be reflected in all the individual land and fire management agencies' codes of practice (or alternative instruments).

Tim McGuffog

Chair
Forest Fire Management Group

1 The Primary Industries Ministerial Council and the Natural Resource Management Ministerial Council.

Introduction

This statement outlines agreed objectives and policies for the future management of broad area or landscape fire in Australia's forests and rangelands. It is, in part, a supplementary response by the Australian, state and territory governments to the 2004 report to COAG, of the *National Inquiry on Bushfire Mitigation and Management*. An initial joint response to that report was published by COAG in late 2004. This statement also complements relevant sections of the *National Forest Policy Statement* (which COAG released in December 1992), *Australia's Biodiversity Conservation Strategy 2010–2030* (released in October 2010), which aims to ensure our biodiversity is "*healthy and resilient to threats, and valued both in its own right and for its essential contribution to our existence*", and *Australia's Native Vegetation Framework* (released in December 2012) which aims to manage native vegetation in "*an ecologically sustainable way that promotes its enduring environmental, economic, social, cultural and spiritual values*". Both *Australia's Biodiversity Conservation Strategy 2010–2030* and *Australia's Native Vegetation Framework* promote the use of ecological fire regimes to conserve biodiversity and protect the public. The statement also complements the *Principles for Sustainable Resource Management in the Rangelands* (released by the Natural Resource Management Ministerial Council in April 2010).

The three levels of government in Australia have responsibilities for the management of fire:

- The Australian Government is responsible for coordinating a national approach to both environmental and international policy related issues. The Australian Government is playing an increasingly important role in supporting the states in preparing for and responding to major emergencies.
- State and territory governments have primary responsibility for land and fire management, in recognition of the constitutional responsibility of the states for land use decisions, emergency management and the management of large areas of forests and rangelands.
- Local governments have responsibilities for land use planning which affects public and private fire management, and which can influence the protection of life and property, particularly in the zone where urban and more natural areas meet. Local government has a critical role in managing and supporting community recovery efforts after serious fire events, and has a primary bushfire response role in some jurisdictions.

Private landowners and leaseholders – as land and fire managers of large tracts of forests and rangelands – are also crucial in managing land and fire.

Governments are mindful of the many values of Australia's landscapes and of the role they play in the full suite of ecological processes that sustain life on this continent. Governments are also increasingly aware of the importance of the threat that fire can pose to life and property, and of the relationship between fire regimes and the maintenance of biodiversity and heritage values. Finally, governments are acutely aware of the contribution that rural activities such as agriculture, forestry, mining and tourism make to the national economy and to regional and local employment. Inappropriate fire regimes (especially ones that predispose the landscape to catastrophic fires) exacerbate the risk of major economic impact on regionally critical industries.

Australian landscapes comprise a complex array of ecosystems and land uses, characterised by marked regional differences and different community values. The management of fire across Australia requires policies and practices that suit regional needs. Bushfire management policy also must be sufficiently adaptive to be able to anticipate and respond effectively to drivers such as shifts in climate, better understanding of bushfire risk and biodiversity, changes in community attitudes, and land use and settlement patterns. A warming, drying climate (in southern Australia in particular), with amplified variability and more extreme events will alter bushfire risk and the nature and distribution of ecosystems.

In fire prone parts of the world, a framework that enables governments and communities to meet future bushfire management challenges is essential. In such regions, it is typically the case that:

- fire can be damaging and devastating in some circumstances, and essential for maintaining productive and healthy landscapes in others;
- risk of adverse impacts from bushfire is increasing due to climate change, increased settlement and development, and greater reliance on products and services (tourism, water, carbon and timber) from production and conservation lands; and
- community values are changing, with increased expectations for involvement in, and transparency of, decision making.

This statement provides a vision, principles, policy objectives and strategies for the management of landscape fire by land and fire managers in Australia. These principles need to inform land and bushfire management instruments and arrangements (e.g. codes of practice) to ensure they are implemented at the operational level.

'...fire can be damaging and devastating in some circumstances, and essential for maintaining productive and healthy landscapes in others.'

Vigorous native forest epicormic regrowth following a high intensity wild fire (photo: Andrew Tatnell).

Policy Scope

The statement places priority on the protection of life, as well as the need for due consideration of the important responsibility of governments to address the purpose for which they set aside the bushland that surrounds many urban areas. The purpose being that all Australians, now and in future, should benefit from the roles of these lands in conserving biodiversity, heritage and carbon, producing water and timber, and hosting recreation and tourism opportunities. This statement recognises that reasonable efforts to manage risk must consider the purpose of these lands and the role of fire in managing them.

The statement acknowledges the positive role that planned fire can play in reducing the risk of adverse impacts from bushfire and in managing forest and rangeland ecosystems; but it also recognises that inappropriate fire regimes can damage these ecosystems. In doing so, it also acknowledges that climate change may further reduce the adaptive capacity of our natural ecosystems and threaten their ability to provide services essential for human life, livelihood and wellbeing such as water, climate moderation (including carbon capture), biodiversity and tourism and recreation opportunity. It is also acknowledged that while planned fire regimes are the main method available to land and fire managers to enhance the resilience of these ecosystems and hence reduce this threat, there are certain places where other methods of fuel reduction will need to be utilised to achieve this same outcome.

'...positive role that planned fire can play in reducing the risk of adverse impacts from bushfire and in managing forest and rangeland ecosystems...'

Before European settlement, bushfires impacted on natural ecosystems as part of natural processes and indigenous practice. Now, significant and sometimes inappropriate development of settlements and commercial ventures adjacent to forests and rangelands exposes many people, homes and assets to risk from fire. It increases the complexity of managing adjacent forests and rangelands and especially of using planned fire. In some cases it transfers the responsibility for managing risk to adjacent land and fire managers. Development also introduces additional sources of fire ignition that increase the chances of fire impacting on water, timber, tourism and other benefits of the neighbouring lands. This statement is not a policy on regional growth or land use. It does however highlight this issue and advocates for better mechanisms for influencing development outcomes.

The statement aims to establish the necessary knowledge and decision making framework needed by land and fire managers to reduce bushfire risk to the full range of natural and human assets through implementing appropriate fire regimes.

The International Dimension

The international bushfire management community is evolving in breadth and complexity. A notable development is the growth of mutual support arrangements that jurisdictions use to share resources during difficult fire seasons. Australia enjoys fruitful relationships with land, fire and emergency management agencies overseas, notably in New Zealand, the United States and Canada. There remain significant opportunities to deepen these partnerships beyond knowledge exchange and emergency support.

This policy statement will ensure that Australia continues to be a leader, as well as a thoughtful and creative contributor, to the management of bushfire internationally.

The general direction of this statement is consistent with the United Nations *Voluntary Guidelines for Fire Management*, which was developed following a recommendation of the 3rd *International Wildland Fire Summit*, held in Sydney in October 2003. The Voluntary Guidelines were subsequently endorsed by the 8th Session of the United Nations FAO Committee on Forestry in March 2007, and by the 4th *International Wildland Fire Summit* in May 2007.

Policy Statement

Successive bushfires have significantly affected the lives, wellbeing and livelihoods of communities living within or near many of our fire prone forests and rangelands. Drought (made worse by climate change) and bushfire have also negatively impacted on the health and productivity of these ecosystems. Climate change will further increase bushfire risk and stress on our human and natural communities.

Reducing the occurrence, severity and impact of bushfires, and enhancing the resilience of our natural ecosystems by managing fire in our forest and rangelands are core objectives of this statement. Local and regional actions contribute to the broader outcomes across the entire landscape. These outcomes need to reflect community values and expectations including:

- community protection;
- the conservation of natural biodiversity (plant and animal species, habitat);
- the production of water, carbon, and timber;
- the provision of tourism and recreation opportunities.

Optimising one or more of these values often comes at the expense of others. Where these values conflict, the priority must be firefighter and community safety, as well as providing essential services. However, our forests and rangelands are also essential for the life (through water and climate moderation), wellbeing (through recreation and relaxation) and livelihood (through water for production and industry, agricultural production, timber and tourism) of current and future generations. Research, monitoring and stakeholder and community engagement is essential for informed and integrated decision making now and into the future.

'Reducing the occurrence, severity and impact of bushfires, and enhancing the resilience of our natural ecosystems by managing fire in our forest and rangelands are core objectives of this statement.'

It is clear that in forest and rangeland ecosystems, reducing the fuel reduces bushfire risk. Many techniques are available to reduce fuel (such as slashing, grazing, physical removal) and overall bushfire risk (such as reducing ignitions, rapid response, community preparedness), but this statement focuses on the role of planned fire which is the only technique available for the wider reduction of fuels in fire prone and fire adapted communities (i.e. those suitable for treatment). It also recognises that there are occasions where planned fire cannot be used and alternative techniques will need to be utilised.

'...in forest and rangeland ecosystems, reducing the fuel reduces bushfire risk.'

Implementing a planned fired to reduce fuel loads in native forest at Deep Creek, South Australia, in September 2011 (photo: Chantelle O'Brien, Department of Environment, Water and Natural Resources, South Australia).

Land and fire managers have critical roles and responsibilities in achieving the objectives of this statement. These include:

- using planned fire to reduce fuel and maintain productive and healthy ecosystems;
- reducing the occurrence of unplanned and unwanted fires;
- preparing for, and rapidly responding to, unplanned fires on or near their lands;
- managing bushfires, where possible, to contribute to the achievement of positive outcomes;
- leading and supporting emergency efforts as appropriate;
- working closely with communities, stakeholders and partners;
- learning through research, monitoring and adaptive management; and
- applying best practice by developing and adapting their agencies' codes of practice to deliver on the principles and policies that lie within the *National Bushfire Management Policy Statement for Forests and Rangelands*.

Reducing bushfire risk involves immediate and ongoing costs, and carries risks – it therefore requires governments and their agencies to work with communities, families, individuals and industries. Land and fire managers must work closely with fire and emergency management partners in preventing, preparing for, responding to and recovering from bushfires. Land and fire managers lead these activities in some instances and support their emergency management and land use planning partners in others. Land, fire and emergency managers work with private land managers to manage risks across areas with differing land uses. In the case of land and fire managers, this is on a "good neighbour" basis, where cooperation is essential. Fire and emergency services usually have responsibility for community prevention and preparedness, and the provision of fire response services on private land in most jurisdictions – they cover all lands in some.

In acknowledging the positive relationship between increased and "smarter" planned burning, reduced bushfire risk and better ecological outcomes, this statement acknowledges that effort and knowledge are required to continuously reduce risk and increase resilience – especially in a more drought and fire prone environment. The policy statement provides a framework for a collaborative approach to risk and adaptive management. The strategies identified within the statement reflect the current best understanding of risks, and the balance between particular areas intrinsic values and the values that communities hold. This will ultimately influence future decision making, including resource allocation.

'Australia cannot be "fire-proofed"...'

Low intensity fire in long unburnt native forest in Namadgi, ACT, 2009 (photo: Neil Cooper, ACT Parks and Conservation Service).

Vision

The vision inspiring this policy is that:

> *Fire regimes are effectively managed to maintain and enhance the protection of human life and property, and the health, biodiversity, tourism, recreation and production benefits derived from Australia's forests and rangelands.*

Principles

The principles below are based on the *Indicative National Bushfire Principles* included in the 2004 *Report of the National Inquiry on Bushfire Mitigation and Management*[2] prepared for the Council of Australian Governments (COAG). COAG's response to the report accepted the recommendation that national principles for bushfire mitigation and management should be developed, and agreed that the indicative principles be used as a starting point[3]. The principles were developed by the Forest Fire Management Group in consultation with the Rural Land Management Group of the Australasian Fire and Emergency Service Authorities Council.

Learning to Live with Fire – Bushfires are Understood, Accepted and Respected

Like other natural hazards, bushfires cannot be prevented. Australia cannot be "fire-proofed" any more than it can be made flood-proof or drought-proof. Bushfires are inevitable, and in some instances can be managed to assist in achieving land management objectives. The impact of unplanned fires needs to be minimised through effective action based on learning and understanding. Living with bushfires also requires strong self-reliance.

Shared and Individual Responsibility

Bushfire mitigation and management is a shared responsibility between the community, industries and firms, land and bushfire management agencies and governments – where all take individual action and responsibility in an integrated way. Well informed and prepared individuals and communities, complement the roles of land and bushfire management agencies. A partnership approach is the best way to minimise bushfire risks to lives, property and social and environmental assets.

Protection of Lives as the Highest Consideration

Firefighter and community safety must be at the forefront of bushfire risk mitigation and management decision making. Although there should always be a balance between environmental considerations consistent with the primary purpose of land use and the need for intergenerational equity, the protection of human life must remain paramount.

Consistency of Purpose and Unity of Command

There needs to be consistency of purpose during bushfire risk mitigation, and unity and clarity of command for all fire response, irrespective of organisational structures.

Incident Management Team (IMT) operating at Horsham, Victoria, in 2004 (photo: Department of Environment and Primary Industries, Victoria).

2 Council of Australian Governments (2004). *Report of the National Inquiry on Bushfire Mitigation and Management*. Australian Government. Canberra. 415 pp (www.coagbushfireenquiry.gov.au/findings.htm).

3 Council of Australian Governments (2005). *Response to the National Inquiry on Bushfire Mitigation and Management. Australian Government*. Canberra. (See Recommendation 14.1). (www.coagbushfireenquiry.gov.au/findings.htm).

Protection of important remnant vegetation during a 2010 planned fire in Victoria (photo: Parks Victoria).

Manage Fire According to the Landscape Objectives

Australia has a great diversity of climates, environments, land uses and built assets. Bushfire management objectives and outcomes will vary across landscapes and over time. Clear agreed objectives and an adaptive management approach are required for effective implementation.

Decisions within a Risk Management Framework

No single action will lead to the elimination of bushfire risk. Decisions about bushfire mitigation and management must be made within an integrated risk management framework, and be transparent.

Integration of Learning and Knowledge

Analysis of fire events is based on operational and scientific evidence and research. This should be informed by extensive and consistent national data, including fire regime mapping. The best results will be achieved by integrating all forms of knowledge, and good information about fire history, with analysis at the local and regional levels.

Monitoring Performance

The state, territory and local governments need to regularly review their performance against these principles and other appropriate indicators. Performance review should be continuous and not be deferred until inquiries are completed after a major bushfire event. This needs to include the environmental impact of fire regimes across the landscape and the effectiveness of strategies over longer time frames. Principles must be monitored regularly if they are to improve performance and bring about change.

'No single action will lead to the elimination of bushfire risk.'

Strategic Objectives

The governments agree that to achieve their vision for the enhanced management of fire in the landscape, four strategic objectives should be pursued.

A. Effectively Managing the Land with Fire: Fire is used to manage Australia's forests and rangelands to achieve outcomes that involve reduced risk from severe bushfires, and enhance the resilience of ecosystems in the face of climate and other change.

B. Involved and Capable Communities: Community values and available knowledge are used to formulate supporting strategies and actions. Initiatives by emergency, health and development agencies to promote resilient (and capable) communities are supported through promotion of living with fire principles.

C. Strong Land, Fire and Emergency Partnerships and Capability: High priority objectives and the best available knowledge are used to guide investment in capability and cooperative working arrangements with partners and stakeholders.

D. Actively and Adaptively Managing Risk: Learnings from new research, management experience, community interaction, and monitoring of outcomes are used to continually improve land and fire management strategies.

National Goals

The governments agree that to achieve their vision for better managing fire in the Australian landscape, fourteen national goals should be pursued. Each of these goals is described below and broad strategies for progressing these goals are introduced.

A. Effectively Managing the Land with Fire

1. Maintain Appropriate Fire Regimes in Australia's Forests and Rangelands

Manage planned fire and unplanned fire (where appropriate), to reduce the risk of severe bushfires impacting on communities, and enhance the health, biodiversity and resilience of Australia's forests and rangelands. Underpinning this goal is an understanding that planned and managed fire can play a positive role in reducing the scale and magnitude of bushfires, and promote more healthy and productive forest and rangeland ecosystems.

High intensity post harvest slash burn at Rosebud, Victoria, in 2010 to ensure healthy and vigorous regeneration (photo: Parks Victoria).

Key strategies include defining the outcomes required to reduce the risk of severe fires and promote more healthy and resilient ecosystems – and the fire regimes which most effectively achieve these. Where appropriate, the suitability of Indigenous fire regimes will be considered. A strategic approach to research, monitoring and learning aimed at supporting the use of fire in the landscape will lead to an improved understanding of the relationship between fire regimes (and individual fires) with risk, biodiversity, ecosystem health and resilience, natural resource management and production, catchment water yields and water quality and greenhouse gas storage and emissions.

Another key strategy is to develop a framework that supports effective strategic decision making. Stakeholders understandably strive to avoid the undesirable impacts of single fire events at particular places. This often creates conflict between competing values and objectives at the expense of longer-term and landscape level outcomes. The framework would allow comparisons between bushfires and regimes of planned burning, over periods of many years, across the landscape as a whole, for multiple, diverse and interrelated values. It will be developed using current knowledge from research, case studies, expert opinion and the input of key stakeholders, subject to ongoing refinement based on experience and new information.

In the meantime, land and fire managers will not let the lack of a comprehensive framework for planned fire, or short-term and local risks involved in using fire, unduly constrain the use of planned fire to manage the risk of severe fire impacts.

Traditional lighting of the landscape in Cape York, in July 2011 (photo: Oliver Costello, NSW Office of Environment and Heritage).

2. Balance the Environmental Impacts of Fire

Maximise the environmental benefits through use of appropriate fire regimes, while minimising the adverse environmental effects of fire on environmental assets or services such as water, timber, carbon and air sheds.

3. Promote Indigenous Australians' Use of Fire

Where relevant to Indigenous people, and appropriate, further integrate traditional burning practices and fire regimes with current practices and technologies to enhance bushfire mitigation and management in Australian landscapes.

B. Involved and Capable Communities

4. Community Engagement

Improve the engagement of communities in fire prone areas in bushfire mitigation and management so that responsibility for bushfire management is acknowledged and appropriately shared through governments, agencies, industries and individuals taking individual and combined action as a part of a comprehensive suite of strategies. To achieve this, opportunities for effective public participation in decision and more transparent risk management processes are needed.

Improve opportunities for, and the ability of, land and fire managers to promote shared learning and discussion and to better reflect community values in decision making through community engagement, including with a broader stakeholder group of individuals and groups who may be affected by fire, undertake activities that influence bushfire risk, or who have concern for the social, environmental and economic assets and objectives that might be influenced by fire, or the strategies used to reduce its impacts. The development and sharing of new and better ways of achieving this goal through planning, action and supporting social research will be critical to success.

Town meeting at Swifts Creek, Victoria, in February 2003 (photo: Department of Environment and Primary Industries, Victoria).

5. Public Awareness and Education

Foster community understanding of, and support for, bushfire management in Australia – including the role of planned fire in reducing risk and promoting healthy and resilient ecosystems.

Land and fire managers will also support their partner emergency management agencies to increase the community's capacity to live with fire. This will involve providing information and supporting initiatives that aim to enhance preparedness and resilience. The philosophy of shared responsibility is integral to this strategy.

C. Strong Land, Fire and Emergency Partnerships and Capability

6. Integrated and Coordinated Decision Making and Management

Improve decision making processes through integrated strategic and operational planning between land, fire and emergency management agencies. This will include the enhancement of mutual aid and learning, and the development of good practice examples.

7. Employment, Workforce Education and Training

Build employment opportunities and the skill base of people working in land and bushfire management (including Indigenous communities) to ensure that Australian agencies continue to have access to graduates, technical and field personnel with appropriate specialised education and training.

8. Bushfire Risk Mitigation

Improve the efficiency and effectiveness of programs designed to minimise the number, spread and adverse impacts of future bushfires. This includes advocacy about the impacts that land use and settlement changes have on bushfire risk and adjacent land and bushfire management practices.

Support and conduct research and share information about fire prevention, preparedness, response and recovery in forest and rangeland environments, for the purpose of increasing the efficiency and effectiveness of land, fire and emergency management. This includes improving knowledge of the impacts of climate change and seasonal and daily weather patterns on bushfire risk.

'The philosophy of shared responsibility is integral to this strategy.'

International deployment of Australian/New Zealand fire fighters to the United States of America – Boise, Idaho, August 2006 (photo: Parks Victoria).

9. Bushfire Response

Improve the efficiency and effectiveness of programs designed to minimise the adverse impacts of bushfires through improved capability, knowledge (e.g. resource effectiveness and fire behaviour prediction) and support for the initial and ongoing attack of bushfires. This also includes working with fire and emergency management partners to achieve better multiagency and multijurisdictional cooperation, and to improve the provision of timely information and advice to communities.

Acknowledge the complexity of making decisions and working in emergency environments, and support the development of improved incident and emergency management frameworks, as well as more appropriate supporting statutes and inquiry processes.

10. Safety in Fire Operations

Improve the effectiveness of programs designed to improve the health and safety of all personnel working in on ground fire management operations and to minimise the related risks to nearby communities. This includes the development, communication and ongoing improvement of policies, plans and procedures to best reduce risk for firefighters and other personnel on and around the fire ground.

11. Bushfire Recovery

Improve the effectiveness of programs designed to minimise the adverse impacts of bushfire suppression operations on human communities, firefighters and on ecological and other environmental values.

12. International Responsibilities

Ensure that Australia continues to be a leader in the international bushfire community and fulfils its obligations under relevant international agreements.

Strengthen and further develop partnerships between land, fire and emergency management partners and stakeholders both nationally and internationally (building on existing arrangements with New Zealand, the United States and Canada) through both formal and informal means. These will be underpinned by appropriate agreements, protocols and standards that facilitate emergency support, general and technology exchanges (including training and learning opportunities) and information sharing that supports the achievement of these objectives.

D. Actively and Adaptively Managing Risk

13. Risk Management

Ensure that the management of landscape fire is based on "best practice" approaches to managing fire regimes and risk. Such approaches should be based on sound scientific information and organisational and community values and learning, and allow the efficient use of resources.

Develop risk and adaptive management systems that support the assessment and reporting of landscape and local level risks, and identify cost-effective strategies for achieving outcomes (and performance measures) that reduce the impact of severe fires and promote ecosystem resilience.

14. Investing in and Managing Knowledge

Bushfire management must be supported by policies, strategies and procedures based on the best available knowledge regarding the physical relationships between fire regimes and ecosystem processes, the management of risk, community values and expectations and how these interact.

More knowledge is needed to better identify the fire regimes that optimise values such as community protection, carbon sequestration, water, timber and agricultural production and biodiversity conservation amenity over whole landscapes through time. Naturally, the relative mix will vary for different regions across the continent depending on the social, economic and environmental attributes of each region and guiding cultural values and expectations. More knowledge is also needed on fire behaviour, fire weather and fire climate and how these relate to risk and its mitigation.

Land and fire managers will continue to improve links with cooperative research centres, universities and other research providers by:

- developing a comprehensive research strategy to support the implementation of this statement (this will include assessing the value of long term ecological research sites in supporting bushfire management across the landscape);
- supporting graduate development and other forms of specialised training;
- establishing a framework for integrating research and monitoring into the management of fire at the broader landscape level, and for improving and refining strategies as a result of new knowledge – adaptive management;
- incorporating community values and knowledge into planning and action through engagement, discussions and social research;
- establishing effective means for brokering/sharing/transfer of new and existing knowledge for fire and land managers (this will be incorporated into training, planning and operations).

Member of the Bushfire CRC multiagency research task force analysing destroyed properties at Kinglake, Victoria, one week after the February 2009 Black Saturday fires (photo: Bushfire CRC).

Implementation and Reporting

This statement identifies several key objectives and supporting goals and strategies that highlight the important role that the managers and owners of forests and rangelands have in reducing bushfire risk. It identifies key drivers that are exacerbating the social, economic and environmental impacts of bushfires in Australia, and outlines strategies that will move Australia closer to the vision articulated here, as depicted in the diagram below.

Drivers

A warming climate with more extreme weather and more frequent and intense droughts in the south.

Population growth and settlement patterns with more people living in and near bushland.

Community values including landscape amenity, primary production, biodiversity conservation, water yields and greenhouse gas emissions.

Increasing bushfire suppression and recovery costs, and pressures on land and fire management and emergency service agencies.

Strategic Objectives and National Goals

A. Effectively Managing the Land with Fire

1. Maintain Appropriate Fire Regimes in Australia's Forests and Rangelands.
2. Balance the Environmental Impacts of Fire.
3. Promote Indigenous Australians' Use of Fire.

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14. Investing in and Managing Knowledge.

Vision

Fire regimes are effectively managed to maintain and enhance the protection of human life and property, and the health, biodiversity, tourism, recreation and production benefits derived from Australia's forests and rangelands.

Planned burning to minimise the risk and impact from unplanned fires (photo: Parks Victoria).

All governments have agreed to take responsibility for implementing this statement. Several of the policies contained within this statement can be implemented immediately; others depend on further work. Reports on the implementation of progress will be prepared by the Forest Fire Management Group – a committee of government officials from production and conservation forest management agencies.

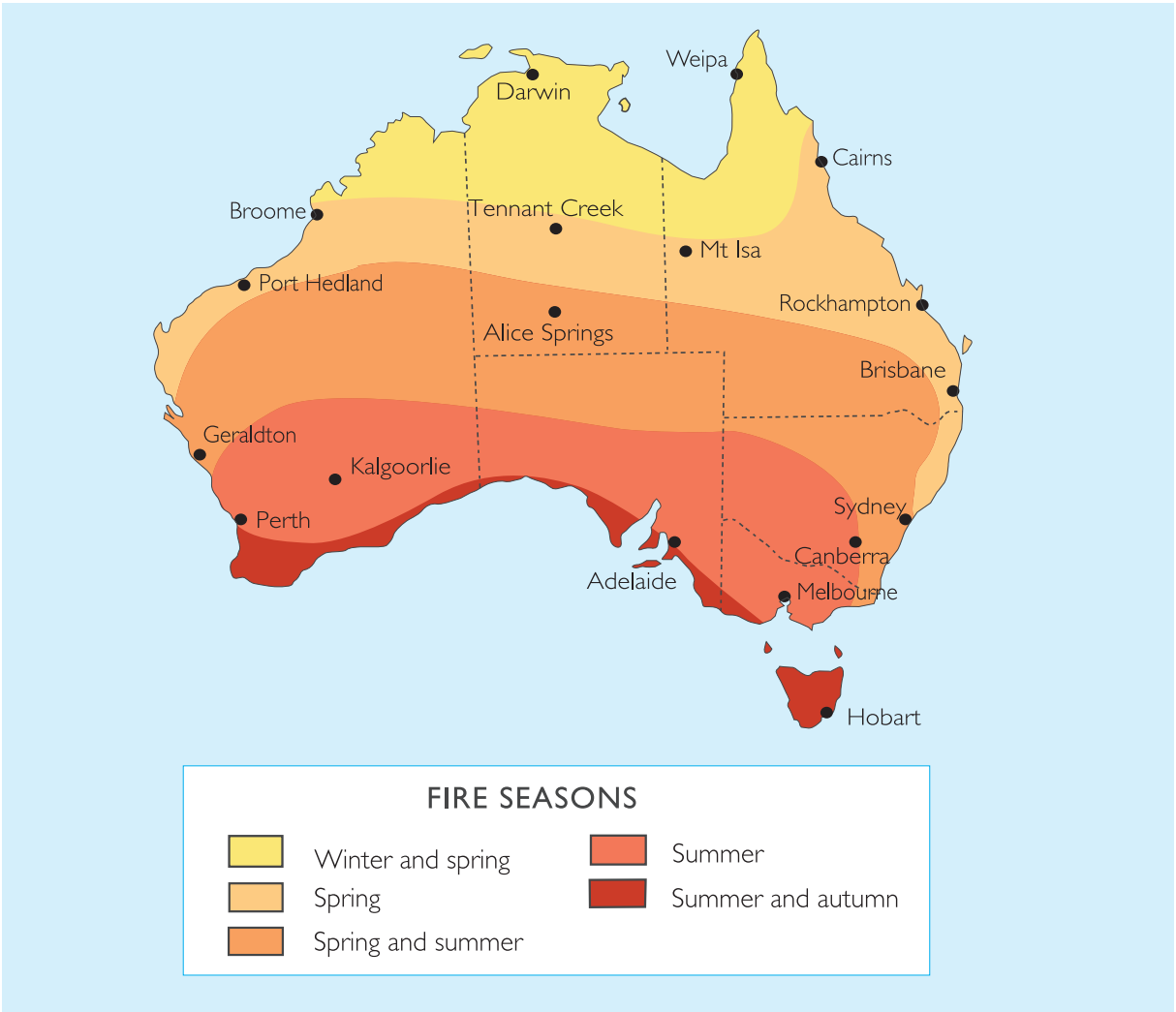
Governments agree that the reporting mechanism will be consistent with that adopted for similar national policy statements. Implementation will be via the annual business planning processes of relevant agencies following an annual assessment of priorities, progress and the availability of resources.

All Australian, state and territory governments will continue to work towards policy priorities and set the cooperative and regulatory framework for the management of landscape fire in order to achieve social, environmental and economic objectives. Governments are already providing significant funding in a number of the areas identified. This statement primarily aims to support the collaborative and efficient use of available resources, and to support the consideration of future initiatives by providing more common strategic intent, and a framework for sharing and validating information to support business case development and investment.

Appendix 1: Fire in Australia

Fire has been part of Australia's environment for millions of years. Many of our landscapes and ecosystems have evolved with and been shaped by both historical and recent patterns of fire. Over tens of thousands of years, Indigenous Australians developed a sophisticated understanding and purposeful use of fire for managing land and resources. Their understanding of fire and fire regimes evolved over many hundreds of generations. Early European settlers also used fire as a management tool. Traditional knowledge, practical experience and the application of science can all contribute to an important national journey of learning how to live with and to better manage landscape fire in Australia.

Because of the climatic variation across Australia, at any time of the year some part of the continent is prone to bushfire, as illustrated by the map below[4]. In an average year, bushfires burn around 29 million hectares (about 4 per cent) of Australia. With seasonal fluctuations, however, this area can be higher or lower by a factor of four. For example, in 1974 and 1975, 115 million hectares or 15 per cent of Australia was burnt.



4 Climate of Australia, Bureau of Meteorology, 2008, page 157.

Columns of smoke from burning operations near Mittagong, NSW, during the December 2001 Black Christmas fires (photo: Stephen Wilkes, ACT Parks and Conservation Service).

In northern Australia, few years pass without large areas being burnt. Around 90 per cent of the area of Australia burnt by fire each year is found north of the Tropic of Capricorn, with burning occurring during the dry season, generally between April and November. These fires usually have a relatively low economic impact because of the low population density and the dispersed nature of built assets. Increasingly however, we are gaining a better understanding of the effect of these fires on biodiversity, greenhouse gas emissions and carbon balances. In the grazed rangelands of northern Australia, fire remains both a threat to livelihoods and a valuable tool for managing pastures, weeds and livestock and for maintaining land condition.

It is possible to assume, for greenhouse gas emission accounting purposes, that net emissions from bushfires over time are zero as burnt vegetation grows back. However in practice it is likely that extremely intense bushfires that burn large fuels such as logs on the forest floor and burn more deeply into soil profiles, generate large pulses of emissions. These pulses substantially exceed the carbon sequestered by growing vegetation in more moderately disturbed environments subject to more frequent planned burning[5].

Around three million hectares or 10 per cent, of the area burnt annually is located in the southern regions of Australia, which are temperate and more densely populated. In these environments (especially the south east), occasional but severe bushfires have significant social, economic and environmental impacts. Several million hectares of south eastern Australia were burnt by the 2002–03 and 2006–07 fires. The catastrophic 2009 Black Saturday Bushfires caused the loss of 173 lives, the destruction of over 2000 homes, major disruption to industry (e.g. agricultural, viticultural and forestry, tourism and recreation) and loss of essential services (e.g. transport, power supplies and drinkable water).

The environmental impacts were also serious and long lasting, with several million hectares of native vegetation being severely burnt. While most of these areas will eventually recover (subject to favourable future climate and fire regimes), the loss of soil, nutrients, habitat (and wildlife) will render them less productive and more vulnerable to drought and severe fires for some time. Some of our most productive and important water catchments have also been affected (for example those supplying the Melbourne and the Murray and Goulburn Irrigation areas), and these will produce less water for communities and industries for more than 30 years.

5 CSIRO estimates for the 2006–07 Victorian fires were that greenhouse gas emissions from the fires exceeded those of the state's power stations, industries and cars by about 30 per cent over the same period. www.heraldsun.com.au/archives/old-news-pages/bushfires-colossal-effect/story-e6frf7rx-1111112820872.

Since 2000, southern Australia has experienced fire seasons as devastating as any in the two hundred years since European settlement. The best available science now suggests that a warming, drying climate, particularly in southern Australia, will increase the frequency, intensity and size of bushfires in some of the most densely populated regions of the continent. The weather conditions which predisposed Victoria to catastrophic fire danger in February 2009, and the consequent tragic loss of life and property, are predicted by the CSIRO and Bureau of Meteorology to occur more frequently in future[6].

It is estimated that over the last century the area subject to fire in Australia has declined. This is because of changed land use and management, improved bushfire suppression practices, the reduction of traditional burning by Indigenous communities, and a reduction of planned burning by land managers. These changes have in part resulted in frequent, small and low intensity fires being replaced by less frequent, larger and more intense fires. This has resulted in a reduction in the "patchiness" or mosaics across the landscape which is implicated in the loss of biodiversity. The "woody thickening" in substantial areas of the northern Australia provides a notable example of changed land management and fire regimes changing bushfire risk and ecological outcomes.

Much of Australia cannot, and should not, be "fire-proofed". Rather, we need to learn to live with fire and to manage it within the landscape, recognising that fire is inevitable and that many native ecosystems are adapted to and need fire. Planned fires are fundamental to this strategy. They are usually smaller, less intense and patchier than major bushfires. While they do involve costs and impacts (e.g. temporary loss of habitat, production of smoke) they are far less severe than those of major bushfires.

6 The interannual variability of many biophysical parameters (including rainfall) in south eastern Australia is influenced by the position of the subtropical ridge, which research in the South Eastern Australian Climate Initiative (SEACI) suggests is associated with about 70 per cent of the observed autumn rainfall decline in south eastern Australia (CSIRO 2009). Climate models predict an intensification and southwards shift in the subtropical ridge, causing the rainbringing frontal systems from the west to move further south, and exacerbating the frequency, intensity and duration of drought conditions in south eastern Australia. (CSIRO (2009) "Advice on defining climate scenarios for use in the MurrayDarling Basin Authority Basin Plan modelling." MDBA Technical Report Series: Basin Plan: BP01 CSIRO and Murray Darling Basin Authority, Canberra.)

Overall, the role of planned fire in reducing the risk of severe bushfires and maintaining the health and productivity of both public and private lands is positive.

However, the cumulative impacts of multiple fires (fire regimes) can promote or degrade ecosystem health. Too frequent fire over too wide an area can dramatically alter the composition and structure of natural ecosystems. Fire that is too infrequent can predispose the landscape to larger and more severe fires by promoting the accumulation of unnaturally high fuel loads. Living with fire requires us to get the balance right for current and future generations.

'Planned fires are fundamental to this strategy.'

Australia plays a significant role within the international bushfire management community. Our achievements in fire research, bushfire mitigation and management, and community involvement, are increasingly influencing approaches to bushfire management worldwide. A clear vision and policy, aimed at improving the management of fire by land and bushfire management agencies and communities, will consolidate this international contribution.

Planned fire in coastal forests using aerial incendiary operations in South Australia, 2001 (photo: Chantelle O'Brien, Department of Environment, Water and Natural Resources, South Australia).

Glossary

Most of the terms in this Glossary are from Knowledge Web, a site maintained by the Australasian Fire and Emergency Service Authorities Council.

Knowledge Web can be found at https://knowledgeweb.afac.com.au/services/glossary.

Assets
Anything valued by people which includes houses, crops, forests and, in many cases, the environment.

Available resources
The resources at an incident and available for allocation at short notice. (AIIMS)

Bushfire
Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.

Bushfire management
All those activities directed to prevention, detection, damage mitigation, and suppression of bushfires. Includes bushfire legislation, policy, administration, law enforcement, community education, training of firefighters, planning, communications systems, equipment, research, and the multitude of field operations undertaken by land managers and emergency services personnel relating to bushfire control.

Bushfire risk
Processes, occurrences or actions that increase the likelihood of bushfires occurring.

Bushfire suppression
The activities connected with restricting the spread of a bushfire following its detection and before making it safe.

Climate
The atmospheric conditions of a place over an extended period of time.

Code of Practice
Document giving methods developed to assist compliance with acts and regulations in the performance of work.

Command
The direction of members and resources of an agency in the performance of the agency's role and tasks. Authority to command is established in legislation or by agreement within an agency. Command relates to agencies and operates vertically within an agency.

Drought
Prolonged absence or marked deficiency of precipitation (rain). (BOM)

Ecosystem services
The functioning of natural ecosystems provides services essential to human survival and well-being. Natural ecosystems maintain the atmosphere; provide clean water; control soil erosion, pollution and pests; pollinate plants; and provide many other essential processes. The language of ecosystem services has emerged in recent decades as a way of representing the significance of the benefits humans derive from natural systems[7].

Fire
The chemical reaction between fuel, oxygen and heat. Heat is necessary to start the reaction and once ignited, fire produces its own heat and becomes self-supporting.

Fire behaviour
The manner in which a fire reacts to the variables of fuel, weather and topography.

Fire behaviour prediction
Prediction of probable fire behaviour usually prepared by a fire behaviour analyst in support of fire suppression or prescribed burning operations. (NWCG)

Fire climate
The composite pattern or integration over time of the fire weather elements that affect fire occurrence and fire behaviour in a given area.

7 Natural Resource Management Ministerial Council (2010). *Australia's Biodiversity Conservation Strategy 2010–2030*, Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra.

Fire danger
Sum of constant danger and variable danger factors affecting the inception, spread, and resistance to control, and subsequent fire damage; often expressed as an index. (NWCG)

Fire ecology
The study of the relationships between fire, the physical environment and living organisms.

Firefighter
Any employee, volunteer or agent of any fire agency who occupies, or is designated, to undertake a role for the purpose of fire suppression.

Fire management
All activities associated with the management of fire prone land, including the use of fire to meet land management goals and objectives.

Fire regime
The history of fire in a particular vegetation type or area including the frequency, intensity and season of burning. It may also include proposals for the use of fire in a given area. (AFAC)

Fire season
The period during which bushfires are likely to occur, spread and do sufficient damage to warrant organised fire control.

Fire weather
Weather conditions which influence fire ignition, behaviour, and suppression. (NWCG)

Forest
An area, incorporating all living and non-living components, that is dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding 2 metres and with existing or potential crown cover of over storey strata about equal to or greater than 20 per cent. This definition includes Australia's diverse native forests, woodlands and plantations, regardless of age.

Forest fire
A fire burning mainly in forest and/or woodland.

Fuel
Any material such as grass, leaf litter and live vegetation which can be ignited and sustains a fire. Fuel is usually measured in tonnes per hectare. Related Terms: Available fuel, Coarse fuel, Dead fuel, Elevated dead fuel, Fine fuel, Ladder fuel, Surface fuel, Total fine fuel.

Fuel reduction
Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.

Habitat
The local environment of conditions in which an animal or plant lives.

Hazard
A source of potential harm or a situation with potential to cause loss.

Utilising internal draw and convection currents in a planned fire in South Australia, in 2011 (photo: Chantelle O'Brien, Department of Environment, Water and Natural Resources, South Australia).

2011 fuel reduction burn at Red Tape Creek, Tas, using aerial incendiaries (photo: Paul Black, Parks & Wildlife Service, Tasmania).

Ignition
The beginning of flame production or smouldering combustion; the starting of a fire.

Incident
Any unplanned event requiring emergency intervention. (AIIMS)

Mosaic
Used in reference to the spatial arrangement of burnt and unburnt fuels at either a local or a landscape scale.

Operations
The direction, supervision and implementation of tactics in accordance with the Incident Action Plan.

Planned burning
See: Prescribed burning.

Preparedness
All activities undertaken in advance of the occurrence of an incident to decrease the impact, extent and severity of the incident and to ensure more effective response activities.

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

Prevention
All activities concerned with minimising the occurrence of incidents, particularly those of human origin.

Rangelands

The rangelands, popularly known as "the outback", cover approximately 81 per cent of Australia's land area. They encompass:

- tropical woodlands and savannas in the far north
- vast treeless grassy plains (downs country) across the mid north
- hummock grasslands (Spinifex), mulga woodlands and shrub lands through the mid latitudes
- saltbush and bluebush shrub lands that fringe the agricultural areas and Great Australian Bight in the south[8].

Recovery
The coordinated process of supporting emergency affected communities in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing.

Resources
All personnel and equipment available, or potentially available, for incident tasks.

Response
Actions taken in anticipation of, during, and immediately after an incident to ensure that its effects are minimised, and that people affected are given immediate relief and support.

Risk
The exposure to the possibility of such things as economic or financial loss or gain, physical damage, injury or delay, as a consequence of pursuing a particular course of action. The concept of risk has two elements, i.e. the likelihood of something happening and the consequences if it happens. (AS4360)

8 Natural Resource Management Ministerial Council (2010). *Principles for Sustainable Resource Management in the Rangelands*. Australian Government Department of the Environment, Water, Heritage and the Arts, Canberra.

Rural
Any area wherein residences and other developments are scattered and intermingled with forest, range, or farm land and native vegetation or cultivated crops.

Urban
Area in which residences and other human developments form an essentially contiguous covering of the landscape, includes most area within cities & towns, subdivisions, commercial and industrial parks, and similar development whether inside city limits or not.

Urban rural interface (URI)
The line, area, or zone where structures and other human development adjoin or overlap with undeveloped bushland.

Woodland
A subset of forest plant communities in which the trees form only an open canopy (between 20 per cent and 50 per cent crown cover), the intervening area being occupied by lower vegetation, usually grass or scrub.

House at Strathewen, Victoria, that was successfully defended in the February 2009 Black Saturday fires (photo: Bushfire CRC).