



Integrating the Management of Wildfire-Related Risks in Rural Land and Forest Management Legislation and Policies

National Bushfire Management Policy Statement for Forests and Rangelands



Australia and New Zealand's Forest Fire Management Group

The Forest Fire Management Group (FFMG) is a committee of Australian and New Zealand land management agencies with responsibility for forest fire management, plus representatives from research and education organisations and the forest industry. FFMG reports to the Forestry and Forest Products Committee (FFPC) which is comprised of the heads of Australian Commonwealth, State, Territories and New Zealand government forestry agencies. The FFPC is a sub committee of the Australian Primary Industries Ministerial Council.

Edition 1, May 2013

Cover photograph:

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



Contents

Introduction	4
Scope of this Paper	5
Risk Management Principles	6
Key Definitions from ISO's Risk Management – Principles and Guidelines (31000:2009)	6
Using Risk Management Principles to Manage the Risks from Wildfire	7
Incorporating Wildfire-Related Risk Management Principles in the Development of Rural Land Management Legislation	8
Box 2. National Fire Management in New Zealand	9
Conclusions	10
Way Forward	11



Introduction

1. This paper was presented jointly by New Zealand and Australia at the 24th Meeting of the Asia-Pacific Forestry Commission (APFC). At the meeting New Zealand and Australia sought discussion on the principle that fire management should be integrated into rural land and forest management policies at a national level. They further recommended that it be considered by the COFO at its 21st session to be held in September 2012 with a view to COFO developing an international standard on integrating the management of wildfire-related risks in rural land and forest management policies based on internationally agreed risk management standards.
2. The paper's recommendations on integrating fire risk management into rural land and forest management legislation and policies are based on an earlier paper developed and agreed to by the Forest Fire Management Group¹ (FFMG).
3. The principles described in the paper reflect ideas familiar to many international fire managers and highlight the increasing importance of wildfire risk management in rural land and forest management.
4. Fire is an increasingly important aspect of rural land and forest management. The recommendation for integrating the management of wildfire-related risks in rural land and forest management policies is made against a background of international concern about the growing incidence and magnitude of wildfires globally and the impacts on forests and associated natural ecosystems and human landscapes. As a result of the changing climate, the increasing occurrence of drought and extreme weather events in many parts of the world is heightening the risk of wildfires. These events generate significant greenhouse gas emissions and cause considerable damage to ecosystems, assets and even the loss of life in communities living within or adjacent to fire-prone forests or rangeland areas. On the other hand, fire can be used as a management tool to reduce the threat of wildfire, and to trigger regeneration of fire-dependent ecosystems or regeneration of grazing vegetation. Such controlled fires present their own risks that need to be managed.
5. The impact, threat and role of fire varies between countries and within countries according to patterns of land use, climate and ecosystems.
6. Based on these considerations it is important to understand the connections between fire, rural land use and the associated legislation, policies and institutions dealing with these matters. International attention should be focussed on promoting a common approach for integrating risk management into rural land and forest management objectives in legislation and policies that address wildfire management.

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Scope of this Paper

7. This paper is framed around four propositions:
 - i. Forest wildfire management should be based on the application of contemporary risk management techniques.
 - ii. Management of fire, including its use as a management tool, should be integrated into rural land and forest management policies and legislation.
 - iii. Legislation and policies related to fire, rural land and forest management should be coordinated nationally across the relevant institutions and organisations, and with communities.
 - iv. An international standard for managing wildfire-related risks based on the already existing International Organisation for Standardization (ISO) standard for risk management, and drawing on the existing FAO *Fire Management: voluntary guidelines* (2006)² can provide an effective basis for an international guideline towards integrating wildfire-related risks into countries' rural land and forest management policies.

2 FAO (2006) *Fire Management: voluntary guidelines, Principles and strategic actions*, Fire Management Working Paper 17. Rome [also available at www.fao.org/forestry/site/35853/en].



Risk Management Principles

Key Definitions from ISO's Risk Management – Principles and Guidelines (31000:2009)

Risk is the “*effect of uncertainty on objectives*” and this can have positive and negative consequences.

Risk Management is the “*coordinated activities to direct and control an organisation with regard to risk*”,

Risk Management Process is the “*systematic application of management policies, procedures and practices to the tasks of communication, consultation, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk*”

Risk Management Framework is the “*set of components that provide the foundations and organisational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management processes throughout the organisation.*”

8. In 2009, ISO published the international standard “Risk Management – Principles and Guidelines (ISO 31000:2009)”. The ISO risk management standard, which provides generic guidelines for the management of all forms of risk, is being adopted by countries as their national standard for risk management. For example, in Australia and New Zealand, the standard has been published as AS/NZS ISO 31000:2009.
9. Currently there is no internationally agreed risk management standard covering all types of fire associated with forest and rural land management.

Using Risk Management Principles to Manage the Risks from Wildfire

10. A frequent challenge for communities, agencies and individuals responsible for making decisions relating to rural land use and forests and wildfire lies in testing the effectiveness of such decisions. Decisions need to take account of uncertainties and risks, and opportunities that may be the consequence of decisions.
11. Risk management is an effective tool for making the connection between possible actions and likely consequences. It can assist with prioritising and selecting the most appropriate management approach to guide sound rural land and forest management objectives.
12. The application of risk management principles to fire risk management involves recognising the diverse roles of fire and their consequent impacts in the risk management process. Fire risk management covers both the positive and negative consequences of fires.
13. The inclusion of wildfire management in rural land and forest management decisions involves considering risks related to wildfire along with other forms of risks as an integral part of the overall process of assessing land and forest management objectives. Effectively this requires rural land and forest managers or owners to 'take ownership' of the fire risk elements.
14. A risk management framework for fire relies on identifying "risk criteria" i.e. what are the risks from the diverse roles of fire. These take into account all the relevant factors affecting rural land or forest management decisions and rely on communication and consultation with all stakeholders affected by the decisions.
15. Once the risk criteria have been identified, their likelihood and consequences need to be determined, factoring into account possible sources of fire and the impacts. This is usually expressed in a risk matrix that rates risk from low to extreme. Possible risk treatments are then considered with regard to the level of risk posed compared to the level of acceptable risk. Risk treatments aim to minimise the risk of wildfire and diminish its scale and negative consequences on land and forest management objectives. Effective risk treatments are a combination of preventive and protective controls.
16. Prior to implementing risk treatments, the effectiveness and the efficiency of these can be evaluated against the risk criteria relevant to the rural land and forest management objectives. An objective assessment of the different risk treatment options does not presume that one option (e.g. suppression) is inherently more appropriate than others. It also allows fire to be considered as a risk mitigation treatment, rather than simply a source of risk, whether as a natural process, a seasonally-timed fuel reduction or an ecosystem conservation burn.
17. A review of the proposed risk mitigation treatments should also examine the risks associated with the treatments themselves. Risk treatments can create new risks or modify the effect of existing controls. One example of this is the loss of control of a deliberately-lit but seasonally-timed fuel reduction burn.
18. When risk treatments have been implemented and the controls are in place, these need to be monitored and periodically assessed to determine their effectiveness. A mix of control measures is preferable to the reliance on a single control especially if the particular control has a major modifying effect. This is because some consequences can either cascade or combine to produce a further risk. Examples of this include increased erosion on burnt-over land or incremental fuel build up if reduction burns are delayed.



Incorporating Wildfire-Related Risk Management Principles in the Development of Rural Land Management Legislation

- 19.** Wildfire risk management is invariably the responsibility of those who “own” the risk and should be included as an integral part of rural land and forest management, contrary to the situation where fire ‘response’ accountabilities are contained under separate legislation.
- 20.** Linking wildfire and rural land and forest management objectives under a common statutory framework will enable the relevant agencies to simultaneously address fire both as a source of risk and as a risk treatment, while also considering the risk inherent in the treatment itself. Possible examples of the latter could include:
 - minimising the exposure of sensitive adjoining land when using fire to reduce fuel hazards; or
 - reducing the risk of increased erosion or loss of species following a planned fuel reduction burn.
- 21.** There should be a clear statutory framework for guiding policies and legislation that assigns authorities, obligations and accountabilities for wildfire risk management among the various agencies with rural land and forest management responsibilities. These agencies would be responsible for implementing, monitoring and reviewing the wildfire risk management framework.
- 22.** Consultation across all agencies with rural land and forest management responsibilities is crucial for good policy formulation. In this respect it is important that the views of the different fire response capabilities are sought. Often times, as is the case in parts of Australia and in New Zealand, there is a separate rural fire force responsible for land outside communities where there is ‘urban’ fire response capability. Rural and urban response agencies are configured differently and have different sets of skills and methods of approach. After considering human safety, in urban areas the response agencies have the primary role of structure protection. Whereas response agencies from rural areas are mainly concerned with limiting spread of fire, protecting forested and other rural lands and protecting infrastructure and assets.
- 23.** In summary, those responsible for managing wildfire-related risk need:
 - a clear goal and mandate (e.g. ‘achieving rural land and forest management objectives by managing wildfire risks effectively and efficiently via a fully integrated approach’);
 - the necessary expertise, training, and resources;
 - empowering and supporting legislation;
 - authority and accountabilities; and
 - management processes ensuring that the wildfire risk management process is applied, monitored and reviewed (e.g. a requirement that all policy is supported by an assessment of the related risks, following internationally accepted principles or guidelines).

24. A New Zealand case study in **Box 2** (below) illustrates how a fire management administration puts into practice many of the concepts discussed on the previous page.

Box 2. National Fire Management in New Zealand

In New Zealand, the Fire Service Commission (the Commission) is the statutory agency responsible for all urban fire forces (paid and volunteer) and for the general promotion of national fire safety including funding research. Within the Commission is the National Rural Fire Authority (NRFA) which is responsible for coordinating rural fire authorities throughout New Zealand and can fund fire suppression on private land where this cannot be cost recovered from the property owner.

The rural fire force capability relies largely on resources drawn from organisations involved in land management activities. These organisations include forest owners and management contractors, local government authorities, the national conservation agency administering protected lands, aviation firms operating in rural areas, companies involved in road construction, forest harvesting, silviculture and control of pests and weeds and volunteers. Coordinating the community-based groups ensures that there are common wildfire management policies and processes as well as common standards for technical competency, safety and specialist fire fighting equipment. National coordination, consistent approaches and a fire danger rating system also underpin both fire prevention (e.g. public education, restrictions around fire use) and fire suppression activities.

The legislation that establishes and empowers the roles of the Commission and NRFA is explicitly dovetailed with other legislation, particularly, the Forest and Rural Fires Act. This statute allocates powers and responsibilities for aspects of land and forest management and places obligations on land owners. Not only is this integrated approach efficient, but it ensures the involvement of land managers and foresters with their expertise and practical knowledge in responding to wildfire, in land management policies and strategies that take account of fire risk and it incorporates their understanding of the use of fire (as 'prescribed burns') to achieve the land and forest management objectives.



Conclusions

- 25.** Currently, there is limited reference to fire management in members' legislation and national policies. At the same time, there is no internationally agreed risk management standard for managing the risks associated with wildfire; although the FAO has published the working paper *Fire management: voluntary guidelines*. In order to assist the integration of wildfire-risk management within rural land and forest management policies, an international standard or guideline needs to be developed on managing the wildfire-related risks. Such a standard would benefit from being based on existing international risk management frameworks which could assist the adoption of fire risk management policies within countries that are consistent with other forms of risk management. This will ensure that common approaches are used internationally, leading to best-practice fire management policies and practices and ultimately enhanced protection of rural lands, forests, natural ecosystems and communities.





Way Forward

26. Seek national and international endorsement that:

- a. Fire should be managed in an environmentally responsible manner to ensure properly functioning and sustainable ecosystems into the future.
- b. The effective management of wildfire, including its use, for any particular area of land depends entirely on the management objectives for the land.
- c. An internationally agreed approach to managing wildfire risk will enhance the integration of wildfire-related risks in countries' rural land and forest management policies. This will ensure common approaches are used internationally, leading to best-practice fire management policies and practices and ultimately enhanced protection of rural lands, forests, natural ecosystems and communities.
- d. Policy development for rural land, forest and wildfire-related risk management should:
 - i. integrate risk management concepts into rural land and forest management objectives;
 - ii. involve communication and consultation with rural land and forest owners, and communities;
 - iii. explicitly recognise the use of fire as a land management technique;
 - iv. encourage the creation and sharing of national and international research into wildfire-related risk to underpin standards and policies; and
 - v. acknowledge the different skill sets and competencies of response agencies in the rural and urban areas in managing wildfire-related risks.

27. And agree:

- a. to recommend to COFO, for consideration at the 21st session to be held in September 2012 in Rome, that:
 - i. wildfire risk management should be integrated into national rural land and forest management policies and legislation and be based on risk management best practice.
 - ii. the COFO consider developing an international guideline for managing wildfire-related risks, that could be based on the international risk process.
 - iii. the agencies and institutions responsible for administering the rural land, forest and wildfire management policies should encourage collaboration to share experiences and opportunities.

