DEUA & MONGA National Parks

(incl. Badja Swamps NR, Berlang, Frogs Hole & Monga SCA's)

Fire Management Strategy

2011

Sheet 1 of 9

This strategy should be used in conjunction with aerial photography and field reconnaissance during incidents and the development of incident action plans.

This strategy is a relevant Plan under Section 38 (4) and Section 44 (3) of Rural Fires Act 1997.

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A basis for management

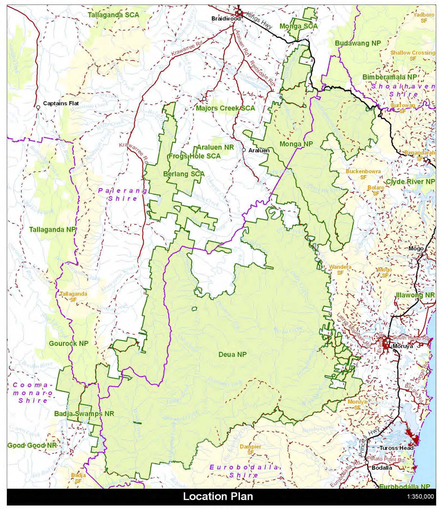
This fire management strategy covers Deua National Park (NP), Monga NP, Monga State Conservation Area (SCA) and Berlang SCA, a total of 151,000 hectares (referred to as the planning area). The strategy is designed to be consistent with the primary objective of conserving the natural and cultural heritage values in the planning area as well as reducing the potential risk to life and property from wildfire. As such, fire management will be broadly based and involve an integration of fire prevention, preparedness, response, and recovery strategies. It will make strategic use of all appropriate tools, in particular:

- Early detection and rapid suppression of unplanned fire.
- Fuel reduction through burning or by mechanical means in areas of high potential fire intensity hazard.
- A strategically located and adequately maintained fire trail network.
- A properly trained and equipped workforce to undertake fire management.

As far as practicable, the strategy (including fuel reduction) has been designed to be:

- Based on a strategic analysis of risk to the assets (natural, cultural and physical) that may be affected by fire.
- Focused on the protection of significant assets and values at risk from unplanned fire.
- Based on sound science, in particular a clear understanding of the factors which influence fire behaviour and the effects of fire on biodiversity.
- Based on the known and likely implications of climate change.
- Practical, achievable and cost effective.

In conjunction with neighbouring landowners, agencies and fire authorities a total landscape approach underpins this strategy.



The Fire Management Planning Framework

The management of fire in the planning area is determined by legislation, DECC fire management policies and relies on a number of operational frameworks. These are detailed in the Bush Fire Operations Plans for Bega Valley and Eurobodalla Shires which are consistent with the Policy Statement of the NSW Bushfire Coordinating Committee and the Manual of Procedures for Coordinated Fire Fighting.

A bush fire risk analysis has been undertaken to identify the level of risk to assets within and immediately adjacent to the Park. These assets include life and property, natural heritage, cultural heritage, and economic values. The bush fire risk analysis method compliments Bush Fire Risk Management Plans and is further described in the NPWS Strategy for Fire Management Planning (NPWS, 2003). The risk assessment process is based on the best available data. However, fire ignitions and fire behaviour are subject to a range of variables, such as weather, that make fire impossible to predict with certainty. While a risk assessment outcome may indicate a low risk, it does not preclude the possibility of a fire occurring, with subsequent consequences, in any given location as this is impossible to predict. It is also important to acknowledge that after risk management strategies and controls have been implemented in preparation for the fire season, a residual level of risk to many assets and features will still remain.

As a result of this assessment it is clear that:

- The occurrence of wildfire in the planning area can not be prevented and, under certain fuel moisture and weather conditions, fire may not be controlled, regardless of available resources.
- The planning area comprises rugged and remote terrain with minimal vehicular access which necessitates rapid initial wildfire suppression tactics.

Irrespective of the above assessment, fire is an essential part of the ecology, in that many species depend on fire for their long term existence.

The Risk Assessment Process, Zoning and Management Implications

A number of risk assessment processes, using GIS databases, have been completed to determine the level of risk to life and property, natural heritage, cultural heritage and economic values, including analysis of:

- Location, type and distribution of built, natural, cultural and economic assets within and adjacent to the park.
- Ignition cause and density.
- Fire history including unplanned fire frequency, size and location.
- Direction of spread of major fires.
- Slope, proximity to vegetation and estimated fuel loads around Assets.
- Climate and weather affecting bushfire behaviour.
- Fuel and vegetation types in relation to bushfire behaviour.

The adjoining maps on this strategy highlight the results of these assessments. In summary, the wildfire history within the planning area reveals that wildfires move from North-west to South-east under the influence of hot, dry North-westerly winds and tend to run up North and Western aspect slopes with great speed and intensity which leads to spotting, and travel down East and South slopes more slowly and with less intensity.

Using an analysis of aspect, slope and vegetation type (surrogate for fuel quantity and structure) a model of Bushfire Behaviour Potential (BBP) was developed over the planning area (see BBP map, this sheet) and these have been related to the identified assets (see Zoning & Works Map on accompanying sheet). In the case of natural heritage assets these can be placed at risk as a result of adverse fire regimes, fire suppression operations, and pest species invasions resulting from post fire changes to habitats.

High fire frequency (regular short inter-fire interval) has been identified as a key threatening process under the *Threatened Species Conservation Act* 1995. Sustained high frequency fire will consequently lead to a loss of plant species, a reduction in vegetation structure and a corresponding loss of animal species (NPWS website, 2008). To aid in identifying the vulnerability of natural heritage asset, bushfire *thresholds* have been determined for each vegetation community across the planning area (see Veg. community map, accompanying sheet). Biodiversity fire regime threshold is the time between a series of fire events that a suite of plants and animals within a defined community requires to persist after a fire, before being at risk from a decline in biodiversity. These are defined in the adjoining table titled Biodiversity thresholds.

Minimum fire interval based on the minimum maturity requirements of species sensitive to extinction under frequent fire regimes is the length of time between fires that should avoid any local species extinctions. The maximum fire interval indicates the time since fire at which it may be expected that species may be lost from the community due to absence of fire. This figure is a "best estimate", and based on a number of unverified assumptions. Having identified the minimum and maximum fire intervals, the greatest species diversity is maintained by variable inter-fire intervals, i.e. a mosaic of age classes within each community. Variability of all aspects of the fire regime including frequency are generally required for the maintenance of a variety and diversity of habitats for both flora and fauna species (Gill and Bradstock, 1995). Notwithstanding this, the thresholds, when being used to inform prescribed burning proposals shall be complemented by more detailed local survey, where possible, of flora and fauna species in the proposed burn area to ensure that biodiversity values are not to be compromised by the proposed burn.

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The accompanying sheet titled "Zoning and Works" identifies bush fire management zones. Determination of these zones was governed by the outcomes of the risk assessment process, and BBP, while also taking into account areas of similar topography, cultural and social characteristics. The boundaries of zones have been determined, where possible, using practical fire control advantages such as roads, catchments, drainage lines and areas of low bush fire behaviour potential. Zone boundaries and locations may be subject to change in the future pending future wildfire, research, BFMC Risk Management Plan reviews and changes to zoning classifications.

While zoning provides general guidelines for asset protection and how fuels may be managed, NPWS also considers in detail the wide range of natural and cultural heritage values that may be found in an area. Accordingly management practices will vary between zones even though fuel loads and type may be similar. This management flexibility is essential for the maintenance of natural and cultural heritage values across the planning area. The current status and treatment guidelines for each zone are shown in the textboxes on the accompanying "Zoning and Works" sheet.

It should also be noted that the potential advantages and importance of on-park zones need to be complimented by managing zones in identified high BBP areas neighbouring the planning area, particularly those closest to the asset being protected. Whether these are formally designated as Asset Protection Zones or not, the present requirements for developments in Bush Fire Prone Areas provides considerable practical information to assist neighbouring landowners with identification and implementation of mitigation measures.

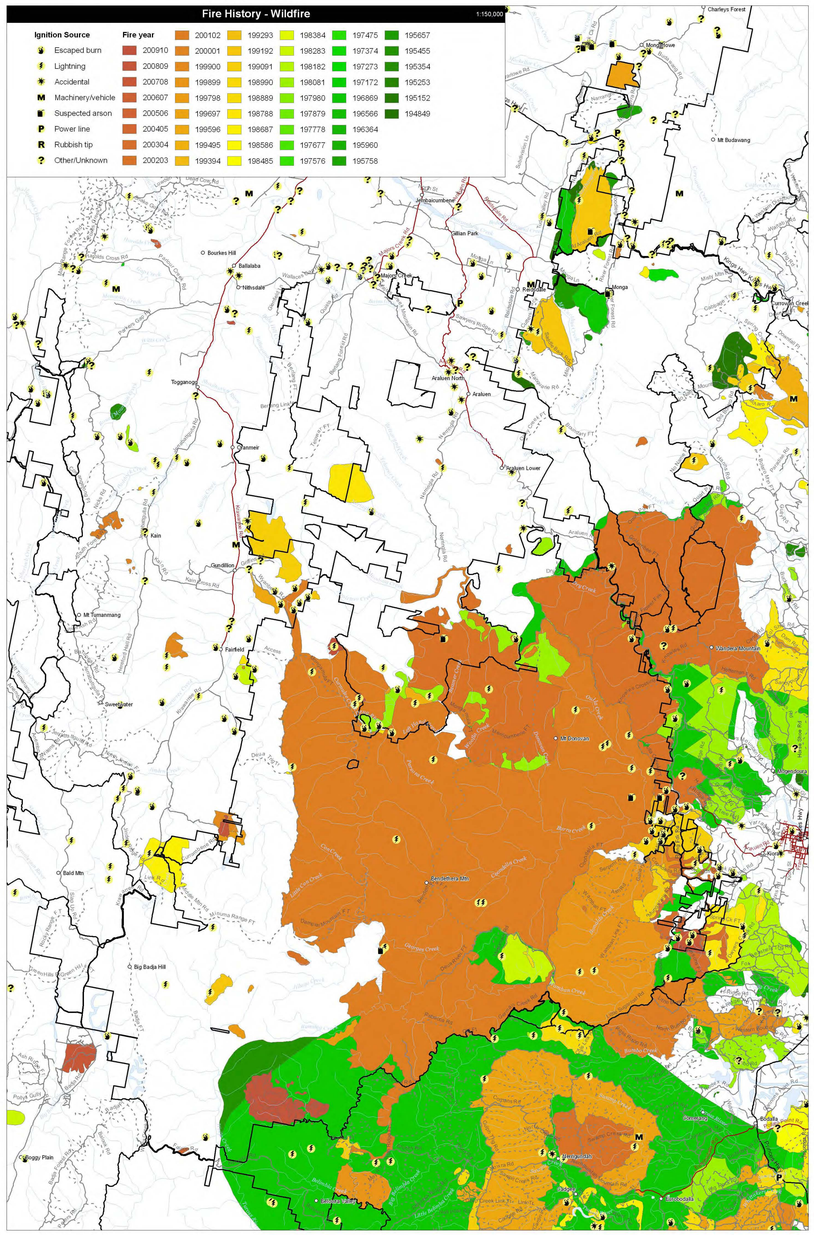
The broad Strategic Fire Advantage Zones (SFAZs) identified in the planning area have been examined in terms of fire history to prioritise order of treatment. In planning individual treatment areas, fuel will be assessed using the overall fuel hazard (OFH) technique. This is considered essential in order to ground-truth treatment priorities in regard to fuel accumulation, burn prescription, operational planning and refining zone priorities due to fuel moisture variations across the planning area. Implementation will be driven by seasonal and resource availability factors and where practical, coordination with planned activities in adjoining zones, whether DECC estate or otherwise.

It is important to recognise that fuel reduction burning in temperate forests, woodlands and heaths is generally only effective for up to 2-5 years (Gill *et al* pg 438 in Bradstock *et al* 2002) in relation to reduction of surface fuels. This effectiveness extends to 10-12 years for bark when bark fuel has been successfully treated (McCarthy and Tolhurst, 2001, McCarthy, G. pers comm. 2006). A low intensity prescribed burn is likely to result in incomplete consumption of surface fuels (which may be positive for soil stability and micro-organism viability) and to leave the elevated fuel layer above about 2 metres unburnt. A higher intensity burn will assist with the removal of bark fuels. However, higher intensity burns can be very difficult to control and to keep inside the control lines, as well as potentially having negative soil erosion effects.

Fire History - Wildfire

1:150,000

Ignition Source	Fire year				
Escaped burn	200910	200102	199293	198384	197475	195657
Lightning	200809	200001	199192	198283	197374	195455
Accidental	200708	199899	198990	198081	197172	195253
Machinery/vehicle	200607	199798	198889	197980	196869	195152
Suspected arson	200506	199697	198788	197879	196566	194849
Power line	200405	199596	198687	197778	196364	
Rubbish tip	200304	199495	198586	197677	195960	
Other/Unknown	200203	199394	198485	197576	195758	



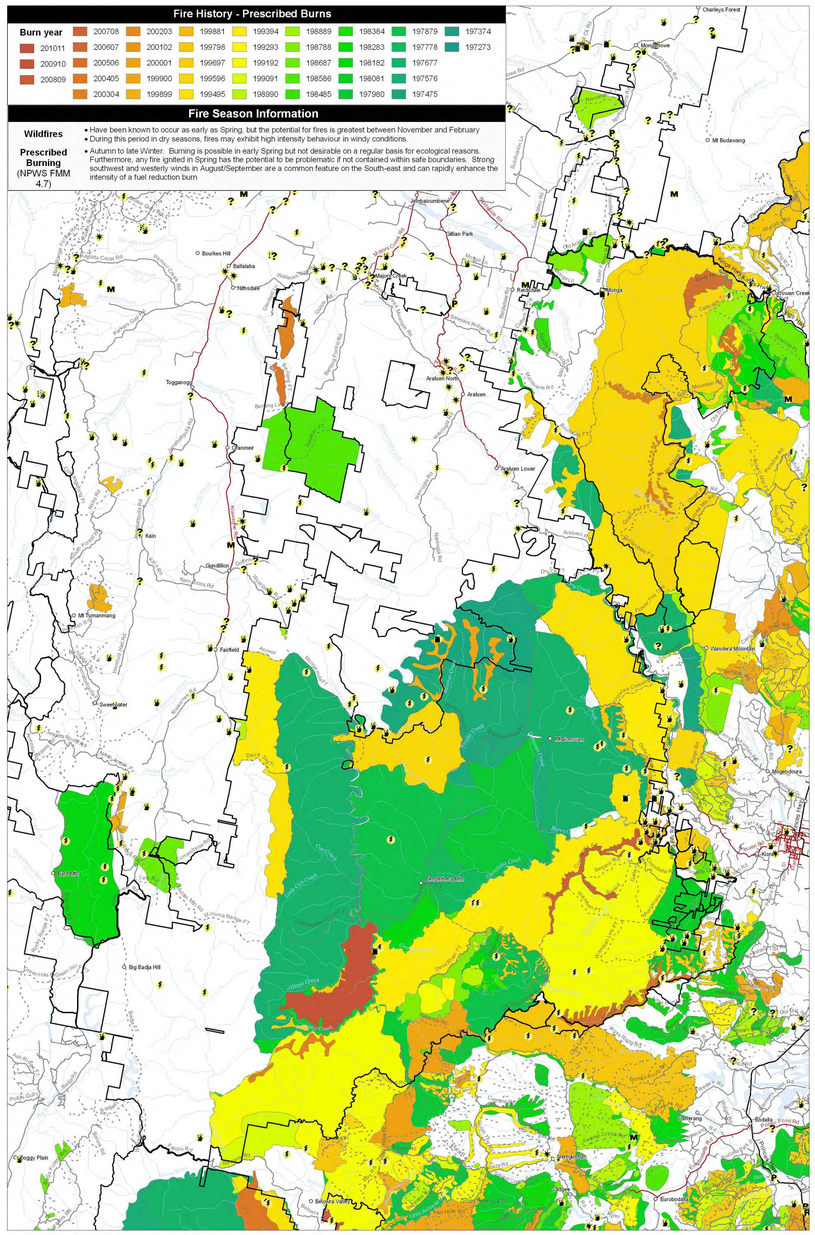
Fire History - Prescribed Burns

Burn year							
201011	200607	200102	199798	199293	198788	198283	197778	197273
200910	200506	200001	199697	199192	198687	198182	197677	
200809	200405	199900	199596	199091	198586	198081	197576	
	200304	199899	199495	198990	198485	197980	197475	

Fire Season Information

Wildfires
- Have been known to occur as early as Spring, but the potential for fires is greatest between November and February
- During this period in dry seasons, fires may exhibit high intensity behaviour in windy conditions.

Prescribed Burning (NPWS FMM 4.7)
- Autumn to late Winter. Burning is possible in early Spring but not desirable on a regular basis for ecological reasons. Furthermore, any fire ignited in Spring has the potential to be problematic if not contained within safe boundaries. Strong southwest and westerly winds in August/September are a common feature on the South-east and can rapidly enhance the intensity of a fuel reduction burn



Bushfire Behaviour Potential

Score	Slope*	X	Aspect	X	Veg. class	=	Score	Area (Ha)	% of reserve
1	0 – 5°		90 - 179°		Rainforest, Wetland		Very Low (1-16)	52,722	37%
2	6 – 10°		45 – 89°, 180 - 224°		Grassland, Wet sclerophyll forest		Low (17-32)	48,202	34%
3	11 – 15°		0 – 44°, 225 - 269°		Woodland, Heathland		Medium (33-48)	24,042	17%
4	15 – 18°		270 - 359°		Dry Sclerophyll Forest		High (49-64)	9,944	7%
5	> 18°						Very High (65-80)	7,666	5%

Model details
Bushfire behaviour potential was modelled using a combination of slope, aspect and vegetation type. The model equation is: Slope score (1-5) x Aspect score (1-4) x Vegetation score (1-4). Giving an overall range of 1 to 80. Class intervals were defined as: Very low (1-16), Low (17-32), Medium (33-48), High (49-64), Very high (65-80).
* Source: Planning for Bushfire Protection, NSW Planning 2001