MARRANGAROO NATIONAL PARK

Fire Management Strategy

2009

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

These data are not guaranteed to be free from error or omission. The NSW National Parks and Wildlife and its employees disclaim liability for any act done on the information in the data and any consequences of such acts or omissions.

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

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Endorsed by: Robert Conroy **Date: 30/06/2009**
Executive Director, Park Management Division

Department of Environment & Climate Change NSW

Map Details

Datum: Australian Geodectic Datum of Australia (AGD) 1966	**Aerial Photography:** Flown in 2002 and 2003
Projection: Australian Map Grid (AMG) Zone 56	**1:25k Topographic Map:** Lithgow 8931-2SN and Hartley8930 4N 2nd Ed. (LPI)

Fire Season Information

Wildfires	? The statutory wildfire season occurs between 1st October and 31st March. This may be extended if weather conditions lead to increased fire danger outside of this period.
Prescribed Burning	? Prescribed burning in this area is only undertaken in Autumn and Winter.

Related Documents

? National Parks and Wildlife Service Fire Management Manual, September 2008.

Communications Information

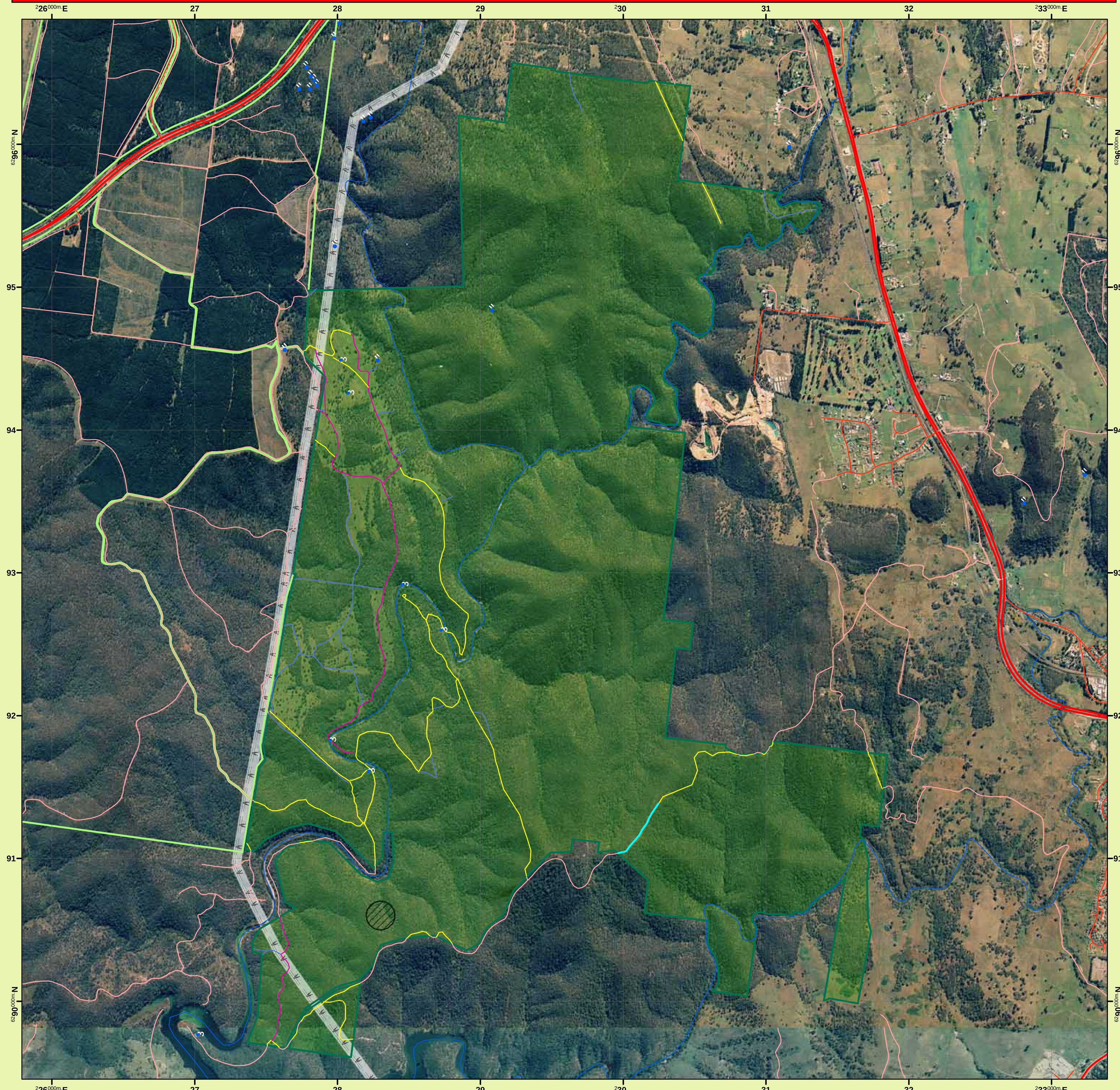
Service	Channel	Location and Comments
NPWS - VHF	8	High Points only
RFS PMR channels	P008	Car to Car; Sunny Corner
Mobile Phone – G3	-	High Points only
AIR BAND	VHF	To be allocated by State Air desk

Contact Information

Agency	Position / Location	Phone
EMERGENCY	**ANY FIRE**	**000**
National Parks & Wildlife Service (NPWS)	Blue Mountains Regional Duty Officer / After Hours Pager	Call pager 016 301 161 and request the "Blue Mountains Regional Duty Officer". Leave brief message and a reply contact number
	Upper Mountains Area Office	4787 8877 Fire Room Nos 4787 3107, 4787 3118. Fire exclusive line 4787 6094 (fax) 4787 8514
	Blue Mountains Region	4784 7300 4784 7340 (Operations Coordinator) 4784 7306 (Senior Ranger, Fire) 4784 7311 (Regional Manager) (fax) 4782 6199
	Flight Services (Park Air)	9792 1788 / 0419 468 576 (fax) 9792 1602
Rural Fire Service (RFS)	Lithgow Fire Control Centre	6353 1862 (fax) 6352 3077
NSW Fire Brigades	Emergency (see contacts list for offices)	000
State Emergency Service (SES)	Emergency	132 500 (Emergency Line) 6351 3220 (Lithgow)
NSW Police Service	Emergency	6359 0101 (Capertee) 6352 8399 (Lithgow)
NSW Ambulance Service	Emergency (see contacts list for offices)	000
Tourism Centres	Via Blue Mountains Heritage Centre Blackheath Lithgow Tourism	4787 8877 ext 1 6353 1859
State Forests	Bathurst Office	63312044 (fax) 6331 5528
Local Councils	Lithgow Council	6354 9999
WIRES	Blue Mountains	4754 2946

Locality of Reserve and Local Government Areas

Bushfire Risk Management Strategies



MAP LEGEND

- NPWS Estate
- SF Estate
- Gate (assume all gates are locked)
- Transmission Powerlines

Fire Management Zones (see adjacent table for details)

- Asset Protection Zone
- Strategic Fire Advantage Zone
- Land Management Zone

Recent Fire History

- Wild Fire 2001

Roads

- Highway
- Road
- Unsealed Road

Fire Trails

- Essential (Primary)
- Important (Secondary)
- Dormant

Site Management (see guideline tables)

- Threatened Property
- Threatened Fauna
- Threatened Flora

Other Fire Control Advantages

- Refuge Area
- Water Point Vehicle
- Water Point Helicopter
- Helipad

2 Scale 1:20 000
0 220 440 880 Meters

Operational Guidelines

Refer to Fire Management Manual 2008.
Brief all personnel involved in suppression operations on the following issues:

General	Guidelines
Aerial Water Bombing	? The use of bombing aircraft should support containment operations by aggressively attacking hotspots and spot-overs. ? The use of bombing aircraft without the support of ground based suppression crews should be limited to very specific circumstances. ? Where practicable foam should be used to increase the effectiveness of the water. ? Ground crews must be alerted to water bombing operations.
Aerial Ignition	? Aerial ignition may be used during back burning or prescribed burning operations where practicable, but only with the prior consent of NPWS Regional Manager or Section 44 delegate. ? Utilise incendiaries to rapidly progress back burns down slope where required.
Back Burning	? Temperature and humidity trends must be monitored carefully to determine the safest times to implement back-burns. Generally, when the FDI is Very High or greater, back burning should commence when the humidity begins to rise in the late afternoon or early evening. With a lower FDI back burning may be safely undertaken during the day. ? Where practicable, clear a 1m radius around dead and fibrous barked trees adjacent to containment lines prior to back burning, or wet down these trees as part of the back burn ignition. ? Do not ignite back burns at the bottom of slopes where a long and intense up slope burn is likely.
Command & Control	? The first combatant agency on site may assume initial control of the fire, but must ensure the NPWS is notified promptly. ? On the arrival of other combatant agencies, the initial incident controller will consult with regard to the ongoing command, control and incident management team requirements as per the relevant BFMC Plan of Operations.
Containment Lines	? Construction of new containment lines must be avoided unless absolutely necessary. New containment lines require the prior consent of a senior NPWS officer. ? Containment lines must be stabilised and rehabilitated as part of the wildfire suppression operation. ? All containment lines not required for other purposes must be closed at the cessation of the incident. ? All personal involved in containment line construction should be briefed on both natural and cultural heritage sites in the location prior to commencing work.
Earthmoving Equipment	? Earthmoving equipment not to be used in this reserve for firefighting purposes.
Fire Advantage Recording	? All fire advantages used during wildfire suppression operations must be mapped and where relevant added to the database.
Fire Suppression Chemicals	? Wetting and foaming agents (surfactants) are permitted for use in wildfire suppression. ? The use of fire retardant is only permitted with the prior consent of the senior NPWS officer, and should be avoided where reasonable alternatives are available. ? Exclude the use of surfactants and retardants within 100m of rainforest, watercourses, dams and swamps. ? Areas where fire suppression chemicals are used must be mapped and the used product's name recorded. ? The Threatened Species Operational Guidelines are to be observed.
Rehabilitation	? Containment lines must be stabilised and rehabilitated as part of the wildfire suppression operation.
Smoke Management	? The potential impacts of smoke and possible mitigation tactics must be considered when planning for wildfire suppression and prescribed burning operations. ? If smoke becomes a hazard on local roads or highways, the police and relevant media must be notified. ? Smoke management must be in accordance with relevant RTA traffic management guidelines. ? Carbon emission must be kept as low as possible to avoid the production of greenhouse gasses.
Visitor Management	? The reserve may be closed to the public during periods of extreme fire danger or during wildfire suppression operations.
High Voltage Powerlines	? Always assume lines are energised ? Bushes or tress burning in powerline easements present a real threat of creating a phase to ground short – KEEP AT LEAST 25M CLEAR
Tree Management	? Any tree felling requires the prior consent of the Senior NPWS Officer and should be avoided where reasonable alternatives are available.

Fire Management Zones

Asset Protection Zones	The objective of **APZ**s is the protection of human life and property. This will have precedence over guidelines for the management of biodiversity. Maintain Overall Fuel Hazard at Moderate or below.
Strategic Fire Advantage Zones	The objective of **SFAZ**s is to reduce fire intensity across larger areas. Maintain Overall Fuel Hazard at High or below, however adherence to guidelines for biodiversity will take precedence where practical.
Land Management Zones	The objective of **LMZ**s is to conserve biodiversity and protect cultural and historic heritage. Manage fire consistent with fire thresholds.

Vegetation Communities and Biodiversity Thresholds

Regime	Vegetation Community	Biodiversity Thresholds*	Fire Behaviour	Year Burnt	Area (Ha)
A	35 – Southern Tableland Dry Forest 14 – Sydney Montane Dry Forest	Minimum fire interval 5-7 yrs ? Implement variable fire regime within this range Maximum fire interval 30-50 yrs ? Re-assess biodiversity within community after approx. 15 years. ? Significant research & monitoring is required	Moderate to High		
B	12 - Southern Tableland Grassy Woodland 36 – Tableland Clay Grassy Woodland	Minimum fire interval 5-10 yrs ? Implement variable fire regime within this range ? Avoid crown fires Maximum fire interval 40-50 yrs ? Longer unburnt areas tend to have increased weed invasion. May need to implement fire to assist in weed management. ? Site and context specific, therefore research and monitoring required	Moderate to high		
C	55 – Tableland Riparian Forests 11 – Sub Alpine Woodlands	? Avoid any fire occurrence (a limited recovery ability exists)	Low		
D	4 - Southern Tableland Wet Forest	Minimum fire interval 20-25yrs ? Implement variable fire regime within this range Maximum fire interval 50-60yrs ? Avoid crown fires	Low		
Nil	Cleared	? Not applicable.	-	-	-

*There is insufficient data to give definite details, however, available data indicates approximate minimum and maximum intervals as those specified above. It is important to note that specifying the above thresholds, does not mean that this community should be burnt at this specific time (say every 6 years), it is only a guide and fire should be implemented at variable frequencies within the specified range. Significant research & monitoring of the effects of either the presence or absence of fire on each of the communities is required in order to come up with more accurate guidelines.

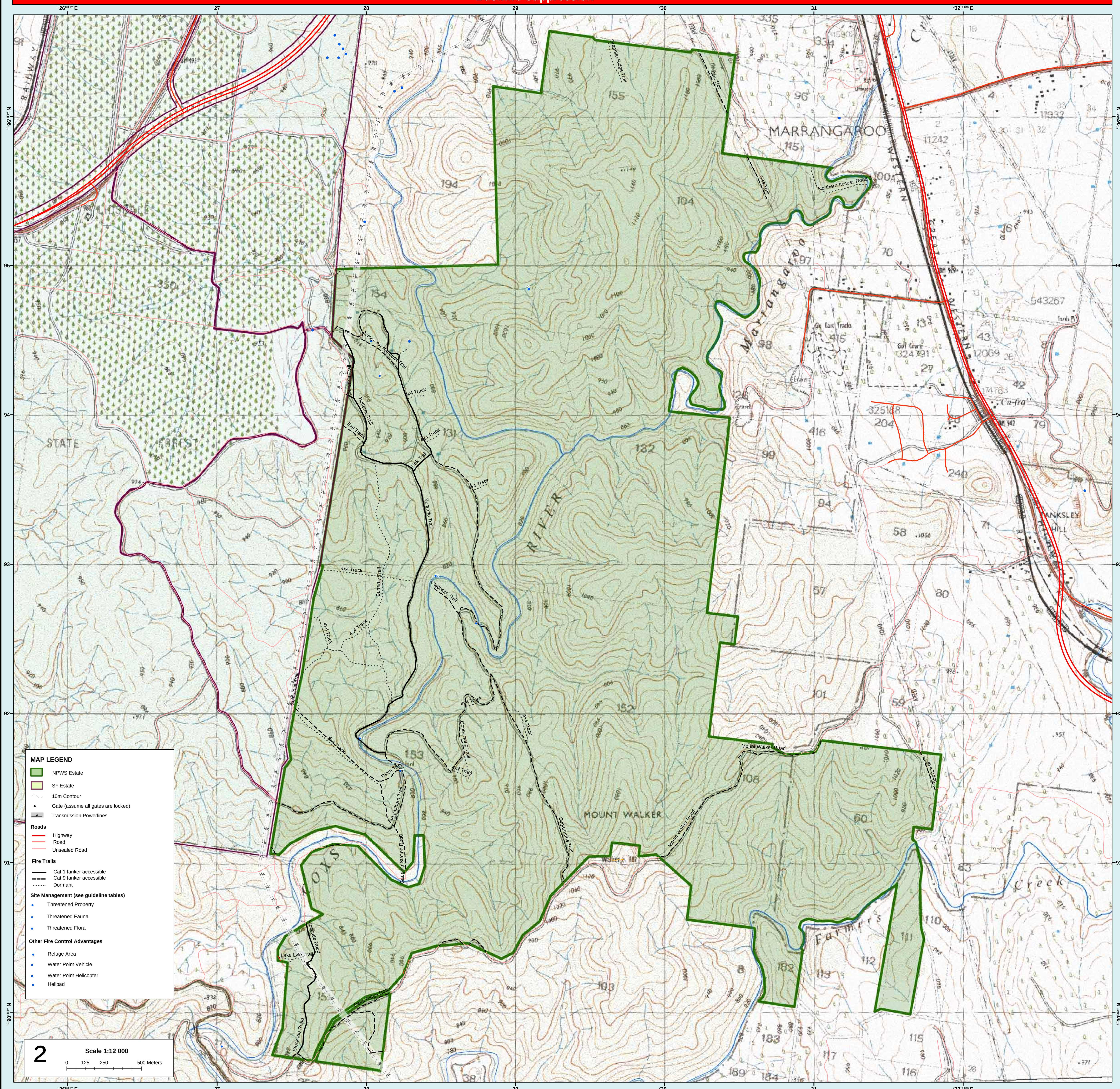
Suppression Strategies

Current FDR	Forecast FDR	
Low – Mod	Low – Mod	? As far as possible, undertake indirect, parallel or direct attack along existing control lines. ? As far as possible, maximise area burnt without threatening assets, including biodiversity. ? Identify and survey backup control lines.
Low – Mod	= > High	? Undertake indirect, parallel or direct attack to minimise the time taken to contain the fire. ? Construct new control lines if necessary to minimise the time to contain the fire. ? Identify and survey backup control lines.
High	All	? Undertake indirect attack along existing or newly constructed control lines. ? Secure and deepen control lines along the next predicted downwind side of the fire. ? Identify and survey backup control lines.
All	All	? Ensure there is sufficient time to secure control lines before the fire gets to them. ? If there is insufficient time to secure control lines, fall back to the next potential control line. ? As far as possible, implement threatened species and cultural heritage management guidelines.

Resource Management Guidelines

Resource	Guidelines
Aboriginal Cultural Heritage Site Management	
A	? As far as possible protect site from fire. ? Avoid ground disturbance including handtools, dozers. ? Avoid water bombing which may cause ground disturbance.
Historic Heritage Management	**RCHMS: Regional Cultural Heritage Management Strategy.* ? *In areas where the asset may be in or close to a water body, wetland or swamp, no foam or retardant is to be used.* ***Earth-moving machinery is to be used around, rather than over/through assets.***
HS	? High RCHMS* priority. ? Avoid fire, including wildfire, backburning & HR. ? Avoid use of earth moving machinery ? Avoid all water bombing activities.
Threatened Fauna Management	
FA1 Gang Gang Cockatoo	? Fire unlikely to impact on adults ? Avoid high intensity fire within potential habitat to prevent damage to nesting sites (tree hollows) ? Avoid implementing large area prescribed burns within habitat to avoid loss of food source – mosaic burn ? Protect known nest sites by 50-200 metre buffer strip ? Maintain diversity of age structure over wide area ? Low intensity mosaic burn
FA2 Eastern False Pipistrelle Eastern Bent-wing Bat	? Avoid high intensity fire within known roost locations. ? Felling of known roost trees/potential roost trees should be avoided during mop up operations. ? Implement low intensity fires with a low flame height to preserve roost sites. ? Fire of moderate intensity may encourage formation of tree hollows however could be detrimental in breeding season.
FA3 Boorolong Frog	? Buffer potential or known habitat (100m) from all fire management activities. ? Fire may remove critical habitat (ground and canopy cover) therefore, mosaic burn to ensure refuge areas are available. ? Avoid high frequency fires – may lead to a build up of sediments in small ponds used for breeding; may also simplify the structure and alter species composition of habitat. ? Avoid fire during the breeding season.
FA4 Powerful Owl	? Fire unlikely to impact on adults. ? Potential for inappropriate fire regimes to reduce habitat and prey diversity. ? Potential for moderate to high intensity fire to impact on reproduction during breeding season (June – September). ? Maintain a mosaic of age classes within habitat (Eucalypt forests/woodland with large old trees). ? Physically protect (reduce fuels from base of tree) known nesting trees from burning activities. ? Encourage low to moderate intensity fuel reduction burns.
FA5 Squirrel Glider	? Species should not be adversely affected by low to moderate intensity fires. ? Avoid large scale, high intensity fires which may fragment habitat – potentially isolating populations and affecting breeding success. ? Maintain a mosaic of fire frequencies to ensure the maintenance and enhancement of floristic and structural diversity. ? Avoid disturbing breeding sites and feeding trees (buffer known locations) during fire management activities, especially during the breeding season. ? Monitor population demography of this species, particularly in relation to fire.
FA6 Copper Wing Butterfly	? Species may be present in low open woodland communities on ridgetops with western and northerly aspects where populations of *Bursaria spinosa* are present ? Avoid large scale, high intensity fires which may fragment habitat – potentially isolating populations and affecting breeding success. ? Maintain a mosaic of fire frequencies to ensure the maintenance and enhancement of floristic and structural diversity. ? Species may be affected by low to moderate fires and disturbance.
Threatened Property Management	
Threatened Property	? Where possible property owners with assets at risk from a wildfire event should be kept informed regarding the progress of the fire; and asked for an assessment of their current level of asset protection preparedness

Bushfire Suppression



MAP LEGEND

- NPWS Estate
- SF Estate
- 10m Contour
- Gate (assume all gates are locked)
- Transmission Powerlines

Roads

- Highway
- Road
- Unsealed Road

Fire Trails

- Cat 1 tanker accessible
- Cat 9 tanker accessible
- Dormant

Site Management (see guideline tables)

- Threatened Property
- Threatened Fauna
- Threatened Flora

Other Fire Control Advantages

- Refuge Area
- Water Point Vehicle
- Water Point Helicopter
- Helipad

2 Scale 1:12 000
0 125 250 500 Meters

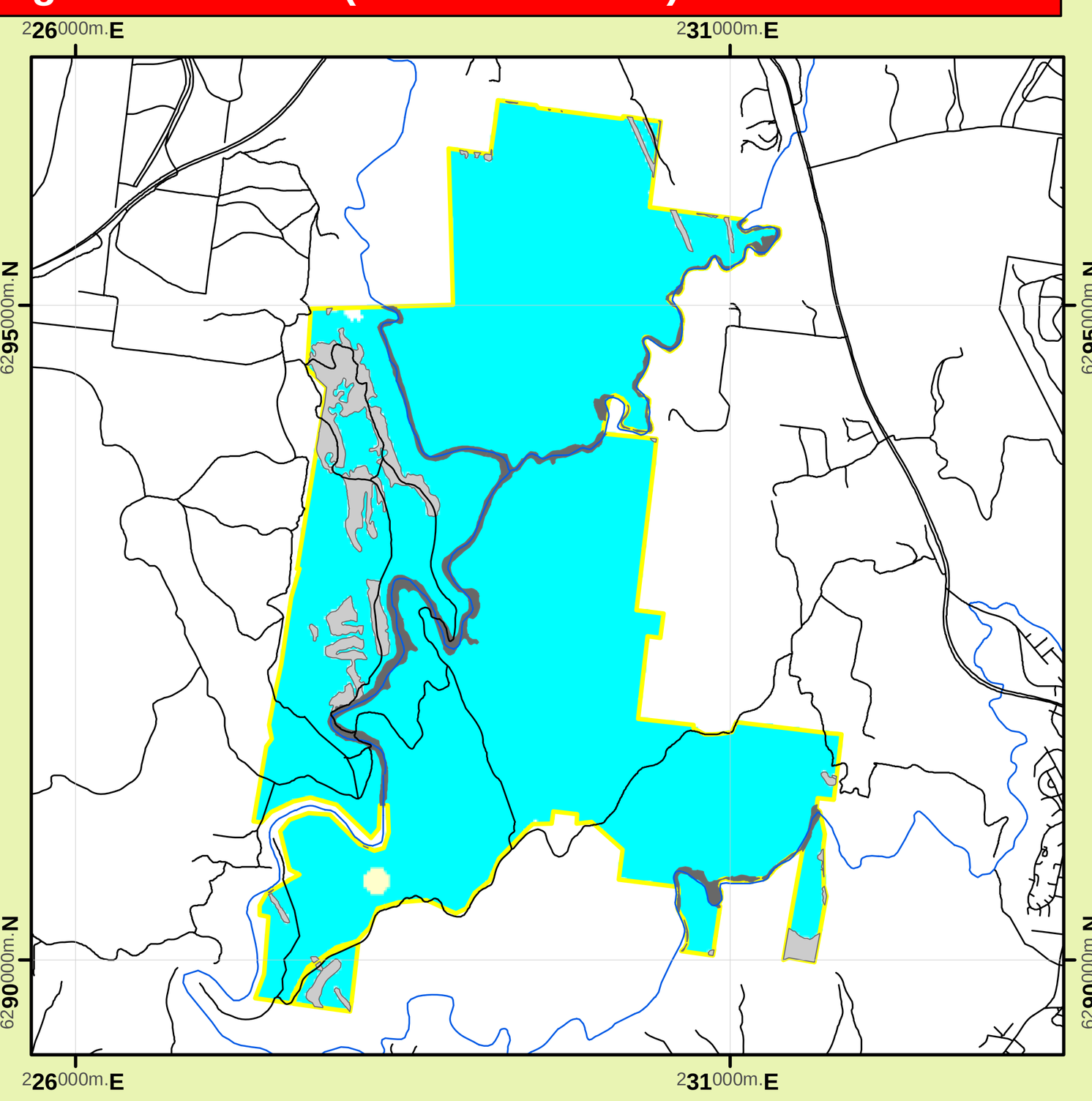
Current Vegetation Status (Fire Thresholds)

Fire Thresholds

Above Threshold	Fire thresholds have been exceeded. *· Protect from fire as far as possible.*
Vulnerable	The area will be Overburnt if it burns this year. *· Protect from fire as far as possible.*
Recently Burnt	Time since fire is less than the optimal interval, but before that it was within threshold. *· Avoid fires if possible.*
Within Threshold	Fire history is within the threshold for vegetation in this area. *· A burn is neither required nor should one necessarily be avoided.*
Almost below Threshold	The area is close to its threshold and may become underburnt with the absence of fire. *· A prescribed burn may be advantageous. Consider allowing unplanned fires to burn.*
Below Threshold	Fire frequency is below fire thresholds in the area. *· A prescribed burn may be advantageous. Consider allowing unplanned fires to burn.*
Unknown	Insufficient data to determine fire threshold.

NB. Fire thresholds are defined for vegetation communities to conserve biodiversity

2 Scale 1:50 000
0 600 1,200 2,400 Meters



Vegetation

MAP LEGEND

- NPWS Estate

Broad Vegetation Communities

- Cleared and Severely Disturbed Lands
- Eastern Riverine Forests
- Non-native vegetation
- Rock Outcrop (non sandstone)
- Southern Tableland Dry Sclerophyll Forest
- Southern Tableland Grassy Woodland
- Southern Tableland Wet Sclerophyll Forest
- Subalpine Woodlands
- Sydney Montane Dry Sclerophyll Forest
- Tableland Clay Grassy Woodland

Roads and Trails

- Roads (LPI)

2 Scale 1:50 000
0 600 1,200 2,400 Meters