

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 document is copyright. Apart from any fair dealing for the purpose of study, research criticism or review, as permitted under the copyright Act, no part may be reproduced by any process without written permission. This strategy is a relevant Plan under Section 38 (4) and Section 44 (3) of the Rural Fires Act 1997. The NSW National Parks and Wildlife Service is part of the Office of Environment and Heritage. Published by the Office of Environment and Heritage (NSW).

ISBN 978 1 74293 966 5 OEH 2013/0032		Date: June 2014	Version: 2
<b>Map Details</b>		<b>Related Documents</b>	
Datum: Geocentric Datum of Australia (GDA) 1994 Projection: Map Grid of Australia (MGA) Zone 55 Data: Spot Satellite Imagery: 2005.		1:25K Topographic Map: Gowan 8731-1-S 1:50K Topographic Map: Hill End 8731-N 1:100 Topographic Map: Orange 8731 Scale: Noted scales are true when printed on A1 size paper	OEH Fire Management Manual 2013 - 2014.

**Operational Guidelines**

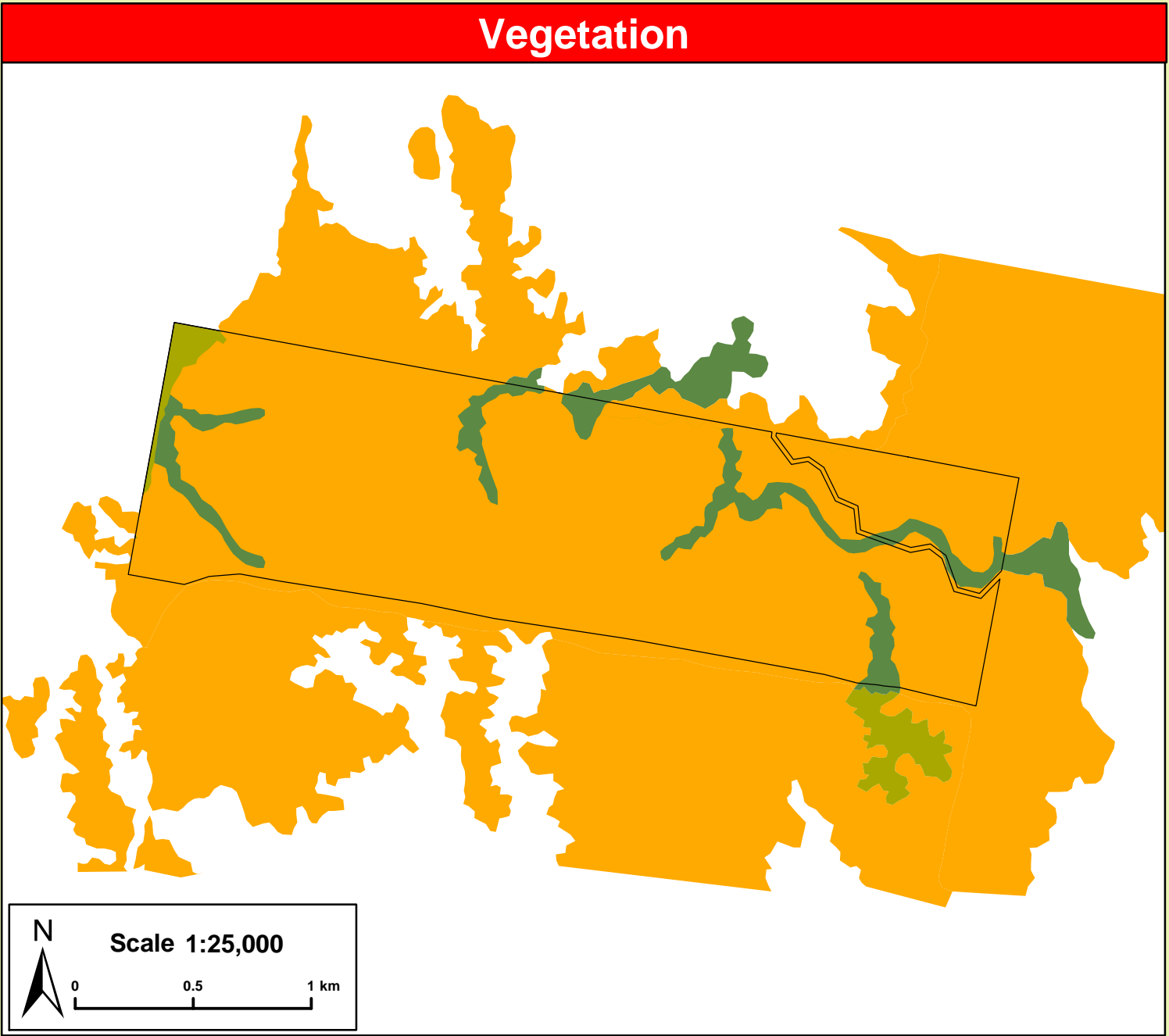
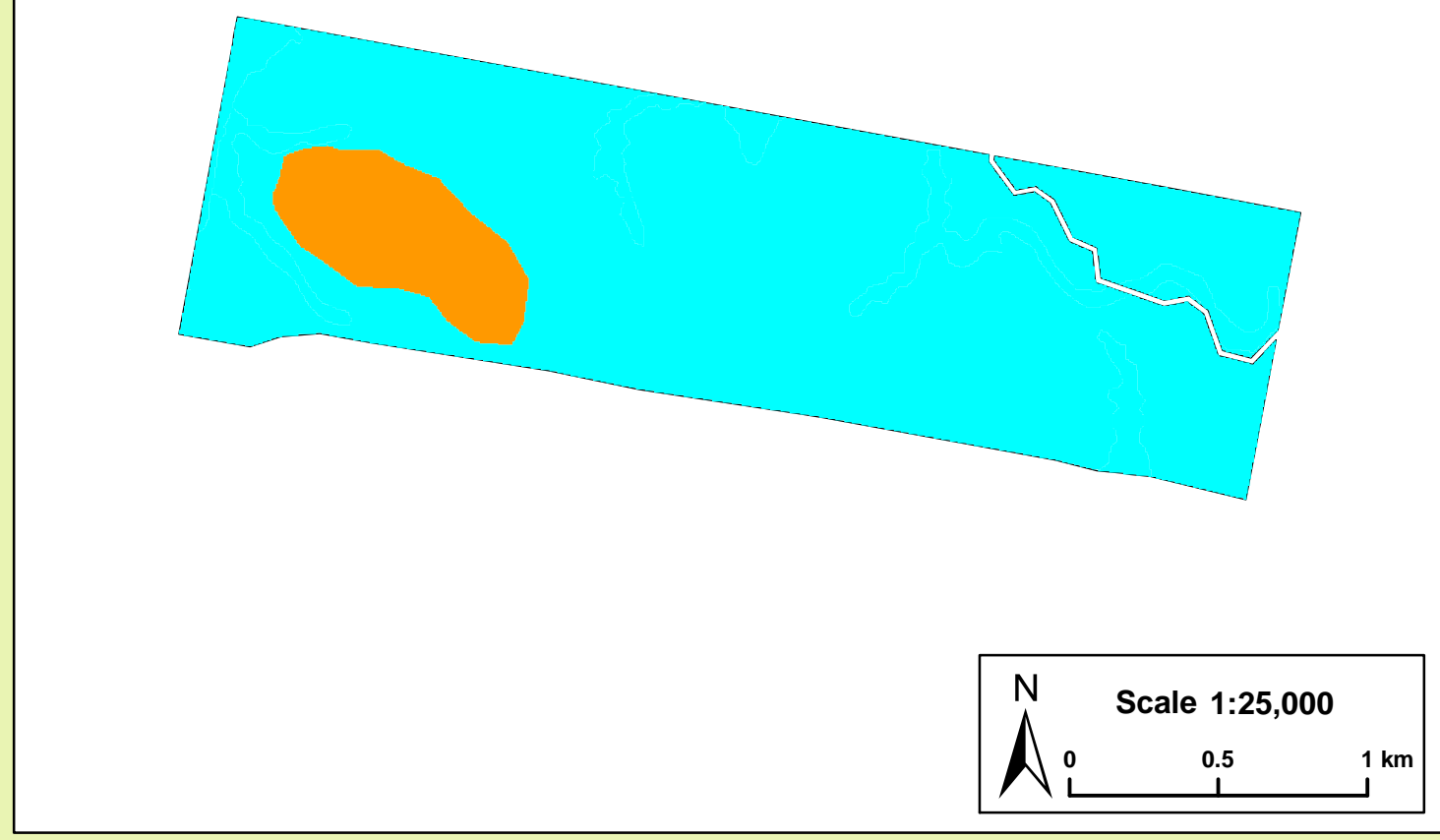
Brief all personnel involved in suppression operations on the following issues using the SMEACS format:

General	Guidelines
<b>Aerial Water Bombing</b>	<ul style="list-style-type: none"> <li>The use of bombing aircraft should support containment operations by aggressively attacking hotspots and spot-overs.</li> <li>The use of bombing aircraft without the support of ground based suppression crews should be limited to very specific circumstances.</li> <li>Where practicable foam should be used to increase the effectiveness of the water.</li> <li>Ground crews must be alerted to water bombing operations.</li> </ul>
<b>Aerial Ignition</b>	<ul style="list-style-type: none"> <li>Aerial ignition may be used during back-burning or fuel reduction operations where practicable, but only with the prior consent of NPWS Senior Officer, Section 44, delegate or as prescribed in an operational burn plan.</li> <li>The use of aerial ignition as a fire suppression tool should be specified in the IAP or within the prescribed burn plan.</li> <li>Aerial ignition will only be undertaken by qualified and competent navigators and bombardiers.</li> <li>Aerial ignition to rapidly burn out large areas and or reduce spotting potential by preventing longer uphill fire runs.</li> <li>Aerial ignition can be utilised to rapidly progress back-burns down-slope where required.</li> </ul>
<b>Back-burning</b>	<ul style="list-style-type: none"> <li>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. Note: there is a lag time between a rise in RH and the time fuels re-absorb moisture. App 2 hrs.</li> <li>Where practicable, clear a 1m radius around dead and hollow bearing trees adjacent to containment lines prior to back-burning, or wet down these trees as part of the back-burn ignition.</li> <li>Use parallel containment lines when applicable.</li> <li>All personnel must be fully briefed before back-burning operations begin.</li> </ul>
<b>Command &amp; Control</b>	<ul style="list-style-type: none"> <li>Standard Incident Management Systems are to be applied.</li> <li>The first combatant agency on site may assume control of the fire, but then must ensure the relevant land management agency is notified promptly.</li> <li>On the arrival of other combatant agencies, the Incident Controller will consult with regard to the ongoing command, control and incident management team requirements as per the relevant BFM Plan of Operations.</li> </ul>
<b>Containment Lines</b>	<ul style="list-style-type: none"> <li>Construction of new containment lines should be avoided, where practicable, except when they can be constructed with minimal environmental impact.</li> <li>New containment lines require the prior consent of a senior NPWS officer.</li> <li>When constructing containment lines, steep and rocky areas and locations adjacent to riparian (creeks or streams) or significant drainage lines should be avoided.</li> <li>All personnel involved in containment line construction should be briefed on the protection of the reserve's natural and cultural assets.</li> <li>Containment line construction using earthmoving equipment must be conducted in accordance with this RFMS, the OEH FIMM and sedimentation and erosion control measures must be implemented in accordance with both OEH and DLWC fire trail construction guidelines and standards and the PWG Roads Policy (Manual).</li> <li>Containment lines not required for other purposes should be closed immediately at the cessation of the incident.</li> </ul>
<b>Earthmoving Equipment</b>	<ul style="list-style-type: none"> <li>Earthmoving equipment may only be used with the prior consent of a senior NPWS officer, and then only if the probability of its success is high.</li> <li>Earthmoving equipment must always be guided and supervised by an appropriately experienced person, who can assist with survey (route selection) and the identification and protection of threatened species and/or historic and Aboriginal sites (known or unknown) along the proposed containment line.</li> <li>To assist with the protection of natural and cultural assets and drainage features earth moving operators need to be briefed and observe the Threatened Sites Guidelines contained in this RFMS.</li> <li>Earthmoving equipment must always be accompanied by a support vehicle and when engaged in direct or parallel attack this vehicle must be a fire fighting vehicle.</li> <li>Earthmoving equipment must be washed down (where practicable) prior to it entering NPWS estate and again on exiting NPWS estate.</li> <li>Where multiple items of earthmoving equipment are being used, the IMT should consider the appointment of a Plant Operations Manager.</li> </ul>
<b>Fire Advantage Recording</b>	<ul style="list-style-type: none"> <li>All fire advantages used during wildfire suppression operations must be mapped and where relevant added to the database.</li> </ul>
<b>Fire Suppression Chemicals</b>	<ul style="list-style-type: none"> <li>The use of foams and gels (surfactants) is permitted on the reserve.</li> <li>The use of fire retardants are only permitted with the prior consent of the senior NPWS officer and should be avoided where reasonable alternatives are available.</li> <li>Exclude the use of surfactants and retardants within 50m of watercourses, dams and swamps.</li> <li>The aerial application use foam, gels and retardants requires the approval of a NPWS Senior Officer.</li> <li>Areas where fire suppression chemicals are used must be mapped and the used product's name recorded.</li> <li>The Threatened Sites Guidelines contained within this RFMS are to be observed.</li> </ul>
<b>Rehabilitation</b>	<ul style="list-style-type: none"> <li>Where practicable, containment lines should be stabilised and rehabilitated as part of the wildfire suppression operation.</li> </ul>
<b>Smoke Management</b>	<ul style="list-style-type: none"> <li>The potential impacts of smoke and possible mitigation tactics must be considered when planning for wildfire suppression and prescribed burning operations.</li> <li>If smoke becomes a hazard on local roads or highways, the police and relevant media must be notified.</li> <li>Smoke management must be in accordance with relevant RTA traffic management guidelines.</li> </ul>
<b>Visitor Management</b>	<ul style="list-style-type: none"> <li>The reserve may be closed to the public during periods of extreme fire danger or during wildfire suppression operations.</li> <li>Areas of the reserve may be closed for prescribed burning operations.</li> </ul>
<b>WARNINGS</b>	<ul style="list-style-type: none"> <li>Beware of overhead powerlines</li> </ul>
<b>Water</b>	<ul style="list-style-type: none"> <li>No reliable nearby water points, bring water cart from Orange (30km SW), or Bathurst (40km SSE).</li> </ul>

**Status of Biodiversity Thresholds**

Evaluation of Biodiversity Thresholds	
<b>Vulnerable to Frequent Fire</b>	The area will be too frequently burnt if it burns this year • Protect from fire as far as possible.
<b>Long Unburnt</b>	Underburnt, excessive time since last fire, species may become extinct. • A fire event may be ecologically advantageous. • Consider allowing unplanned fires to burn.

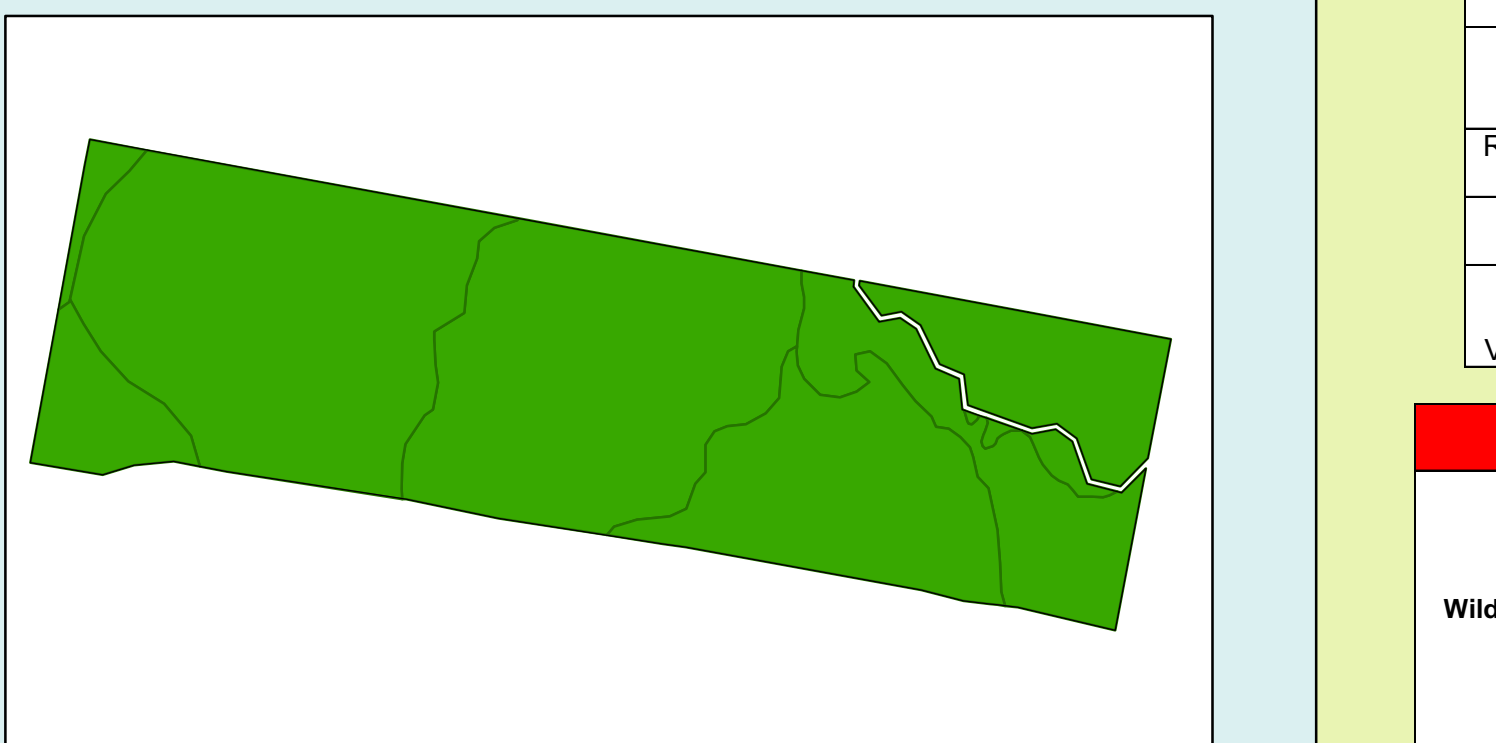
*NB. Fire thresholds are defined for vegetation communities to conserve biodiversity*



**Threatened Sites Guidelines**

Site	Guidelines
<b>Aboriginal Cultural Heritage Site Management</b>	
Note	Additional aboriginal sites may be present and consideration in engaging a Senior NPWS Officer or Aboriginal Sites Officer prior to hazard reduction and wildfire suppression activities is required.
IS1	<ul style="list-style-type: none"> <li>Do not cut down trees</li> <li>As far as possible protect the site from fire</li> <li>Use of foams, wetting agents &amp; retardant is acceptable.</li> </ul>
IS2	<ul style="list-style-type: none"> <li>Avoid all ground disturbance including the use of earthmoving machinery, handline construction and driving over sites</li> <li>Sites may be burnt by bushfire, backburn or prescribed burn without damage.</li> </ul>
<b>Threatened Fauna Management</b>	
FA1	<ul style="list-style-type: none"> <li>Utilise mosaic burning and avoid disturbance at known sightings, roosting sites or refuges and avoid frequent fire (&lt;6 years).</li> </ul>
FA4	<ul style="list-style-type: none"> <li>Utilise mosaic burning, protect hollow bearing trees and avoid frequent fire (&lt; 6-10 years).</li> </ul>
FA5	<ul style="list-style-type: none"> <li>Utilise mosaic burning.</li> </ul>

**Bushfire Risk Management Strategies**



**Fire Management Zones**

Land Management Zones	The objective of LMZs is to conserve biodiversity and protect cultural and historic heritage. Manage fire consistent with fire thresholds.
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**Suppression Strategies**

Typical Conditions	Indicative Suppression Strategies
<ul style="list-style-type: none"> <li>Current Fire Danger Rating (FDR) of Very High or Greater.</li> <li>Short and medium range forecasts suggest conditions typical to a FDR of Very High or Greater.</li> <li>A risk to life and/or property exists in the short - medium term.</li> <li>A broad area risk to biodiversity exists.</li> </ul>	<p><b>Direct</b></p> <p>Initial attacks should be to try to extinguish or to contain to the smallest possible area.</p> <p><b>Indirect</b></p> <p>Develop a suppression plan using existing and/or potential containment lines. If possible take into account biodiversity requirements but never to the detriment of life and property.</p> <p><b>Direct</b></p> <p>Evaluate the biodiversity thresholds and use direct attack methods to extinguish if required.</p> <p><b>Indirect</b></p> <p>Develop a fire suppression plan to the maximum allowable perimeter based on Biodiversity thresholds.</p>
<ul style="list-style-type: none"> <li>FDR of High or below.</li> <li>Short - medium term forecast indicate a continuing FDR of High or below</li> <li>No risk to life or property exists in the short-medium term.</li> <li>Only small area risk to biodiversity exists.</li> </ul>	<p><b>Direct</b></p> <p>Evaluate the biodiversity thresholds and use direct attack methods to extinguish if required.</p> <p><b>Indirect</b></p> <p>Develop a fire suppression plan to the maximum allowable perimeter based on Biodiversity thresholds.</p>

**Vegetation Map Legend**

Broad Vegetation Class	Vegetation Type	Biodiversity Thresholds	Fire Behaviour
Forested Wetlands	Riparian Communities	An interval between fire events less than 10 years and greater than 35 years should be avoided.	These vegetation communities will generally not carry fire unless there are high ephemeral fuel loads, which generally occur after flooding events. In periods of high ephemeral fuel loads the wetlands pose a risk of extreme fire intensities, hot - fast moving fires and rapid change in direction associated with wind.
Dry Sclerophyll Forest (Shrub formation)	Red Stringybark, Bundy & Red Box	An interval between fire events less than 10 years and above 30 years should be avoided.	In long unburnt areas, very high to extreme potential for spotting due to bark fuels. Isolated areas with heavy ground fuel may have the potential for very high fire behaviour. Numerous gullies collect leaf and bark litter also increasing ground fuel levels with the potential to increase extreme fire behaviour.
Grassland	Cleared land with various grass communities	An interval between fire events less than 3 years and greater than 10 years should be avoided.	High intensity fast moving fire once grasses have cured. Fire behaviour is dominated by winds, both speed and direction. Even in very low fuel, grass fires can be erratic and fast moving. In ephemeral years fire intensity will be higher and in drought years minimal growth will result in moderate fire behaviour but potentially still fast moving depending on weather conditions at the time.

**Fire History** No wildfire history exists for this reserve but a prescribed burn in 2009 covered 33Ha in the East of the reserve. The region surrounding this reserve is prone to summer lightning events and a large proportion of fires are historically related to dry lightning events with no associated rainfall.

**Ephemeral Conditions** Ephemeral fuel conditions occur after consecutive years of effective rainfall and significant flooding events. This in turn leads to the growth and build up of fine surface fuels such as grasses and herbs, which can create a continuous fuel load across all of the above vegetation communities. As a result expect higher fire intensity.

**Drought Conditions** During drought conditions and when vegetation communities are visibly stressed or experiencing dieback no prescribed burning will be permitted and wildfire areas will be minimised. Wildfires are likely to be difficult to control due to extreme conditions during the day and areas of low fuel that are difficult to back-burn in under night-conditions.

**Mosaic Burning** Apply fire in a pattern across the reserve that allows gaps in both time and space, small verses large areas, scattered and variable times between fires in any location. If possible leave some areas of each vegetation community unburnt, as an end stage and reference site.

**Contact Information**

Agency	Position / Location	Phone
National Parks & Wildlife Service	Duty Officer	02 6332 6350
	Bathurst Office - 203-209 Russell St Bathurst	02 6332 7640
	Regional Office - 200 Yambill St Griffith	02 6966 8100
NSW Rural Fire Service Canobolas Zone	Fire Control Centre	02 6363 6666
NSW Rural Fire Service Chifley Zone	Duty Officer	02 6361 8288
	Fire Control Centre	02 6333 1333
Fire and Rescue NSW	Duty Officer	0428 650 470
Forestry Corporation	Orange Fire Station	02 6361 2205
Emergency Services	Bathurst Fireline	02 6332 4812
SES		000
Police - Local Area Command	Orange	02 6363 6399
Hospital	Orange	02 6369 3000
Council	Bathurst Regional Shire Council	02 6333 6111
	Cabonne Shire Council	02 6392 3200
Local Aboriginal Land Council	Orange	02 6361 4742

**Communications Information**

Service	Channel	Location and Comments
NPWS VHF	292	•Canobolas
	295	•Mt Meehan
	290	•WRR Vote Group
RFS Brigades UHF	11	•All brigades on Fireground
RFS PMR	P041	•Mt Ragan (Lewis Ponds)
Forestry Corporation VHF Repeater	3 or 144	•Mt Canobolas

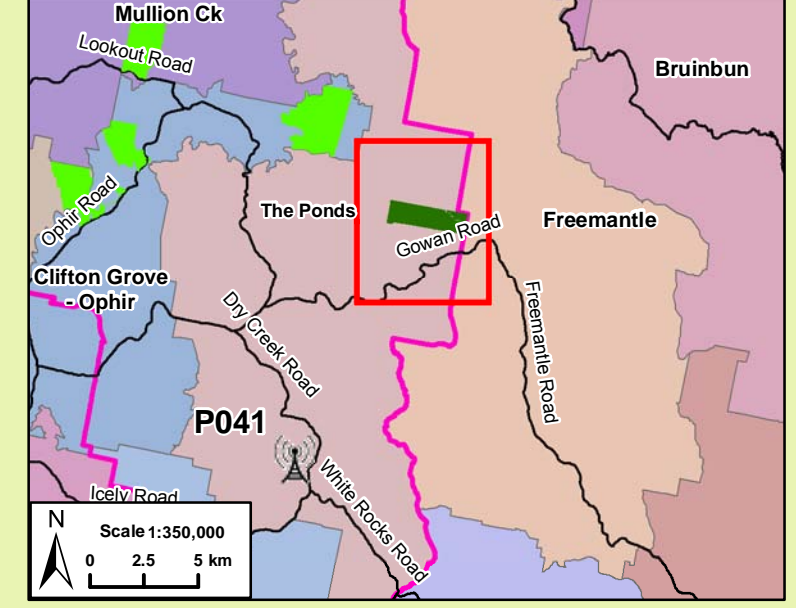
**Fire Season Information**

<b>Wildfires</b>	<ul style="list-style-type: none"> <li>The critical wildfire season generally occurs from October/November to March/April.</li> <li>Dry lightning storms frequently occur and typical fire weather conditions are wind from the west to the north, high day time temperatures and low humidity</li> <li>Particular care is required following periods of Winter rain and after periods of negative Southern Oscillation indices.</li> </ul>
<b>Prescribed Burning</b>	<ul style="list-style-type: none"> <li>Prescribed burning should generally be undertaken during Autumn, Winter or early Spring</li> <li>Care should be taken to ensure a low intensity burn over most of the area treated.</li> </ul>

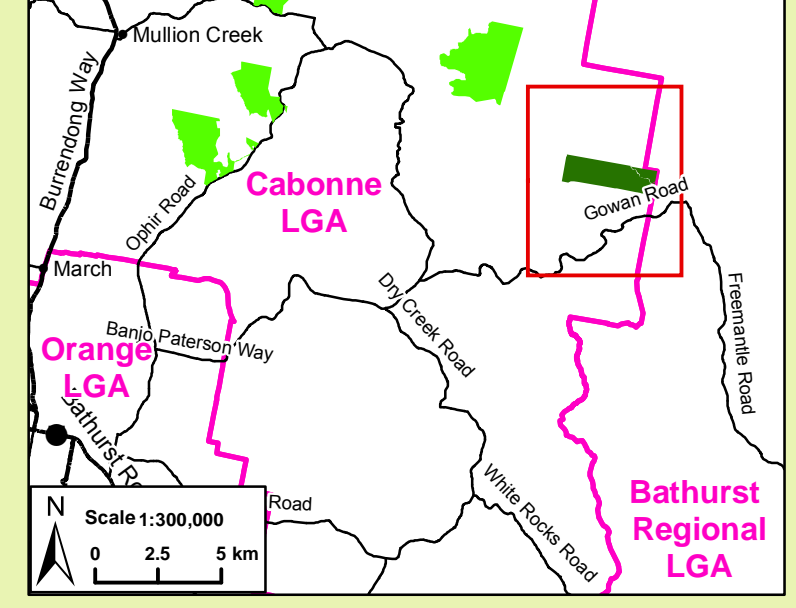
**Incident Map Legend**

	NPWS Estate
	River
	Powerlines
	Contour-100m
	Prescribed Burn
	Wildfire
	Gate
	Fire Trails BFCC Policy No. 2/2007
	Cat 1 - Important
	Unsealed Road - Two Lanes
	Unsealed Road - One Lane
	Site Management (see guidelines)
	Indigenous Site - IS1
	Indigenous Site - IS2
	Threatened Fauna

**RFS Fire Brigade Areas & Towers**



**Locality**



**Incident Map**

