

Southern Ranges Region

Bango Nature Reserve

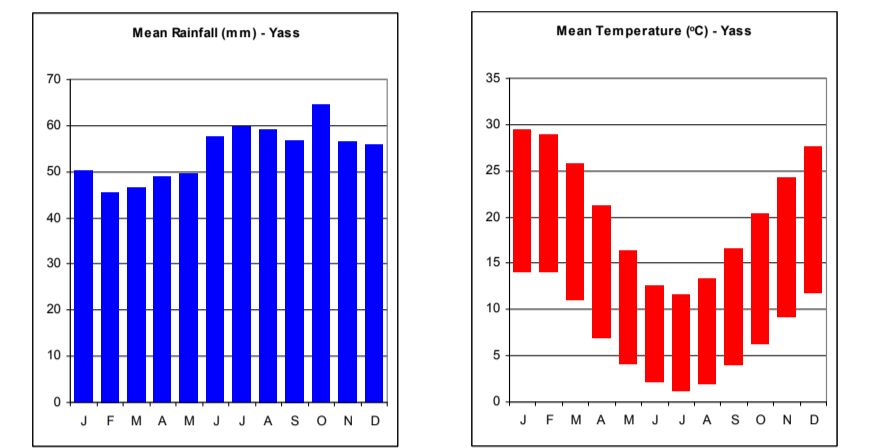
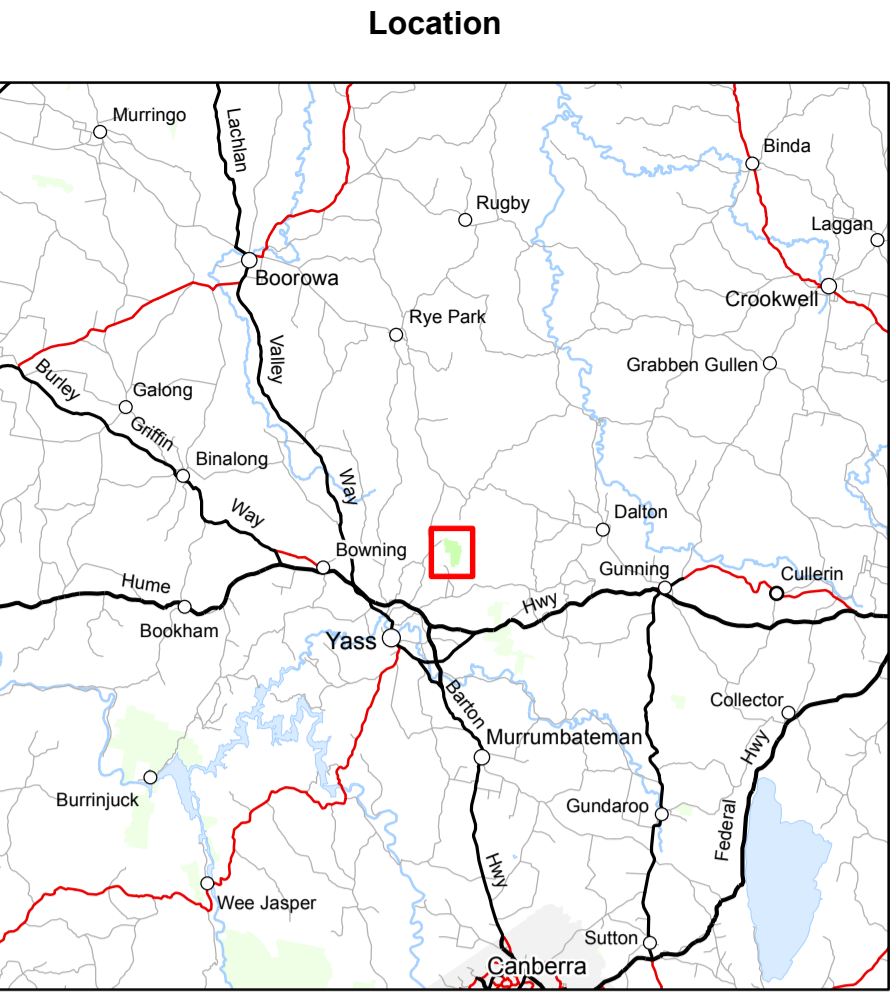
Fire Management Strategy 2016



Scale: Works Program map 1:80000, Location map 1:900000, other maps 1:35000
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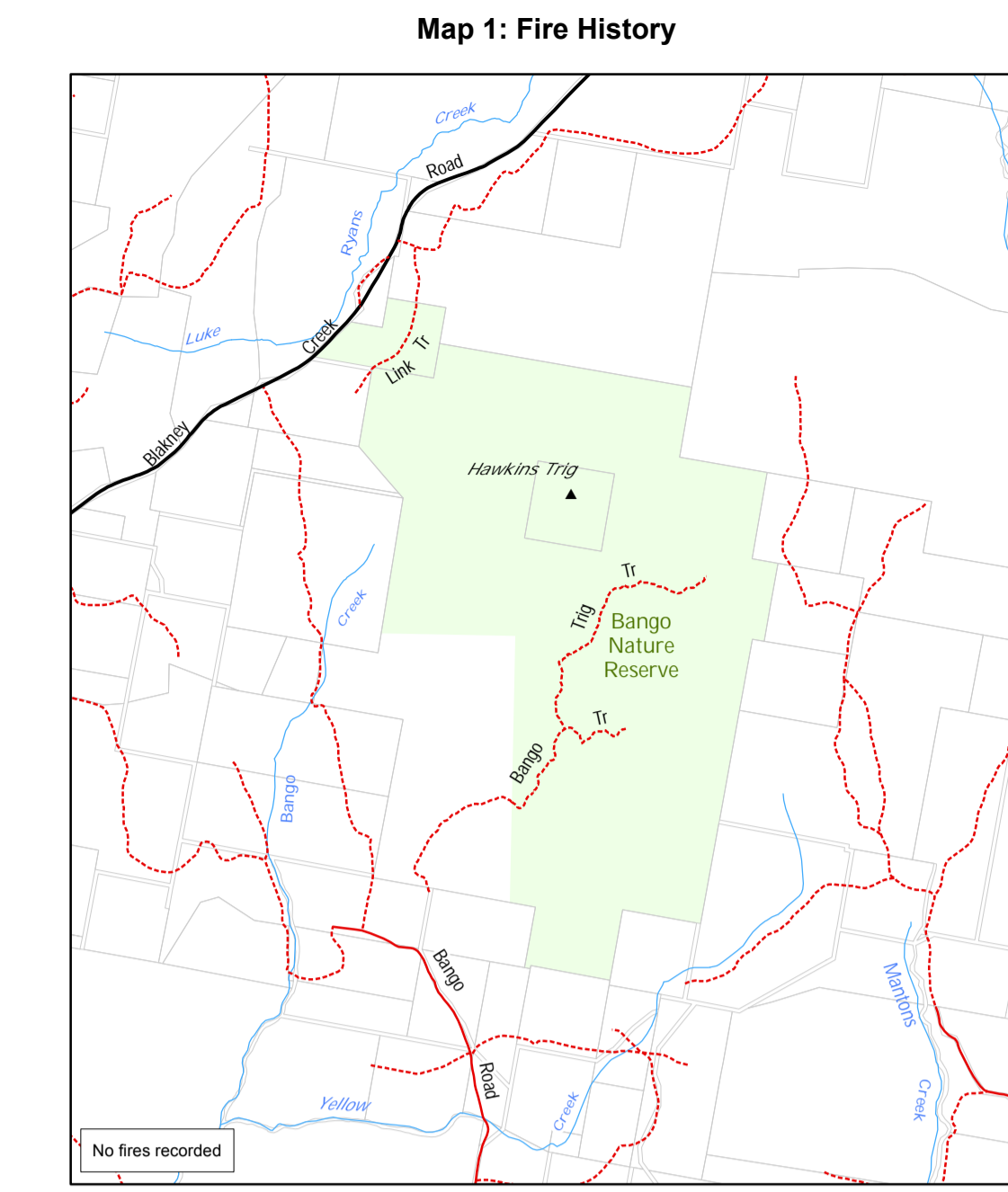
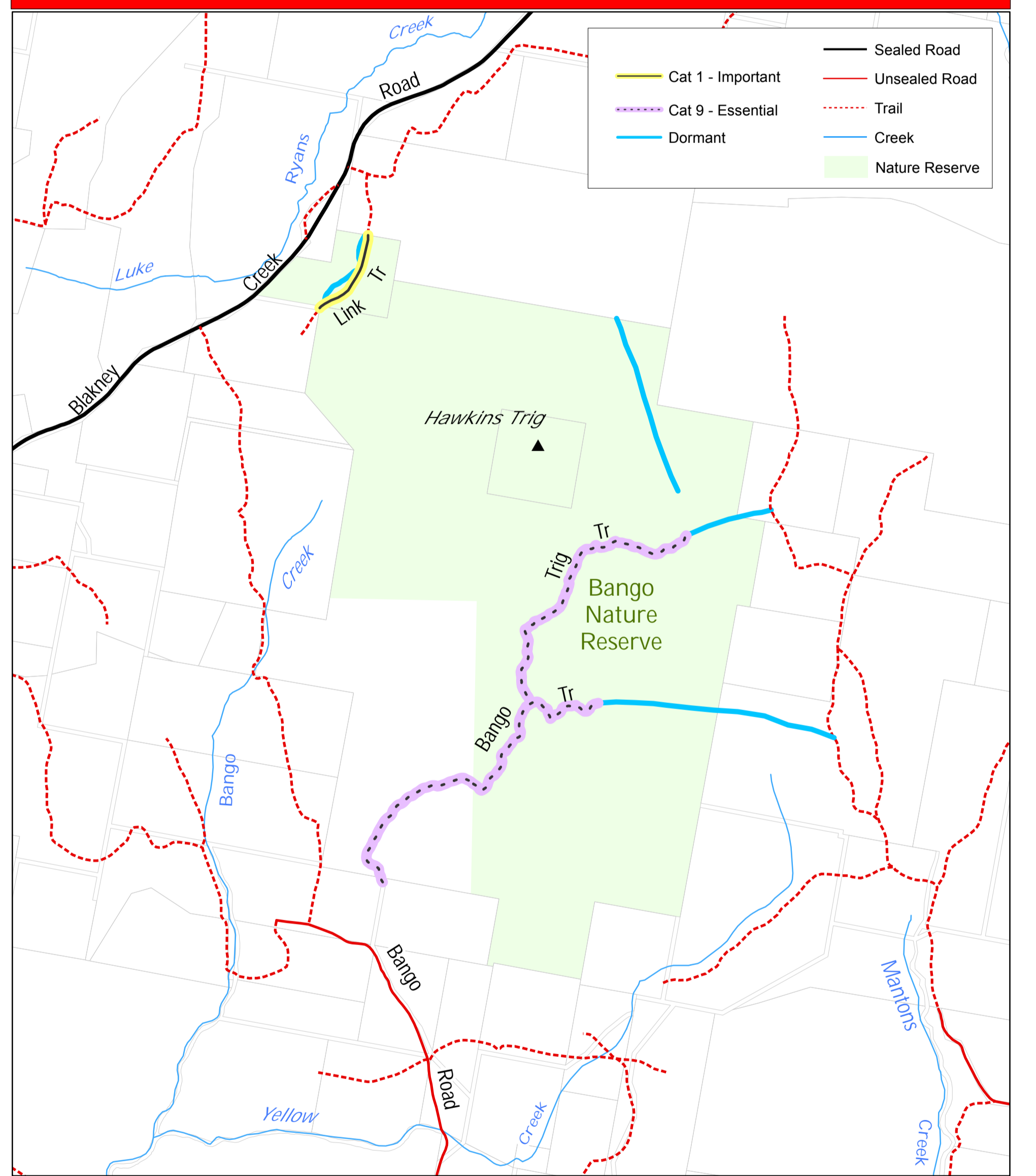
This Map should be used in conjunction with air photos and ground reconnaissance during incidents and the development of incident action plans.

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Resource Information			
Bango Nature Reserve is located approximately 10km north of Yass on the southern tablelands of NSW. Bango NR (408.5 ha) was gazetted in August 2010 and is referred to in this plan as the Reserve.			
The reserve is characterised by Hawkins Hill (790m) and connecting ridges, surrounded by undulating land cleared for grazing.			
This strategy has been prepared in accordance with the policies and procedures detailed in the NPWS Fire Management Manual (NPWS, annual) and relevant legislation.			
Office of Environment and Heritage	• NSW National Parks and Wildlife Service, Parks and Wildlife Group, Alpine-Queanbeyan Area, Southern Ranges Region	Government Areas	• Hume Federal Electorate • Burrijack State Electorate • Yass Valley Shire Council
Rural Fire Service	• Southern Tablelands Zone • Bango Brigade	Other Organisations	• South East Local Land Services • Onenval Local Aboriginal Land Council

Works Program

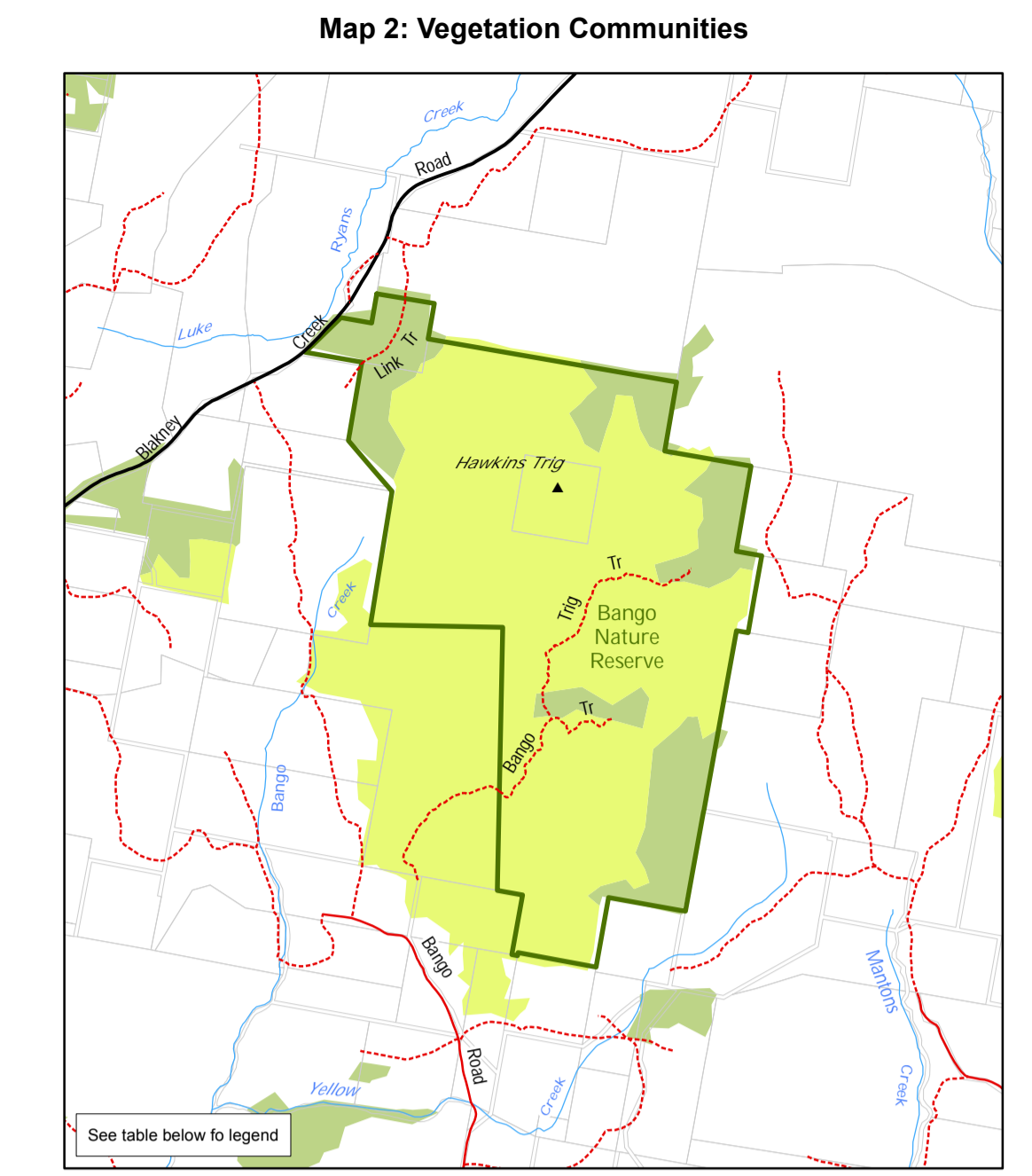
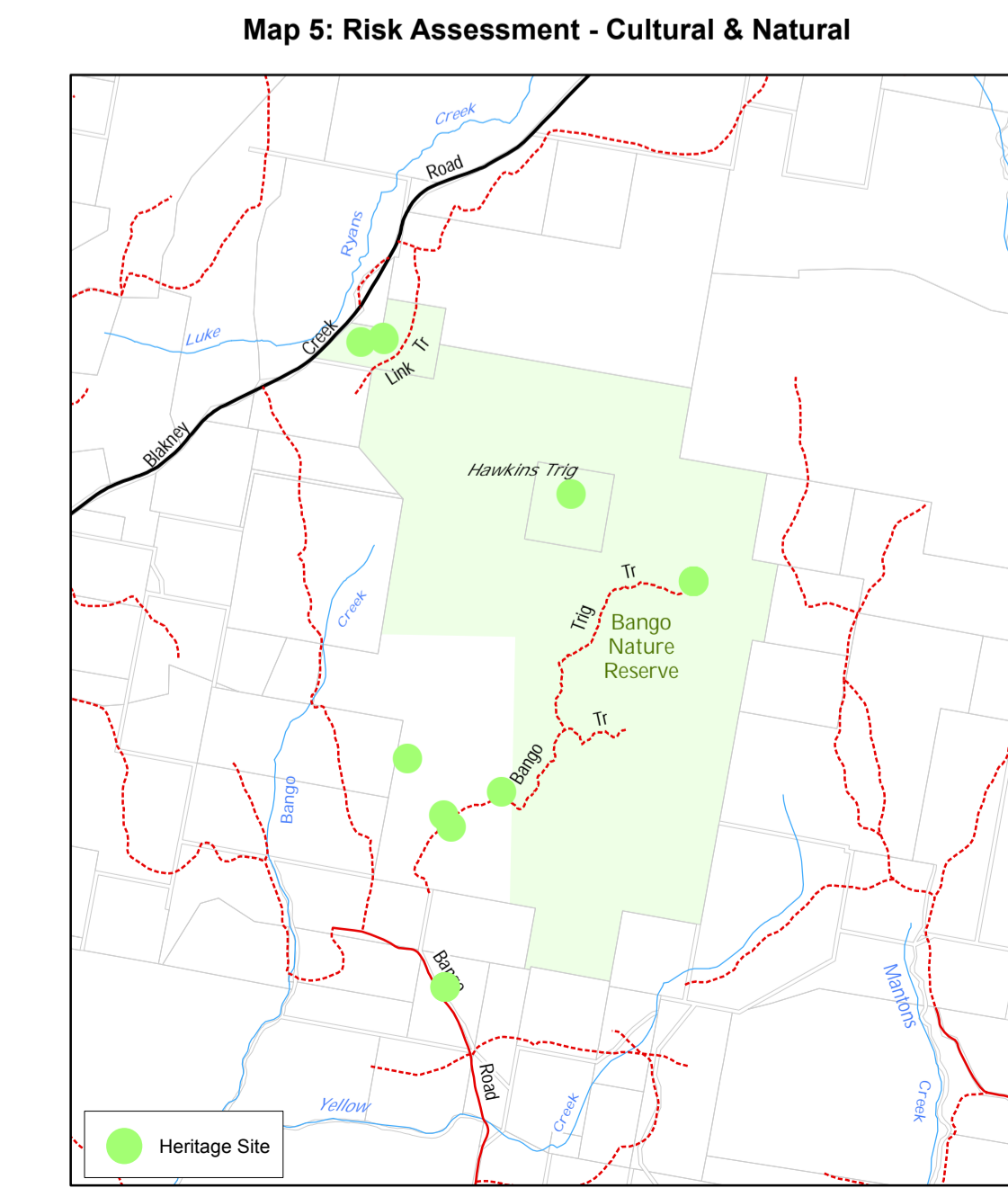


MAP 1: FIRE HISTORY	
Ignitions	The pre-European fire history of the Reserve is not well known. Traditional fire practices of Aboriginal people in NSW have not been well researched and are therefore poorly understood. There have been no recorded ignitions for the reserve, in the records held by Office of Environment and Heritage (OEH), or the Rural Fire Service. However, lightning strikes during dry electrical storms have been the major cause of fires within Yass LGA. The majority of these storms occur between November and February.
Prescribed Burns	There have been no recorded prescribed burns for the reserve, in the records held by OEH, or the Rural Fire Service.
Wildfire	There are no records of wildfire within the reserve or the surrounding area, in the records held by OEH. There is some evidence of fire scarring and bark charring indicating past fires have occurred within the reserve (>25 years).
Fire Frequency	The limited records that do exist for this area show that the incidence of fire is low.

THREATENED FAUNA MANAGEMENT			
Common Name	Scientific Name	TSC Schedule	Vulnerable Period
Gang-gang Cockatoo	<i>Calyptalonotus flabellatus</i>	V	✓
Varied Sittella	<i>Daphenorhiza chrysops</i>	V	✓
Scarlet Robin	<i>Petroica boodang</i>	V	✓

SUMMARY GUIDELINES FOR THE PROTECTION OF NATURAL HERITAGE	
• Minimise size and intensity of wildfires, and manage to produce mosaic burn patterns. Fire patchiness is likely to be an important factor in providing a mosaic of structurally diverse vegetation.	
• If prescribed burns are necessary, avoid implementation during spring and early summer. When planning prescribed burns, refer to the periods of vulnerability of species likely to be affected by the burn area, and develop appropriate mitigation measures for their protection.	
• Avoid prescribed fire during times of prolonged drought.	
• Minimise introduction of high intensity fires during prescribed burning and backburning operations.	
• Avoid damaging/felling hollow-bearing and known nest/treed trees when establishing control lines, mopping up and during prescribed burning. If habitat trees are located on control lines remove fuel from base of tree, prior to prescribed burning or backburning. During mop up activities try to extinguish fire rather than felling trees.	

MAP 5: CULTURAL HERITAGE	
Key Guidelines	• OEH Cultural Heritage Databases must be accessed during incidents and in planning for hazard reduction burning or other works to ensure new records are considered. Aboriginal site information from AHMS is sensitive and subject to a Memorandum of Understanding. Site data must be used appropriately.
Aboriginal Cultural Heritage Site Management	• Identified sites will be protected. Protection measures will be addressed in impact assessments and operational plans for prescribed burns.
Historic Heritage Management	• The only site identified within the reserve is the Hawkins Trig site (rock cairn with set post established in 1887). Other sites may exist that have not been recorded on OEH databases. Any new sites should be identified, entered into OEH Historic Heritage database and protected during fire suppression and prescribed burning programs.

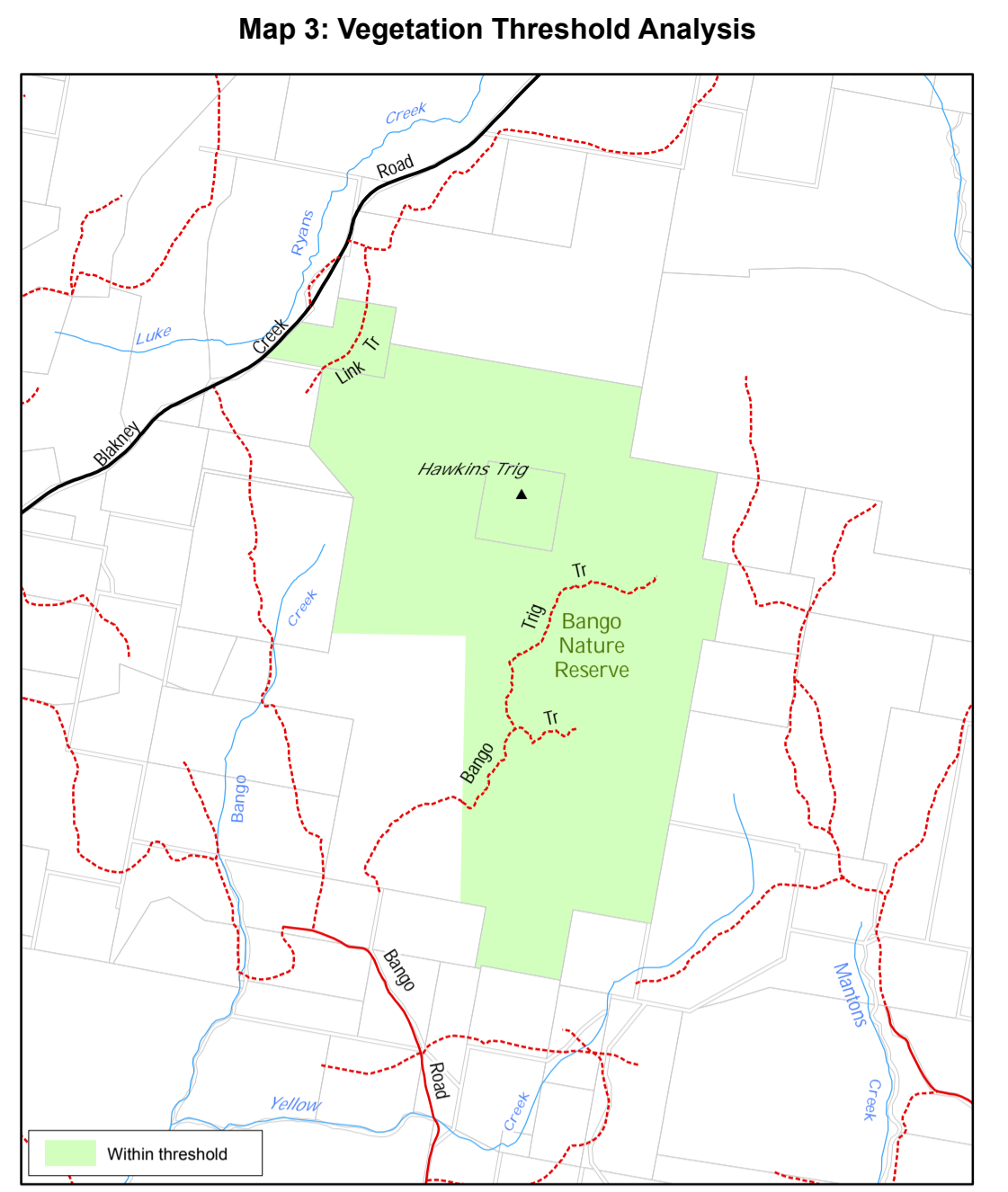
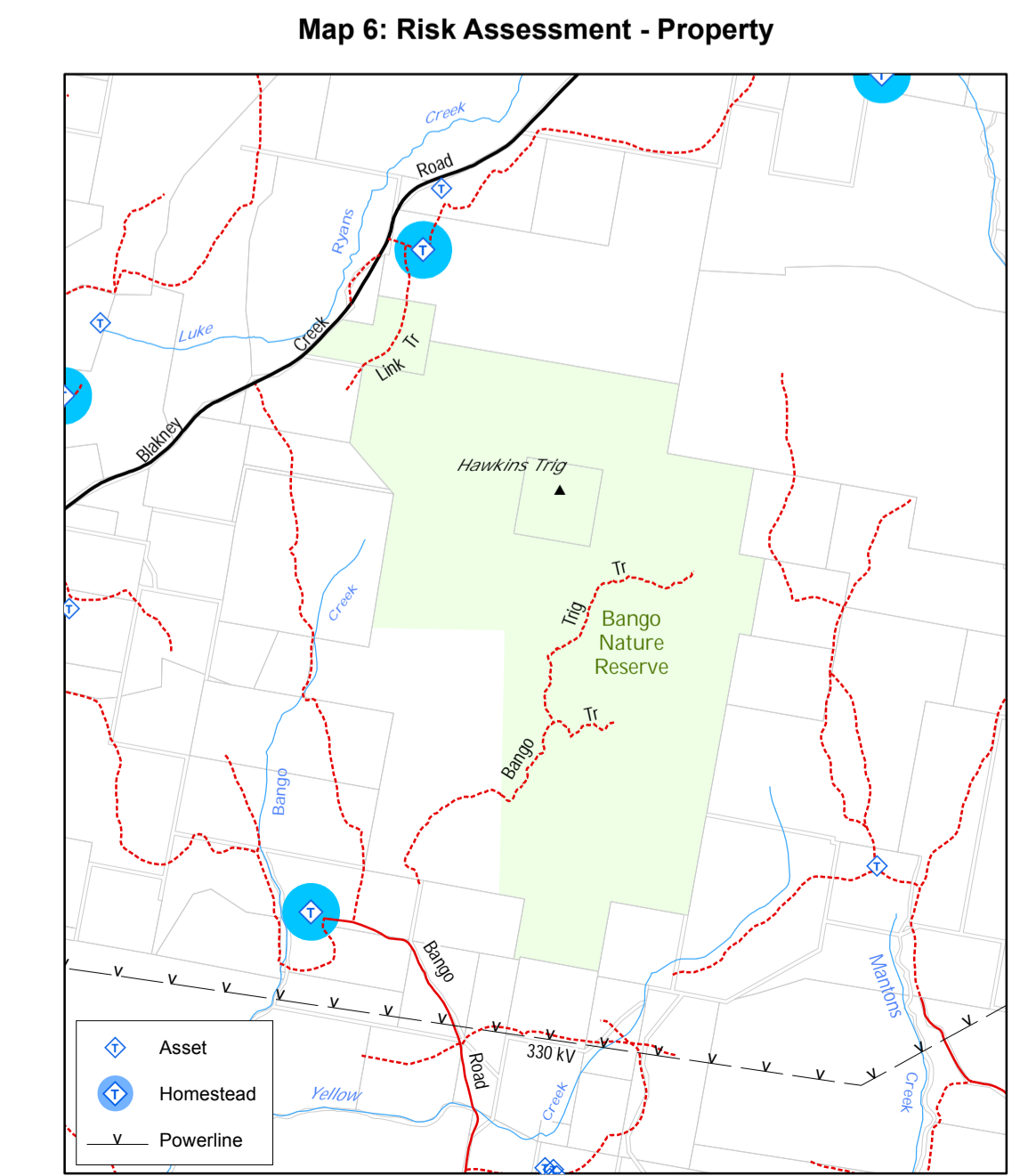


MAP 2: VEGETATION COMMUNITIES				
Vegetation Class (Keith, 2002)	Vegetation Community Description	Vegetation Group (Gelle, 2009)	Reserve (GIS) Ha's	% Reserve Cover
Southern Tablelands Grass Woodlands	Tablelands and Slopes Box-Gum Woodlands	92	94.98	21.58
Upper Riverina Dry Sclerophyll Forests	Stringybark - Box - Gum Woodland	114	340.06	77.28

Bango-PLANNING # Aug 2012

MAPS 2 and 5: SIGNIFICANT COMMUNITIES	
Vegetation Community	Significant Flora Management Guidelines & Considerations
Box Gum Woodland (potential)	• Around the boundaries of the Reserve there are areas of Box Gum Woodland which is an endangered ecological community (EEC) listed under the NSW Threatened Species Conservation Act. There is potential for the EEC to occur within the reserve, particularly on the lower slopes or in drainage lines.

MAP 6: RISK ASSESSMENT - LIFE & PROPERTY		
Asset	Vulnerability	Risk Mitigation
Private properties/ farm buildings	Vulnerable to fire coming from the reserve, particularly under the influence of westerly winds.	• Participate in the development and where appropriate implementation of fire management proposals regarding asset protection, through the Southern Tablelands Bushfire Management Committee. • Maintain access trails within the reserve for use in fire suppression. • Respond to unplanned fire events as soon as possible. • Implement annual fire management work schedule. • All fires reported or known to occur within the reserve will be reported to the RFS. • Provide media briefing/releasees to communicate strategies and updates of fire activity to those potentially affected.

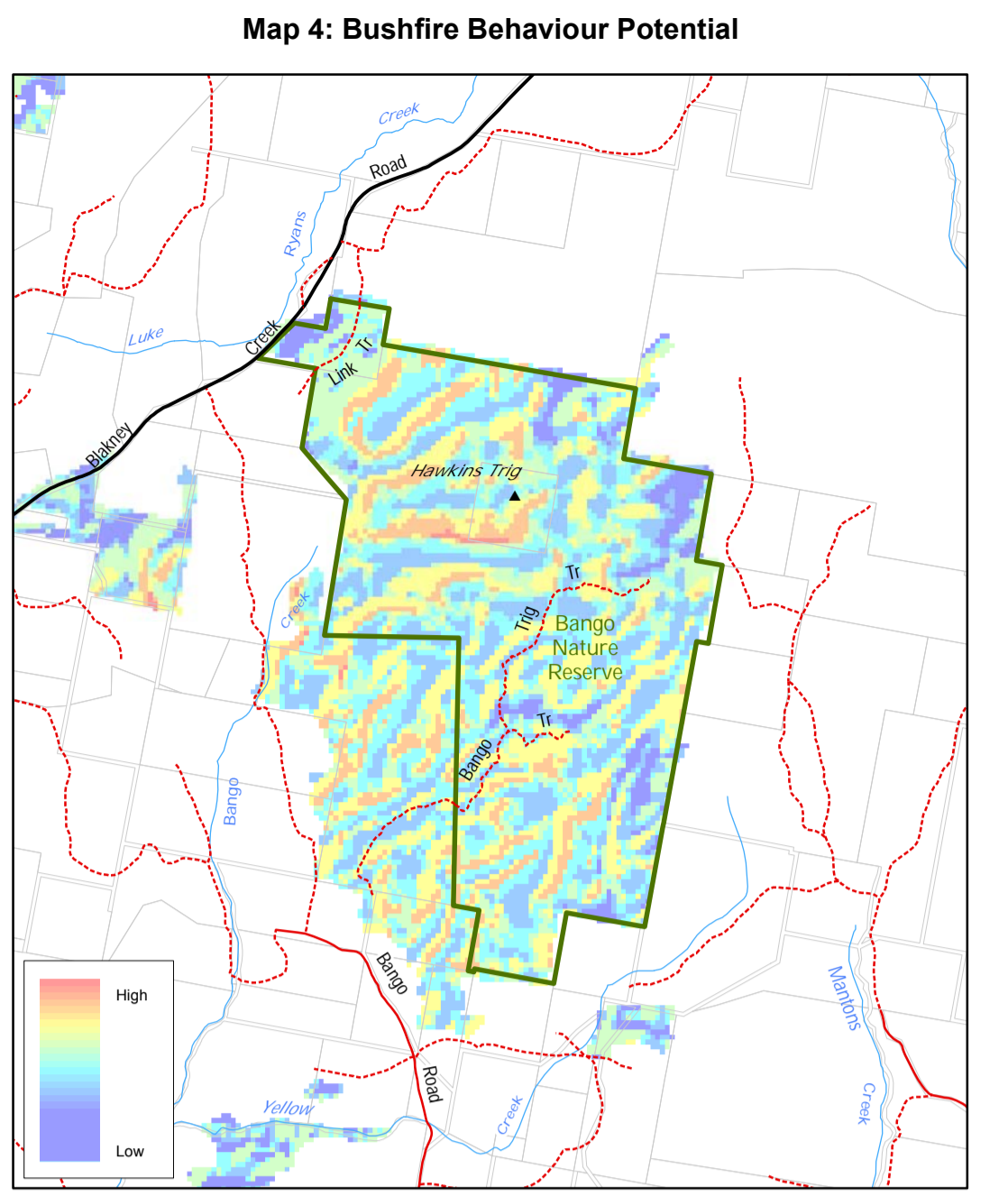
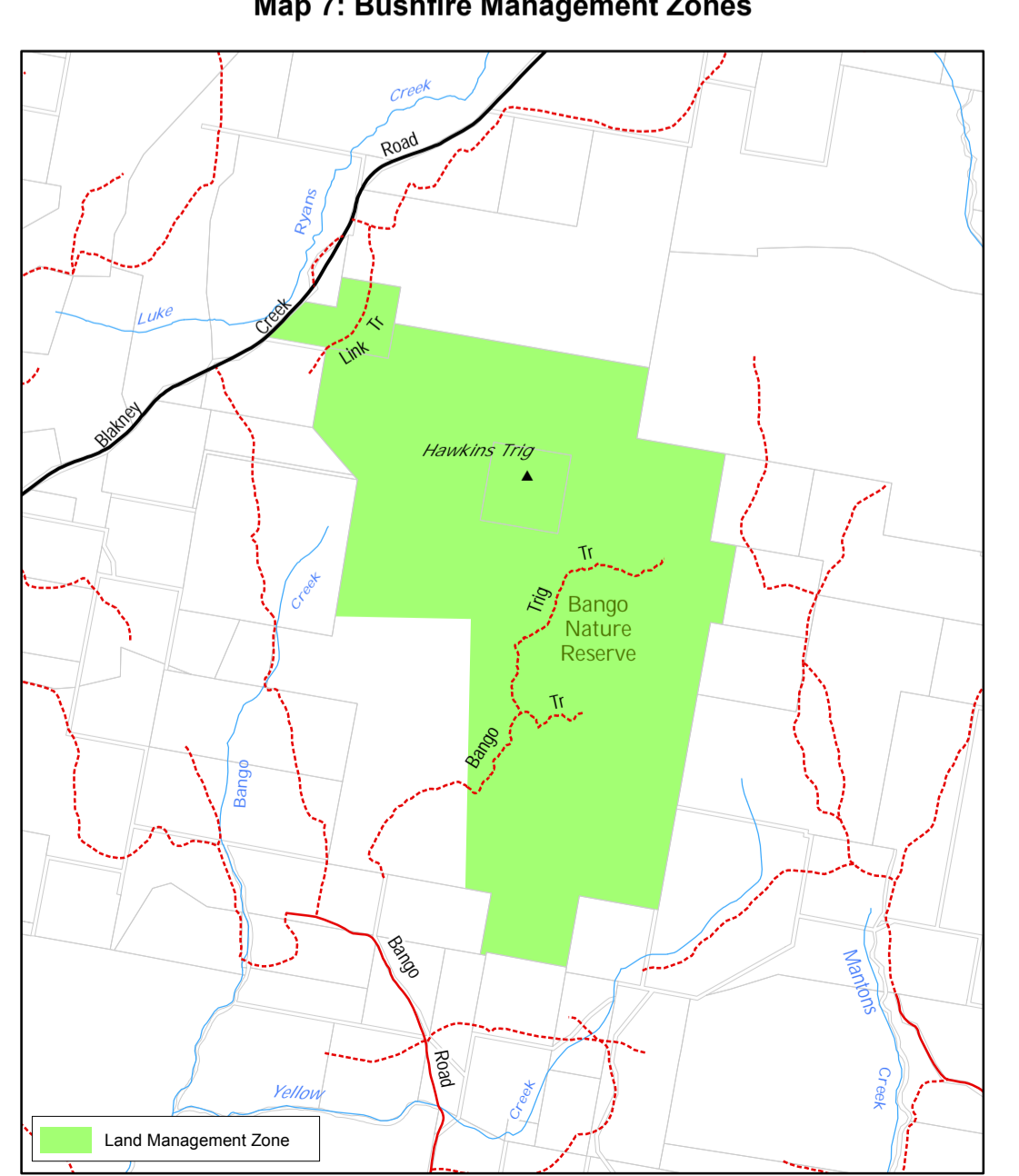


MAP 3: STATUS OF FIRE THRESHOLDS			
Threshold	Vegetation Community	% of Reserve	Interpretation & Management Guidelines
Below Minimum Frequency Threshold	N/A	0	• The inter fire intervals have been too short. • In these areas, species and populations sensitive to short fire intervals may experience a decline in abundance to a point where they risk local extinction. • Protect from fire as far as possible.
Within Frequency Threshold	Tablelands and Slopes Box-Gum Woodlands and Stringybark - Box-Gum Woodland	100	• Fire history is within the threshold for the vegetation community. • Fire is neither required or to be avoided.
Above Maximum Frequency Threshold	N/A	0	• Where the age of a vegetation community is greater than the maximum fire interval for the community, if fires continue to be excluded, a decline in biodiversity may result through the senescence of plants and their seed banks. • Long-unburnt areas are, however, ecologically significant, as there may be relatively few areas represented. • Consider implementing an ecological burn or allow the area to burn under suitable conditions. • Consider implementing an ecological burn or allow the area to burn under suitable conditions.

Note: The threshold analysis is derived from vegetation community thresholds and recorded fire history. In the event of fire, the analysis must be performed again to establish new thresholds. Fire history for the Reserve is unknown, therefore all vegetation communities are considered within threshold.

MAP 3: VEGETATION COMMUNITY THRESHOLDS					
Vegetation Class (Keith 2002)	Vegetation Community Description	Minimum Fire Interval	Maximum Fire Interval	Fire History Evaluation	Guidelines
Southern Tablelands Grassy Woodlands	Tablelands and Slopes Box-Gum Woodlands	5	50	100% within threshold	• A decline in biodiversity is predicted if 3 or more consecutive fires occur with inter-fire intervals of < 7 yrs. • Given the lack of knowledge of ecosystem function without fire, the upper limits of these thresholds are untested. Fire should only be introduced into the Reserve for the protection of assets, and ecological purposes if there is a demonstrated biodiversity decline. • Long-unburnt areas are ecologically significant, as there may be relatively few areas represented. • Too frequent fires may promote fire-tolerant shrubs.
Upper Riverina Dry Sclerophyll Forests	Stringybark - Box - Gum Woodland	5	40	100% within threshold	• As above • Minimum interval of 10 years should apply in the Southern Tablelands region

MAP 7: BUSH FIRE MANAGEMENT ZONES - DEFINITIONS		
Asset Protection Zone (APZ)	The purpose of APZ is to protect human life, property and highly-valued public assets and values. Provide fuel-reduced areas around assets.	
Strategic Fire Advantage Zone (SFAZ)	To provide strategic areas of fire protection advantage which will reduce the speed and intensity of bushfires, reduce the potential for spot fire development, and aid containment of bushfires to existing management boundaries.	
Land Management Zone (LMZ)	The objective of land management zones are to protect natural and cultural heritage, and to reduce the likelihood of spread of fires.	



MAP 4: BUSHFIRE BEHAVIOUR POTENTIAL			
Rating	Vegetation Description	% of Reserve	
Low	N/A	Nil	
Moderate	N/A	Nil	
High	Tablelands and Slopes Box-Gum Woodlands	21.6	
Very High	Stringybark - Box - Gum Woodland	77.3	

ANALYSIS OF BUSHFIRE BEHAVIOUR POTENTIAL			
Rating	Aspect in degrees	Rating	Slope in degrees
Low	80 - 200	Low	0 - 10°
Moderate	30 - 80 & 200 - 240	Moderate	10 - 20°
High	10 - 30 & 240 - 260	High	20 - 30°
Very High	260 - 10	Very High	>30°

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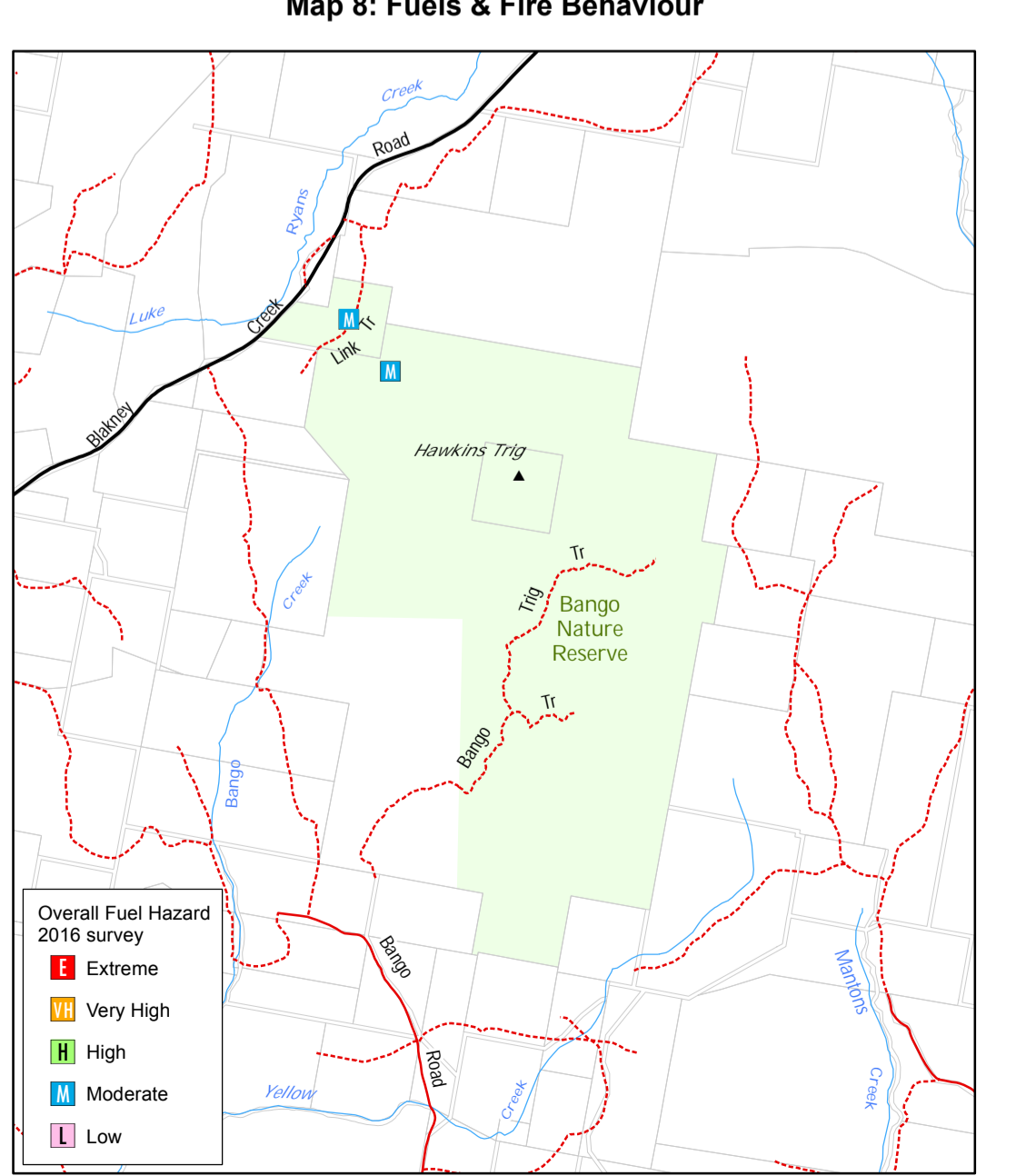
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MAP 8: FUELS AND FIRE BEHAVIOUR	
Fuel Landscape Analysis	
Fuels are variable across the reserve reflecting complex interactions between vegetation type, aspect and topography. Limited visual fuel sampling was conducted in Winter 2016 at sites within the reserve. The assessment approach applied was to determine the Overall Fuel Hazard (OFH) rating (McCarthy et al., 1999). Rather than only considering surface fuel loads (Dha), this assessment considers the fuel complex, and particularly the bark and elevated fuels - bark and elevated fuels being the fuel elements principally responsible for both fire attack failure and also for general suppression difficulty. The major findings of the fuel sampling program were:	
• OFH is moderate.	
• Shaded gully communities carry high levels of biomass, which generally equates to high fuel loads. They are also usually located in low fire-prone areas due to their topographic position, aspect and are moisture environments. Therefore fuel loads in gully communities may not necessarily be reduced, even in some wildfire incidents.	
• Communities dominated by red stringybark or ribbonbark have a high to very high bark hazard rating which increased the OFH rating. This is generally due to long periods where communities have been unaffected by fire. These sites had variable surface and elevated fuel hazard ratings. To reduce the bark hazard a high intensity regeneration burn would be required. This may have the negative outcome of replacing a grassy understorey with a regenerating shrub layer, therefore increasing the elevated fuel rating. High elevated fuels can impede access for earth moving equipment and fire fighters and increase burn fire intensity.	
• Establish monitoring program to identify areas where vegetation community is senescing due to lack of fire.	



WORKS PROGRAM				
Asset	Priority	Name, Area or Detail	Management Strategy	Proposed Works
Trails	High	Management Trails	• Maintain trail network for vehicle category identified in works program map. • All trails to be clearly signposted at intersections and trailheads.	• Assess trails annually and maintain as required or as specified in Regional Operations Program. • Establish directional signage on trail network as required. • Chemical fuel reduction of management trails as required. • Negotiate fire access with neighbours
	Low	Dormant Trails	• Could be used during emergencies once upgraded to Cat 9 standard. • May be re-opened as a control line option.	• Assess trails and document condition and suitability for fire suppression activities • Investigate reopening two dormant trails in the east of the reserve (Stone and Days trails) as part of trail rationalisation strategy for the reserve.
Land Management Zones	High	As identified in Map 7	• Any proposed prescribed burn must be in line with OEH policy and managed in accordance with the Southern Tablelands Bush Fire Management Committee (BFMC).	• Assess cooperative fire management programs with adjacent landholders and implement where appropriate, in consultation with BFMC. • Conduct fuel hazard assessment as per fuel monitoring schedule.
Information & Research	High	Fuel monitoring	• Conduct fuel monitoring program.	• Conduct fuel hazard assessment as required.
	High	Mapping fire	• Map all bushfires and prescribed burns to enable data collection on fire frequency, intensity, rate of spread and area burnt. • Update Fire Management Strategy (FMS) where information is limited and where validations are required.	• Map the extent, patchiness and intensity, where possible, of all bushfires and prescribed burns. • Incorporate new or validated data into fire management and incident databases. • Update FMS after fire incidents or reserve boundary changes. Review annually to determine if updates required.
Cooperative Fire Management	Low	Research	• Liaise with academic and research institutions to encourage research in the reserve relevant to fire management. • Establish monitoring program to identify areas where vegetation community is senescing due to lack of fire.	• Ongoing
	High	Liaise with NSW RFS, and Neighbours	• Attend meetings of Southern Tablelands Bushfire Management Committee, and local RFS volunteer brigades. • Undertake joint training exercises.	• Ongoing