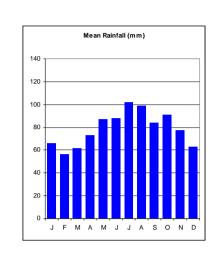
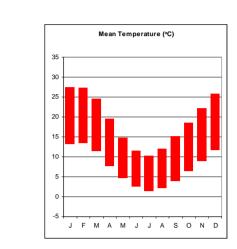
Location





	Reserve (630.69 ha) was gazetted on 2 $^{\rm nd}$ No Reserve will be referred to as the "reserve", ι		
	ed approximately 37 kms south west of Yass e Jasper Valley. Access to this reserve is thro		
Department of Environment and Conservation	Parks and Wildlife Division, National Parks and Wildlife Service. South West Slopes Region, Queanbeyan Area	Government Areas	Hume Federal Electorate. Burrinjuck State Electorate. Yass Valley Local Government Area
Rural Fire Service	Yass Zone (Bush Fire Management Committee)	Other Agencies	Brungle Tumut Aboriginal Land Counc Murrumbidgee Catchment Manageme Authority

	1	MAP 6: LANDSCAPE THRESHOLDS
Slope Class Degrees	Fine Fuel Range in T/Ha	Threshold & Impacts
0-10	3-5	Less potential on lower slopes. Fine fuels averaging 4 t/ha are favourable.
10-15	4-7	Expected increase in gullies and wash-outs Fine fuels averaging 6 t/ha are favourable.
15-20	10-12	Increase expected through mid slopes and drainage lines. Fine fuels averaging 11 t/ha are favourab
20-25	12-14	Increase across disturbed slopes and trails Fine fuels averaging 13 t/ha are favourable.
25-30	16-18	Large scale soil loss expected in disturbed areas. Impacts may be severe in areas feeding in to watercourses. Fine fuels between 16-18 t/ha expected to prevent slope instability.
>30	>20	High fuels on slopes >30°are present in this reserve.

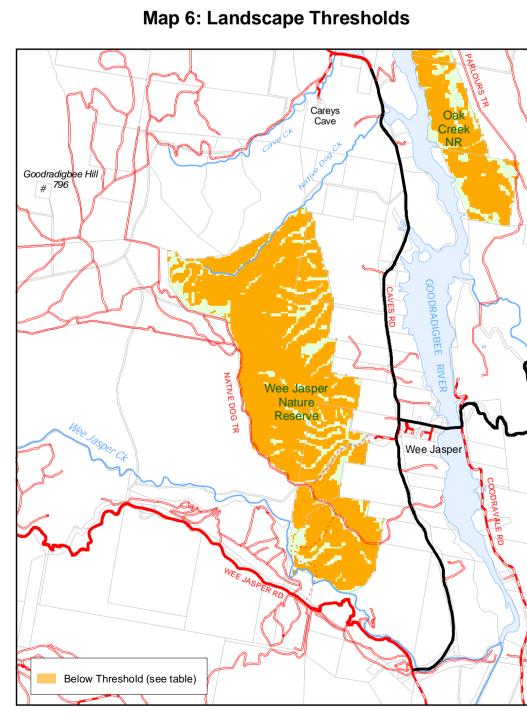
 Currently, 82% of the park has potentially unstable soils/slopes (520 ha).
 Water quality may be compromised by soil disturbance and silt run off after fire and may have significant impacts on local karst systems. Organisms dependent on drainage lines and specific water quality are also at risk through soil disturbance. Maintaining the fine fuel minimum range may reduce potential moisture loss in soils during summer periods. Fuel decomposition after fire may decrease (depending on fire intensity, fire interval, cover and patchiness of the fire) due to a reduction in soil micro-organism activity. The presence of foams and retardants within the soil may also effect soil and micro-· Areas with lower than average fine fuels for the corresponding slope class are expected to have increased slope instability and, poorer water quality.

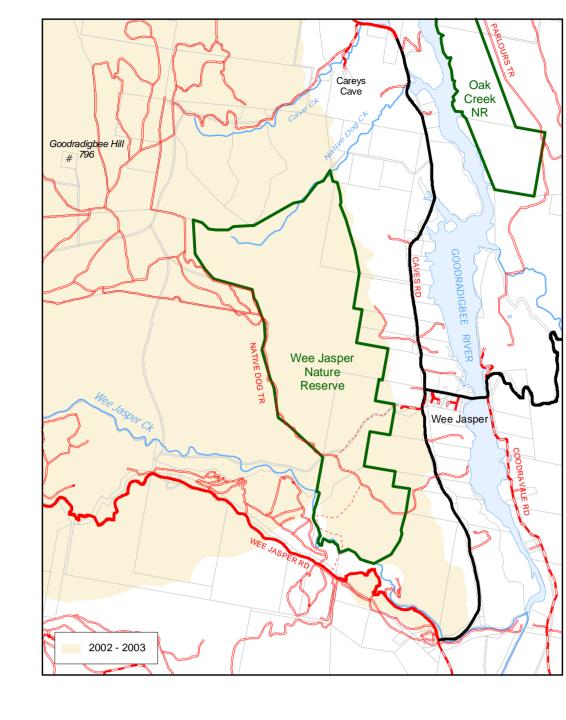
Threshold & Impacts

Fire Management Guidelines

• Minimise the potential for frequent and or high intensity fire in areas where fine fuel ranges do not meet the slope class thresholds. Avoid trail construction on slopes >15 degrees and areas where caves and bat maternity sites exist. If prescribed burning, ensure burn areas are strategically implemented across the landscape so that large areas and slopes are not left exposed. In addition, burning programs should be implemented during conditions where fuels can be reduced to the minimum. t/ha of the fine fuel range for the corresponding slope class. Avoid planned fire during years of extreme drought and the year following a severe drought. · Control lines or fuel breaks constructed during an incident should provide adequate drainage to prevent trail erosion.

Rehabilitation of control lines or fuel breaks constructed during fire events will be addressed during the incident in the Incident





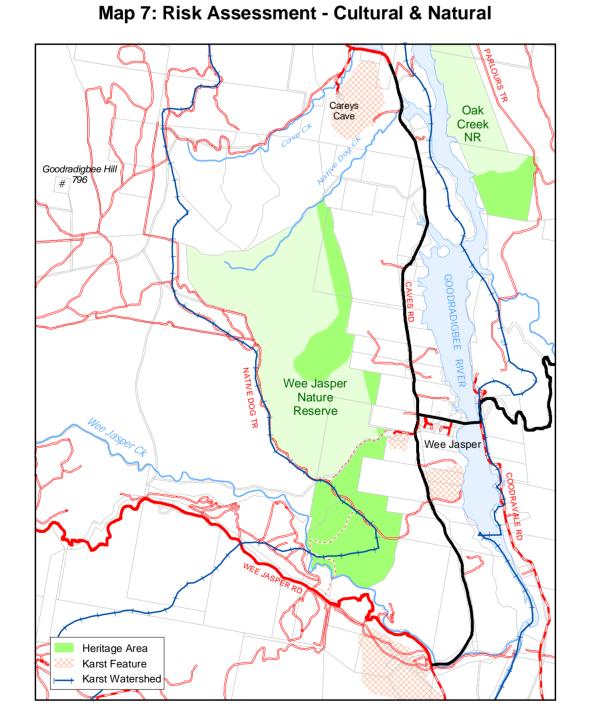
Map 1: Fire History - Wildfire

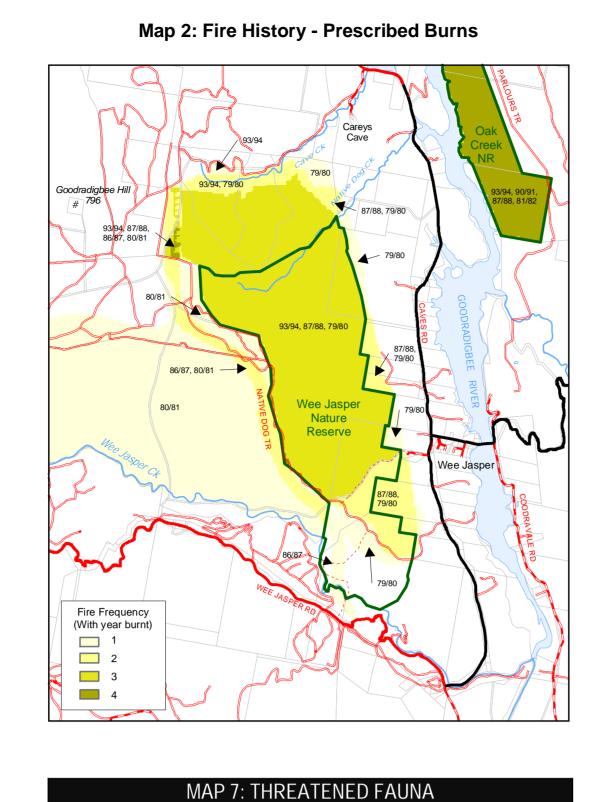
	MAPS 1 & 2: FIRE HISTORY
Ignitions	There are no recorded ignitions for wildfire starting on this reserve. In January 2003, during extreme fire weather conditions, a wildfire burnt through the Reserve from the north west. It is probable that other ignitions have occurred within the reserve and surrounding landscape, however are not documented
Prescribed burns	According to verbal accounts, there have been several prescribed burns applied within the Reserve and adjacent area over the last 26 years (1979, 1980, 1986, 1987 and 1993). Most of these burns were carried out in the northern part of the reserve. There were no indications that the prescribed burns achieved the objectives of implementation, as there were no monitoring programs initiated pre or post burning.
Wildfire	The subsequent fire from the 2003 ignition, burnt through Burrinjuck Nature Reserve and State Conservation Area, Black Andrew Nature Reserve, Wee Jasper and other reserves on the east side of Burrinjuck Dam. The fire spread rapidly in extremely dry and windy conditions, but was contained south of Wee Jasper Road and along the timber line and agricultural land adjacent to the eastern boundary of Wee Jasper Nature Reserve. The fire intensity in 2003, may have been heightened on the eastern side of reserve due to the day and time a back burn was initiated to contain the west forward fire front on the eastern boundary of the reserve. The back burn was initiated from the bottom side of the eastern slope outside the reserve and allowed to travel rapidly up the steep slopes, back into the reserve.
Fire Frequency	Since 1979, the northern section of the reserve has been burnt 4 times. The fire frequency at Wee Jasper is very high, where over 76% of the reserve has burnt 4 times in the last 26 years. This is mostly due to the high number o prescribed burn's (3) since 1979. The frequency and interval between fire has important implications relevant to biodiversity and fire management. Vegetation groups 24, 49 and 52 are at risk of simplification as the longest period without fire as recorded is 10 years. Biodiversity requirements for these vegetation communities are within a minimum of 15-30 years without fire. There is a high probability that fire has affected some areas of the reserve or the entire reserve prior to records being kept, therefore the management of fire and implementation of prescribed burns are imperative for appropriately managing the biodiversity and structural diversity of the reserve and surrounding landscape.

CULTURAL HERITA	GE
	OL .
Key Guidelines	
Factors for fuel red	HIMS and HHIMS, must be accessed during incidents and or for preparation of Review of Environmental luction burning or other works programs to ensure new records are included. Aboriginal site information from and subject to a Memorandum of Understanding. Site data must respect this agreement and must be used.
For fuel reduction be program outlines.Where possible, tra	ourning programs, protection measures will be outlined in the Review of Environmental Factors and burning nined officers will provide advice on site protection methods.
For fuel reduction be program outlines.Where possible, tra	sined officers will provide advice on site protection methods.

ı	Key Areas
Th 1.	ne reserve lies in the catchment for the Wee Jasper Caves and Karst system. Including; Punchbowl Hill - Karst and sensitive flora and fauna. Palaeontological sites, plus more Aboriginal sites. Area part of the Nation
2. 3.	Estate Register. The Dip Cave' - Palaeontological sites, plus more Aboriginal sites. Area part of the Register (National Estate Register).
4. 5.	'Thermal Paddock' karst area - karst and sensitive flora and fauna. R. megaphyllus maternity site.
	'Nice Cave', at pylon 58, and Carey's Cave - conservation issues for Karst and bats. Guidelines
	Identified sites must be managed according to conservation management plans (where they exist) and the Reserve Trust.

Fire retardants should not be used within the Wee Jasper Reserve or Karst Catchment Area. Where possible, trained officers will be sort to provide advice on site protection methods during management programs. Follow Operational guidelines and Heritage Management Zone 1 requirements. Note: Cultural heritage sites are based on data recorded on AHIMS and HHIMS databases and field data recorded as at September

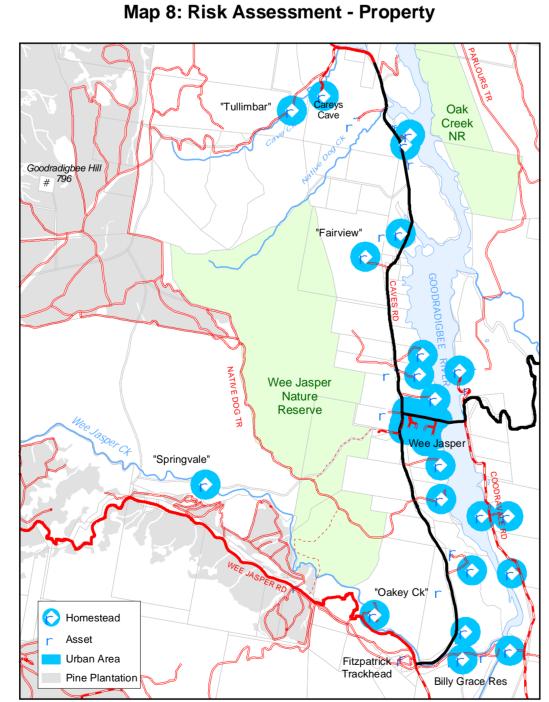




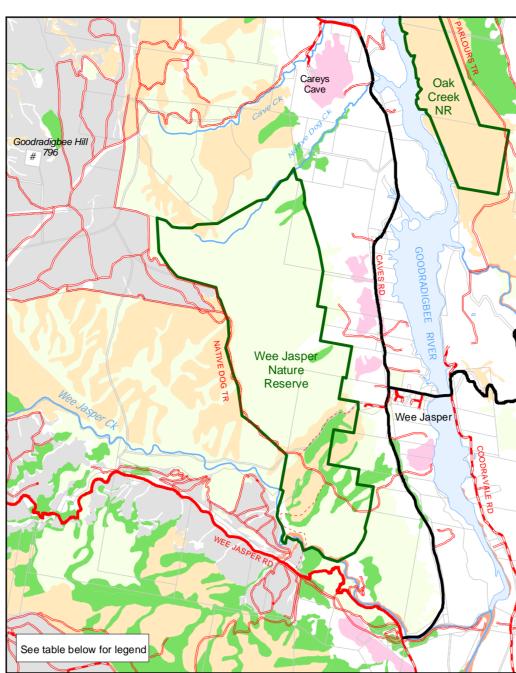
Group	Common N	ame	Scientific Name	TSC Schedule	Vulnerable Period
	*Brown tree	creeper	Climacteris picumnus	V	May-Dec
	Diamond firetail		Stagonopleura guttata	V	Aug-Jan
Α	Hooded rob	in	Melanodryas cucullata	V	Jul-Nov
	*Regent honeyeater		Xanthomyza phrygia	E	Jul-Feb
	*Powerful owl		Ninox connivens	V	Apr-Dec
	Eastern bent-wing bat		Miniopterus schreibersii oceanensis	V	Dec-May
	*Eastern Tube-nosed bat		Nyctimene robinsoni	V	Oct-Apr
	Large-footed Myotis		Myotis adversus	V	Nov-Apr
	*Eastern ho	rse-shoe bat	Rhinolophus megaphyllus		Nov-Apr
D	*Booroolong	frog	Litoria booroolongensis	E	Sept-Feb
В	Species occ	urring in riparian, water	courses and swamp areas		
Fire Group	Veg Groups		Threatened Fauna Guidelines & Conside	rations	
Α	· 24 · 49 · 52	Felling hollow bearing availability for most sp changes in vegetation depend on. These spe simplification of forest Where possible;		obtentially decreduces available water quality reduction fire best.	eases nest hollow e habitat through many species pecause of the
		Wildfires should be term mosaic pattern hollow bearing tree	kept to the smallest possible size, managed to reduns. Ensure patches of shrubs, standing and fallen tis (dead or living), particularly during mop up activities by swamps, streams, dams & flooded river flats. S	imbers are left i es.	in tact and protect

Group	Common Nar		REATENED FLORA Scientific Name	Schedule
Α	Grevillea iaspicula		Grevillea iaspicula	E
Group	Vegetation Group	Threatened Flora Management Guidelines & Considerations		
Α	- 49	pers. comm 2006). During the grazing and landslides. Increand droughts. Significant recoresearch is required to determ species. Where possible; Exclude all fire where this sometimes the size and pote prescribed fire should not a Avoid the use of earth mow has been identified on the	e to fire and grazing, especially when the two occur constitutions of the species stated predation on seedlings and surviving plants is detrivery work has been initiated (\$18000 +) over the last 10 line the impacts of fire suppression techniques and chen species has been recorded, manage as a fire sensitive solution for fire to spread into areas this species is recorded be implemented in areas this species is recorded. Fing equipment and or the construction of control lines who perations map. Where control lines are required, ensure of the control line to the approaching fire.	uccumbed to fire mental after fire years. More nicals on this pecies.

Note: The vegetation group numbers should be referenced against the vegetation management guidelines in the Vegetation Communities and Thresholds section of this plan, as this species regime may differ from community management guidelines.



Map 3: Vegetation Communities



Veg Group	Vegetation Description	Reserve Ha's	% of Reserve
24	Apple Box & Nortons Box - Moist Grass Forest	51.0	8%
49	Brittle Gum & Broad Leaved Peppermint - Poa Grass Forest	500.1	79%
52	Nortons Box - Poa Grass forest	61.5	10%
191	River Oak Forest	3.7	1%
198	Pine Plantation	0.0	0%
199	Natural Vegetation - Partially Cleared	11.6	2%
190	Limestone Outcrops	0.0	0%
N/A	No Data	2.7	0%

Interval	Vegetation Group	Vegetation Management Guidelines
15 - 60	Apple Box & Nortons Box - Moist Grass Forest 24	Frequent fires predicted to cause extinctions in this community over-storey if successive fires occur <15 years. The majority of species within the community understorey sampled predicted to decline if infrequent fire occurs >60 years apart. This community may require a significant recovery period after the 2003 fires, due to the severity of the season and impact on this reserve and others within the Burrinjuck Dam area. Top soils prone to erosion with frequent fire. This community covers a small percentage of the reserve and contains key species supporting the survival of threatened fauna. Where possible; Minimise the potential for frequent fire, where successive fires occur <15 years apart. Prescribed fires should only be initiated where successive fires occur >20 years apart and where no more than 10% of the vegetation group is targeted for burning. Other methods of fuel manipulation should be considered. Minimise the use of earth moving equipment within the vegetation community to prevent fragmentation Avoid felling mature, hollow bearing trees.
25 - 100	Brittle Gum & Broad Leaved Peppermint - Poa Grass Forest 49	Declines predicted if successive fires occur <25 years apart. Shrubs within the sampled community are sensitivity to infrequent fire. That is, where fire is excluded for long periods (>100 years). Most overstorey species will persist where consecutive fires occur >100 years apart, but <400 years apart. Daviesia and platylobium species, which persistent after fire, are predicted to increase in cover, abundance and density. This has the potential to increase the bushfire behaviour within the community 5 years after disturbance. Where possible; Minimise the size and potential spread of fire where successive fires occur <25 years apart. Prescribed fires should not be initiated where successive fires occur >25 years apart and where no more than 25% of the vegetation group is targeted for burning. Other methods of fuel manipulation should be considered to reduce the potential increase of Daviesia and platylobium species.
30 - 70	Nortons Box - Poa Grass forest	Some species within this community may be affected by frequent and infrequent fire events. Some ground cover species are predicted to decline where successive fires occur <30 years apart and may become locally extinct, where fire is excluded for >70 years. Most species sampled within the group are capable of persisting >100 years without fire. This community covers a small percentage of the reserve and should be protected from further disturbance. Where possible;

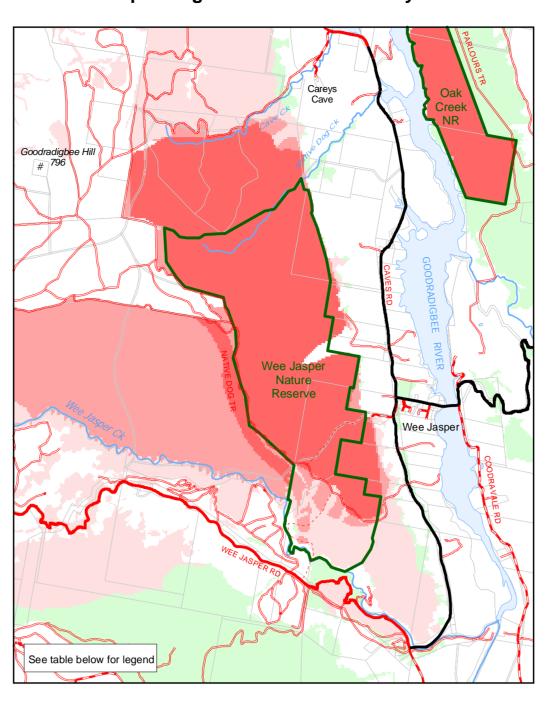
52	 Where possible; Minimise the size and intensity of any fire, especially where successive fires occur >30 years apart. Minimise the use of earth moving equipment within the vegetation community. Prescribed fires should only be initiated where successive fires occur >30 years ap
Note: Flora and Fauna management guid	lelines should be consulted in conjunction with vegetation management guidelines.

MAP	8: RISK ASSESSME	NT - LIFE & PROPERTY
Asset Vulnerability & Impacts		Fire Management Guidelines & Considerations
On park Assets	There area no property assets on the reserve.	Provide guidelines in the event assets are constructed within the reserve.
Other assets (including private property or other lands adjacent to the park)	Property assets may be damaged by fire escaping the park, including plantations.	Maintain access trails and firebreaks within the park that will assist in fire fighting efforts. Participate in fire management proposals through RFS Zone Bush Fire Management Committee meetings. During the fire season rapidly respond to all unplanned fires to minimise potential spread to private lands. Consult with plantation owners of intended fire operations and strategic programs.

Management Zone	Definition	Management Guidelines
Asset (APZ)	Life, property and commercial assets in high Bushfire Behaviour Potential risk areas on DEC estate.	Assets should be evaluated annually to measure potential hazards and or increased threats. Works program to follow Risk Assessment (Life and Property) Guidelines.
Fuel (FMA)	Fuel Monitoring Areas are localities for monitoring fine surface fuel, grasses, shrubs, dead and down material and ecological health.	Monitor regularly to quantify changes in the fuel landscape which may indicate an increase in risk. Monitor to improve knowledge ecological responses and health and identify undesirable changes in vegetation communities. Use areas to establish SFMZ's where appropriate.
Strategic (SFMZ)	Strategic Fuel Management Zones are areas used to target 'potential' risks of high fuels, high fire intensity, increased rate of spread, spotting or to consolidate reserve APZ's. The zone is not a commitment to execute prescribed burns in the target area, within the life of the plan.	The implementation of fuel management programs shou comply with BFCC guidelines and should be conducted i areas identified in this strategy as a SFMZ. Implementing prescribed burns or other vegetation manipulation program should only occur where more tha 80% of the zone exceeds 15 t/ha (BFCC). Any program must include monitoring before and after prescribed burns to determine effectiveness of the program fuels and the ecological impacts.
Heritage 1 (HMZ1)	Areas of high priority natural and cultural conservation value. It identifies areas of 'recorded' cultural and natural assets. This zone is important for the protection of cultural heritage and the conservation of some species habitat to prevent declining numbers or extinctions.	Heritage areas should be assessed annually to determin potential hazard, threats to cultural heritage, and thresholds for TSC and vegetation communities. Prescribed fire may be applied in these areas if appropris
Heritage 2 (HMZ2)	This zone identifies areas of significance for natural and cultural features across the broader landscape. This generally means 'parts of the reserve that have not been surveyed and or have no records of significant features or threatened species'.	These heritage zones should be monitored to determine threats to biodiversity and managed in accordance with conservation policy and principles. Prescribed fire may be applied in these areas if appropris for ecological purposes or protection of cultural heritage. Manage during incidents according to HMZ2 guidelines.

 Karst and Catchment protection. 2. The vegetation communities in the reserve nearly all within thresholds that are vulnerable or over burnt. 3. Most of the reserve is on unstable slopes, that require ground cover and fuels to minimise potential erosion.

Map 4: Vegetation Threshold Analysis



	MAP 4	l: VEGE	ETATION THRESHOLD ANALYSIS	
Threshold	Vegetation Group	% of Reserve	Interpretation & Management Guidelines	
Overburnt	24, 49, 52	83	According to the vegetation regime thresholds, two consecutive fires have been recorded too close together. Additional fire in this area will lead to adverse fire regimes and may threaten community biodiversity. Fire should be avoided for until at least 2018 (depending on vegetation group).	
/ulnerable	49, 52	5	Will be overburnt if the area burns before the end of 2028. Fire should be avoided for until at least 2028	
cently burnt	24, 49, 52	10	Time since fire is less than the threshold intervals. Fire this year will push the vegetation groups into the vulnerable class. Prescribed fire will not be introduced into this area before 2018.	
Inderburnt	N/A	0	May require fire after 2006 for Asset protection, strategic or biodiversity reasons. Planned fire may be introduced for prescribed burning for asset and strategic protection programs, ecological purposes and unplanned fire events may be allowed to burn if The vegetation community demonstrates a loss of biodiversity conditions are suitable the intensity meets vegetation, flora and fauna community requirements >50% of any vegetation community group in any threshold across the reserve is classed as Ok, Almost Underburnt and Underburnt.	
Almost Inderburnt	N/A	0	Planned fire may be introduced for fuel reduction burning for asset or strategic protection programs and unplanned fire events may be allowed to burn if The vegetation community demonstrates a loss of biodiversity conditions are suitable the intensity meets vegetation, flora and fauna community requirements >50% of any vegetation community group in any threshold across the reserve is classed as Ok, almost underburnt and underburnt.	
ОК	24	<1	Areas which thresholds have been assigned to, which don't fall into one of the above categories. Fire is neither required or to be avoided. Fire should only be applied in areas if a loss of biodiversity is demonstrated. Where possible, maintain >50% of any vegetation community group across the reserve as Ok, Almost Underburnt and Underburnt.	
nknown/ No Regime	191, 199	2	The fire history is too short to determine whether it is underburnt or over burnt. Areas that do not have a threshold assigned to them or there is missing data, limiting	

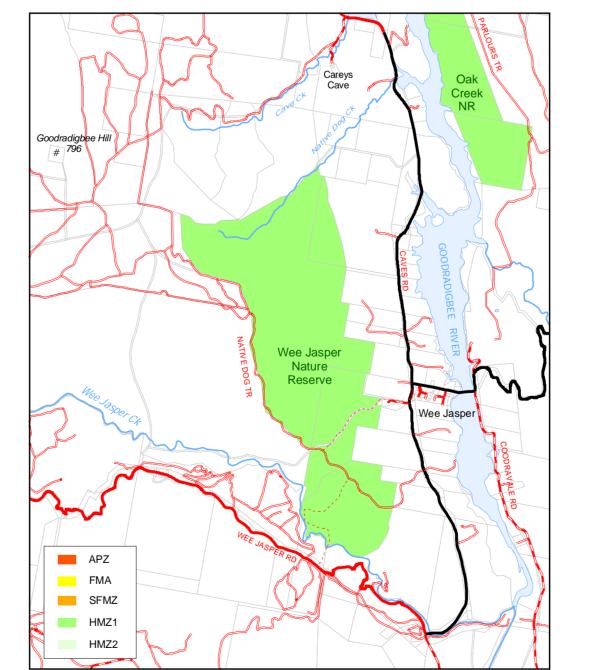
	BIODIVERSITY SUMMARY
	/here possible, the various responses of reserve fauna to fire suggest that, for biodiversity management; Fire should not be introduced to areas affected by the 2003 wildfires until the communities recover to their full carrying capacity fo threatened species (HMZ 2). Fire should be excluded from the reserve until 2018. Wildfires should be kept as small as possible to reduce impacts on threatened species habitat.
	Where possible, wildfires should be managed to reduce fire intensity to limit both direct and indirect impacts on threatened species.
•	Established monitoring plots are to be surveyed every 5 years. Following fires, sites are to be monitored annually for 2 years before returning to a 5 year monitoring program.

before returning to a 5 year monitoring program.

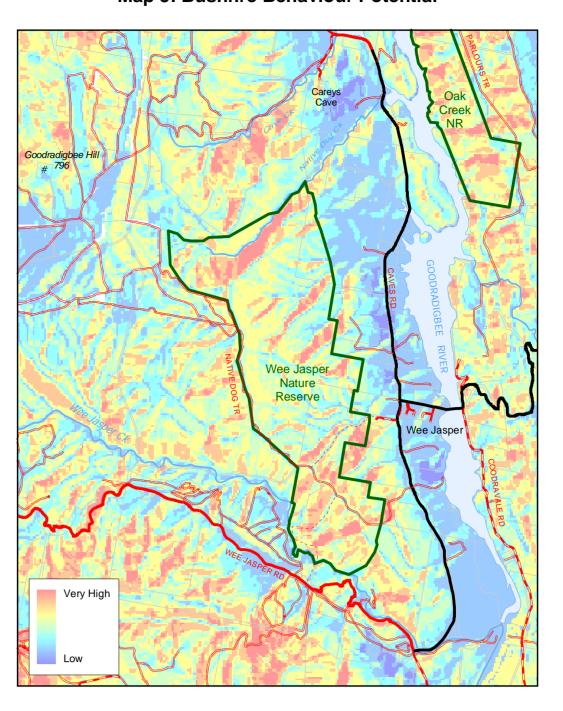
the modelling capabilities in DEC GIS. Note: The threshold analysis is derived from vegetation community thresholds and recorded fire history (including fire frequency and intervals). All vegetation communities should be monitored and planned fire should only be applied if a loss of biodiversity is demonstrated. In the event of fire in this reserve, the analysis would have to be performed again to establish new threshold values.

In addition, for management of vegetation; Floristic and structural diversity monitoring should be conducted in the 2003 and pre 2003 age classes to monitor any changes in floristic diversity and habitat quality occurring with time since fire. Fire should only be applied in response to a demonstrated loss of biodiversity

Map 9: Bushfire Management Zones



Map 5: Bushfire Behaviour Potential



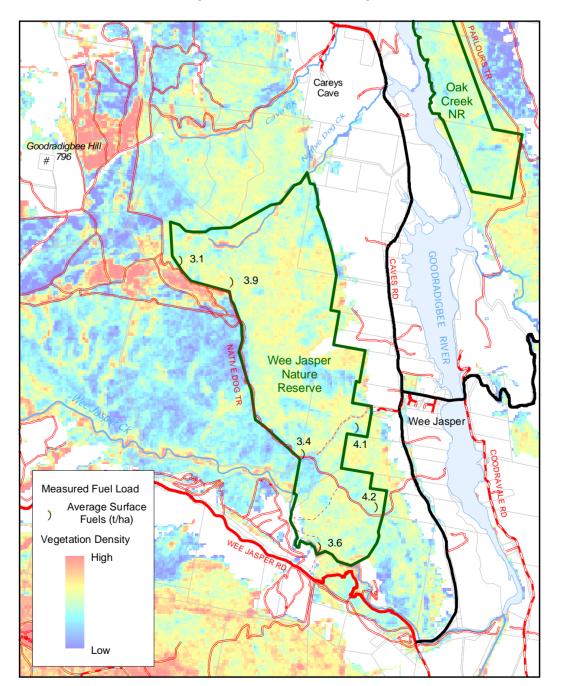
	MAP	5: BUSHFIRE I	BEHAVIOUR PO	TENT	TAL	
Vegetation Fu	el Hazard Rat	ing (under moderate condition	ons)			
Rating	Vegetation Description			Reserve Hectares	% of Reserve	
Low	No Data Limestone (Outcrops			2.7	<1
Medium	Natural Vegetation - Partially Cleared River Oak Forest Nortons Box - Poa Grass forest Brittle Gum & Broad Leaved Peppermint - Poa Grass Forest Pine Plantation (Under 5 years of age)				576.9	91
High		Nortons Box - Moist Grass Forest ion (5-10 years of age)			51.0	8
Very High	Pine Plantat	ne Plantation (>10 years of age)			0	0
Aspect Bushf	re Behaviour		Slope Bushfire Beha	viour		
Rati	Rating Aspect in degrees		Rating	Slop	ope in degrees	
Low		40 -190	Low	0 - 10	0 - 10 degrees	
Medium		10 - 40 & 190 - 245	Medium	10 - 2	10 - 20 degrees	
High		245 - 280 & 330 - 10	High	20 -3	20 -30 degrees	
Very High		280 - 330	Very High	>30 0	>30 degrees	

MAP 10: FUEL LANDSCAPE					
Site Sampling (Surface Fuels - April 2004)	Fine Fuels T/ha (Visual)	Notes			
Minimum Fuels	3.1 (2.0)	Veg Groups 49 - in modelled low to moderate fuels (<10 t/ha) & Bushfire Behaviour potential. Site surface fuels ranged between 3.1 to 4.2 t/ha. Grass cover was <8% and aerial fuels sparse with coverage <2%.			
Highest Fuels	4.2 (4.0)	Veg Group 24 & 52 (ecotone) - in modelled low fuels & low to moderate Bushfire Behaviour potential. Site surface fuels ranged between 3.4 & 4.1 t/ha. Grass cover was <4% and aerial fuels sparse with coverage <5%. Similar vegetation, unburnt in 2003, exists to the east in Oak Creek NR. In time, fuels will accumulate in Wee Jasper NR, resembling fine fuel loads up to 8.5 t/ha.			
Average Fuels	3.7 (3.0)	All sites recorded low grass cover and a sparse shrub layer, where average grass and shrub cover was <6% respectively.			
Modelled Fuels (Surface & Aerial Fuels - April 2004)	Fuels in t/ha	Notes			
Minimum Fuels	2.1	Minimal fuels found across the landscape, where 99% of the reserve fuels modelled under 10 t/ha. The higher modelled fuels occur in vegetation			
Maximum Total Fuels	14.3	group 49, but only accounts for 1.5 hectares in the northern part of the reserve. The data indicates, across the landscape, fuel loads generally conform with levels processibled for strategic first management games. (9)			
Mean Fuels	6.6	conform with levels prescribed for strategic fuel management zones (8- 15t/ha for 60-80% of zone).			

Modelled Data is based on 5 fuel sites and sampling (730) taken within the reserve during 2004, which included visual assessments. This data is used to determine the relationship of fuel sites with NDVI (Vegetation Index) from LANDSAT Imagery to calculate vegetation density across the reserve. Variations in measured and visual fuel recordings occur due to individual

interpretation and the extended landscape included in sampling. Visual assessments include bark in the overall hazard guide.

Map 10: Fuel Landscape



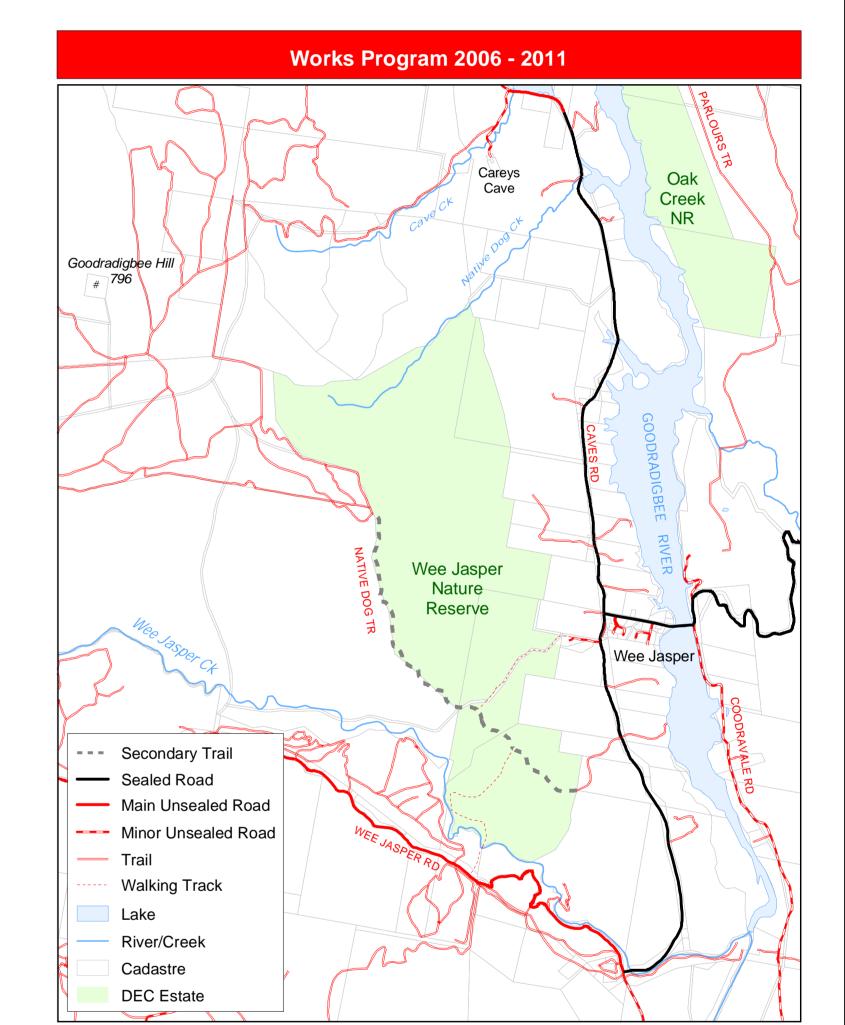
South West Slopes Region Wee Jasper **Nature Reserve** Fire Management Strategy 2006



Scale: Works Program map 1:35,000, Location map 1:750,000, other maps 1:50,000 Version: August 2006, ISBN: 1 74137 291 7, DEC: 2005/117 This Map should be used in conjunction with air photos and ground reconnaissance during incidents and the development of incident action plans. Copyright Department of Environment and Conservation. These data are not guaranteed to be free from error or omission. The Department of Environment and Conservation and its employees disclaim liability for any act done on the information in the data and any consequences of such acts or omissions. This map is based on Land and Property Information Standard 1:25000 Topographic Map Series. Reproduced with permission of Land and Property Information.







WORKS PROGRAM							
Asset	Priority	Name, Area or Detail	Management Strategy	Proposed Works			
	High	Primary, Secondary and Dormant (according the BFCC)	Maintain access to a standard classified as secondary in accordance with the Bush Fire Coordinating Committee Guidelines for the Classification of Fire Trails - Policy No. 1/03. All Reserve identification and trails to be clearly signposted strategically at intersections and trailheads.	Assess annually. Initiate maintenance programs and works as required, or as specified in Regional Operations Program.			
Trails	Medium	Management Trails (Cat 1-9)	Maintain access for safe 4WD access for fire vehicle Categories 7 - 9. All trails clearly signposted strategically at intersections and trailheads.	Assess annually. Initiate maintenance programs and works as required, or as specified in Regional Operations Program.			
	Low	Dormant	Ensure trails remain current on Fire Operations Map.	 Assess every 5 years. 			
	Not all Reserve trails comply with the Bush Fire Coordinating Committee Guidelines for the Classification of Fire Trails - Policy No. 1/03.						
Asset PZ	Medium	Commercial and research property asset - where they exist.	Work with BFMC where off park management requires SFMZ to consolidate APZ's.	Any works carried out in conjunction with the owner and Yass Zone BFMC.			
Heritage MZ1	High	Specific landscape, cultural, natural (threatened species and their habitats and vegetation communities) conservation values and recreational values.	Manage and protect natural & cultural values with appropriate fire management regimes.	Monitor thresholds every 5 years, and after fire events.			
Information &	& Low	Fuel and vegetation monitoring.	Continue measuring/monitoring fuels at all established sites, including photographic records.	Monitor every 5 years or immediately after fire events			
Research		Investigate fire suppression chemical	Improve understanding of impacts of fire suppression chemicals within karst & cave catchment systems.	 Establish a research project before the end of this plan. 			