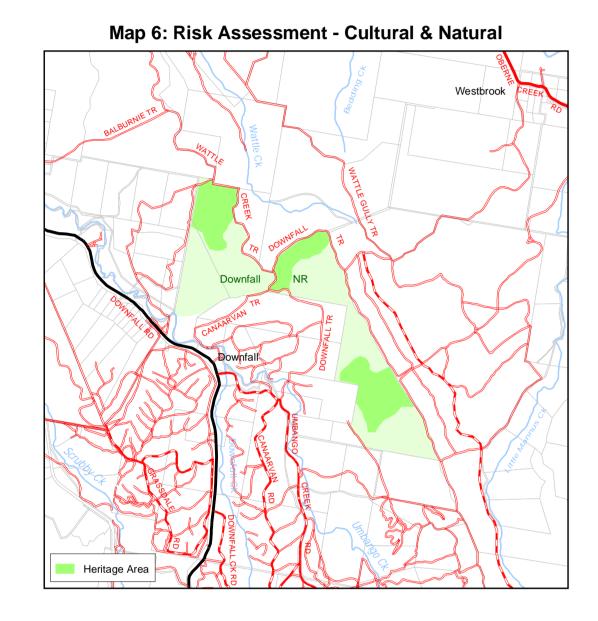
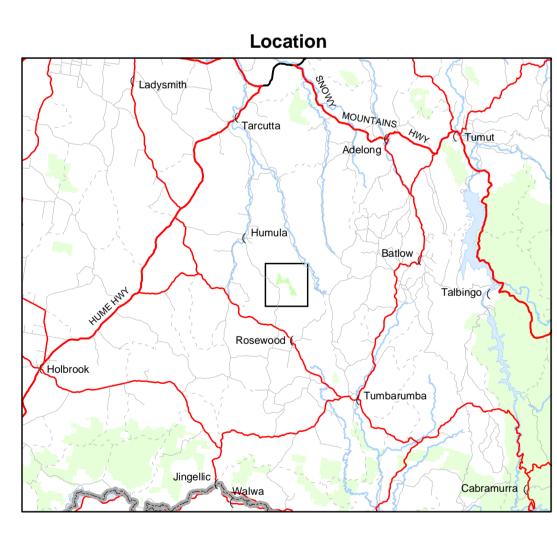
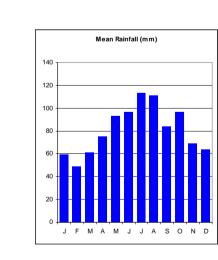
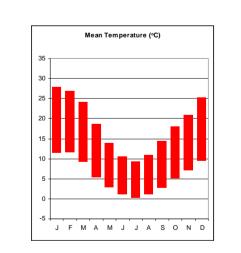


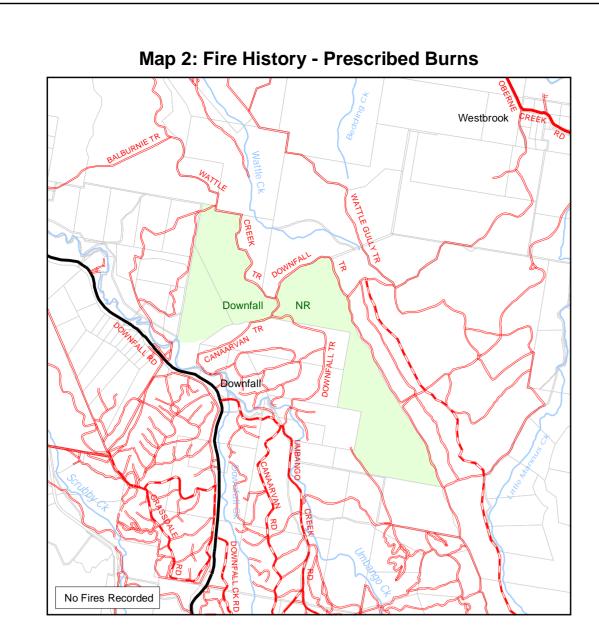
## MAPS 1 & 2: FIRE HISTORY Ignitions There are no recorded ignitions within the reserve. Prescribed burns No prescribed burns have been implemented within the reserve by NPWS since the land was transferred in 2001. There have been no known prescribed burns applied during previous land management operations. Wildfire There are no records from the previous land management agency, either written or mapped, for the reserve. Neighbours can not recall observing fire within the reserve during their period of land management, where some have indicated the potential of >60 years without fire. Fire Frequency There are no indications that there has been a fire in the last 30-40 years, grass trees over 2 m tall show full skirts that have not been burnt for a long time. The frequency and interval between fire has important implications relevant to biodiversity and fire management.











		MAP 6	: THREATENED FAUNA			
Fire Group	Common N	lame	Scientific Name	TSC Status	Vulnerable Period	
	Barking owl		Ninox connivens	V	Jun-Nov	
	Black-chinn	ed honeyeater	Melithreptus gularis gularis	V	Jul-Dec	
	Squirrel glid	ler	Petaurus norfolcensis	V	Jun-Dec	
Α	Turquoise p	arrot	Neophema pulchella	V	Aug-Dec	
	Brown treecreeper		Climacteris picumnus	V	May-Dec	
	Diamond fire	etail	Stagonopleura guttata	V	Aug-Jan	
	Speckled w	arbler	Pyrrholaemus sagittatus	V	Aug-Dec	
В	Potential an	phibian & invertebrate species that may be vulnerable to fire or fire suppression techniques.			es.	
Fire Group	Veg Groups	Threatened Fauna Guidelines & Considerations				
А	- 24 - 26 - 45 - 48 - 49	of any of the vegetatisize. Frequent and hi to prevent declines in impacted in the long to 'mopping up' activities fire is between Janua Where possible; Fire should be con Protect areas of har This is especially to Avoid felling large Vegetation manage.	<ul> <li>Fire should be contained to small areas.</li> <li>Protect areas of habitat from fire, which consumes the canopy &amp; or tall, large &amp; hollow bearing trees. This is especially relevant in mature forests with limited disturbance.</li> <li>Avoid felling large trees during incidents and planned fires (including mop up and maintenance).</li> </ul>			
В	Streams & Riparian Areas	and soil disturbance of ecology of the reserve streams and waterward intensity fire can remote from the site can effer expected to have sev Where possible;  Minimise the poter of the prescribed burns.  Avoid the use of fire	cting streams & dams or where species can be found can result in the loss of important species, which have and form a intricate part of the food chain. Increasitys, sedimentation and eutrophication, potentially impove riparian vegetation, reducing the filtering benefits ct water quality and may lead to algal blooms. Frequere impacts on these habitats.  Intial for frequent and or high intensity fires. In a redeemed necessary, keep fire at least 50m from the suppression chemicals within 50m of streams & rince wit	ve significant ro sed erosion and pacts on these s of vegetation, uent prescribed n streams & ripa	oles within the d run-off into species. High . Loss of nutrient d burning is	

Key Guidelines	
Factors for presc AHIMS is sensitive appropriately.  For fuel reduction program outlines Where possible, t	AHIMS and HHIMS, must be accessed during incidents and or for preparation of Review of Environme ribed burning or other works programs to ensure new records are included. Aboriginal site information re and subject to a Memorandum of Understanding. Site data must respect this agreement and must b burning programs, protection measures will be outlined in the Review of Environmental Factors and bu
Aboriginal Heritage	No recorded sites have been documented within the reserve. The potential for the area to be a part broader landscape and association with the local Aboriginal landscape should not be discounted. Posites may be found around riparian areas, springs, and ridgelines. Sites may include modified trees artefacts.  Follow operational guidelines where sites are identified.
Historic Heritage	No sites have been recorded within the reserve. Potential relics of the grazing eras may be found wit reserve. Other items of historic interest may include old boundary markers and fences lines. Such si should be identified and protected during fire suppression and prescribed burning programs.

MAP	7: RISK ASSESSME	ENT - LIFE & PROPERTY
Asset	Vulnerability & Impacts	Fire Management Guidelines & Considerations
On park Assets	There area no identified on reserve assets.	Provide guidelines in the event assets are constructed within the reserve.
Other assets (including private property or other lands adjacent to the park)	<ul> <li>Property assets may be damaged by fire escaping the park.</li> <li>Vineyards, orchards and plantations may be affected by fire escaping the park</li> <li>Vineyards and orchards may also be affected by smoke from fires.</li> </ul>	<ul> <li>Maintain access trails and firebreaks within the park that will assist in fire fighting efforts.</li> <li>Participate in fire management proposals through RFS Zone Bush Fire Management Committee meetings.</li> <li>During the fire season rapidly respond to all unplanned fires to minimise potential spread to private lands.</li> <li>Vineyard and orchid neighbours should be consulted when developing prescribed burns to ensure commercial crops are not damaged by smoke.</li> </ul>

_	RESOURCE IN	IFORMA	TON		
	Reserve (496 ha) was gazetted on 1st January 2001 will be referred to as the "Reserve", unless otherwise		es of the Fire Management Strategy, Downfall		
The Reserve straddles a ridgeline that stretches from Humula to Tumbarumba. The reserve is approximately 26kms south-west of Batlow, NSW. The reserve is similar to Courabyra Nature Reserve, 16kms to the south south-west, being an island of native vegetation supporting an array of endangered species and habitat in a landscape dominated by pine plantations. Threatened species include squirrel gliders, brown tree creepers, diamond firetails, barking owls and turquoise parrots.					
Access to the west of the reserve is through private land, via Canaarvan Trail off Downfall Road or via State Forest trails to the south. There is no running water or dams within the reserve. Umbango Creek may not hold water during dry periods.					
Department of Environment and Conservation  - Parks and Wildlife Division, National Parks and Wildlife Service South West Slopes Region, Riverina Highlands Area  - Farrer Federal Electorate Wagga Wagga State Electorate Greater Hume Local Government Area					
Rural Fire Service	Riverina Zone (Bush Fire Management Committee)	Other Agencies	Brungle-Tumut Aboriginal Land Council     Murray and Murrumbidgee Catchment Management Authority		

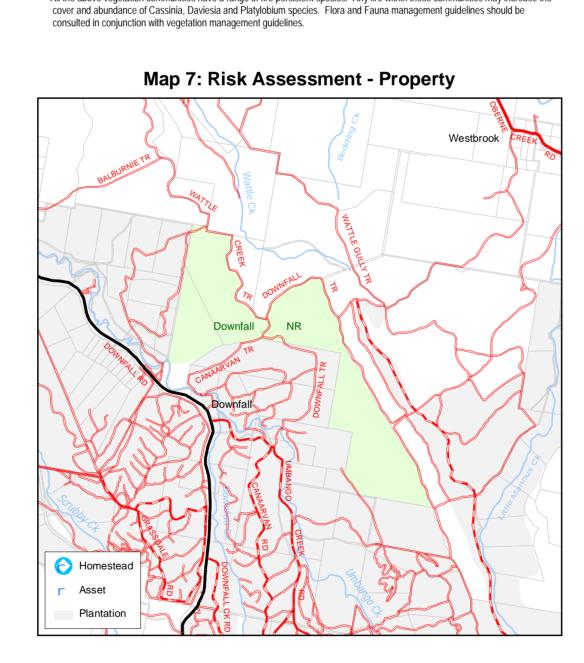
## Map 3: Vegetation Communities

MAP 3: VEGETATION COMMUNITIES & THRESHOLDS

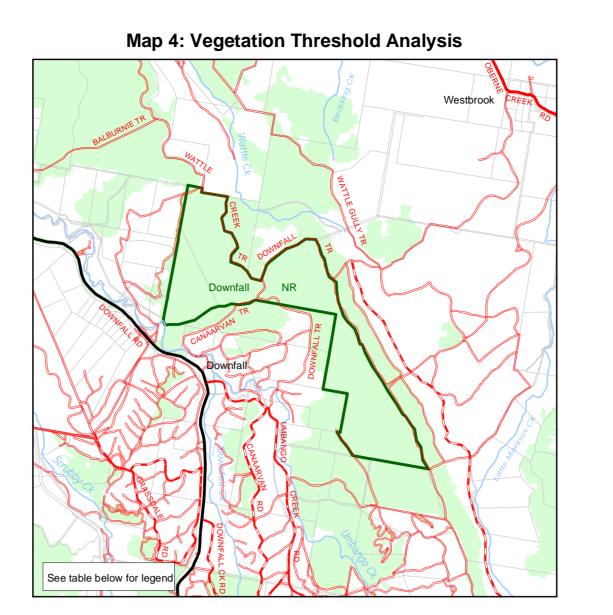
24 Apple Box & Nortons Box - Moist Grass Frorest 26 Broad Leaved Peppermint & Apple Box - Grassy Forest

48 Broad Leaved Peppermint & Nortons Box - Grassy Forest

40	broad Leaved Feppermint &	Notions box - drassy rolest	137	32
49	Brittle Gum & Broad Leaved	Peppermint - Poa Grass Forest	96	19
173	Remnant Vegetation		0	0
193	Blackberry Invaded Streams		0	0
198	Pine Plantation		0	0
199	Natural Vegetation - Partially	Cleared	<1	<1
The number of	of vegetation reserve hectares va	ries from the gazettal area due to GIS anomalies (coveri	ng 3% of this r	eserve).
Fire Interval	Vegetation Group	Vegetation Management Guidelines &	& Considerat	ions
15 - 60	Apple Box & Nortons Box - Moist Grass Frorest 24	Frequent fire regimes may cause local extinctions if su years apart, however the majority of species within the sampled should avoid successive fires <35 years apart <i>Dichondra repens</i> and <i>Eucalyptus sp.</i> are capable of p fire. This vegetation community is also susceptible to a and is under represented within this reserve. It is a key TSC listed species Where possible;  Minimise the potential for large and frequent fire, wh <15 years apart or greater than >100 years apart.  Minimise the potential for fires that consume shrub a required by TSC fauna.  Avoid felling mature trees during 'mop up' activities.  Prescribed fire should only be implemented in areas demonstrated loss of biodiversity.	community un t. Some specie ersisting >60 y declines with ir y community e here successiv stands and fall	derstorey es like rears without frequent fires ssential for e fires occur en timbers
10 - 110	Red Stringybark/Scribbly Gum & Rough barked Red Box - Dry Forb/Tussock/Grass Open Forest 45	Frequent fire regimes may cause declines if successive fires occur <10years ap however the majority of species within the community understorey sampled shot avoid successive fires <50 years apart. Some species in the overstorey like  Eucalyptus sideroxylorare capable of persisting >100 years without fire (local optinities may occur after this time). This companies is of high quality and		
20 - 60	Broad Leaved Peppermint & Nortons Box - Grassy Forest 48 *	Prescribed fires may be implemented in 10% of the vegetation group so lon		
25 - 100	Broad Leaved Peppermint & Apple Box - Grassy Forest Brittle Gum & Broad Leaved Peppermint - Poa Grass Forest 26 * & 49 *	demonstrated loss of biodiversity.  Found within broad, low-lying, gullies this community is reserve. Frequent fires may cause some declines whe years apart and local extinctions could be expected if fi Where possible;  Minimise the potential for successive fires occurring. Prescribed fires should be implemented in areas whoss of biodiversity.	ere successive ires occur >10 y <25 years apa	fires occur <25 0 years apart. art.



\* All the above vegetation communities have a range of fire persistent species. Any fire within these communities may increase the



Threshold	Vegetation Group	% of Reserve	Interpretation & Management Guidelines
Overburnt	N/A	0	If identified, two consecutive fires have been recorded too close together and the area is overburnt.  Additional fire in this area would lead to adverse fire regimes and may threaten community biodiversity.
/ulnerable	N/A	0	If identified, would be overburnt if the area burns before the end of 2006.     Fire should be avoided for this year and until another analysis of thresholds is modelled to reassess threats.
cently burnt	N/A	0	If identified, the time since fire would be less than the threshold intervals. Fire this year would push this vegetation into the vulnerable class.  Fire should be avoided for this year, but could be assessed for proposed burning or other program in the future.
Inderburnt	N/A	0	May require fire after 2006 for Asset protection, strategic or biodiversity reasons.  Planned fire may be introduced for fuel reduction 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 after 2006.  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.  This area will fall into the underburnt category by the end of 2007 if it remains unaffected by fire, but would fall into Recently Burnt if burnt in 2006.
ОК	24, 26, 45, 48, 49	100	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, >50% of any vegetation community group in any threshold across the reserve is classed as Ok, Almost Underburnt and Underburnt.
nknown/ No Regime Assigned	N/A	0	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 the modelling capabilities in DEC GIS.
Note: The three	vegetation com	nmunities shou	the modelling capabilities in DEC GIS.  m vegetation community thresholds and recorded fire history (including fire frequency and ld be monitored and planned fire should only be applied if a loss of biodiversity is serve, the analysis would have to be performed again to establish new threshold values.

MA	AP 9: F	UEL LANDSCAPE
Recorded Fine Surface & Aerial Fuels (Recorded December 2005)	T/ha	Notes
Minimum Fuels (including bark)	4.0	Vegetation Groups 45 - Moderate landscape fuels (NDVI) & high bushfire behaviour model.
Maximum Fuels (including bark)	10.0	Vegetation Group 26 - Moderate landscape fuels (NDVI) & high bushfire behaviour model. The highest modelled fuels in this reserve do not exceed 15t/ha and occurs in <2 % of the reserve.
Average Fuels (including bark)	7.0	Much of the reserve fuels modelled appears to fall within the 7 t/ha range.
Management Notes	•	

Approximately 90% of the reserve fine surface fuels and aerial fuels measured between 2 to 5 t/ha. The fuel ratings become exaggerated when bark hazards are added during the visual assessment process. As the reserve has not been burnt for over 60 years, the fibrous stringy barks add significantly to the overall hazard. The high to very high bark hazard adds 2-5t/ha to each sample site. The data indicates, across the landscape, fuel loads generally conform to levels prescribed for strategic fuel management zones (8-15t/ha for 60-80% of zone). The sampled sites and modelled area indicate the Downfall Nature Reserve has a low to moderate bushfire risk. Four fuel monitoring sites, with photographic references, have been established in the reserve to monitor landscape fuel and vegetation conditions. These conditions and vegetation structure will change over time and the established fuel sites will, if

monitored regularly, provide data to update fuel landscape maps and review fire risk and management options.

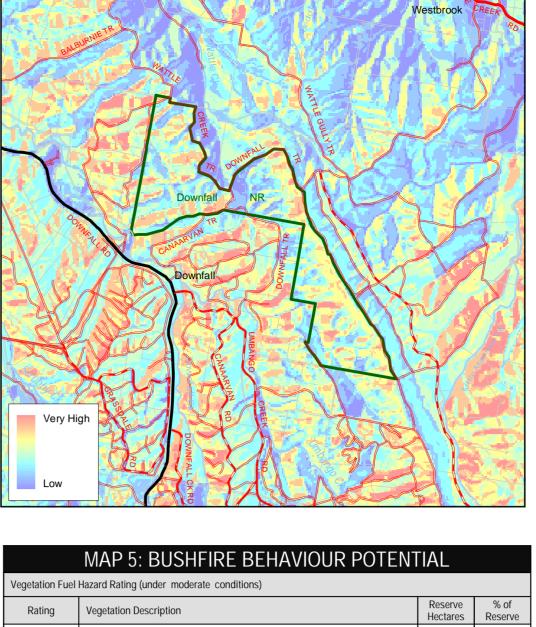
(Vegetation Index) relationships from LANDSAT Imagery (2004) and visual fuel sampling data to calculate the potential vegetation

density across the landscape. To improve the understanding of this relationship, the LANDSAT Imagery should be taken at a similar

Map 8: Bushfire Management Zones

## Fuel Site

HMZ1



Map 5: Bushfire Behaviour Potential

Rating	Vegetatio	on Description			Reserve Hectares	% of Reserve
Low	Nil identif Pine Plar	fied ntation (<2 years of age)			0	0
Medium	Broad Leaved Peppermint & Apple Box - Grass Broad Leaved Peppermint & Nortons Box - Gras Apple Box & Nortons Box - Moist Grass Frores Natural Vegetation - Partially Cleared Remnant vegetation Blackberry Invaded Streams Pine Plantation (>2-5 years of age)				219	43
High	Open For	gybark/Scribbly Gum & Rough ba est m & Broad Leaved Peppermint - tation (>5-10 years of age)	,	issock/Grass	272	54
Very High	Pine Plan	tation (>10years of age)			0	0
spect Bushfir	e Behaviour		Slope Bushfire Be	ehaviour		
Ratin	g	Aspect in degrees	Rating	Slop	Slope in degrees	
Low		30 - 200	Low	0 - 1	0 - 10 degrees	
Mediu	m	200 - 260 & 350 - 30	Medium	10 -	10 - 20 degrees	
High	ı	260 - 280	High	20 -3	20 -30 degrees	
Very High		280 - 350	Very High	y and y		

Map 9: Fuel Landscape	o <b>\</b>
BALBURNIETR	Westbrook CREEK RO
A COMPAL TA	
Downfall NR 10	
Downfall Downfall	
Measured Fuel Load  Visual Fuel Assesment (t/ha) Vegetation Density High	
Low	

Management Zone	Definition	Management Guidelines
Asset (APZ)	Life, property and commercial assets in high Bushfire Behaviour Potential risk areas on DEC estate.	<ul> <li>Assets should be evaluated annually to measure potential hazards and or increased threats.</li> <li>Works program to follow Risk Assessment (Life and Property) Guidelines.</li> </ul>
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.	<ul> <li>The implementation of fuel management programs should comply with BFCC guidelines and should be conducted in areas identified in this strategy as a SFMZ.</li> <li>Implementing prescribed burns or other vegetation manipulation program should only occur where more than 80% of the zone exceeds 15 t/ha (BFCC).</li> <li>Any program must include monitoring before and after prescribed burns to determine effectiveness of the program on fuels and the ecological impacts.</li> </ul>
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.		<ul> <li>Heritage areas should be assessed annually to determine potential hazard, threats to cultural heritage, and thresholds for TSC and vegetation communities.</li> <li>Prescribed fire may be applied in these areas if appropriate for ecological purposes or protection of cultural heritage.</li> <li>Implement recovery plan guidelines (where they exist).</li> <li>Manage during incidents according to HMZ1 guidelines.</li> </ul>
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 appropriate for ecological purposes or protection of cultural heritage. Manage during incidents according to HMZ2 guidelines.

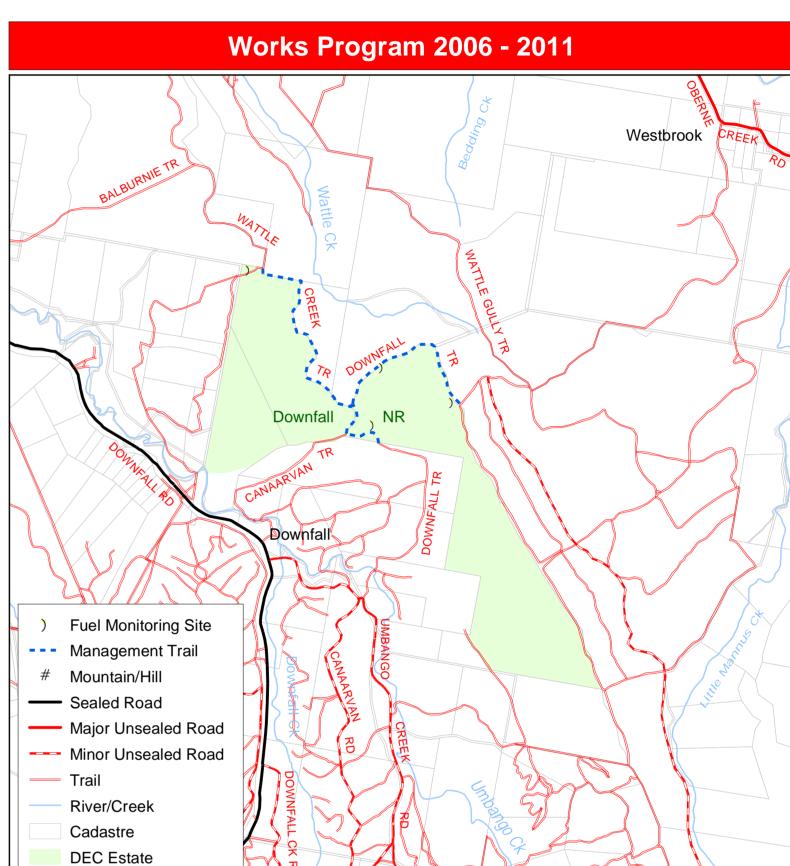


Scale: Works Program map 1:40000, Location map 1:900000, other maps 1:60000 Version: June 2006, ISBN: 1 74137 277 1, DEC: 2005/103 This Map should be used in conjunction with air photos and ground reconnaissance during incidents and the development of incident action plans. Copyright Department of Environment 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.

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	WORKS PROGRAM					
Asset	Priority	Name, Area or Detail	Management Strategy	Proposed Works		
Trails	High	Management Trails	Maintain management trails for safe 4WD access for Cat 7 - 9 vehicles.     All trails to be clearly signposted at intersections and trailheads.	<ul> <li>Assess trails and signage annually and maintain as required or as specified in Regional Operations Program.</li> <li>Include works in Regional Operations Plan Program.</li> </ul>		
Halis		Dormant Trails	Could be used during emergencies for Cat 9 vehicles.     May be re-opened as a control line option.	Assess trails and document condition and suitability as a control option prior to each fire season.		
	These trails do not comply with the Bush Fire Coordinating Committee Guidelines for the Classification of Fire Trails - Policy No. 1/03.					
Heritage MZ 1	Medium	Cultural heritage, threatened, vulnerable & endangered species, habitats, communities and the landscape.	Manage and protect natural & cultural heritage values with appropriate fire management regimes.     Monitor vegetation changes across the landscape (coordinate with fuel monitoring).	Assess thresholds every 5 years, before works programs or directly after fire events.		
Heritage MZ 2	Low	General landscape, natural and cultural conservation values.	Manage and protect natural & cultural values with appropriate fire management regimes.	Monitor thresholds every 5 years, and after fire events.		
Information & Research	Medium	Fuel and vegetation monitoring.	Monitor established fuel monitoring sites (4), including photographic reference points.     Improve information by establishing additional sites (3)	Establish additional sites by end 2008 fire season.     Maintain a 2-5 year monitoring regime and monitor directly after fire events.		
Fuel Management & Prescribed Burns	Low	No planned fire has been proposed for life of this plan (5 years).	Where bushfire risk and damage potential increases and the only practical solution is fuel management, review Fire Management Strategy and determine the appropriate method and program to reduce the risk, damage or threat.	Any prescribed burns must be managed in accordance with DEC policy and through negotiations with the Bush Fire Management Committee     Prescribed burns must be managed in cooperation with neighbours.		