KEMPS CREEK NATURE RESERVE
Fire Management Strategy 2016

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

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nationalparks.nsw.gov.au

Map Details

Datum: Geocentric Datum of Australia (GDA) 1994
Projection: Map Grid of Australia (MGA) Zone 56
Aerial Photography: public_NSW_Imagery - © Land and Property Information 2015
1:25k Topographic Map: Liverpool 9030ZS

Related Documents

- National Parks and Wildlife Service Fire Management Manual. 2015-16.
- Cumberland Plain Woodland Endangered Ecological Community Information, February 2004
- Shale/Gravel Transition Forest Endangered Ecological Community Information, January 2004
- Sydney Coastal River Flat Forest Endangered Ecological Community Information, February 2004

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 normally undertaken in Spring through to Autumn.

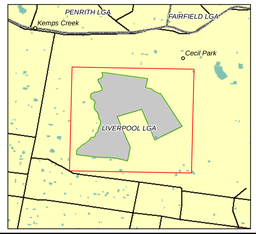
Communications Information

Service	Channel	Location and Comments
NPWS - VHF	134 Mulgoa 130 Yolla Channel	• Good coverage
NPWS/ RFS – VHF	RFS T-21 NPWS FG 41/63	• RFS and NPWS radios can chat on same fireground channels • NPWS FG channel is 40 higher than RFS FG channel (e.g. RFS FG 3 = NPWS FG 43)
UHF - CB	1 - 99	• Available in most NSW/RB and RFS vehicles • Choose channel on fire-ground with NSW/RB and RFS
Mobile Phone - GSM	-	• Good coverage

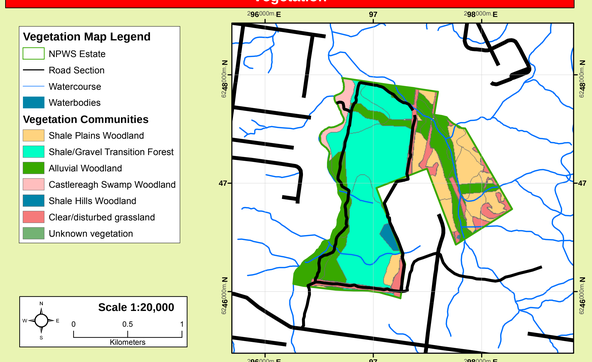
Contact Information

Agency	Position / Location	Phone
National Parks & Wildlife Service	Regional Duty Officer (24 hour)	9895 7698
	Cumberland South Area Manager	9895 7546 0407 067 515
	Fire Management Officer	9896 6185 0418 462 497
	Regional Operations Coordinator	9896 7322 0418 117 882
	Cumberland South Area Office	9896 7440 (fax) 9896 7727
	Bents Basin State Conservation Area Office	4774 8662 (fax) 4774 8634
	Sydney Regional Office	9896 7420 (fax) 9895 7699
Macarthur Zone NSW Rural Fire Service	24 Hours Business Hours	9603 7145 9603 7077
SES	Emergency Liverpool Sydney Southern Division	000 9821 9324 9793 3099
Police	Emergency Green Valley	000 9607 1799
NSW Fire Brigades	Emergency Liverpool	000 9824 0521
Ambulance	Emergency Bookings	000 131 233
Hospital	Liverpool	9828 3000
Council	Liverpool City Council	9821 9222 1300 362 170
Utilities	Transgrid	9620 0777 1800 625 108
	Intregral Energy	9853 6666 131 003

Locality of Reserve and Local Government Areas



Vegetation



Current Vegetation Status (Fire Thresholds)

Fire Thresholds	
Exceeding Minimum Thresholds	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.*
Nearing Maximum Thresholds	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.*
Exceeding Maximum Thresholds	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.

Recent Fire History

Vegetation Communities and Biodiversity Thresholds

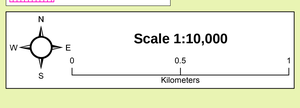
Vegetation Community	Biodiversity Thresholds	Fire Behaviour	Year Burnt	Area (Ha)
Shale Hills Woodland	Minimum Fire Interval: 3-6 years Maximum Fire Interval: 15–20 years • Re-assess biodiversity after approximately 15 years as *Bursaria* tends to become competitively dominant and *Themeda* dies (after approximately 10-12 years) • Significant research and monitoring is required	Moderate to High	-	-
Shale Plains Woodland			2013 2014	15 2
Shale Gravel Transition Forest			-	-
Castlereagh Swamp Woodland	• Avoid fire where possible	Low to Moderate (depending on time since last rain)	-	-
Alluvial Woodland			2013	4
Cleared / Disturbed Grassland	• Nil	-	2013 2014	4 2

Bushfire Suppression Map Legend

- StandardRoad
- 20 metre contour
- NPWS Estate

FireName

- 2013 - Wildfire
- 2014 - Wildfire



Operational Guidelines

Refer to Strategy for Fire Management 2007 and Fire Management Manual 2015/16.
Brief all personnel involved in suppression operations on the following issues:

General	Guidelines
Aerial Water Bombing (NPWS FMM 4.7 / NSW Fire Agencies Aviation SOPs 02 / NPWS Guidelines for Effective Aircraft Management)	• The use of bombing aircraft should support containment operations by aggressively attacking hotspots and spot-overs. • Ensure the equipment used will not introduce chemicals or weed propagules into the reserve. • The use of bombing aircraft without the support of ground based suppression crews should be limited to very specific circumstances. • Ground crews must be alerted to water bombing operations.
Aerial Ignition (NPWS FMM 4.11.5 & 4.6 / NSW Fire Agencies Aviation SOPs 02-4 / NPWS Guidelines for Effective Aircraft Management)	• Aerial ignition may be used during back-burning or fuel reduction 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.
Burning Operation (NPWS FMM 4.11)	• 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, backburning should commence when the humidity begins to rise in the late afternoon or early evening. With a lower FDI backburning 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 backburning, or wet down these trees as part of the backburn ignition. • Avoid ignition of backburns at the bottom of slopes where a long and intense up slope burn is likely.
Coordinated Response Arrangements (NPWS FMM 4.1.3 & 2.3)	• The first combatant agency on site may assume control of the fire, but then must ensure the relevant land management agency 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.
Fire Control Line (NPWS FMM 4.5)	• Construction of new containment lines should be avoided, where practicable, except where they can be constructed with minimal environmental impact. New containment lines require the prior consent of a senior NPWS officer. • All containment lines not required for other purposes should be closed at the cessation of the incident. • All personnel involved in containment line construction should be briefed on both natural and cultural heritage sites in the location.
Earthmoving Equipment (NPWS FMM 4.10)	• Earthmoving equipment must always be guided and supervised by an experienced officer, and accompanied by a support vehicle. • Containment lines constructed by earthmoving equipment should consider the protection of drainage features, observe the Threatened Species and Cultural Heritage Operational Guidelines, and be surveyed, where possible, to identify unknown cultural heritage sites. • Earthmoving equipment should be washed down, where practicable, prior to it entering NPWS estate. • 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.
Fire Advantage Recording	• All fire advantages used during wildfire suppression operations must be mapped and where relevant added to the database.
Fire Suppression Chemicals (NPWS FMM 4.7.5 & 4.12)	• Wetting, foaming agents (surfactants) and retardants may be used where there is a high probability of their use being successful. • Fire retardant chemicals should not be used: 1. Near water supply off takes and avoiding spray drift; 2. Where spray drift may effect water storages, DECC must inform SCA of the proposed use of fire retardants. Circumstances where use of retardants is inappropriate include 1. combating high-intensity bushfires 2. areas where there is thick canopy cover; 3. areas where there are thick shrub or sub-canopy layers; 4. areas within the water quality management zone; and 5. areas where there is a high probability of spot fires.
Rehabilitation (NPWS FMM 4.3)	• Where practicable, containment lines should be stabilised and rehabilitated as part of the wildfire suppression operation.
Smoke Management (NPWS FMM 4.3.2)	• 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 RMS traffic management guidelines.
Visitor Management (NPWS FMM 2.4 & 4.3.4)	• The reserve may be closed to the public during periods of extreme fire danger or during wildfire suppression operations.
High Voltage Powerlines (Fire Management Circular 2007/3)	• Always assume lines are energised. • Bushes or trees burning in powerline easements present a real threat of creating a phase to ground short – KEEP AT LEAST 20M CLEAR.
Tree Management	• Any tree felling requires the prior consent of the Senior NPWS Officer and should be avoided where reasonable alternatives are available.

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 Guidelines

Resource	Guidelines
	Indigenous Cultural Heritage Site Management (NPWS FMM 2.3)
IS1	• Do not break earth around known sites • Sites to flagged – No vehicles to drive on sites or heavy machinery on site (must be at least 10m from site) • Place control lines well away from site where possible • Vegetation screening the site must not be damaged • No trittering/slashing of vegetation, no tree removal and no use of earth moving equipment
IS2	• Sites to flagged – No vehicles to drive on sites or heavy machinery on site (must be at least 10m from site) • No fire retardant to be directed onto the sites (20m from site or at 50m if windy) • Loose leaf litter must be removed from rock platforms prior to ignition • Place control lines well away from site • No trittering/slashing of vegetation, no tree removal and no use of earth moving equipment
	Threatened Fauna Management (NPWS FMM 2.1 & 4.2)
FA2	• Avoid high intensity fires that consumes the canopy • Avoid fires in times of nectar scarcity (winter) • No slashing or trittering or earth-moving equipment
FA3	• Protect logs and fallen timber and dead standing timber • Maintain appropriate fire frequencies to prevent dense understoreys • No slashing or trittering or earth-moving equipment • Avoid fires during the breeding season (August - January) • Avoid fire intervals < 3 years
FA5	• Protect large old, hollow-bearing trees • Avoid smoke and fire near known roost/den trees, roost sites and during the breeding season (spring/summer) • Avoid high intensity fire that consumes the canopy and frequent fires over large areas • Protect logs and fallen timber
FA6	• Protect large, old hollow-bearing trees • Avoid smoke and fire during the breeding season (spring/summer) • Avoid fire in, or protect the riparian zone from frequent fire • Avoid hot fires that consume canopy and high intensity fire over large areas • Avoid fire intervals < 6 years
FA11	• Protect logs and fallen timber • Avoid fire in known habitat locations • If not possible, avoid fires > 1 ha in known habitat locations • No slashing, trittering or earthmoving works
	Threatened Flora Management (NPWS FMM 2.1 & 4.2)
FL4	• Avoid inter- fire intervals of < 8 - 15 years • Avoid inter-fire intervals > 20 - 30 years • No slashing or trittering or earthmoving machinery • Avoid the use of chemical retardant • Avoid burning during August to March
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

Threatened Fauna Fire Ecology

Label	Name	Fire Ecology
	Chthonicola sagittata Speckled Warbler (Vulnerable)	Avoid frequent, high intensity burning within known habitat during breeding season (August - January). Avoid any fire management operations within known habitat. The breeding season is between July and February. Nests are constructed on the ground and are well concealed by vegetation, leaf litter, and trees or shrubs.
	Daphoenositta chrysoptera Varied Sittella (Vulnerable)	Occupies open eucalypt forest, woodland or open woodland. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Lays two or three eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.
	Meridolum corneovirens Cumberland Plain Land Snail (Endangered)	Primarily inhabits Cumberland Plain Woodland. Lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. Dispersal distances are thought to be small and there is some suggestion that gene flow between populations is low. Fires at inappropriate times, or too frequently, will destroy the habitat required by the species, or burn the groundcover in which it can be sheltering, leading to direct loss of individuals.
FA	*Myotis macropus* Southern Myotis (Vulnerable)	Roost in tree hollows, aqueduct tunnels, under bridges, in drains and in dense vegetation in the vicinity of bodies of slow flowing or still water (including estuaries). They forage almost exclusively over water bodies feeding on insects and small fish. A single young is born between November to December. Lactation lasts for about eight weeks and the bond between mother and young may last for another three to four weeks after weaning.
	Petroica phoenicea Flame Robin (Vulnerable)	Often found in recently burnt areas, during early regeneration and before heavy re-vegetation. Breeds late spring to early summer in open cup nests close to the ground in shallow tree cavities, stumps or banks. Generation length ~5 years. Avoid removal of dead tree/stump and woody debris. In Cumberland Plain is mostly a winter migrant though some year round populations may occur.
	Pteropus poliocephalus Grey-headed Flying Fox (Vulnerable)	Feed on the nectar and pollen of native trees, particularly Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. Single young is born in October or November. Maintain appropriate fire regimes within community thresholds for forests and woodlands with well-developed understorey. Winter flowering species are an important forage source. No known roost sites in Cumberland Area reserves.
	Scoteanax rueppellii Greater Broad-nosed Bat (Vulnerable)	Utilises a variety of habitats. Usually roosts in tree hollows. Creek and river corridors are important foraging areas. Little is known of its reproductive cycle, however a single young is born in January. Prior to birth, females congregate at maternity sites located in suitable trees. Avoid burning of riparian corridors in known habitat locations; avoid felling potential roost trees (those with hollows); avoid burning during breeding season; maintain appropriate fire regimes.

Threatened Flora Fire Ecology

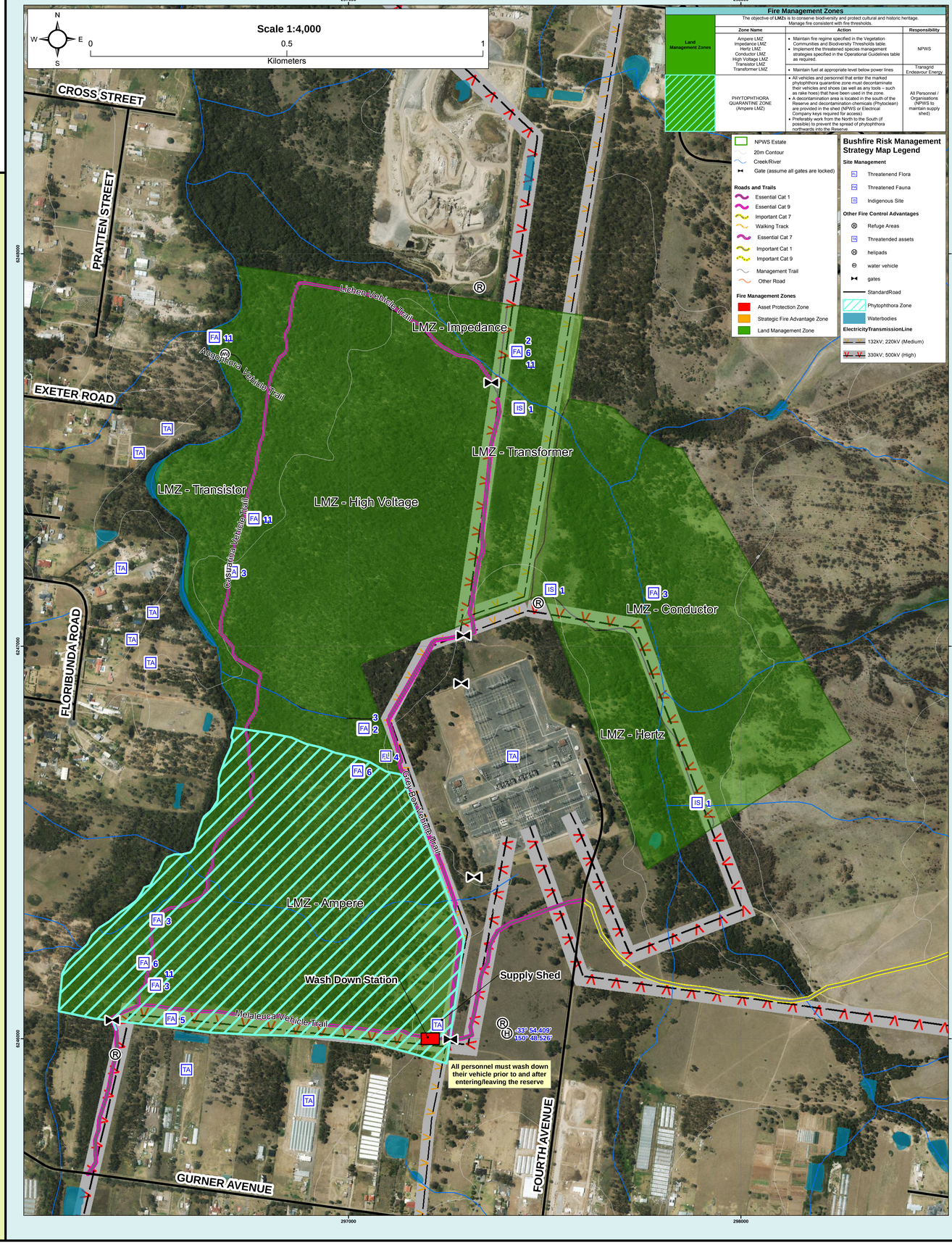
Label	Name	Fire Ecology
FL	*Dillwynia tenuifolia* (Vulnerable)	Minimum interval 8 years recommended, while 10-15 years is required to allow sufficient seed reserves to build up. Particularly if burnt late summer to autumn. Killed by fire but regenerates from soil seedbank. Prolific seed germination in response to fire. May be a weak resprouter, expect most plants to be killed by mod-high intensity fire. Lifespan 20-30 yrs. Reproductive maturity occurs >4 years after germination. Flowering occurs sporadically, though peaks from August to March.

Operational Guidelines

Site Specific Operational Guidelines
Brief all personnel involved in suppression operations on the following issues:

General	Guidelines
Phytophthora Quarantine Zone	• All vehicles and personnel that enter the marked phytophthora quarantine zone must decontaminate their vehicles and shoes (as well as any tools – such as rake hoes) that have been used in the zone. • A decontamination area is located in the south of the Reserve and decontamination chemicals (Phytoclean) are provided in the shed (NPWS or Electrical Company keys required for access) • Preferably work from the North to the South (if possible) to prevent the spread of phytophthora northwards into the Reserve.

Bushfire Risk Management Strategies



Fire Management Zones

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

Zone Name	Action	Responsibility
Land Management Zones		
Ampere LMZ Impedance LMZ Hertz LMZ Conductor LMZ High Voltage LMZ Transistor LMZ Transformer LMZ	• Maintain fire regime specified in the Vegetation Communities and Biodiversity Thresholds table. • Implement the threatened species management strategies specified in the Operational Guidelines table as required. • Maintain fuel at appropriate level below power lines	NPWS Transgrid Endeavour Energy
PHYTOPHTHORA QUARANTINE ZONE (Ampere LMZ)	• All vehicles and personnel that enter the marked phytophthora quarantine zone must decontaminate their vehicles and shoes (as well as any tools – such as rake hoes) that have been used in the zone. • A decontamination area is located in the south of the Reserve and decontamination chemicals (Phytoclean) are provided in the shed (NPWS or Electrical Company keys required for access) • Preferably work from the North to the South (if possible) to prevent the spread of phytophthora northwards into the Reserve.	All Personnel / Organisations (NPWS to maintain supply shed)

Bushfire Risk Management Strategy Map Legend

Site Management

- Threatened Flora
- Threatened Fauna
- Indigenous Site

Other Fire Control Advantages

- Refuge Areas
- Threatened assets
- helipads
- water vehicle
- gates