Maroota Ridge State Conservation Area
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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This strategy is a relevant Plan under Section 38 (4) and Section 44 (3) of Rural Fires Act 1997.

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Map Details

Datum: Geocentric Datum of Australia (GDA) 1994	**Aerial Photography:** public_NSW_Imagery - © Land and Property Information 2015
Projection: Map Grid of Australia (MGA) Zone 56	**1:25k Topographic Map:** Wilberforce 90301N

Related Documents

- National Parks and Wildlife Service Fire Management Manual, 2015-16.
- Keith, D.A. (2002) A compilation map of native vegetation for New South Wales: a NSW Biodiversity Strategy report, Department of Environment and Climate Change, Hurstville.

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 (NPWS FMM 4.7)	• Prescribed burning in this area is normally undertaken in Spring through to Autumn.

Contact Information

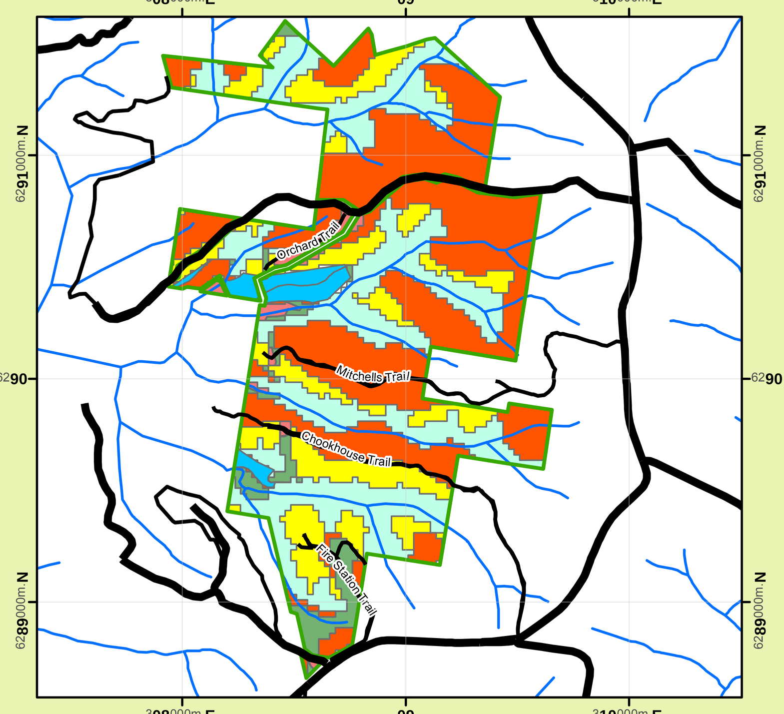
Agency	Position / Location	Phone
NSW National Parks & Wildlife Service	Regional Duty Officer (24 hour)	(02) 8579 0609
	Cumberland Area Manager	0419 753 787
	Fire Management Officer	9542 0636
	Cumberland Area Office	4572 3100 (fax) 4580 2714
	MSW Regional Manager	9542 0643
The Hills District NSW Rural Fire Service	24 Hours Business Hours Fax	0408 678 382 9654 1244 9654 2268
SES	Emergency Sydney North Region	000 9987 3000
Police	Emergency Hawkesbury Castle Hill	000 4587 4099 9680 5399
Ambulance	Emergency Bookings	000 131 233
Hospital	Nepean Hawkesbury District Health Service	4734 2000 4560 5555
Council	Hawkesbury City Council The Hills Shire Council 24 Hours	4560 4444 9843 0555 0412 705 090

Communications Information

Service	Channel	Location and Comments
NPWS - VHF	134 Mulgoa 130 Vote Channel	• Good coverage
NPWS/RFS – VHF	RFS FG 1-20 NPWS FG 41-60	• RFS and NPWS can chat the fireground channels • NPWS FG channel is numbered 40 higher than RFS FG channel
UHF - CB	1 - 99	• Available in most NSWFB and RFS vehicles
Mobile Phone - GSM	-	• Good coverage

Locality of Reserve and Local Government Areas

Vegetation

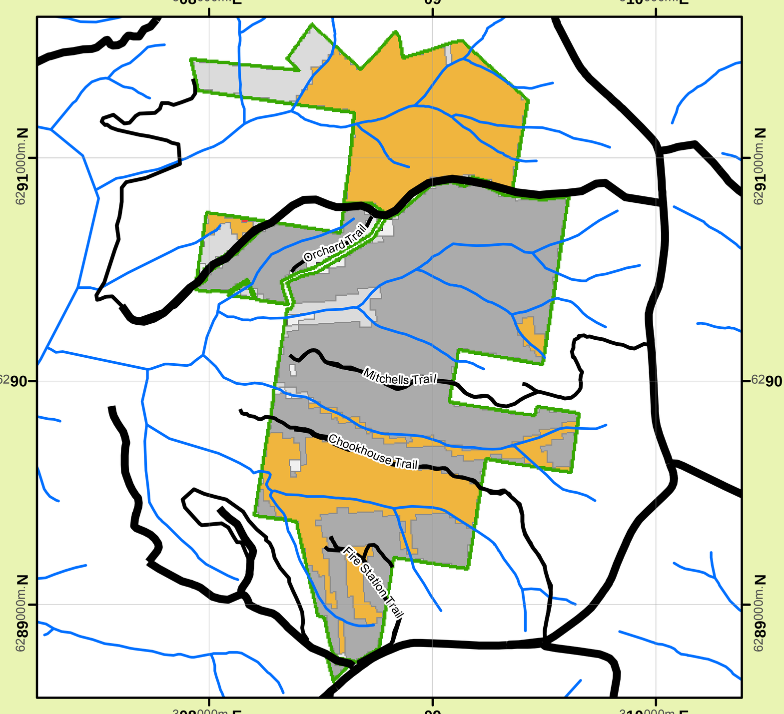


Current Vegetation Status (Fire Thresholds)

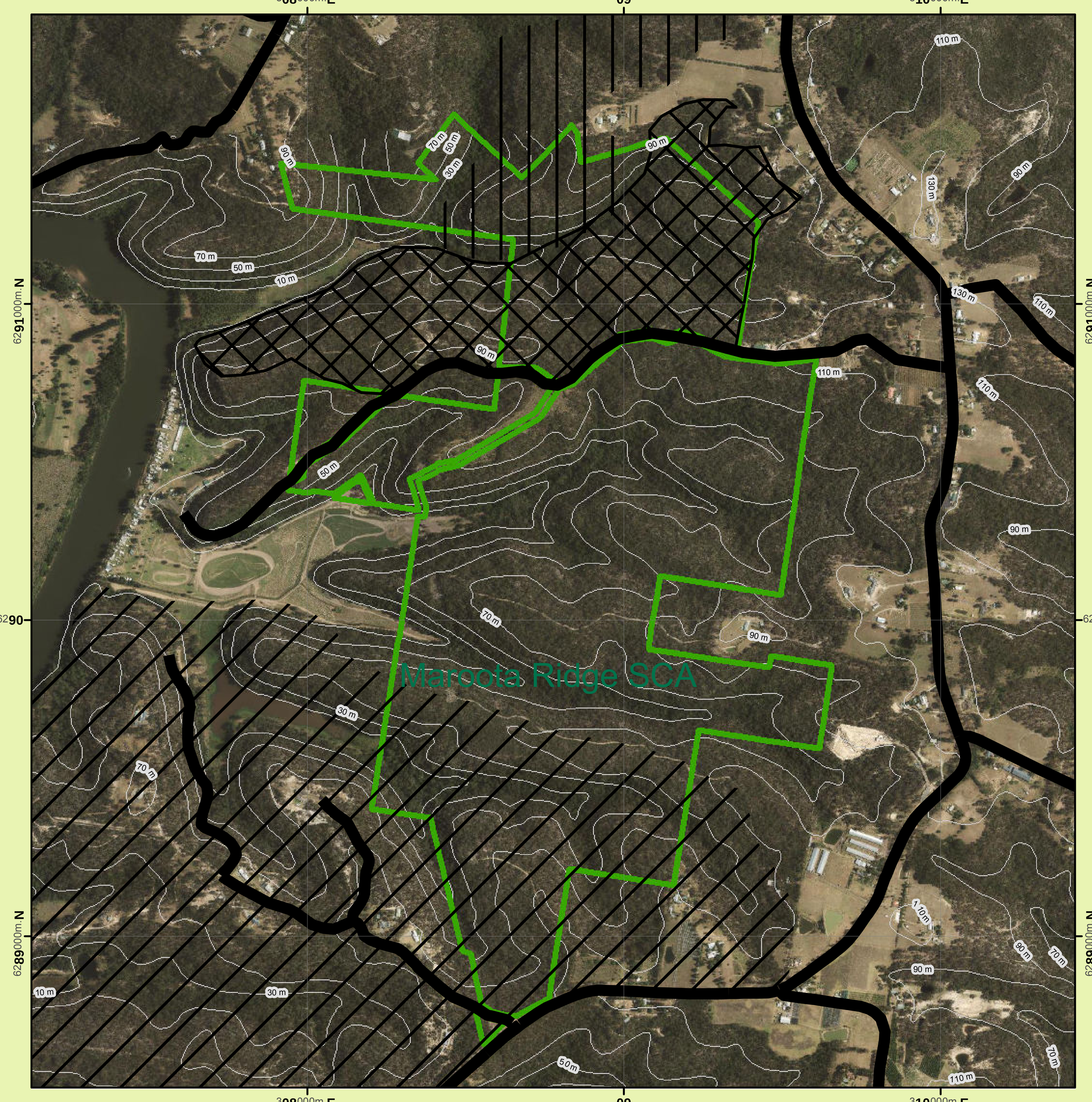
Fire Thresholds

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.

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



Recent Fire History



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 O2 / NPWS Guidelines for Effective Aircraft Management)	• The use of bombing aircraft should support containment operations by aggressively attacking hotspots and spot-overs. • Consult with Sydney catchment Authority (SCA) if planning to use the prospect Reservoir. • Ensure the equipment used will not introduce chemicals or weed propagules into the reservoir. • 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 & 4.4 / NSW Fire Agencies Aviation SOPs O2-4 / 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 &4.2.3)	• 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 4.9)	• 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. • Where practicable, containment lines should be stabilised and rehabilitated as part of the wildfire suppression operation. • 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)	• Within SCA Prospect dozer lines and helipads are unnecessary and are to be avoided • Earthmoving equipment must always be guided and supervised by an experienced officer, and accompanied by a support vehicle. When engaged in direct or parallel attack this vehicle must be a firefighting 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 bushland fires 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 5.3)	• 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 RTA traffic management guidelines.
Visitor Management (NPWS FMM 2.4 & 4.3.6)	• 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 2001/8)	• Always assume lines are energised • Bushes or tress burning in powerline easements present a real threat of creating a phase to ground short – KEEP AT LEAST 25M 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.

Vegetation Communities and Biodiversity Thresholds

Vegetation Community	Biodiversity Thresholds*	Fire Behaviour	Year Burnt	Area (Ha)
Shale Sandstone Transition Forest (Low Sandstone Influence)	Minimum fire interval: 8 - 10 years • Implement variable fire regime within this range Maximum fire interval: 15 - 30 years • Longer unburnt areas tend to have increased weed invasion. May need to implement fire to assist in weed management • Site and context specific, therefore significant research and monitoring required e.g. Some communities may require 15 years, others 30 years	Moderate to High	1994 2002 2012 2015	14 43 4 26
Shale Sandstone Transition Forest (High Sandstone Influence)			-	-
Coastal Sandstone Ridgetop Woodland	Minimum fire interval: 7 - 10 years • Implement variable fire regime within this range Maximum fire interval: 15 - 30 years	Low to Moderate	1994 2002 2006 2012 2015	10 12 18 5 2
Moist Sandstone Gully Forest	Minimum Fire Interval: 20 years • Crown fires should be avoided in the lower end of the interval range Maximum Fire Interval: 60 years	Low to Moderate	2002 2006 2012 2015	41 27 9 7
Cleared	• Not applicable.	-	2002 2006	4 5

*There is insufficient data to give definite details, however, available data indicates approximate minimum and maximum intervals as those specified above. It is important to note that specifying the above thresholds, does not mean that this community should be burnt at this specific time (say every 6 years), it is only a guide and fire should be implemented at variable frequencies within the specified range. Significant research & monitoring of the effects of either the presence or absence of fire on each of the communities is required in order to come up with more accurate guidelines.

Resource Management Guidelines

Resource	Guidelines
	Indigenous Cultural Heritage Site Management (NPWS FMM 2.0)
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
FA4	• Protect large old, hollow-bearing trees • Exclude fire or protect riparian zone from frequent fire • Protect logs and fallen timber • Avoid high intensity fire that consumes the canopy and frequent fires over large areas • No slashing or trittering or earth-moving equipment • Avoid smoke and fires during the breeding season (Autumn/winter)
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
FA9	• Avoid burning *Allocasuarina* thickets at < 7 - 15 year intervals and avoid burning all *Allocasuarina* thickets simultaneously; • Avoid slashing or trittering or earth moving works in *Allocasuarina* thickets • Avoid frequent high intensity frequent fires over large areas • Protect large old, hollow-bearing trees • Avoid smoke and fire during the breeding season (Autumn/Winter)
FA10	• Avoid frequent fires in moist areas, ephemeral drainage lines, soaks and known habitat • Avoid fire intervals of < 8 - 10 years • Avoid fires during the breeding season (Summer/Autumn) • No trittering, slashing or earthmoving works • No use of chemical or foam retardants for fire suppression
	Threatened Flora Management (NPWS FMM 2.1 & 4.2)
FL1	• Avoid fire intervals of < 6 - 8 years • Avoid fire intervals of > 20 years • No trittering, tree removal or use of earthmoving equipment • No slashing < 100 cm high
FL2	• Avoid inter-fire intervals of < 7 years • No slashing trittering or tree removal or earth moving equipment • Avoid use of retardants
FL3	• Avoid inter-fire intervals of < 7 - 10 years • Avoid inter-fire intervals > 25 years • No slashing, trittering, tree removal or earthmoving equipment
FL5	• Avoid inter-fire intervals of < 10 - 12 years • Avoid inter-fire intervals of > 20 - 25 years • No slashing trittering or tree removal or earth moving equipment • Avoid use of retardants • Avoid fire November - March
FL6	• Avoid inter-fire intervals of < 10 years • Avoid high intensity fires • No slashing, trittering, tree removal or use of earth moving equipment • Avoid use of retardants
FL9	• Avoid inter-fire intervals of < 12 - 15 years • Avoid fire February to May • No slashing, trittering, tree removal or use of earthmoving equipment
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

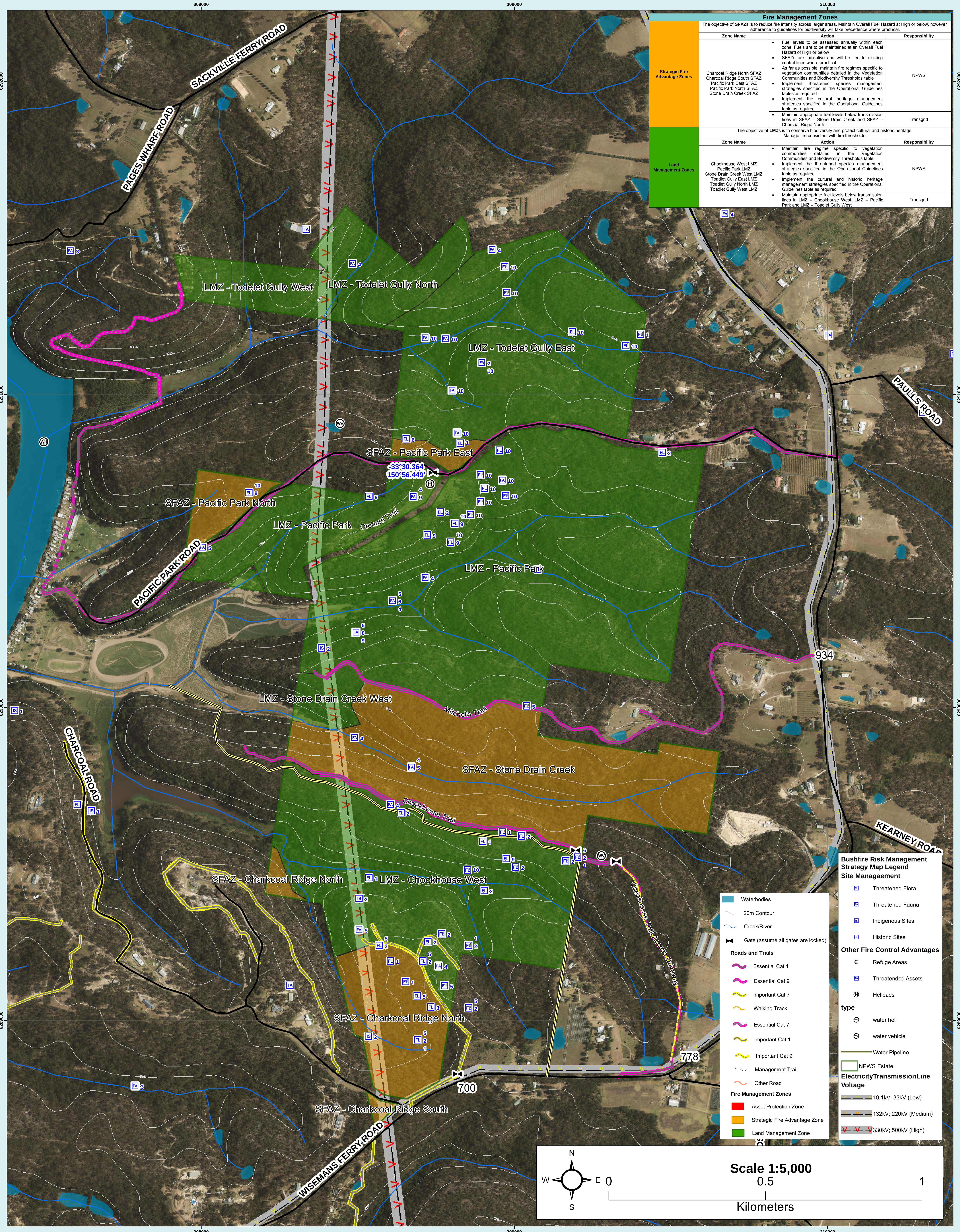
Threatened Flora Fire Ecology

Label	Name	Fire Ecology
FL	*Acacia bynoeana* Bynoe's Wattle (Endangered)	The response of Bynoe's Wattle to fire is unknown, however it is recommended not to burn more frequently than once every 10-12 years. More frequent hazard reduction burning could threaten the species' survival.
	Hibbertia superans (Endangered)	Flowers from July to December. Obligate seeder with a persistent soil seedbank. Quick recruiter after fire. Re-sprouts from the base, producing new flowers after 2 years. Minimum fire interval is unknown. Maximum fire interval is 25 years to allow for new recruitment. RFS guidelines say no fire more than once every 7 years. Increased fire frequency prevents *H. superans* to locally distribute. Ants are the main vector of dispersion. Frequent and intense fires may inhibit reproduction. Inhibited by weed competition.
	Kunzea rupestris (Vulnerable)	A clonal shrub to 1.5 m that Flowers in spring. Resprouts from the base after fire and seedlings have also been observed after fire events. Fire suppression activities and track maintenance have been listed as a threat to this species. Habitat may provide natural fire break (rock outcroppings).
	Micromyrtus blakelyi (Vulnerable)	Sporadic flowering, June to March. Response to fire and mechanical disturbance is uncertain. Regeneration may be due to resprouting or germination of soil-stored seed. Inter-fire interval > 7 years appropriate to other species that it co-occurs with, so suggested as interim guideline.
	Olearia cordata (Vulnerable)	A tall shrub that flowers from November to May. Seeds released from February to May via wind. Adults (1-2+ years) resprout following fire. Abundant seedlings have been observed following fire, but fire is not required for germination (no seed dormancy). Frequent fire events (<2 years) may negatively impact plant life cycle and recruitment capacity.
	Persoonia hirsuta Needle Geebung (Endangered)	Flowers October to May. Likely to be fire tolerant species capable of resprouting following fire due to the presence of a tap root. Seedlings have been observed following fire. Risk of too frequent or too intense fires inhibiting growth or reproduction. NOTE: Not known from Windsor Downs NR and presence is unlikely. Known from Cattai NP and Maroota SCA.
	Pimelea curviflora var. curviflora (Vulnerable)	Flowers from October to May. Survives without any foliage after fire, relying on energy from its tuberous roots. Likely to be fire tolerant species capable of resprouting following fire. Seedlings have been observed following fire. Recommended fire intervals are unknown. Too frequent or intense fire events may inhibit its survival. RFS recommends fires no more than once every 7 years.
	Tetratheca glandulosa (Vulnerable)	A small, clonal, spreading shrub that flowers in July-Nov, with residual flowers persisting until Dec. Juvenile recruitment is low. Mature plants re-sprout following fire. The role of fire in seed germination is unknown though fire probably promotes germination. Fire regimes of between 5-20 years are recommended but RFS lists no fire more than once every 7 years. Frequent fire (successive fires <5 years apart) and/or the absence of fire for >20 years are both likely to impact on the lifecycle of the species.
	Zieria involucrata (Endangered)	Obligate seeder. Soil seedbank lasts 10-20 years. Either heat or may be required to break soil-stored seed dormancy. Inappropriate fire intensities may affect viability and successful germination. Certain individuals have the limited capacity to re-sprout following fire. Adult plants are generally fire-sensitive. Successive burns of <10 years apart reduce recruitment. Sustained high frequency fires events can affect the suitability of the habitat for this species. In addition, frequent disturbance from slashing and herbicide spraying may prevent replenishment of the soil seed bank.

Threatened Fauna Fire Ecology

Label	Name	Fire Ecology
FA	*Callocephalon fimbriatum* Gang-gang Cockatoo (Vulnerable)	Autumn and winter visitor to Cumberland reserves. Probably no breeding habitat in Cumberland reserves. Roosts in tree hollows. Feeds on seeds obtained in trees and shrubs, mostly from eucalypts and wattles. Nomadic species which makes both seasonal and random movements throughout their range. Usually breeds between October and January. Favours old growth forest and woodland for nesting and roosting. Nests in eucalypt hollows that are >10 cm in diameter and >9 m above the ground.
	Calyptorhynchus lathami Glossy Black Cockatoo (Vulnerable)	Avoid burning of *Allocasuarina* thickets. *Allocasuarina's* are usually killed by fire and take 7 years to reach maturity and produce fruit, which are the main food source for Glossy Blacks. Avoid frequent fires which eliminate she-oaks from areas and prevents the development of mature she-oak stands, and destroys nest trees. Dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May.
	Glossopsitta pusilla Little Lorikeet (Vulnerable)	Nests in proximity to feeding areas if possible, usually selecting hollows of smooth-barked Eucalypts. Nest sites are used repeatedly for decades. Preferred nest sites are limited. Riparian trees are often chosen (*Allocasuarina*). Feeds mostly on nectar and pollen in the canopy. Protect known nesting sites during breeding season (May to September). Maintain appropriate fire regimes to maintain diverse tree age classes. Protect trees with hollows by prepping site prior to burn.
	Heleioporus australiacus Giant Burrowing Frog (Vulnerable)	Spends majority of year in non-breeding habitat up to 300m from breeding sites. Breeds mainly in Autumn, though also sporadically throughout the year after heavy rainfall. Avoid frequent fires. Avoid high intensity burns in known locations. Avoid burns during Summer and Autumn breeding season. Maintain appropriate fire regimes in Dry/wet sclerophyll, riparian forest, sub-tropical rainforest or swamp habitat.
	Miniopterus schreibersii oceanensis Eastern Bentwing-bat (Vulnerable)	Caves are the primary roosting habitat. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. At other times of the year, populations disperse within about 300 km range of maternity caves. Hunt in forested areas, catching moths and other flying insects above the tree tops. Listed threats include hazard reduction and wildfire fires during the breeding season. Avoid fire around known roost sites.
	Ninox strenua Powerful Owl (Vulnerable)	Protect known nesting/roosting sites (large-old hollow-bearing trees) required during winter spring breeding season. Avoid medium-high intensity fire in known locations during nesting season. Nesting occurs from late autumn to mid-winter. Avoid high intensity prescribed burns or wildfires over large areas that reduce forage habitat. Maintain appropriate fire regimes within known habitat including forests and woodlands.
	Petaurus australis Yellow-bellied Glider (Vulnerable)	Feeds primarily on plant and insect exudates. Dens, often in family groups, in hollows of large trees. Very mobile and occupy large home ranges (between 20-85 ha) to encompass dispersed and seasonally variable food resources. NOTE: The population at Windsor downs is now almost certainly extinct. Only Cumberland reserve where they are still known from is Cattai NP.
	Pseudophryne australis Red-crowned Toadlet (Vulnerable)	Avoid frequent burning that may reduce leaf litter in known habitat. Habitat preference indicates that the populations will survive less frequent fires. Maintain appropriate fire regimes of 8-10 years in preferred habitats including coastal heath, low open woodland, and open forest, particularly areas with damp leaf litter in ephemeral drainage lines and soaks.
	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.
	Tyto novaehollandiae Masked Owl (Vulnerable)	A forest owl, but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows for nesting. Avoid loss of mature hollow-bearing trees and changes to forest and woodland structure, which leads to fewer such trees in the future. Avoid frequent burning. Maintain the quality of ground cover for mammal prey, particularly in open, grassy forests.
	Tyto tenebricosa Sooty Owl (Vulnerable)	Found in rainforest and wet sclerophyll with a well-developed mesomorphic understorey. Big gullies where eucalypts occur on the edge of rainforest. More likely on 2nd and 3rd order streams. Often found in sheltered positions and aspects (i.e. easterly or southerly). Diet is affected by fire.

Bushfire Risk Management Strategies

Fire Management Zones

	Zone Name	Action	Responsibility
Strategic Fire Advantage Zones	The objective of **SFAZs** is to reduce fire intensity across larger areas. Maintain Overall Fuel Hazard at High or below, however adherence to guidelines for biodiversity will take precedence where practical.		
	Charcoal Ridge North SFAZ Charcoal Ridge South SFAZ Pacific Park East SFAZ Pacific Park North SFAZ Stone Drain Creek SFAZ	• Fuel levels to be assessed annually within each zone. Fuels are to be maintained at an Overall Fuel Hazard of High or below • SFAZs are indicative and will be tied to existing control lines where practical • As far as possible, maintain fire regimes specific to vegetation communities detailed in the Vegetation Communities and Biodiversity Thresholds table • Implement threatened species management strategies specified in the Operational Guidelines tables as required • Implement the cultural heritage management strategies specified in the Operational Guidelines table as required	NPWS
		• Maintain appropriate fuel levels below transmission lines in SFAZ – Stone Drain Creek and SFAZ – Charcoal Ridge North	Transgrid
Land Management Zones	The objective of **LMZs** is to conserve biodiversity and protect cultural and historic heritage. Manage fire consistent with fire thresholds.		
	Chookhouse West LMZ Pacific Park LMZ Stone Drain Creek West LMZ Toadlet Gully East LMZ Toadlet Gully North LMZ Toadlet Gully West LMZ	• Maintain fire regime specific to vegetation communities detailed in the Vegetation Communities and Biodiversity Thresholds table. • Implement the threatened species management strategies specified in the Operational Guidelines table as required • Implement the cultural and historic heritage management strategies specified in the Operational Guidelines table as required	NPWS
		• Maintain appropriate fuel levels below transmission lines in LMZ – Chookhouse West, LMZ – Pacific Park and LMZ – Toadlet Gully West	Transgrid