Dharawal State Conservation Area and Dharawal Nature Reserve

Fire Management Strategy 2009

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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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.

Related Documents

- National Parks and Wildlife Service Fire Management Manual
- Dharawal NR & Dharawal SCA Fire Management Strategy
- O'Hares Creek Shale Forest Endangered Ecological Community Information.
- Cumberland Plain Woodland Endangered Ecological Community Information.
- Wollongong & Wollondilly Bush Fire Management Committee Operations Plans.

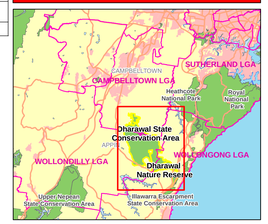
Communications Information

Service	Channel	Location and Comments
NPWS - VHF	2 9	• OK in the Western section of the reserves. • Preferred channel within reserves.
SCA - VHF	95	• Reasonable coverage for backup communication
UHF - CB	Varies between locations	• Choose channel on fire -ground with RFS
Mobile Phone - GSM	-	• Reasonable coverage on ridge tops • No coverage on lower slopes and gullies

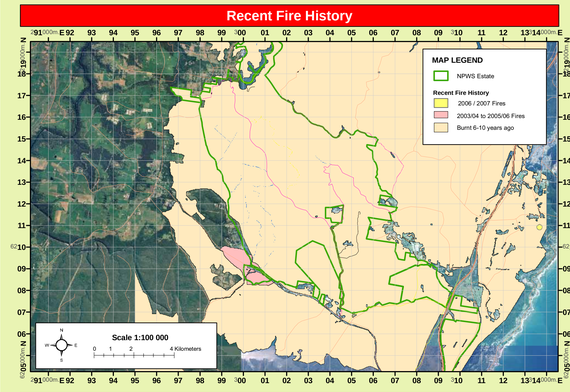
Map Details

Datum: Australian Geodectic Datum of Australia (AGD) 1966
Projection: Australian Albers 1st (AMG) Zone 56
Aerial Photography: NSW Department of Lands (1996)
1:25k Topographic Map: Appin 9029 -1S (Built 9029 -2N) Campbelltown 9029 - 1N (LPI)

Locality of Reserve and Local Government Areas



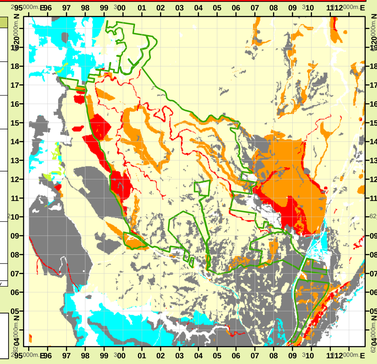
Recent Fire History



Current Vegetation Status (Fire Thresholds)

Fire Thresholds	
Overburnt	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.*
Almost Underburnt	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.*
Underburnt	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.



Operational Guidelines

Refer to Strategy for Fire Management 2003 and Fire Management Manual
Brief all personnel involved in suppression operations on the following issues:

General	Guidelines
Aerial Water Bombing	• The use of bombing aircraft should support containment operations by aggressively knocking hotspots & spotovers. • The use of bombing aircraft without the support of ground based suppression crews should be limited to very specific circumstances. • Where practicable foam should be used to increase the effectiveness of the water. • Ground crews must be alerted to water bombing operations.
Aerial Ignition	• 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 backburns down slope where required.
Backburning	• Temperature & humidity trends must be monitored carefully to determine the safest times to implement backburns. 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 & ferous 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 & intense up slope burn is likely.
Command & Control	• 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 & incident management team requirements as per the relevant BFMC Plan of Operations.
Containment Lines	• 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 & 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 personal involved in containment line construction should be briefed on both natural & cultural heritage sites in the location.
Earthmoving Equipment	• Earthmoving equipment may only be used with prior consent of a senior NPWS officer, & then only if probability of its success is high. • Earthmoving equipment must be always guided & supervised by an experienced officer, & 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 & Cultural Heritage Operational Guidelines, & be surveyed, where possible, to identify unknown cultural heritage sites. • Earthmoving equipment should be washed down, where practicable, prior to it entering NPWS estate.
Fire Advantage Recording	• All fire advantages used during wildfire suppression operations must be mapped & where relevant added to the database.
Fire Suppression Chemicals	• Wetting & foaming agents are permitted for use in wildfire suppression. • The use of fire retardant is only permitted with the prior consent of the senior NPWS officer, & should be avoided where reasonable alternatives are available. • Exclude the use of surfactants & retardants within 50m of rainforest, watercourses, dams & particularly upland swamps. • Areas where fire suppression chemicals are used must be mapped & the used product's name recorded. • The Threatened Species Operational Guidelines are to be observed.
Rehabilitation	• Where practicable, containment lines should be stabilised & rehabilitated as part of the wildfire suppression operation.
Smoke Management	• The potential impacts of smoke & possible mitigation tactics must be considered when planning for wildfire suppression & prescribed burning operations. • If smoke becomes a hazard on local roads or highways, the police & relevant media must be notified. • Smoke management must be in accordance with relevant RTA traffic management guidelines.
Visitor Management	• The reserve may be closed to the public during periods of extreme fire danger or during wildfire suppression operations. • Direct contact with commercial horse riding operator at Oakes Forest when 10H trail is affected by wildfire, prescribed burning & trail works.

Resource	Guidelines
Aboriginal Cultural Heritage Site Management	
A1	• As far as possible protect site from fire. • Do not cut down trees. • Use of foams, wetting agents & retardant is acceptable.
A2	• As far as possible protect site from fire. • Avoid ground disturbance including handtools, dozers. • Avoid water bombing which may cause ground disturbance.
A3	• Avoid ground disturbance including handtools, dozers. • Avoid water bombing which may cause ground disturbance. • Site may be burnt by wildfire, backburn, prescribed burn.
Threatened Fauna Management	
FA1	• Protect large and hollow bearing trees.
FA2	• Avoid fire around cave habitats. • Protect large and hollow bearing trees. • Avoid interfire intervals of < 10 yrs. • Avoid high intensity fires that consume tree canopies and fallen logs.
FA6	• Avoid fire, including wildfire, backburning & HR, as far as possible in wetland habitat. • Avoid use of earth moving machinery in wetland habitats. • Avoid use of retardant and foam in wetland habitats.
FA7	• Avoid high intensity fires that consume tree canopies and fallen logs. • Avoid burning of Allocasuarina thickets.
Threatened Flora Management	
FL1	• Avoid interfire intervals of < 10 yrs. • Avoid the use of earthmoving machinery. • Avoid the use of retardant.
FL3	• Avoid high intensity fire. • Avoid interfire intervals <10 years, effect unknown. • Avoid the use of earth moving machinery.
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.

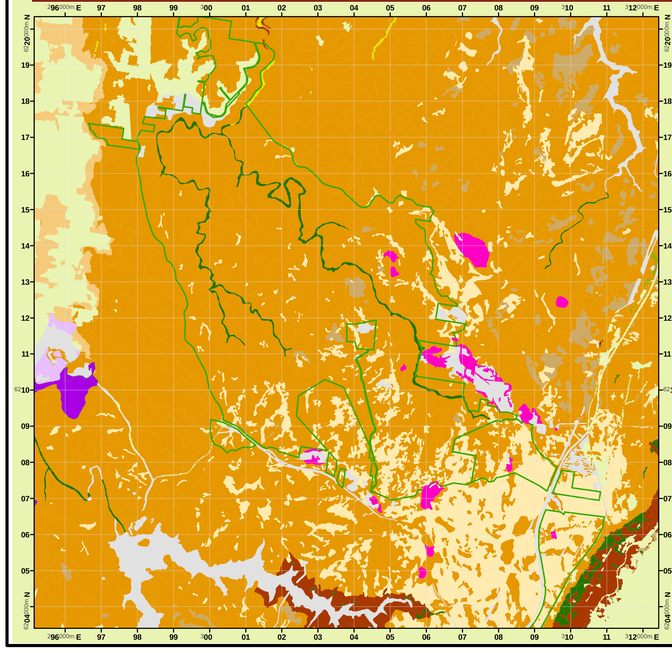
Threatened Flora Fire Ecology

Label	Name	Fire Ecology
	Acacia bauerei subsp. aspera (Vulnerable)	• No fire more than once every 7 years. • No slashing, trittering only to 50cm after March.
	Acacia bynoeana Bynoe's Wattle Endangered	• No fire more than once every 7 years • No slashing, trittering or tree removal
	Grevillea parviflora subsp. supplicans Endangered	• No fire more than once every 7 years • No slashing, trittering or tree removal
	Leucopogon exolasius Woronora Beard-heath *(Vulnerable)*	• No fire more than once every 13 years. • No burning mid-winter • No slashing, trittering or tree removal.
	Melaleuca deanei Deane's Paperbark *(Vulnerable)*	• Maintain minimum fire interval of >8 years. • No slashing, trittering or tree removal.
	Persoonia hirsuta Hairy Geebung *(Endangered)*	• No fire more than once every 10 years. • No slashing, trittering or tree removal
	Pultenaea aristata Prickly Bush-pea Vulnerable	• No fire more than once every 7 years. • No slashing, trittering or tree removal

Threatened Fauna Fire Ecology

Label	Name	Fire Ecology
	Callocephalon fimbriatum Gang-gang Cockatoo *(Vulnerable)*	• Avoid high frequency fires in known habitat.
	Calyptorhynchus lathami Glossy Black-Cockatoo *(Vulnerable)*	• No burning of allocasuarina thickets. • Mechanical hazard reduction allowed but avoid allocasuarina thickets.
	Cercartetus nanus Eastern Pygmy-possum *(Vulnerable)*	• No slashing, trittering or tree removal.
	Dasyurus maculatus Spotted-tailed Quoll *(Vulnerable)*	• Avoid high frequency fires in known habitat.
	Falsistrellus tasmaniensis Eastern False Pipistrelle *(Vulnerable)*	• Protect hollows. • No removal of trees.
	Heleioporus australiacus Giant Burrowing Frog *(Vulnerable)*	• Avoid fire around known habitat. • No slashing, trittering or tree removal.
	Hoplocephalus bungaroides Broad-headed Snake *(Endangered)*	• No slashing, trittering or tree removal.
	Litoria littlejohni Littlejohn's Tree Frog *(Vulnerable)*	• No burning within 200 metres of known locations.
	Minopterus schreibersii oceanensis Eastern Bentwing-bat *(Vulnerable)*	• Avoid fire around known roost sites. • No slashing around maternity sites.
	Myotis adversus Large-footed Myotis *(Vulnerable)*	• Avoid fire around known roost sites. • No removal of trees around known roosting sites.
	Ninox strenua Powerful Owl *(Vulnerable)*	• Avoid burning around known nesting sites at any time. • Avoid slashing, trittering or tree removal around known nesting sites.
	Petaurus australis Yellow-bellied Glider *(Vulnerable)*	• Protect hollows.
	Phascolarctos cinereus Koala *(Vulnerable)*	• Intense wildfire with canopy scorch will cause high mortality and injury. • Post fire areas may be recolonised within 6 – 18 months. With eucalypts providing many nutritious and less toxic leaves for improved food quality.
	Pseudophryne australis Red-crowned Toadlet *(Vulnerable)*	• Avoid burning adjacent to streams, and no burning around ephemeral drainage lines near the headwaters of creeks.
	Pteropus poliocephalus Grey-headed Flying-fox *(Vulnerable)*	• Avoid burning around known roost sites. • Avoid slashing, trittering or tree removal within known roost sites.
	Scoteanax rueppellii Greater Broad-nosed Bat *(Vulnerable)*	• No specific fire requirements exist at time of production, caution should be used within known locations while conducting fire management operations.
	Varanus rosenbergi Rosenberg's Goanna *(Vulnerable)*	• No specific fire requirements exist at time of production, caution should be used within known locations while conducting fire management operations.

Vegetation



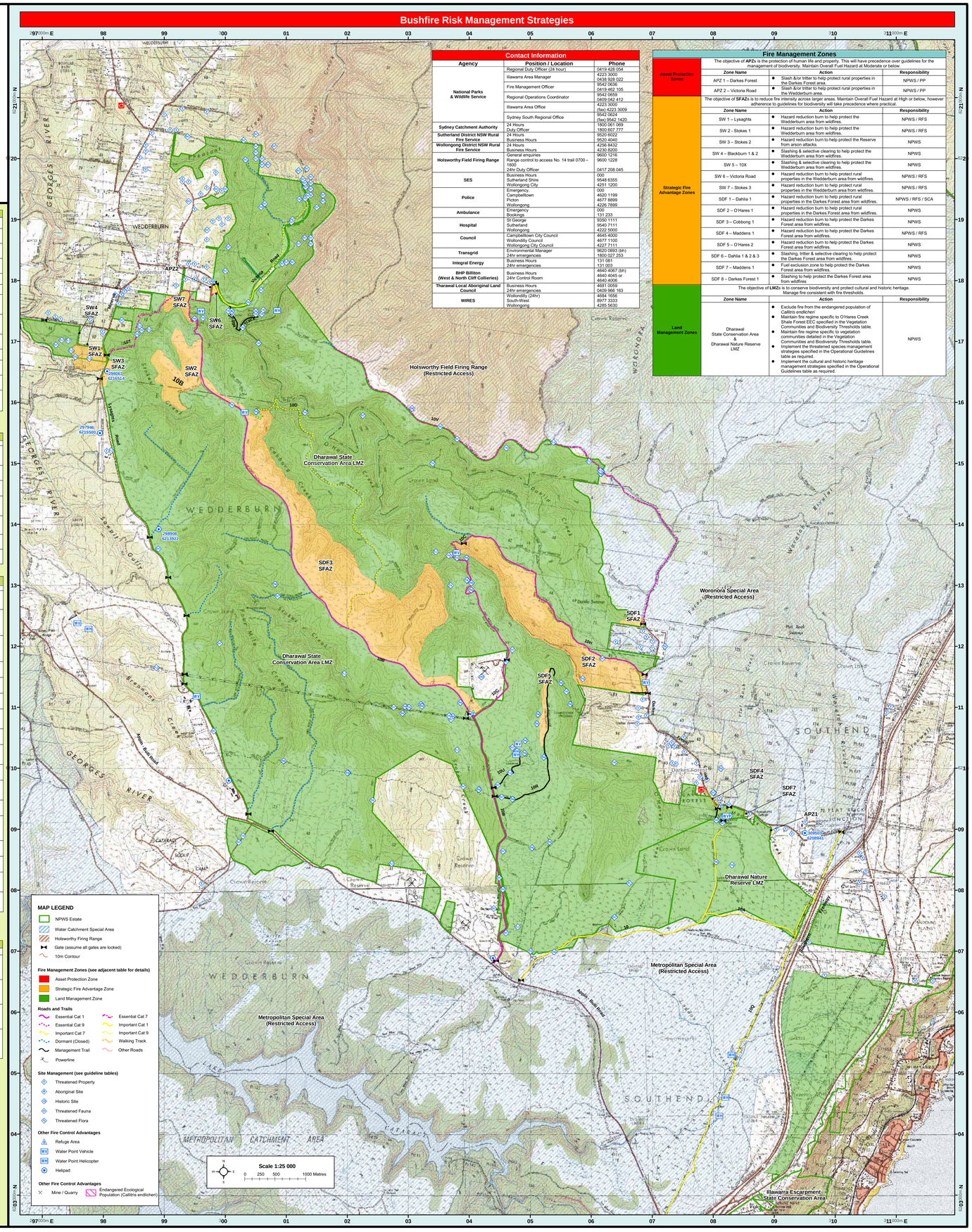
Suppression Strategies

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

Regime	Vegetation Community	Biodiversity Thresholds	Area (Ha)	Year Burnt
I	Shrubby Dry Sclerophyll Forest	• Avoid successive fires at intervals of < 7 years. • Avoid fire exclusion for a period of > 30 years.	52.6	2005/06
H	Grassy Dry Sclerophyll Forest	• Avoid successive fires at intervals of < 5 years. • Avoid fire exclusion for a period of > 50 years.	-	-
G	Grassy Woodland	• Avoid successive fires at intervals of < 5 years. • Avoid fire exclusion for a period of > 40 years.	-	-
N	Freshwater Wetland	• Avoid successive fires at intervals of < 6 years. • Avoid fire exclusion for a period of > 35 years.	8.5	2005/06
L	Heathland/ Scrub	• Avoid successive fires at intervals of < 7 years. • Avoid fire exclusion for a period of > 30 years.	-	-
A	Rainforest	• Not applicable.	-	-

Bushfire Risk Management Strategies



Contact Information

Agency	Position / Location	Phone
National Parks & Wildlife Service	Regional Duty Officer (24 hour)	0419 428 054
	Illawarra Area Manager	4223 3000 0438 928 022
	Fire Management Officer	9542 0636 0419 462 105
	Regional Operations Coordinator	9542 0659 0409 042 412
	Illawarra Area Office	4223 3000 (fax) 4223 3009
	Sydney South Regional Office	9542 0624 (fax) 9542 1420
Sydney Catchment Authority	24 Hours Duty Officer	1800 061 069 1800 657 777
Sutherland District NSW Rural Fire Service	24 Hours Business Hours	9520 6022 9520 4040
Wollongong District NSW Rural Fire Service	24 Hours Business Hours	4256 8432 4230 8200
Holsworthy Field Firing Range	General enquiries Range control to access No. 14 trail 0700 – 1600	9600 1216 9600 1228
	24Hr Duty Officer	0417 208 045
SES	Business Hours Sutherland Shire Wollongong City	000 9548 6355 4251 1200
Police	Emergency Campbelltown Picton Wollongong	000 4620 1199 4677 8899 4226 7899
Ambulance	Emergency Bookings	000 131 233
Hospital	St George Sutherland Wollongong	9153 1111 9540 7111 4222 5000
Council	Campbelltown City Council Wollondilly Council Wollongong City Council	4645 4000 4677 1100 4227 7111
Transgrid	Environmental Manager	9620 0893 (bh)
Integral Energy	Business Hours 24hr emergencies	1800 027 253 131 081 131 003
BHP Billiton (West & North Cliff Collieries)	Business Hours 24hr Control Room	4640 4067 (bh) 4640 4045 or 4640 4006
Tharawal Local Aboriginal Land Council	Business Hours 24hr emergencies	4681 0059 0409 966 163
WIRES	Wollondilly (24hr) South-West Wollongong	4684 1656 8977 3333 4285 5630

Fire Management Zones

Asset Protection Zones	The objective of **APZs** is the protection of human life and property. This will have precedence over guidelines for the management of biodiversity. Maintain Overall Fuel Hazard at Moderate or below.

Zone Name	Action	Responsibility
APZ 1 – Darkes Forest	• Slash &/or tritter to help protect rural properties in the Darkes Forest area.	NPWS / PP
APZ 2 – Victoria Road	• Slash &/or tritter to help protect rural properties in the Wedderburn area.	NPWS / PP

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.

Zone Name	Action	Responsibility
SW 1 – Lysaghts	• Hazard reduction burn to help protect the Wedderburn area from wildfires.	NPWS / RFS
SW 2 - Stokes 1	• Hazard reduction burn to help protect the Wedderburn area from wildfires.	NPWS / RFS
SW 3 – Stokes 2	• Hazard reduction burn to help protect the Reserve from arson attacks.	NPWS
SW 4 – Blackburn 1 & 2	• Slashing & selective clearing to help protect the Wedderburn area from wildfires.	NPWS
SW 5 – 10X	• Slashing & selective clearing to help protect the Wedderburn area from wildfires.	NPWS
SW 6 – Victoria Road	• Hazard reduction burn to help protect rural properties in the Wedderburn area from wildfires.	NPWS / RFS
SW 7 – Stokes 3	• Hazard reduction burn to help protect rural properties in the Wedderburn area from wildfires.	NPWS / RFS
SDF 1 – Dahlia 1	• Hazard reduction burn to help protect rural properties in the Darkes Forest area from wildfires.	NPWS / RFS / SCA
SDF 2 – O'Hares 1	• Hazard reduction burn to help protect rural properties in the Darkes Forest area from wildfires.	NPWS
SDF 3 – Cobbong 1	• Hazard reduction burn to help protect the Darkes Forest area from wildfires	NPWS
SDF 4 – Maddens 1	• Hazard reduction burn to help protect the Darkes Forest area from wildfires	NPWS / RFS
SDF 5 – O'Hares 2	• Hazard reduction burn to help protect the Darkes Forest area from wildfires.	NPWS
SDF 6 – Dahlia 1 & 2 & 3	• Slashing, tritter & selective clearing to help protect the Darkes Forest area from wildfires.	NPWS
SDF 7 – Maddens 1	• Fuel exclusion zone to help protect the Darkes Forest area from wildfires.	NPWS
SDF 8 – Darkes Forest 1	• Slashing to help protect the Darkes Forest area from wildfires	NPWS

Land 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
Dharawal State Conservation Area & Dharawal Nature Reserve LMZ	• Exclude fire from the endangered population of *Callitris endlicheri* • Maintain fire regime specific to O'Hares Creek Shale Forest EEC specified in the Vegetation Communities and Biodiversity Thresholds table. • Maintain fire regime specific to vegetation communities detailed in the Vegetation Communites 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