Hunter Region
Towarri National Park, Cedar Brush Nature Reserve and Wingen Maid Nature Reserve
Fire Management Strategy (Type 2) 2008
Sheet 1 of 2

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

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The NSW National Parks and Wildlife Service is part of the Department of Conservation and Climate Change.
Published by the Department of Conservation and climate change (NSW), June, 2008.
Contact: NSW National Parks and Wildlife Service, Hunter Region, Locked Bage 99, Nelson Bay DC, NSW 2315

ISBN: 1 74137 824 9 DEC Number: 2006/60 Last Updated: 10/11/08

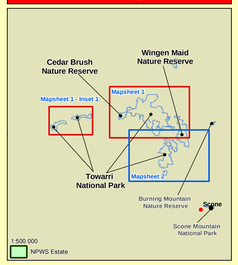
Department of Environment and Conservation (NSW)

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

Endorsed by: John O'Gorman **Date:** 30 6/ 2007

Director Northern, Parks & Wildlife Division

Locality



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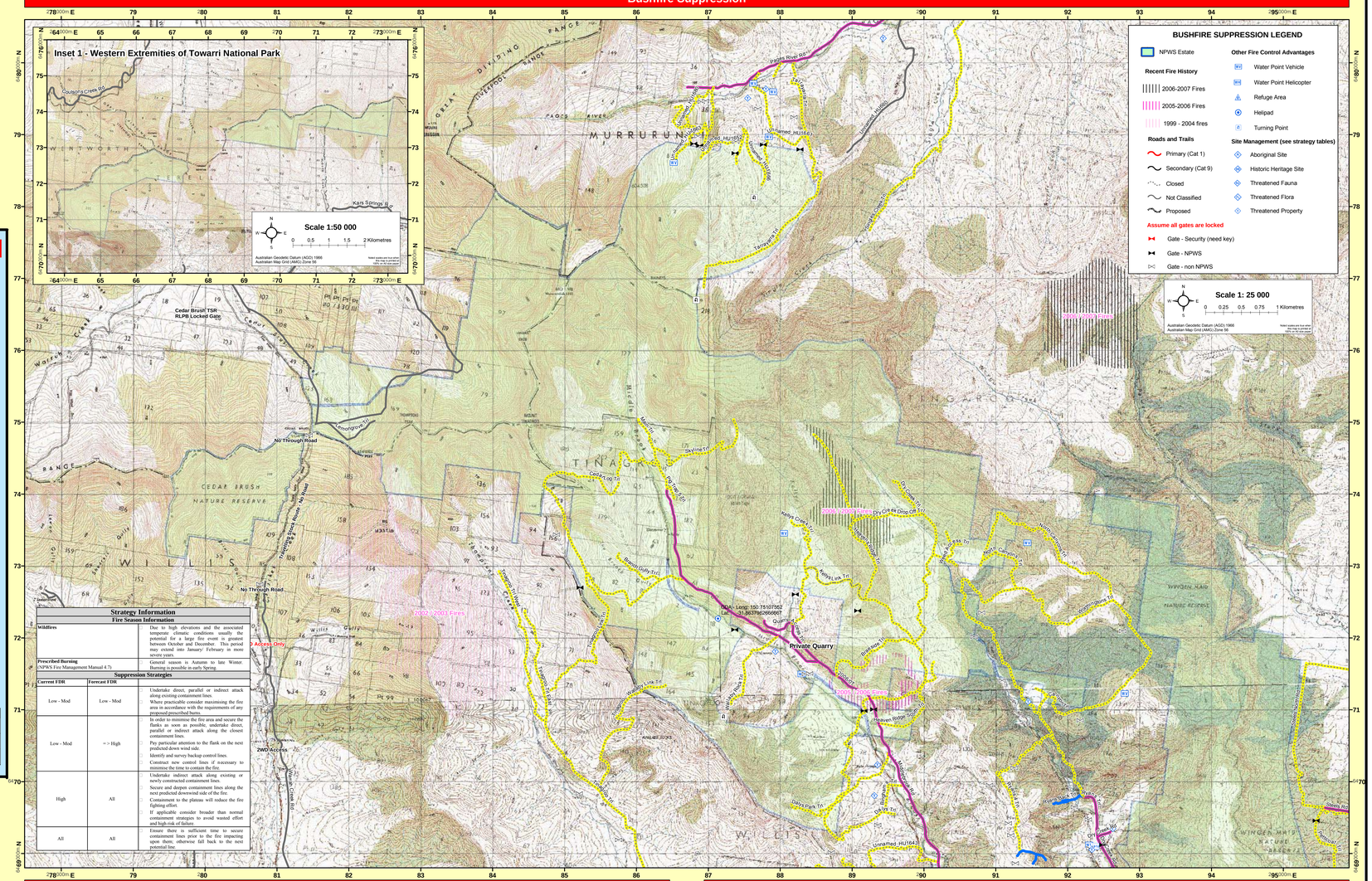
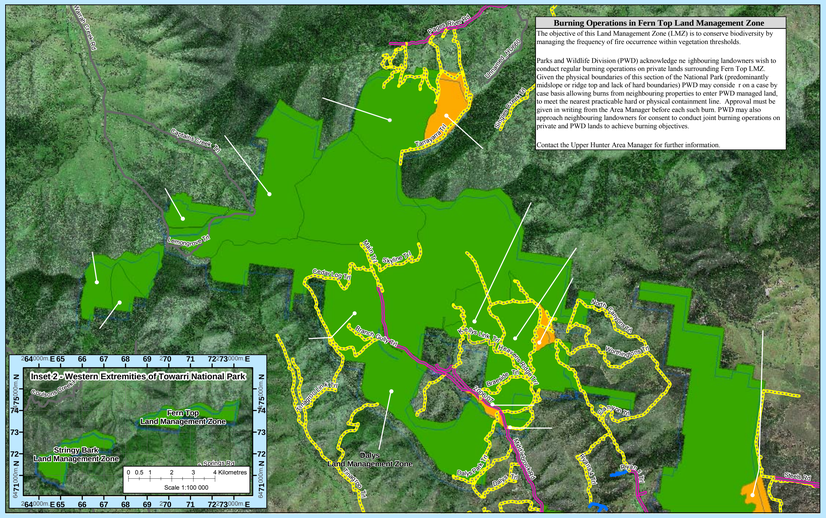
1:25 000 Topographic Map Sheets and Local Government Areas

Bushfire Suppression



Risk Management Information



Burning Operations in Fern Top Land Management Zone

The objective of this Land Management Zone (LMZ) is to conserve biodiversity by managing the frequency of fire occurrence within vegetation thresholds.

Parks and Wildlife Division (PWD) acknowledge ne ighbouring landowners wish to conduct regular burning operations on private lands surrounding Fern Top LMZ. Given the physical boundaries of this section of the National Park (predominantly mudslope or ridge top and lack of hard boundaries) PWD may conside r on a case by case basis allowing burns from neighbouring properties to enter PWD managed land, to meet the nearest practicable hard or physical containment line. Approval must be given in writing from the Area Manager before each such burn. PWD may also approach neighbouring landowners for consent to conduct joint burning operations on private and PWD lands to achieve burning objectives.

Contact the Upper Hunter Area Manager for further information.

Vegetation

Status of Fire Thresholds

Strategy Information

Fire Season Information

Wildfires	Due to high elevations and the associated temperate climatic conditions usually the potential for a large fire event is greatest between October and December. This period may extend into January/ February in more severe years.
Prescribed Burning (NPWS Fire Management Manual 4.7)	General season is Autumn to late Winter. Burning is possible in early Spring.

Suppression Strategies

Current FDR	Forecast FDR	
Low - Mod	Low - Mod	Undertake direct, parallel or indirect attack along existing containment lines. Where practicable consider maximising the fire area in accordance with the requirements of any proposed prescribed burns.
Low - Mod	=> High	In order to minimise the fire area and secure the flanks as soon as possible, undertake direct, parallel or indirect attack along the closest containment lines. Pay particular attention to the flank on the next predicted down wind side. Identify and survey backup control lines. Construct new control lines if necessary to minimise the time to contain the fire.
High	All	Undertake indirect attack along existing or newly constructed containment lines. Secure and deepen containment lines along the next predicted downwind side of the fire. Containment to the plateau will reduce the fire fighting effort. If applicable consider broader than normal containment strategies to avoid wasted effort and high risk of failure.
All	All	Ensure there is sufficient time to secure containment lines prior to the fire impacting upon them; otherwise fall back to the next potential line.

Fire Management Zones

Asset Protection Zones	The objective of **APZ**s 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.
Strategic Fire Advantage Zones	The objective of **SFAZ**s 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.
Land Management Zones	The objective of **LMZ**s is to conserve biodiversity and protect cultural heritage. Manage fire consistent with 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 the 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

RISK MANAGEMENT LEGEND

NPWS Estate

Roads and Trails: Primary (Cat 1); Secondary (Cat 9); Proposed (Cat 9); Not Classified; Dormant

Scale 1:50 000 (0 0.5 1 1.5 2 Kilometres)

Australian Geodetic Datum (AGD) 1966
Australian Map Grid (AMG) Zone 56

Note! scales are true when this map is printed at 297mm x 420mm (A3 size paper)

Contact Information

Agency	Position / Location	Phone
NPWS	Hunter Region Duty Officer / After Hours	0429 144 880 016 301161 - Ask for 'Hunter Region Duty Officer' -during fire season only)
	Upper Hunter Area Manager	6540 2306 / 0429 144 876
	Fire Management Officer	4984 8206 / 0429 144 872
	Regional Operations Coordinator	4984 8212 / 0429 144 872
	Upper Hunter Area Office	6540 2300 / (fax) 6545 9475
	Hunter Region Office	4984 8200 / (fax) 4981 5913
RFS	Fire Control Officer	0427 306 845 / 1800 081 166
	Liverpool Range Fire Control Centre	6747 1493
NSW Fire Brigade	Emergency	000
	Newcastle Fire Brigades	4929 7177
SES	Emergency	000
	Upper Hunter Division / Scone Unit	6540 3300 / (fax) 6572 2312
Police	Emergency	000
	Scone Station	6545 1033 / (fax) 6545 3190
Ambulance	Emergency	000
	Bookings (not to be used in emergency)	131 233 / 4921 7555
Hospital	Scone (Community Health)	6540 2100
DOP	Newcastle	4929 4346 / (fax) 4929 6364
DPI - Forests	Hunter Region – Newcastle	Fire DO 99632218. Operations 65835744
Council	Upper Hunter Shire Council	6540 1100 / (fax) 6545 2671 6545 3696 (AH)
Local Aboriginal Land Council	Wanaruah (Muswellbrook) Nungaroo (Quirindi)	6543 1288 / 6543 1962 6746 2356 / (fax) 6746 2670
Wildlife Carers	WARP WIRES	65433012 65433801

Communications Information

Service	Channel	Location and Comments
NPWS - VHF	25	Mt Helen
	10	CCHR - use on southern falls
NPWS - VHF (Fireground Comms)	17; 18, 19	Choose channel on fireground
NPWS - VHF (Portable Repeater)	15	Mobile unit Kept at regional office
RFS - PMR - UHF	61	Mt Helen Coverage throughout reserves with the exception of the western extremities of Towarri NP (ie. Park west of Cedar Brush NR)
	83	Parkville Coverage throughout reserves with the exception of the western extremities of Towarri NP (ie. Park west of Cedar Brush NR)
	76	Rosegale Coverage throughout reserves
CB - UHF	5	Choose channel on fireground
Aircraft - VHF		Choose channel on fireground
Mobile Phone - CDMA		Good coverage in most of the park with the following exceptions: - Marginal coverage in Cedar Brush NR and southern tip of Towarri NP - No coverage in western extremities of Towarri NP (ie. Park west of Cedar Brush NR).
Satellite Phone		Operates in much of the reserve Ph: 0414 788 202 - Stored in Area Office

Operational Guidelines

Refer to the Fire Management Manual .
Brief all personnel involved in suppression operations on the following issues:

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.

Operational Guidelines (continued)

Refer to Current Fire Management Manual (updated annually)
Brief all personnel involved in suppression operations on the following issues:

Resource	Guidelines
Aboriginal Cultural Heritage Site Management	
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 water bombing which may cause ground disturbance.
	Avoid water bombing which may cause ground disturbance. Site may be burnt by wildfire, backburn, prescribed burn.
Historic Heritage Management	**BCHMS: Regional Cultural Heritage Management Strategy.* *In areas where the asset may be in or close to a water body, wetland or swamp, no foam or retardant is to be used.* *Earth-moving machinery is to be used around, rather than over/through assets.*
HS1	High RCHMS* priority. Avoid fire, including wildfire, backburning & HR. Avoid all water bombing activities.
HS2	High RCHMS* priority. Avoid fire, including wildfire, backburning & HR.
HS3	High or low RCHMS* priority. Heritage site unlikely to be effected by fire. Danger to any fire crew activity . Avoid site at all costs
HS4	Low RCHMS* priority. Avoid fire, including wildfire, backburning & HR. Avoid all water bombing activities.
HS5	Low RCHMS* priority. Avoid fire, including wildfire, backburning & HR.
HS6	High or low RCHMS* priority. Heritage site unlikely to be effected by fire. Avoid use of earth moving machinery.
HS7	High or low RCHMS* priority. Heritage site unlikely to be effected by fire. Avoid use of earth moving machinery. Avoid all water bombing activities.
Threatened Fauna Management	
FA1	Protect large and hollow bearing trees.
FA2	Protect large and hollow bearing trees. Avoid interfire intervals of < 10 yrs. Avoid high intensity fires that consume tree canopies and fallen logs.
FA3	Avoid interfire intervals of < 10 yrs.
FA4	Habitat unlikely to be effected by fire. Avoid use of earth moving machinery in wetland habitats.
FA5	Habitat unlikely to be effected by fire. Avoid use of earth moving machinery in dune habitats.
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.
FA8	Avoid fire, including wildfire, backburning & HR, as far as possible. Avoid use of earth moving machinery.
Threatened Flora Management (NPWS FMM 4.12)	
FL1	Avoid interfire intervals of < 10 yrs. Avoid the use of earthmoving machinery. Avoid the use of retardant.
FL2	Avoid fire, including wildfire, backburn, HR, as far as possible. 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.
FL4	Avoid summer fire. Avoid high intensity fire. Avoid earth moving machinery.
FL5	Avoid low intensity fire. Avoid interfire intervals of < 5 yrs. Avoid earth moving machinery. Avoid the use of retardant.
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. There are very few assets near the reserve, however there are fences along most private property/reserve boundaries. These should be prepared to avoid damage when undertaking fire suppression activities.
General	**Guidelines**
Visitor Management (NPWS FMM 3.6 & 4.13)	The reserve may be closed to the public during periods of extreme fire danger or during wildfire suppression operations.

Operational Guidelines (continued)

Refer to Current Fire Management Manual (updated annually)
Brief all personnel involved in suppression operations on the following issues:

General	Guidelines
Aerial Water Bombing (NSW Fire Agencies Aviation SOPs Q2 / NPWS Guidelines for Effective Aircraft Management)	The use of bombing aircraft should support containment operations by aggressively attacking hotspots and spot -overs. 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 NSW Fire Agencies Aviation SOPs Q2-4 / 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 a senior NPWS officer. Utilise incendiaries to rapidly progress back-burns down slope where required.
Backburning	Temperature and humidity trends must be monitored carefully to determine the safest times to implement back-burns. Generally on steeper slopes, when the FDI is Very High or greater, backburning should commence when the humidity begins to rise in the late afternoon or early evening. This is particularly important on sideslope areas in and around the park as the high elevations and steep long runs will increase spotting distance. With a lower FDI backburning may be safely undertaken during the day. Backburning may be undertaken on the more gentle slopes of the plateau in the higher fire danger parts of 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.
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 the relevant land management agency in regard to the ongoing command, control and incid ent management team requirements as per the relevant IRMC 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. Containment lines should not be constructed or maintained in or within 200m upstream of the of the Sphagnum Moss EECs within the park. Where practicable, containment lines should be stabilis ed 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 provided with information on both natural and cultural heritage sites in the location to minimise the potential of damage.
Earthmoving Equipment	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. Earthmoving equipment must be always 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 must be washed down, where practicable, prior to it entering the park and surrounding properties due to the sensitivity of the area to *Phytophtora cinnamomiand* weed invasion.
Fire Advantage Recording	All fire advantages used during wildfire suppression operations must be mapped as part of fire suppression final task checklist and where relevant added to the database.
Rehabilitation	Containment lines should be stabilised and rehabilitated as part of the wildfire suppression operation.
Fire Suppression Chemicals	Wetting and foaming agents (surfactants) are permitted for use in wildfire suppression. The use of fire retardant is only permitted with the prior consent of the senior NPWS officer, and should not be used in rainforest, watercourses, dams, swamps and heathlands. Exclude the use of surfactants and retardants within 50m of rainforest, watercourses, dams, heathlands and swamps. Areas where fire suppression chemicals are used must be mapped and the used products name recorded. The Threatened Species Operational Guidelines are to be observed.
Smoke Management	The potential impacts of smoke and possible mitigation tactics must be considered when planning for wildfire suppression and prescribed burning operations. There are no local public roads within 3km of the park.

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Department of Environment and Conservation (NSW)

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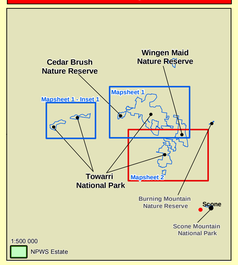
Endorsed by: John O'Gorman **Date:** 06/ 06/ 2007

Director Northern, Parks & Wildlife Division

Locality



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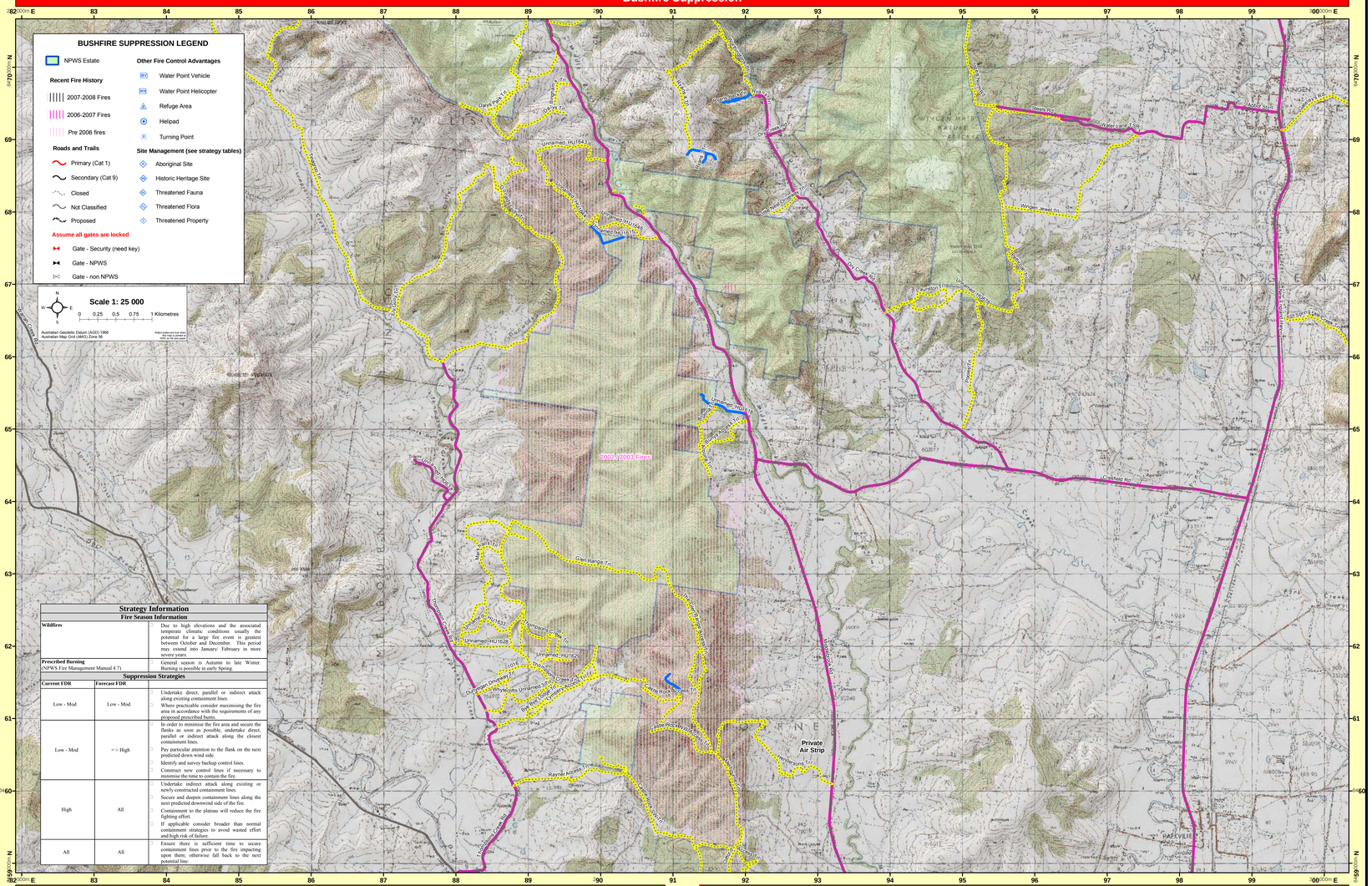
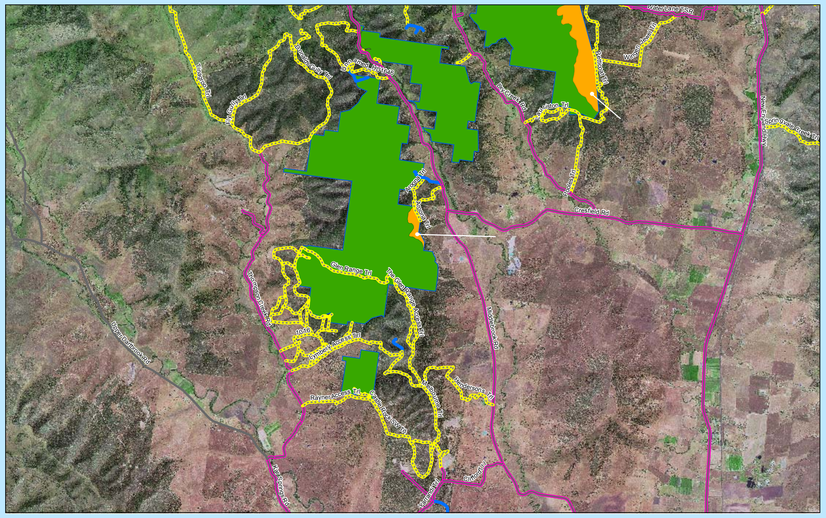
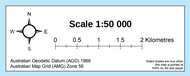
Bushfire Suppression



Strategy Information		
Fire Season Information		
Wildfires		Due to high elevations and the associated temperate climatic conditions usually the potential for a large fire event is greatest between October and December. This period may extend into January/ February in more severe years.
Prescribed Burning (NPWS Fire Management Manual 4.7)		General season is Autumn to late Winter. Burning is possible in early Spring.
Suppression Strategies		
Current FDR	**Forecast FDR**	
Low - Mod	Low - Mod	Undertake direct, parallel or indirect attack along existing containment lines. Where practicable consider maximising the fire area in accordance with the requirements of any proposed prescribed burns.
Low - Mod	= > High	In order to minimise the fire area and secure the flanks as soon as possible, undertake direct, parallel or indirect attack along the closest containment lines. Pay particular attention to the flank on the next predicted down wind side. Identify and survey backup control lines. Construct new control lines if necessary to minimise the time to contain the fire.
High	All	Undertake indirect attack along existing or newly constructed containment lines. Secure and deepen containment lines along the next predicted downwind side of the fire. Containment to the plateau will reduce the fire fighting effort. If applicable consider broader than normal containment strategies to avoid wasted effort and high risk of failure.
All	All	Ensure there is sufficient time to secure containment lines prior to the fire impacting upon them; otherwise fall back to the next potential line.

Risk Management Information





RISK MANAGEMENT LEGEND

NPWS Estate

Roads and Trails
- Primary (Cat 1)
- Secondary (Cat 9)
- Proposed (Cat 9)
- Dormant
- Not Classified

Fire Management Zones	
Asset Protection Zones	The objective of **APZ**s 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.
Strategic Fire Advantage Zones	The objective of **SFAZ**s 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.
Land Management Zones	The objective of **LMZ**s is to conserve biodiversity and protect cultural heritage. Manage fire consistent with fire thresholds.

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Agency	Position / Location	Phone
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	Hunter Region Office	4984 8200 / (fax) 4981 5913
RFS	Fire Control Officer	0427 306 845 / 1800 081 166
	Liverpool Range Fire Control Centre	6747 1493
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	Newcastle Fire Brigades	4929 7177
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	Nangaroo (Quirindi)	6746 2356 / (fax) 6746 2670
Wildlife Carers	WARP	65433012
	WIRES	65433801

Communications Information

Service	Channel	Location and Comments
NPWS - VHF	25	Mt Helen
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NPWS - VHF (Fireground Comms)	17, 18, 19	Choose channel on fireground
NPWS - VHF (Portable Repeater)	15	Mobile unit Kept at regional office
RFS - PMR - UHF	61	Mt Helen Coverage throughout reserves with the exception of the western extremities of Towarri NP (ie. Park west of Cedar Brush NR)
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	76	Rossgalle Coverage throughout reserves
CB - UHF	5	Choose channel on fireground
Aircraft - VHF		Choose channel on fireground
Mobile Phone		Good coverage in most of the park with the following exceptions: - Marginal coverage in Cedar Brush NR and southern tip of Towarri NP - No coverage in western extremities of Towarri NP (ie. Park west of Cedar Brush NR).
Satellite Phone		Operates in much of the reserve. Ph: 0414 788 202 – Stored in Area Office

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Operational Guidelines (continued)

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Historic Heritage Management	**BCHMS: Regional Cultural Heritage Management Strategy.* *In areas where the asset may be in or close to a water body, wetland or swamp, no foam or retardant is to be used.* *Earth-moving machinery is to be used around, rather than over/through assets.*
HS1	High BCHMS* priority. Avoid fire, including wildfire, backburning & HR. Avoid all water bombing activities.
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Threatened Flora Management	
FL1	Avoid interfire intervals of < 10 yrs. Avoid the use of earthmoving machinery. Avoid the use of retardant.
FL2	Avoid fire, including wildfire, backburn, HR, as far as possible. Avoid the use of earthmoving machinery. Avoid the use of retardant
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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. There are very few assets near the reserve, however there are fences along most private property/reserve boundaries. These should be prepared to avoid damage when undertaking fire suppression activities.
General	**Guidelines**
Visitor Management	The reserve may be closed to the public during periods of extreme fire danger or during wildfire suppression operations.

Operational Guidelines (continued)

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Brief all personnel involved in suppression operations on the following issues:

General	Guidelines
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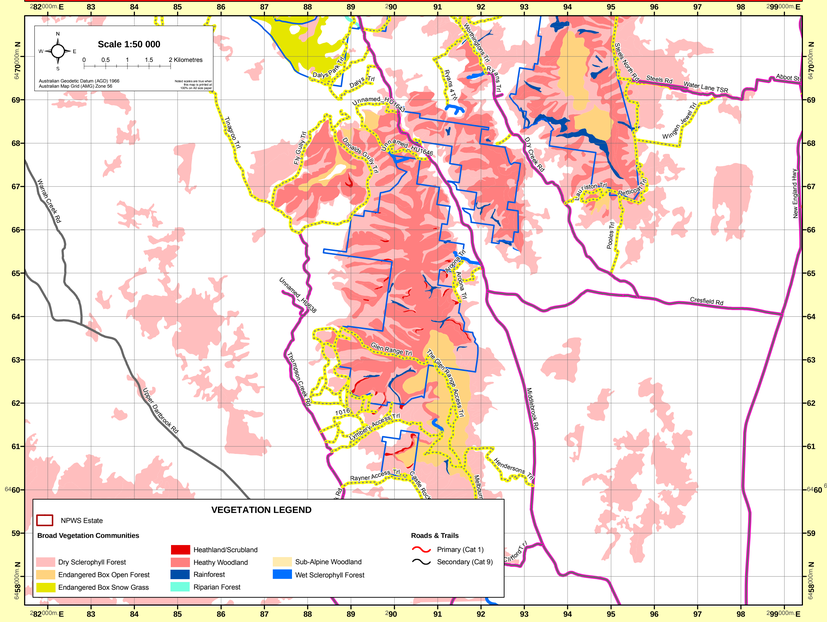
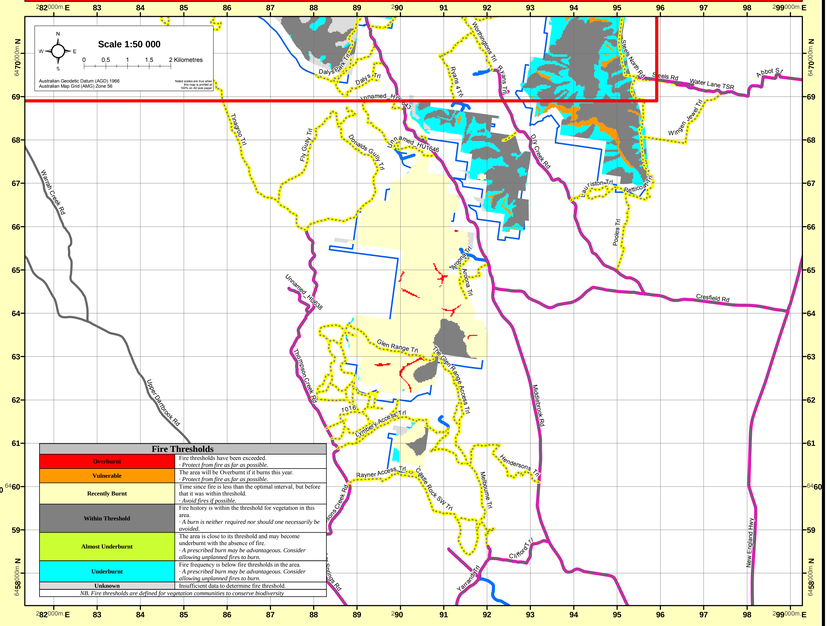
Aerial Ignition (NSW Fire Agencies Aviation SOPs O2-4 / NPWS Guidelines for Effective Aircraft Management)	Aerial ignition may be used during back-burning or fuel reduction operations where practicable, but only with the prior consent of a senior NPWS officer. Utilise incendiarors to rapidly progress back-burns down slope where required.
Backburning	Temperature and humidity trends must be monitored carefully to determine the safest times to implement back-burns. Generally on steeper slopes, when the FDI is Very High or greater, backburning should commence when the humidity begins to rise in the late afternoon or early evening. This is particularly important on north-facing slopes and ridgetops. On flat ground, the risk of spotting long runs will increase spotting distance. With a lower FDI backburning may be safely undertaken during the day. Backburning may be undertaken on the more gentle slopes of the plateau in the higher fire danger parts of the day. Where practicable, clear a 5m 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.
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 the relevant land management agency in regard to the ongoing command, control and 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. Containment lines should not be constructed or maintained in or within 200m upstream of the of the Sphagnum Moss EECs within the park. 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 provided with information on both natural and cultural heritage sites in the location to minimise the potential of damage.
Earthmoving Equipment	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. Earthmoving equipment must be always 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 must be washed down, where practicable, prior to it entering the park and surrounding properties due to the sensitivity of the area to *Phytophtora cinnamomi*and weed invasion.
Fire Advantage Recording	All fire advantages used during wildfire suppression operations must be mapped as part of fire suppression final task checklist and where relevant added to the database.
Rehabilitation	Containment lines should be stabilised and rehabilitated as part of the wildfire suppression operation.
Fire Suppression Chemicals	Wetting and foaming agents (surfactants) are permitted for use in wildfire suppression. The use of fire retardant is only permitted with the prior consent of the senior NPWS officer, and should not be used in rainforest, watercourses, dams, swamps and heathlands. Exclude the use of surfactants and retardants within 50m of rainforest, watercourses, dams, heathlands and swamps. Areas where fire suppression chemicals are used must be mapped and the used products name recorded. The Threatened Species Operational Guidelines are to be observed.
Smoke Management	The potential impacts of smoke and possible mitigation tactics must be considered when planning for wildfire suppression and prescribed burning operations. There are no local public roads within 3km of the park.

Vegetation



Status of 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 fire 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