

ISBN 1741222052

# Lake Macquarie State Conservation Area POSTER 1-AWABA BAY FIRE MANAGEMENT STRATEGY 2005 - 2006

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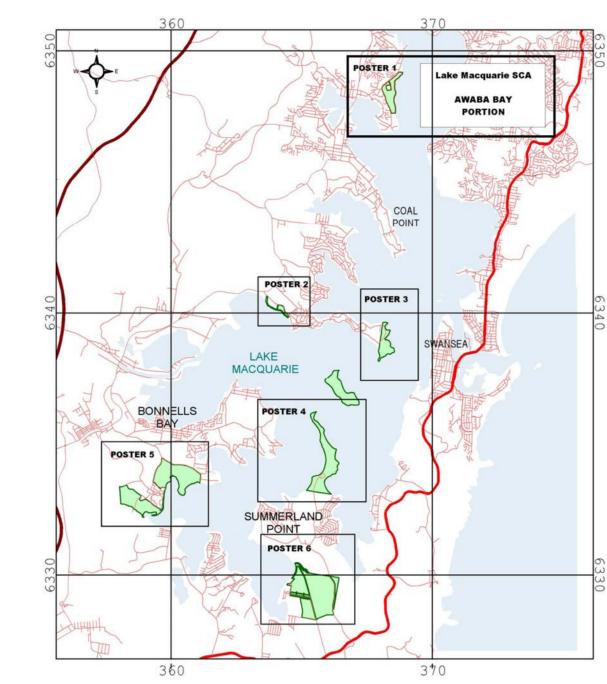
# Contacts & Communications

### **Contact Details**

Contact Details		
Agency	Position	Number
NSW National Parks &	Duty Officer	4320 4255
Wildlife Service	Regional Manager	4320 4201 / 0428 218 015
Central Coast Hunter Range	Regional Operations	4320 4232 / 0418 433 203
Region (CCHRR)	Coordinator	
	Lakes Area Office	4358 0400
	Gosford Regional Office	4320 4200
Rural Fire Service	Duty Officer / Emergency	4955 2122 / 0418 684 681
	Lake Macquarie Fire Control	4955 2222
	Centre	
SES	District Emergency	4937 2912 / 0417 416 590
	Management Officer	
	Lake Macquarie Shire	4921 0610
Police	Lake Macquarie	4942 9904
	Toronto	4950 3699
Ambulance	Bookings	131 233
	Emergency	000
Hospital	John Hunter	4921 3000
Council	Lake Macquarie City Council	4921 0333

### **Communication Resources**

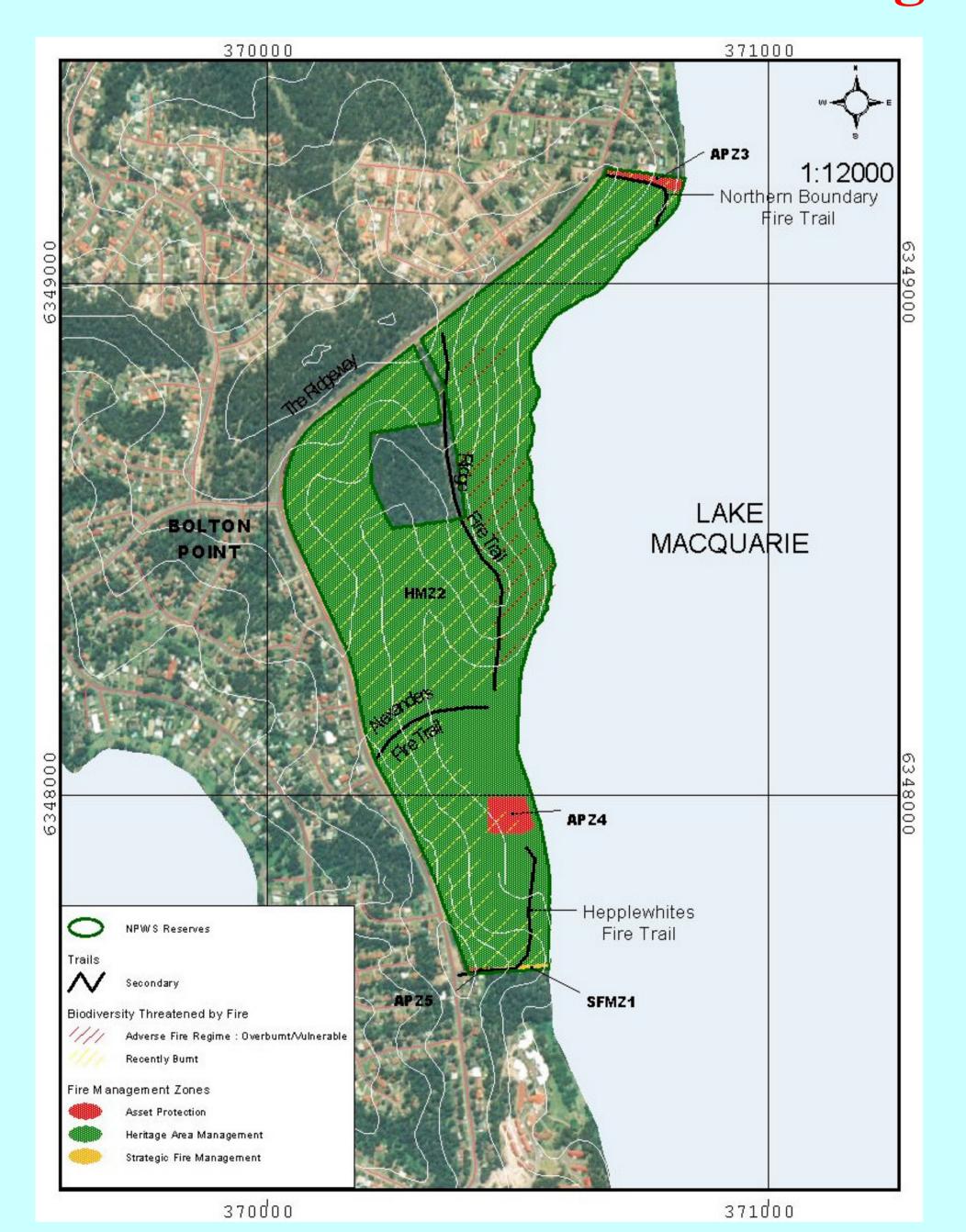
Service	Channel	<b>Location / Comments</b>
NPWS – VHF	27 /24	Mangrove / Warrawalong
RFS – PMR	Main – 58	Lake Macquarie
(Fire Control Centre)	Other – 22	
RFS – GRN	195	Lake Macquarie
(Fire Control Centre)		
UHF – CB		Good
Mobile Phone Coverage		Good
Satellite Phone	118 7276 1881 578	The region has one satellite
		nhone



Date approved: 24 March 2006

<b>Map Details</b>			
Projection	UTM AGD 1966		
	To convert AGD66 to GDA94		
	Latitude – Decrease by 5.7 seconds		
	Longitude – Increase by 4.1 seconds		
	Northing – Increase by 190 metres		
	Easting – Increase by 104 metres		
Air Photo	(GIS: Belmont_air.sid)		
1: 25 000 Topo Map	Wallsend 9232-3-S		
	(GIS: Swansea.sid, Wallsend.sid)		
UBD Map	Map 161 (Newcastle)		
	(GIS: Ubd_west_wallsend.tif, Ubd_swansea.tif,		
	Ubd_newcastle.tif, Ubd_morisset.tif)		
<b>Contour Interval</b>	10 metres		

# Bushfire Risk Management Strategies



# Interpretation of Biodiversity Threshold Categories

<b>1</b> y		Tillet pi etatio
	•	Protect from fire as far as possible

Vulnerable • The occurrence of fire this year will result in biodiversity thresholds being exceeded

	thresholds being exceeded
Bushfire k	Risk Management Strategies
Fire Management Zone	Guidelines
Asset Protection Zone	<ul> <li>Objectives</li> <li>To protect human life, including permanent residents, visitors and fire fighters from bushfires.</li> <li>To protect identified high-risk assets, which may include residential areas, utilities, camping areas, day use areas, urban interface, cultural heritage sites and other built assets.</li> <li>Strategies</li> <li>To initiate, where appropriate community education and community fireguard programs.</li> <li>APZ 3, 5 – Monitor fuel levels, implement fuel reduction program (mechanical) if required.</li> <li>APZ 4 – Licensee to mow / slash existing cleared area on a quarterly basis.</li> </ul>
Strategic Fire Management Zone	<ul> <li>Objectives</li> <li>To reduce fire intensity and spotting distance to assist in the strategic and containment of bushfires.</li> <li>To reduce the probability of bushfires being ignited in areas of high bushfire risk.</li> <li>To compliment asset protection zones and to strengthen existing fire control advantages.</li> <li>To restrict the movement of bushfires between fire management zones.</li> <li>To restrict the movement of bushfires from other land onto NPWS parks and reserves onto neighbouring land.</li> <li>To break up large continuous areas of high bushfire behaviour potential to reduce the probability of large 'landscape' scale bushfires.</li> <li>Strategies</li> <li>SFMZ 1 – Review and maintain fuel loads at or below 15t/ha. Implement fuel reduction program (mechanical) if required.</li> </ul>
Heritage Management Zone	<ul> <li>Objectives</li> <li>To prevent the extinction of all species which are known to occur naturally within NPWS parks and reserves (conserve biodiversity).</li> <li>To protect aboriginal sites, historic heritage sites and other culturally significant features from fire.</li> <li>Strategies</li> <li>As far as possible maintain fire regimes within specified intervals.</li> </ul>

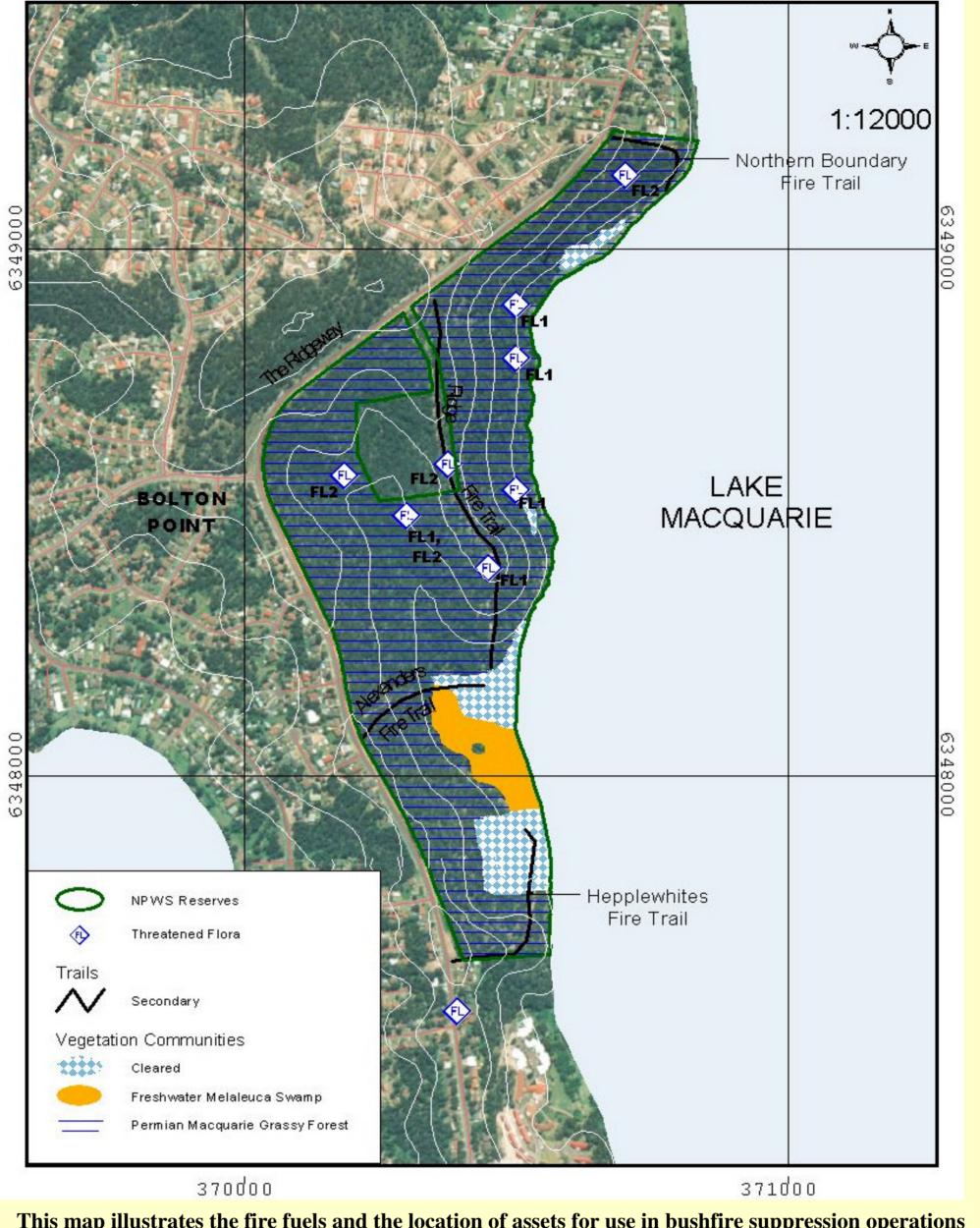
• As far as possible implement specified threatened species

• As far as possible implement cultural heritage management

guidelines.

HMZ 2.

# **Assets and Fire Fuels**



This map illustrates the fire fuels and the location of assets for use in bushfire suppression operations

# **Bushfire Suppression** Information 2005-2006

rmation in this section will be updated annually based on re history and completed fire management works.

## agament Stratogics

Northern Boundar Fire Trail		The information in this section fire history and complete
BOLTON FL2 ALLAKE MACQUARIE	000 6348	Threatened Flora Management Strategies    ID
IPWS Reserves Chreatened Flora  Secondary	000	By Subject to crew safety and where possible guidelines.  If values are threatened or the fire dange be required.  Ensure there is sufficient time to secure on the secure constructed control lines to link up exists.  Subject to crew safety undertake indirect constructed control lines to link up exists.

### Aboriginal Heritage Management Strategies

iora I	vianagement Strategies	Aboriginal Heritage Management Strategies		
lame	Fire Management Strategies	Site Types	Fire Management Strategies	
a TAP	Maintain fire free intervals of at least 15 years every 100 years.	Middens have been identified on the lake's foreshore.	Avoid all ground disturbance including the use of earth moving machinery, handline construction and	
juncea	<ul> <li>Avoid high frequency fires</li> <li>Maintain a fire free interval of at least 15 years once in 100 years.</li> <li>Avoid trail construction, ground disturbance in known locations.</li> </ul>		<ul> <li>driving over sites.</li> <li>Avoid water bombing which may cause ground disturbance.</li> <li>Site may be burnt by bushfire, back burn or prescribed burn without</li> </ul>	

Fire Suppressi	on Strategies
Issue / Area	Operational Guidelines
Low – Mod (FFDI: 0-12)	<ul> <li>Subject to crew safety, undertake indirect, parallel or direct attack along existing control lines with the aim of minimising the area burnt without threatening values.</li> </ul>
	Identify and survey alternate 'backup' containment lines.
	• Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.
	• If values are threatened or the fire danger is forecast to be >= High, then the construction of new control lines may be required.
	• 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.
	<u>Important</u>
	**Crew safety should always be the first priority**
High or above (FFDI: >12)	<ul> <li>Subject to crew safety undertake indirect attack along existing control lines, and where necessary, newly constructed control lines to link up existing control lines.</li> </ul>
	• Subject to crew safety, secure and deepen control lines along the next predicted downwind side of the fire.
	• Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.
	Identify and survey alternate 'backup' containment lines.
	<u>Important</u>

#### Ensure there is sufficient time to secure control lines before the fire reaches them. If there is not sufficient time to secure control lines, fall back to the next potential control line.

Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
5- Permian Macquarie Grassy Forest	Minimum interval: 10 years Maximum interval: 50 years	2002 (6.76%) 2001(1.26%) 2000 (1.57%)	High bushfire behaviour potential.
SF5 -Freshwater Melaleuca Swamp		-	Low bushfire behaviour potential.
L- Estuarine Rushland	Fire should be avoided	-	Low bushfire behaviour potential.
C- Cleared	Not applicable	2002 (6.76%) 2001 (3.38%) 2000 (20.27%)	

# Fire Control Advantages

The statutory fire season occurs between 1 October and

burning in this area is normally undertaken in spring and

31 March. This may be extended if weather conditions lead to increased fire danger outside of this period. Prescribed



This map illustrates fire control advantages that may be used during bushfire suppression operations

## **General Operational Guidelines**

Issue / Area	Operational Guidelines	
Containment Line	Use existing tracks and trails where possible.	
Construction	Avoid steep terrain if possible.	
	Wherever possible locate containment lines to avoid leaving unburnt fuels down slope.	
Smoke Management	Close roads if smoke or fire fighting operations are likely to cause a traffic hazard.	
	Notify neighbours of potential smoke hazard.	
Aerial Ignition	May be used where considered appropriate.	
Backburning	<ul> <li>As far as possible, backburning should take into account threatened species and cultural heritage guidelines.</li> <li>On days when the fire danger &gt; High, as far as possible, delay backburning until late afternoon – early evening when the temperature is decreasing and humidity increasing.</li> </ul>	
	Backburning may be safely undertaken during the day when the fire danger is < High	
Water Bombing	<ul> <li>Can be used to slow the spread of a fire, unlikely to extinguish a fire without support from ground crews.</li> <li>Ground crews must be warned of and be well clear of aerial bombing operations.</li> <li>Aerial bombing may be used to cool down hot spots, to catch spot fires or to slow the rate of spread of fire to increase the time available to undertake other suppression activities.</li> </ul>	
Tracks & Trails	<ul> <li>Primary Fire Trails- are not identified in this plan.</li> <li>Secondary Fire Trails – can be used for control in either fire suppression or mitigation operations, is of a moderate standard and provides for Category 7/9 light fire tankers.</li> <li>Dormant Trails- are not identified in this plan.</li> </ul>	
Visitor Management	<ul> <li>Close roads if smoke or fighting operations are likely to cause a traffic hazard.</li> <li>Notify neighbours of potential smoke hazard.</li> <li>Check and evacuate walking trails, known camping and picnic sites within and adjacent to the fire area.</li> <li>Close park to the public when it is considered necessary due to conditions, which create a very high to extreme fire danger, or during fire fighting operations.</li> </ul>	
Restoration	<ul> <li>All new fire breaks will be restored as part of the fire suppression operation.</li> <li>Should be addressed in an incident-action plan, which is compiled in accordance with the Fire Management Manual.</li> <li>All new firebreaks will be restored as part of the fire suppression operation.</li> </ul>	
Earth Moving Equipment	<ul> <li>Can only be used with consent of NPWS and only if the probability of success is considered high.</li> <li>As far as possible, restrict use to routes and other previously disturbed areas.</li> </ul>	
	<ul> <li>Subject to operational constraints, minimise the length of break constructed</li> <li>Known threatened species locations and cultural heritage sites must not be disturbed and all personnel involved in control line construction must be briefed on threatened species and cultural heritage sites locations.</li> <li>The route to be taken should be checked for heritage items prior to the use of machinery, preferably by a specialist officer.</li> </ul>	
Foams, Wetting Agents, Retardants	<ul> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional Operations Coordinator -NPWS).</li> <li>Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and</li> </ul>	
	SEPP14 Wetlands).	
Command & Control	ICS system will be implemented during all fire suppression activities	
Fire Advantage	All fire advantages used during fire suppression operations are to be mapped so that they can be added to the	
Recording	regional database (reports to be sent to the Regional Fire Management Officer).	



# Lake Macquarie State Conservation Area **POSTER 2-MYUNA BAY** FIRE MANAGEMENT STRATEGY 2005 - 2006

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PO Box 1477 Gosford NSW 2250

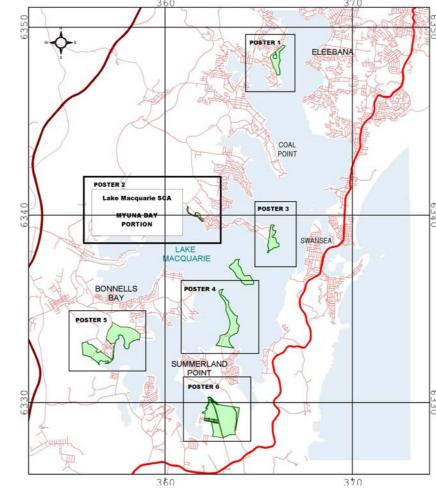
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	Lake Macquarie Fire Control	4955 2222
	Centre	
SES	District Emergency	4937 2912 / 0417 416 590
	Management Officer	
	Lake Macquarie Shire	4921 0610
Police	Lake Macquarie	4942 9904
	Toronto	4950 3699
Ambulance	Bookings	131 233
	Emergency	000
Hospital	John Hunter	4921 3000
Council	Lake Macquarie City Council	4921 0333

#### **Communication Resources**

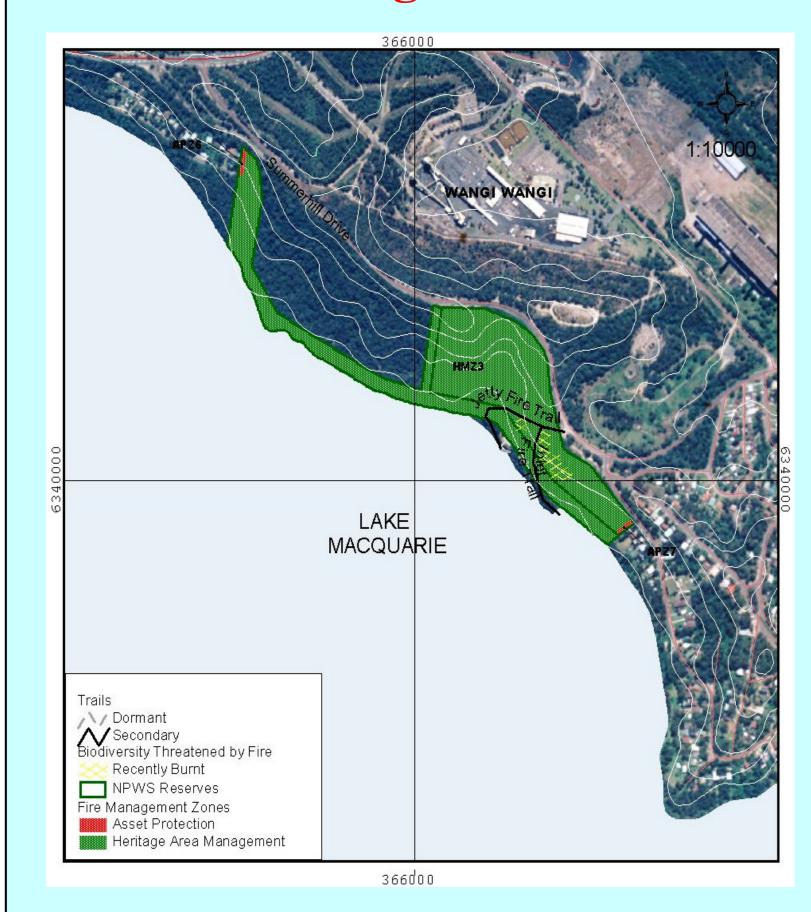
Service	Channel	<b>Location / Comments</b>
NPWS – VHF	27 /24	Mangrove / Warrawalong
RFS – PMR	Main – 58	Lake Macquarie
(Fire Control Centre)	Other – 22	
RFS – GRN	195	Lake Macquarie
(Fire Control Centre)		
UHF – CB		Good
Mobile Phone Coverage		Good
Satellite Phone	118 7276 1881 578	The region has one satellite
		1



Date approved 23 March 2006

<b>Map Details</b>	
Projection	UTM AGD 1966
	To convert AGD66 to GDA94
	Latitude – Decrease by 5.7 seconds
	Longitude – Increase by 4.1 seconds
	Northing – Increase by 190 metres
	Easting – Increase by 104 metres
Air Photo	(GIS: Mannering_air.sid)
1: 25 000 Topo Map	Swansea 9231-4-N
	(GIS: Swansea.sid)
UBD Map	Map 177 (Newcastle)
	(GIS: Ubd_morisset.tif)

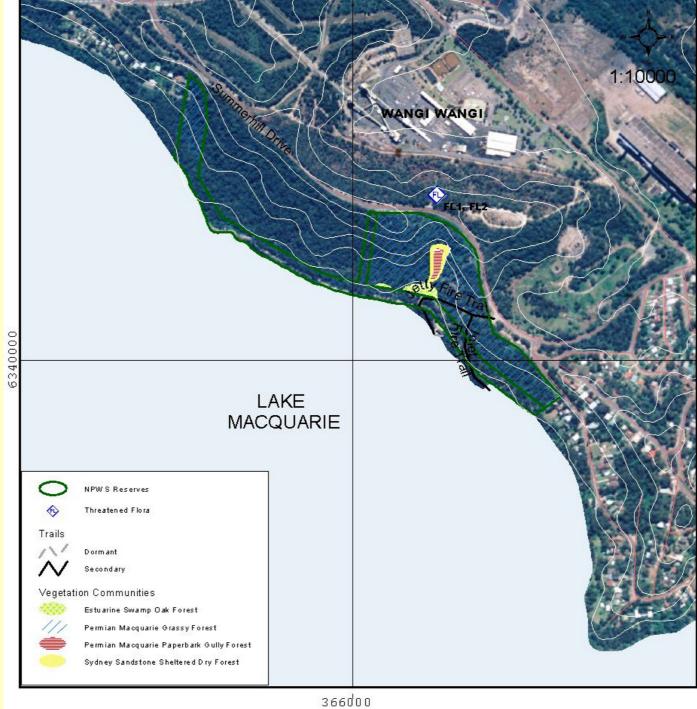
# **Bushfire Risk Management Strategies**



### Rushfire Rick Management Strategies

Fire Management Zone	Guidelines
	Objectives
	To protect human life, including
	permanent residents, visitors and fire
	fighters from bushfires.
<b>Asset Protection</b>	To protect identified high risk assets
Zone	which may include residential areas,
	utilities, camping areas, day use areas, urban interface, cultural heritage sites and other built assets.
	Strategies
	To initiate, where appropriate community
	education and community fireguard
	programs.
	<b>APZ</b> 6, 7 – Monitor fuel levels and maintain
	fuel levels at or below 15 t / ha. Implement
	fuel reduction program (mechanical) if
	required.
	Objectives
	To prevent the extinction of all species
	which are known to occur naturally
	within NPWS parks and reserves
	(conserve biodiversity).
Heritage	To protect Aboriginal sites, historic
<b>Management Zone</b>	heritage sites and other culturally
	significant features from fire.
	Strategies
	As far as possible maintain fire regimes
	within specified intervals.
	As far as possible implement specified
	threatened species management
	guidelines.
	As far as possible implement cultural
	heritage management guidelines.
	HMZ 3.

### **Assets and Fire Fuels**



### This map illustrates fire fuels and the location of assets for use in bushfire suppression operations.

Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
F5- Permian Macquarie Grassy Forest	Minimum interval = 10 years Maximum interval = 50 years	2000 (6.32%)	High bushfire behaviour potential.
F4- Sydney Sandstone	Minimum interval = 7 years		Moderate bushfire behaviour potential.
Sheltered Dry Forest	Maximum interval = 35 years	Unknown	
F6- Permian Macquarie Paperbark Gully Forest			Low bushfire behaviour potential.
		Unknown	
F8- Estuarine swamp	Fire should be avoided		Moderate bushfire behaviour potential.
Oak Forest		Unknown	

The statutory fire season occurs between 1 October and 31 March. This may be extended if weather conditions lead to increased fire danger outside of this period. Prescribed burning in this area is normally undertaken in spring and

#### Canaval Onavational Cuidalin

Issue / Area	Operational Guidelines
Containment Line	Use existing tracks and trails where possible.
Construction	Avoid steep terrain if possible.
	Wherever possible locate containment lines to avoid leaving unburnt fuels down
	slope.
Smoke Management	Close roads if smoke or fire fighting operations are likely to cause a traffic hazard
Ü	Notify neighbours of potential smoke hazard.
Aerial Ignition	May be used where considered appropriate.
Backburning	As far as possible, backburning should take into account threatened species and
2 wone willing	cultural heritage guidelines.
	<ul> <li>On days when the fire danger &gt; High, as far as possible, delay backburning until la</li> </ul>
	afternoon – early evening when the temperature is decreasing and humidity
	increasing.
	<ul> <li>Backburning may be safely undertaken during the day when the fire danger is &lt;</li> </ul>
	High
Water Bombing	<ul> <li>Can be used to slow the spread of a fire, unlikely to extinguish a fire without supp</li> </ul>
Water Bomonig	from ground crews.
	• Ground crews must be warned of and be well clear of aerial bombing operations.
	Aerial bombing may be used to cool down hot spots, to catch spot fires or to slow
	the rate of spread of fire to increase the time available to undertake other suppress
	activities.
Tracks & Trails	Primary Trail- are not identified in this plan.
Trucks & Truits	Secondary Fire Trails – can be used for control in either fire suppression or
	mitigation operations, is of a moderate standard and provides for Category 7/9 light
	fire tankers.
	Dormant Trails— is a previously existing fire trail or temporary trail used for
	previous fire suppression (or other) operations that is now closed. Minimum work
	required to reopen the trail.
Visitor Management	Close roads if smoke or fighting operations are likely to cause a traffic hazard.
v roreor ryamingerment	Notify neighbours of potential smoke hazard.
	Check and evacuate walking trails, known camping and picnic sites within and
	adjacent to the fire area.
	Close park to the public when it is considered necessary due to conditions, which
	create a very high to extreme fire danger, or during fire fighting operations.
Restoration	All new fire breaks will be restored as part of the fire suppression operation.
restoration	Should be addressed in an incident-action plan, which is compiled in accordance
	with the Fire Management Manual.
	All new firebreaks will be restored as part of the fire suppression operation.
Earth Moving	Can only be used with consent of NPWS and only if the probability of success is
Equipment	considered high.
- quipinoit	<ul> <li>As far as possible, restrict use to routes and other previously disturbed areas.</li> </ul>
	<ul> <li>As far as possible, restrict use to routes and other previously disturbed areas.</li> <li>Subject to operational constraints, minimise the length of break constructed</li> </ul>
	Known threatened species locations and cultural heritage sites must not be disturbed and all personnel involved in control line construction must be briefed on threaten
	and all personnel involved in control line construction must be briefed on threaten
	species and cultural heritage sites locations.  The route to be taken should be checked for heritage items prior to the use of
	• The route to be taken should be checked for heritage items prior to the use of
	machinery, preferably by a specialist officer.

# **Bushfire Suppression** Information 2005 / 2006

The information in this section will be updated annually based on fire history and completed fire management works.

#### **Threatened Flora Management Strategies**

ID	Species Name	Fire Management Strategies
FL1	Angophora inopina Status - Vulnerable	<ul> <li>Avoid high intensity fires.</li> <li>Maintain a fire free interval of &gt;10 years.</li> </ul>
FL2	Tetratheca juncea Status - Vulnerable	<ul> <li>Avoid high frequency fires within known habitat.</li> <li>Maintain a fire free interval of at leat 15 years once in 100 years.</li> <li>Avoid trail construction, ground disturbance in known locations.</li> </ul>

#### **Aboriginal Heritage Management Strategies**

Site Types	Fire Management Strategies
Middens have	Avoid all ground disturbance including the use of
been identified on	earth moving machinery, handline construction and
the lake's	driving over sites.
foreshore.	Avoid water bombing which may cause ground
	disturbance.
	Site may be burnt by bushfire, back burn or
	prescribed burn without damage.

### **Threatened Fauna Management Strategies**

The Myuna Bay portion provides suitable habitat for the following species. They have been observed in areas adjoining the portion and it is likely these species could utilise its resources. Management of the portion will incorporate the following fire management strategies.

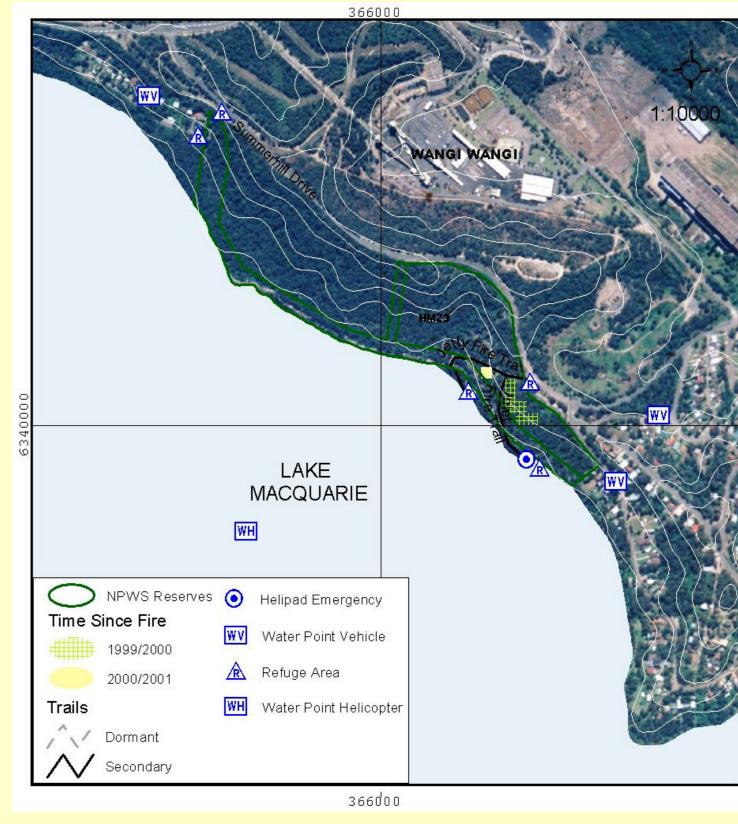
Species Name	Fire Management Strategies
Petaurus norfolcensis Squirrel Glider Status: Vulnerable	<ul> <li>Protect hollow bearing trees in locations where this species is known to occur.</li> <li>Avoid fire, machinery around known nests during breeding season (June-November).</li> <li>Utilise mosaic burn in habitat.</li> </ul>
Miniopterus schreibersii oceanensis Eastern Bent-wing Bat	<ul> <li>No slashing, trittering or tree removal.</li> <li>No fire around known roost sites (caves).</li> <li>No fire, machinery around known</li> </ul>
Status - Vulnerable  Miniopterus australis  Little Bentwing-bat  Status: Vulnerable	<ul> <li>maternity caves.</li> <li>No fire around known roost sites (caves / tunnels / tree hollows).</li> </ul>
Status. Vumerable	<ul> <li>No fire, smoke or machinery around known nursery / hibernating caves.</li> <li>Avoid frequent fires in heathland habitat.</li> </ul>

### Fire Suppression Strategies

Low – Mod FFDI: 0-12)	•	Subject to crew safety, undertake indirect, parallel or direct attack along existing control lines with the aim of minimising the area burnt without threatening values.
11 D1. 0-12)	•	Identify and survey alternate 'backup' containment lines.
	•	Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.
	•	If values are threatened or the fire danger is forecast to be >= High, then the construction of new control lines may be required.
	•	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.
		<u>Important</u>
		Important  **Crew safety should always be the first priority**
High or above	•	
_	•	**Crew safety should always be the first priority**  Subject to crew safety undertake indirect attack along existing control lines, and where
above	•	**Crew safety should always be the first priority**  Subject to crew safety undertake indirect attack along existing control lines, and where necessary, newly constructed control lines to link up existing control lines.  Subject to crew safety, secure and deepen control lines along the next predicted
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\*\*Crew safety should always be the first priority\*\* Ensure there is sufficient time to secure control lines before the fire reaches them. If there is not sufficient time to secure control lines, fall back to the next potential control

## **Fire Control Advantages**



This map illustrates fire control advantages that may be used during bushfire suppression operations



# Lake Macquarie State Conservation Area POSTER 3-WANGI POINT

FIRE MANAGEMENT STRATEGY 2005 - 2006

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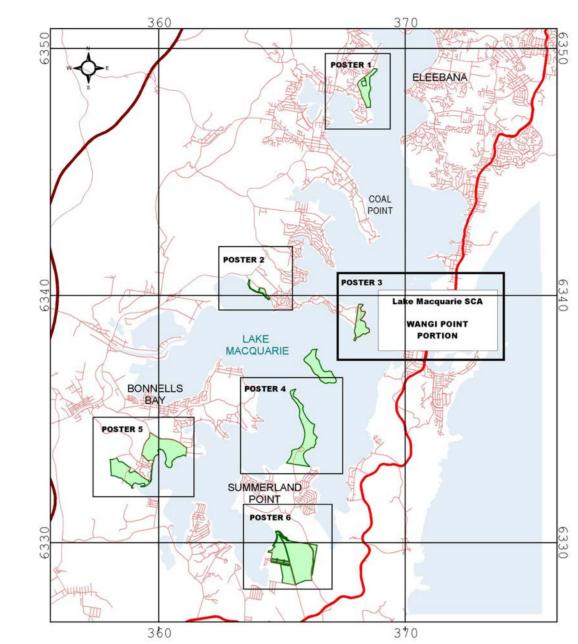
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Wangi Point Tourist Park		4975 1889

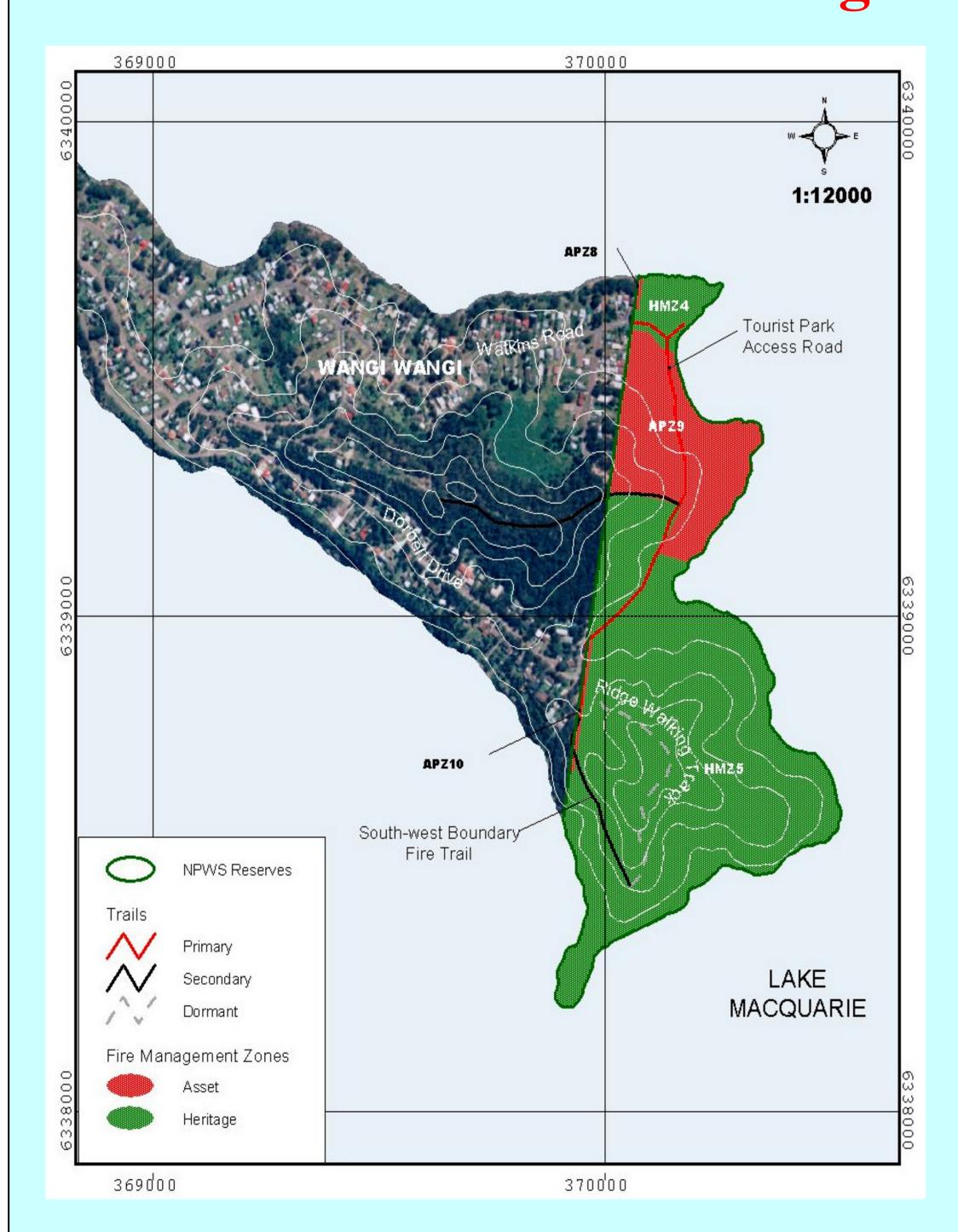
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Communication Res	sources
Service	Chan

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UBD Map	Map 177 (Newcastle)
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Contour interval	10 metres

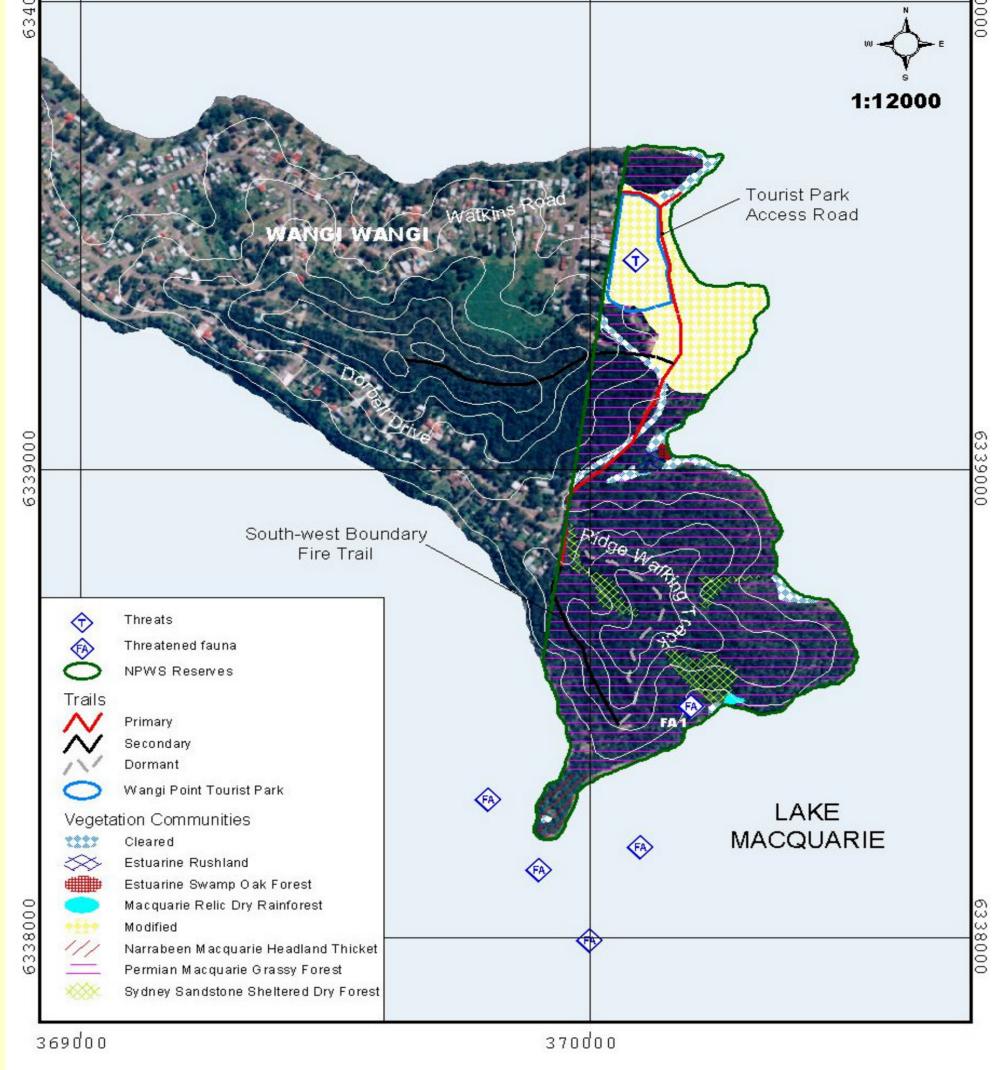
# Bushfire Risk Management Strategies



# **Bushfire Risk Management Strategies**

Fire Management Zone	<ul> <li>Objectives</li> <li>To protect human life, including permanent resident visitors and fire fighters from bushfires.</li> <li>To protect identified high risk assets which may incresidential areas, utilities, camping areas, day use ar urban interface, cultural heritage sites and other buil assets.</li> <li>Strategies</li> <li>To initiate, where appropriate community education and community fireguard programs.</li> <li>APZ 8, 9, 10 – Monitor fuel levels and maintain fuel level at or below15 t / ha. Implement fuel reduction program (mechanical) if required.</li> </ul>		
Asset Protection Zone			
Heritage Management Zone	<ul> <li>Objectives</li> <li>To prevent the extinction of all species which are known to occur naturally within NPWS parks and reserves (conserve biodiversity).</li> <li>To protect Aboriginal sites, historic heritage sites and other culturally significant features from fire.</li> <li>Strategies</li> <li>As far as possible maintain fire regimes within specified intervals.</li> <li>As far as possible implement specified threatened species management guidelines.</li> <li>As far as possible implement cultural heritage management guidelines.</li> <li>HMZ's 4,5.</li> </ul>		

# **Assets and Fire Fuels**



### This map illustrates fire fuels and the location of assets for the use in bushfire suppression operations

# **Bushfire Suppression** Information 2005 / 2006

The information in this section will be updated annually based on fire history impleted fire management works.

ID	Species Name	Management Strategies Fire Management Strategies
FA1	Phascolarctos cinereus Koala Status - Vulnerable	<ul> <li>Utilise mosaic burns of low intensi known or potential habitat.</li> <li>Avoid the use of fire, smoke and machinery in known locations duri breeding season (October – March)</li> </ul>
Aboı	riginal Heritago	e Management Strategies
	Site Types	e Management Strategies Fire Management Strategies
Midder	Site Types as have been	<ul> <li>Fire Management Strategies</li> <li>Avoid all ground disturbance inclu</li> </ul>
Midder identifi	Site Types as have been ed on the lake's	<ul> <li>Fire Management Strategies</li> <li>Avoid all ground disturbance inclute the use of earth moving machinery</li> </ul>
Midder	Site Types as have been ed on the lake's	<ul> <li>Fire Management Strategies</li> <li>Avoid all ground disturbance inclute the use of earth moving machinery</li> </ul>
Midder identifi	Site Types as have been ed on the lake's	<ul> <li>Fire Management Strategies</li> <li>Avoid all ground disturbance inclute the use of earth moving machinery handline construction and driving of the strategies</li> </ul>

### ire Season Information

The statutory fire season occurs between 1 October and 31 March. This may be extended if weather conditions lead to increased fire danger outside of this period. Prescribed burning in this area is normally undertaken in spring and Autumn.

<ul> <li>Low – Mod (FFDI: 0-12)</li> <li>Subject to crew safety, undertake indirect, parallel or direct attack along existing control lines with the aim of minimising the area burnt without threatening values.</li> <li>Identify and survey alternate 'backup' containment lines.</li> <li>Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.</li> <li>If values are threatened or the fire danger is forecast to be the fire gets to them.</li> <li>Ensure there is sufficient time to secure control lines better the fire gets to them.</li> <li>If there is insufficient time to secure control lines, fall bette to the next potential control line.</li> <li>Important         <ul> <li>**Crew safety should always be the first priority**</li> </ul> </li> <li>Subject to crew safety undertake indirect attack along existing control lines, and where necessary, newly constructed control lines to link up existing control lines at the next predicted downwind side of the fire.</li> <li>Subject to crew safety, secure and deepen control lines at the next predicted downwind side of the fire.</li> <li>Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.</li> <li>Identify and survey alternate 'backup' containment lines.</li> <li>Important</li> <li>**Crew safety should always be the first priority**</li> <li>Ensure there is sufficient time to secure control lines before.</li> </ul>	Fire Danger	oression Strategies Guidelines
#*Crew safety should always be the first priority**  High or above (FFDI: >12)  • Subject to crew safety undertake indirect attack along existing control lines, and where necessary, newly constructed control lines to link up existing control lines the next predicted downwind side of the fire.  • Subject to crew safety, secure and deepen control lines at the next predicted downwind side of the fire.  • Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.  • Identify and survey alternate 'backup' containment lines are the safety should always be the first priority**  Ensure there is sufficient time to secure control lines before		<ul> <li>attack along existing control lines with the aim of minimising the area burnt without threatening values.</li> <li>Identify and survey alternate 'backup' containment lines.</li> <li>Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.</li> <li>If values are threatened or the fire danger is forecast to be &gt;= High, then the construction of new control lines may be required.</li> <li>Ensure there is sufficient time to secure control lines before the fire gets to them.</li> <li>If there is insufficient time to secure control lines, fall back</li> </ul>
**Crew safety should always be the first priority**  High or above (FFDI: >12)  • Subject to crew safety undertake indirect attack along existing control lines, and where necessary, newly constructed control lines to link up existing control lines the next predicted downwind side of the fire.  • Subject to crew safety, secure and deepen control lines the next predicted downwind side of the fire.  • Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.  • Identify and survey alternate 'backup' containment lines to secure control lines before the first priority**  Ensure there is sufficient time to secure control lines before		
<ul> <li>High or above (FFDI: &gt;12)</li> <li>Subject to crew safety undertake indirect attack along existing control lines, and where necessary, newly constructed control lines to link up existing control lines at the next predicted downwind side of the fire.</li> <li>Subject to crew safety, secure and deepen control lines at the next predicted downwind side of the fire.</li> <li>Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.</li> <li>Identify and survey alternate 'backup' containment lines.</li> <li>Important</li> <li>**Crew safety should always be the first priority**</li> <li>Ensure there is sufficient time to secure control lines before</li> </ul>		
**Crew safety should always be the first priority** Ensure there is sufficient time to secure control lines before	above	<ul> <li>Subject to crew safety undertake indirect attack along existing control lines, and where necessary, newly constructed control lines to link up existing control lines.</li> <li>Subject to crew safety, secure and deepen control lines along the next predicted downwind side of the fire.</li> <li>Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.</li> </ul>
Ensure there is sufficient time to secure control lines before		<u>Important</u>
fire reaches them.		**Crew safety should always be the first priority** Ensure there is sufficient time to secure control lines before the fire reaches them.

the next potential control line.

Fire Interval Guidelines, Fuels & Fire Behaviour **Characteristics for Vegetation Communities** 

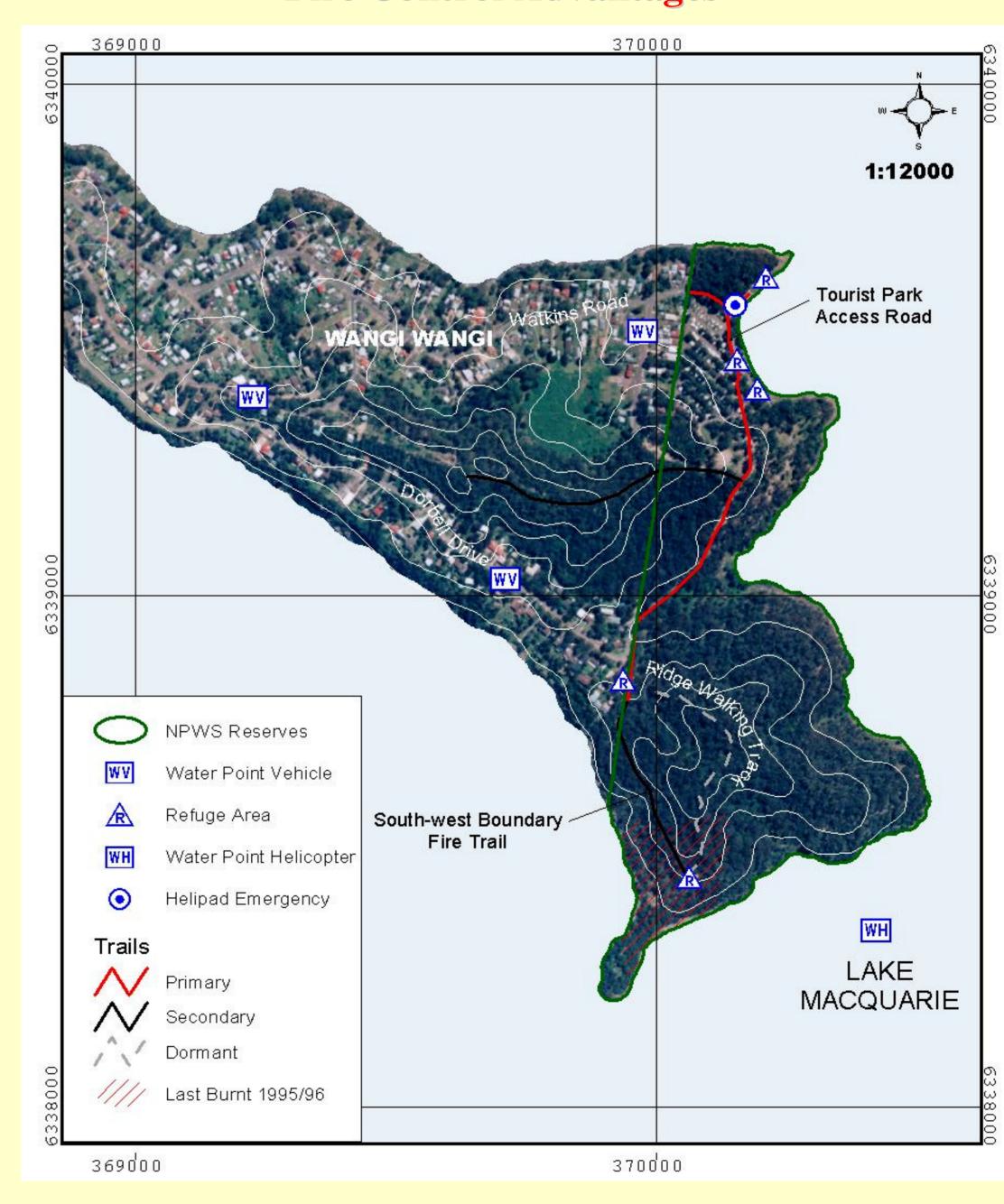
Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
R1 - Macquarie Relic	Fire should be avoided	Unknown	Low bushfire behaviour potential.
Dry Rainforest			
F8 - Estuarine swamp		Unknown	Moderate bushfire behaviour potential.
Oak Forest			
RL1 - Estuarine		Unknown	Low bushfire behaviour potential.
Rushland			
S1 - Narrabeen		Unknown	Moderate bushfire behaviour potential.
Macquarie Headland			
Thicket			

General Operational Guidelines	,

Issue / Area	Operational Guidelines	
Containment Line	Use existing tracks and trails where possible.	
Construction	Avoid steep terrain if possible.	
	Wherever possible locate containment lines to avoid leaving unburnt fuels down slope.	
Smoke Management	Close roads if smoke or fire fighting operations are likely to cause a traffic hazard.	
	Notify neighbours of potential smoke hazard.	
Aerial Ignition	May be used where considered appropriate.	
Backburning	<ul> <li>As far as possible, backburning should take into account threatened species and cultural heritage guidelines.</li> <li>On days when the fire danger &gt; High, as far as possible, delay backburning until late afternoon – early evening when the temperature is decreasing and humidity increasing.</li> </ul>	
Water Bombing	Backburning may be safely undertaken during the day when the fire danger is < High      Can be used to slow the spread of a fire unlikely to extinguish a fire without support from ground grows.	
water bollioning	<ul> <li>Can be used to slow the spread of a fire, unlikely to extinguish a fire without support from ground crews.</li> <li>Ground crews must be warned of and be well clear of aerial bombing operations.</li> </ul>	
	<ul> <li>Aerial bombing may be used to cool down hot spots, to catch spot fires or to slow the rate of spread of fire to increase the time available to undertake other suppression activities.</li> </ul>	
Tracks & Trails	Primary Fire Trails- considered to be either of strategic importance and/or is a primary feeder route to a network of secondary trails and is large enough to provide for Category 1 tankers.	
	<ul> <li>Secondary Fire Trails – can be used for control in either fire suppression or mitigation operations, is of a moderate standard and provides for Category 7/9 light fire tankers.</li> </ul>	
	Dormant Trails— is a previously existing fire trail or temporary trail used for previous fire suppression (or other) operations that is now closed. Minimum work is required to reopen the trail.	
Visitor Management	Close roads if smoke or fighting operations are likely to cause a traffic hazard.	
	Notify neighbours of potential smoke hazard.	
	Check and evacuate walking trails, known camping and picnic sites within and adjacent to the fire area.	
	• Close park to the public when it is considered necessary due to conditions, which create a very high to extreme fire danger, or during fire fighting operations.	
Restoration	<ul> <li>All new fire breaks will be restored as part of the fire suppression operation.</li> </ul>	
Restoration	<ul> <li>Should be addressed in an incident-action plan, which is compiled in accordance with the Fire Management Manual.</li> </ul>	
	<ul> <li>All new firebreaks will be restored as part of the fire suppression operation.</li> </ul>	
Earth Moving	• Can only be used with consent of NPWS and only if the probability of success is considered high.	
Equipment	<ul> <li>As far as possible, restrict use to routes and other previously disturbed areas.</li> </ul>	
	Subject to operational constraints, minimise the length of break constructed	
	Known threatened species locations and cultural heritage sites must not be disturbed and all personnel	
	involved in control line construction must be briefed on threatened species and cultural heritage sites	
	locations.	
	The route to be taken should be checked for heritage items prior to the use of machinery, preferably by a specialist officer.	
Foams, Wetting	Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional	
Agents, Retardants	Operations Coordinator -NPWS).	
	Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and SEPP14 Wetlands).	
Command & Control	ICS system will be implemented during all fire suppression activities	
Fire Advantage	• All fire advantages used during fire suppression operations are to be mapped so that they can be added to the	
Recording	regional database (reports to be sent to the Regional Fire Management Officer).	
Foams, Wetting Agents, Retardants	• Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional	
Agents, Netalualits	Operations Coordinator (NPWS)).	

Vegetation Community	Fier Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
C - Cleared	Not applicable		
F5 - Permian	Minimum interval: 10 years	Unknown	High bushfire behaviour potential.
Macquarie Grassy	Maximum interval: 50 years		
Forest			
F4- Sydney Sandstone	Minimum interval: 7 years	Unknown	Moderate bushfire behaviour potential.
Sheltered Dry Forest	Maximum interval: 35 years		

# Fire Control Advantages



This map illustrates fire control advantages that may be used during bushfire suppression operations



# Lake Macquarie State Conservation Area POSTER 4 -POINT WOLSTONCROFT FIRE MANAGEMENT STRATEGY 2005 - 2006

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# Contacts & Communications

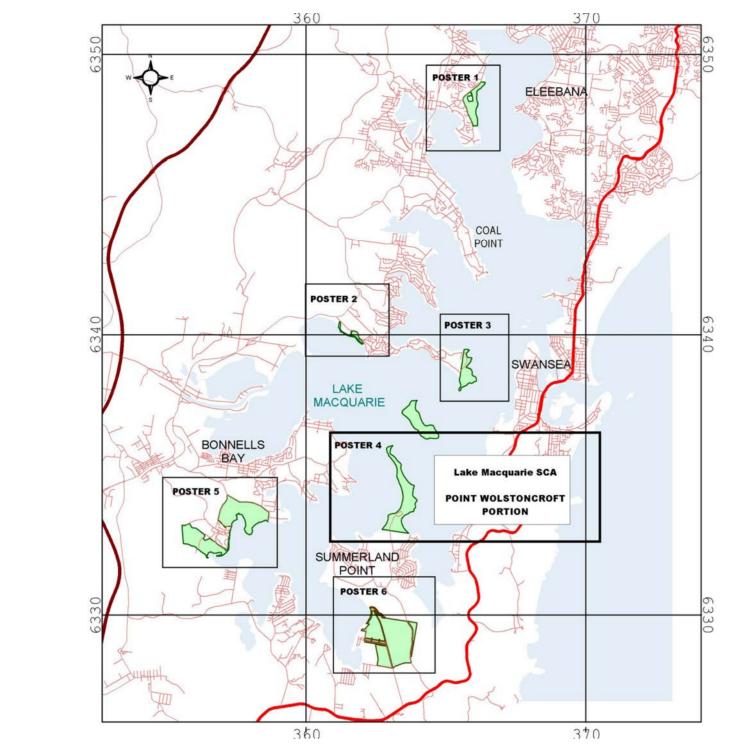
### Contact Datails

ISBN 1741222052

Agency	Position	Number
NSW National Parks &	Duty Officer	4320 4255
Wildlife Service	Regional Manager	4320 4201 / 0428 218 015
Central Coast Hunter Range	Regional Operations	4320 4232 / 0418 433 203
Region (CCHRR)	Coordinator	
	Lakes Area Office	4358 0400
	Gosford Regional Office	4320 4200
Rural Fire Service	Duty Officer / Emergency	4393 3530
	Wyong Fire Control Centre	4350 5480
SES	District Emergency	4937 2912 / 0417 416 590
	Management Officer	
	Wyong Shire	4351 2244
Police	The Entrance	4332 6222
	Toukley	4390 1299
Ambulance	Bookings	131 233
	Emergency	000
Hospital	Wyong	4393 8000
Council	Wyong Shire Council	4350 5555
Pt. Wolstoncroft Sport and		4976 1666 / 1800 819 244
Recreation Camp		

### Communication Resources

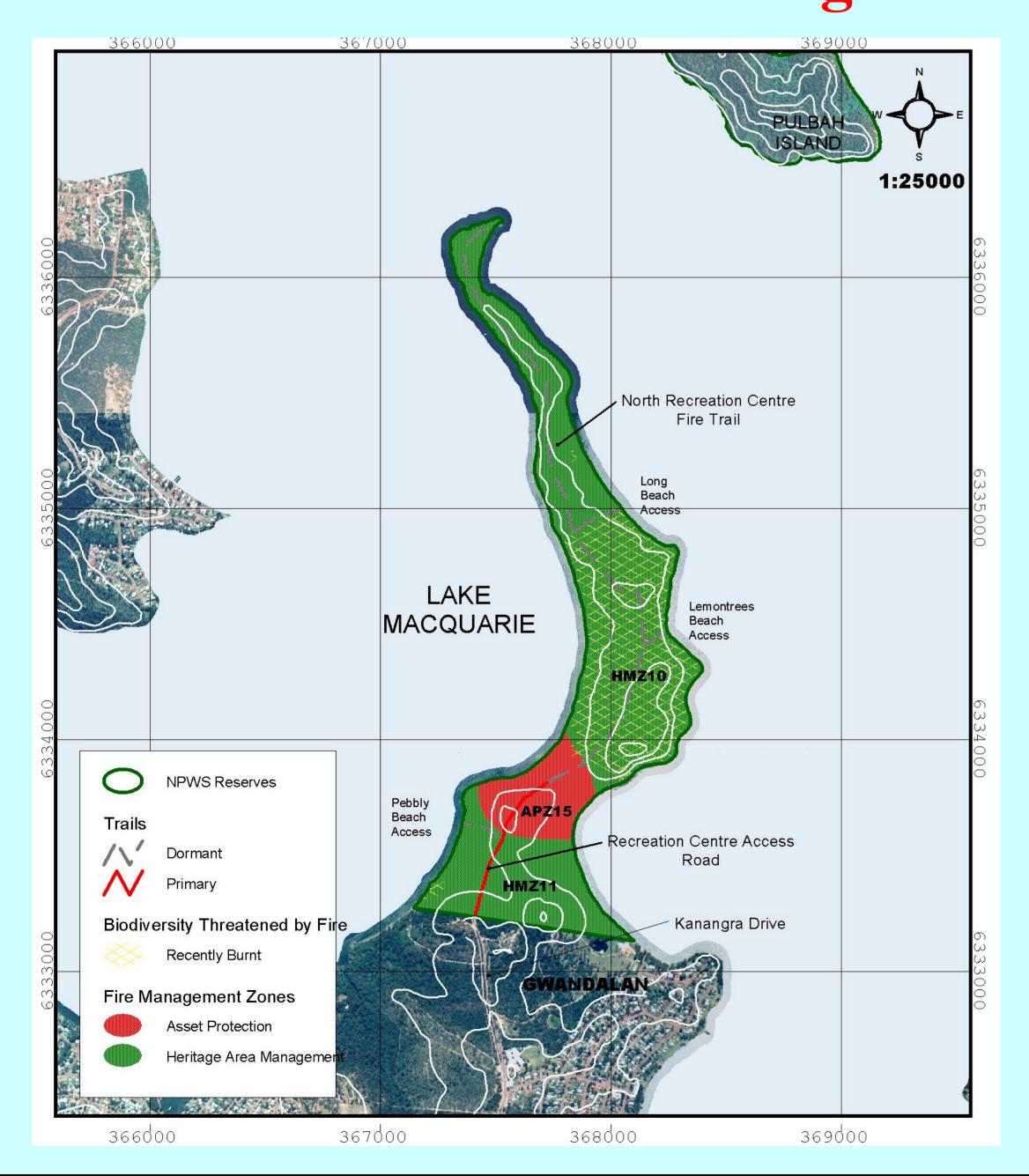
Communication K	esources	
Service	Channel	<b>Location / Comments</b>
NPWS – VHF	27 /24	Mangrove / Warrawalong
RFS – PMR	Main – 58	Wyong
(Fire Control Centre)	Other – 22	
RFS – GRN	193	Wyong
(Fire Control Centre)		
UHF – CB		Good
Mobile Phone Coverage		Good
Satellite Phone	118 7276 1881 578	The region has one satellite
		phone



Date approved 24 March 2006

Projection	UTM AGD 1966
	To convert AGD66 to GDA94
	Latitude – Decrease by 5.7 seconds
	Longitude – Increase by 4.1 seconds
	Northing – Increase by 190 metres
	Easting – Increase by 104 metres
Air Photo	(GIS: Lake_macquarie_air.sid,
	Mannering_air.sid)
1: 25 000 Topography Map	Catherine Hill Bay 9231-3-N
	Swansea 9231-4-N
	(GIS: Swansea.sid, Catherinehill.sid)
UBD Map	Map 185 (Newcastle)
	(GIS: Ubd_morisset.tif, Ubd_toukley.tif)
Contour Interval	10 metres

# Bushfire Risk Management Strategies



# **Bushfire Risk Management Strategies**

Management Zone	
Asset	<ul> <li>Objectives</li> <li>To protect human life, including permanent residents, visitors and fire fighters from bushfires.</li> </ul>
Protection Zone	• To protect identified high- risk assets which may include residential areas, utilities, camping areas, day use areas, urban interface, cultural heritage sites and other built assets.
	Strategies
	To initiate, where appropriate community
	education and community fireguard programs.
	APZ 15 – Dept. Sport &Recreation to mow / slash
	existing cleared area on a quarterly basis.
	Objectives
	To prevent the extinction of all species which

## from fire. • As far as possible maintain fire regimes

Management

#### within specified intervals. As far as possible implement specified threatened species management guidelines. As far as possible implement cultural heritage management guidelines. **HMZ's 10, 11**

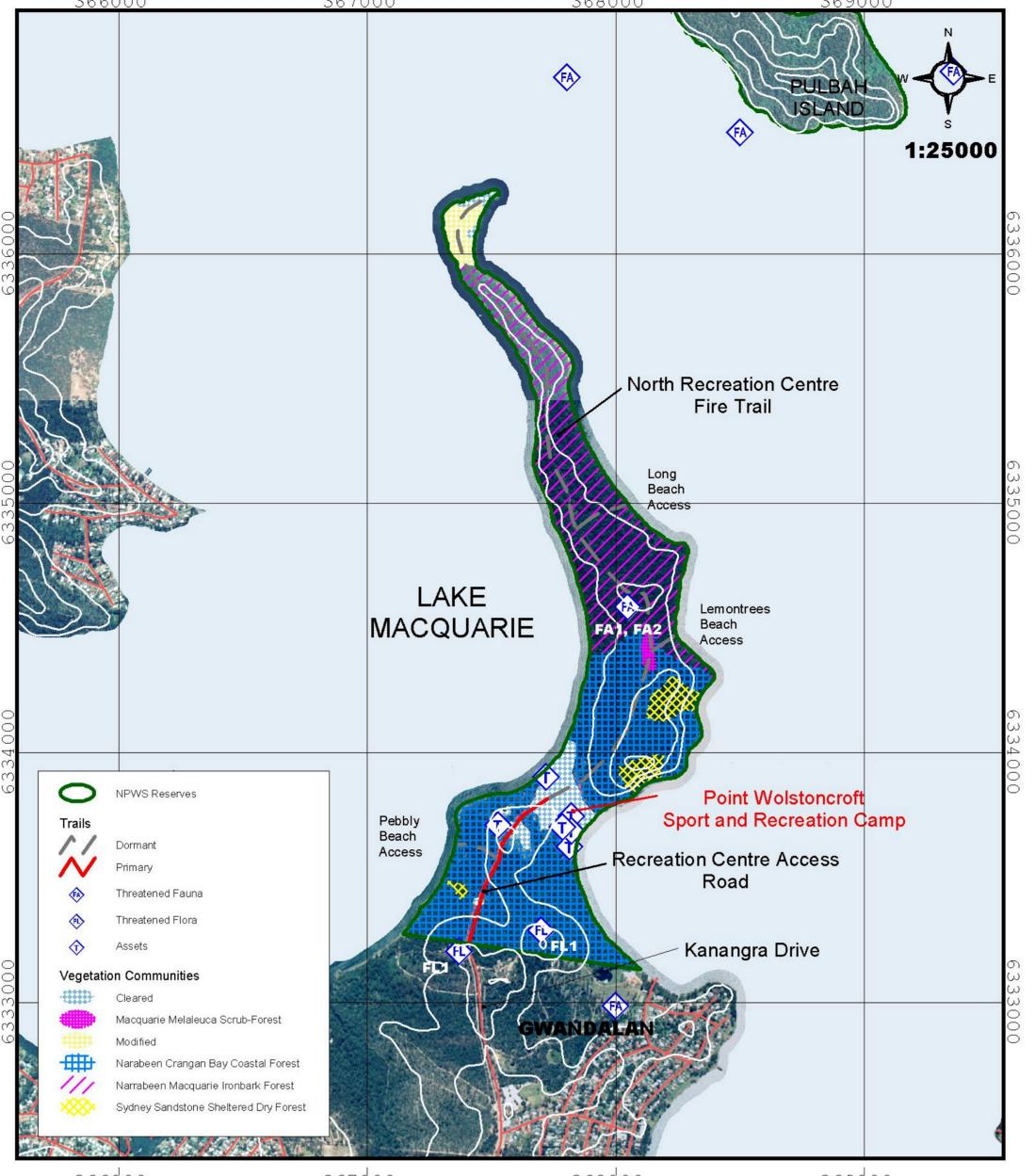
are known to occur naturally within NPWS

parks and reserves (conserve biodiversity).

To protect Aboriginal sites, historic heritage

sites and other culturally significant features

## **Assets and Fire Fuels**



# This map illustrates fire fuels and the location of assets for use in bushfire suppression operations.

**Operational Guidelines** 

• As far as possible, backburning should take into account threatened species and cultural heritage guidelines.

• Can be used to slow the spread of a fire, unlikely to extinguish a fire without support from ground crews.

Aerial bombing may be used to cool down hot spots, to catch spot fires or to slow the rate of spread of fire to

Dormant Trails- is a previously existing fire trail or temporary trail used for previous fire suppression (or

Check and evacuate walking trails, known camping and picnic sites within and adjacent to the fire area.

Close park to the public when it is considered necessary due to conditions, which create a very high to extreme

Should be addressed in an incident-action plan, which is compiled in accordance with the Fire Management

• Can only be used with consent of NPWS and only if the probability of success is considered high.

Known threatened species locations and cultural heritage sites must not be disturbed and all personnel

involved in control line construction must be briefed on threatened species and cultural heritage sites

The route to be taken should be checked for heritage items prior to the use of machinery, preferably by a

• Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional

Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and

All fire advantages used during fire suppression operations are to be mapped so that they can be added to the

Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional

• Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and

On days when the fire danger > High, as far as possible, delay backburning until late afternoon – early evening

• Wherever possible locate containment lines to avoid leaving unburnt fuels down slope.

Backburning may be safely undertaken during the day when the fire danger is < High

Ground crews must be warned of and be well clear of aerial bombing operations.

Tracks & Trails • Primary Fire Trails- considered to be either of strategic importance and/or is a primary feeder route to a

network of secondary trails and is large enough to provide for Category 1 tankers.

other) operations that is now closed. Minimum work is required to reopen the trail.

• All new fire breaks will be restored as part of the fire suppression operation.

All new firebreaks will be restored as part of the fire suppression operation.

As far as possible, restrict use to routes and other previously disturbed areas.

Subject to operational constraints, minimise the length of break constructed

regional database (reports to be sent to the Regional Fire Management Officer).

increase the time available to undertake other suppression activities.

## Fire Interval Guidelines, Fuels & Fire Behaviour Characteristics for

**General Operational Guidelines** 

Issue / Area

Containment Line

Construction

Aerial Ignition

Water Bombing

Restoration

Earth Moving

Foams, Wetting

Fire Advantage

Foams, Wetting

Agents, Retardants

Agents, Retardants

Equipment

Backburning

Vegetation (	Communities		
Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
F2- Narrabeen	Minimum interval:	2002 (36.2%)	Moderate bushfire behaviour potential.
Crangan Bay	7 years.	1998 (0.9%)	
Coastal Forest	Maximum interval:	1996 (0.11%)	
S2- Macquarie	35 years.	2002 (95.49%)	Moderate bushfire behaviour potential.
Melaleuca Scrub-			
Forest			
F1- Narrabeen		2002 (48.6%)	Moderate bushfire behaviour potential.
Macquarie			
Ironbark Forest			

• Use existing tracks and trails where possible.

• Notify neighbours of potential smoke hazard.

May be used where considered appropriate.

Smoke Management • Close roads if smoke or fire fighting operations are likely to cause a traffic hazard.

when the temperature is decreasing and humidity increasing.

• Secondary Fire Trails – are not identified in this plan.

Visitor Management • Close roads if smoke or fighting operations are likely to cause a traffic hazard.

Notify neighbours of potential smoke hazard.

fire danger, or during fire fighting operations.

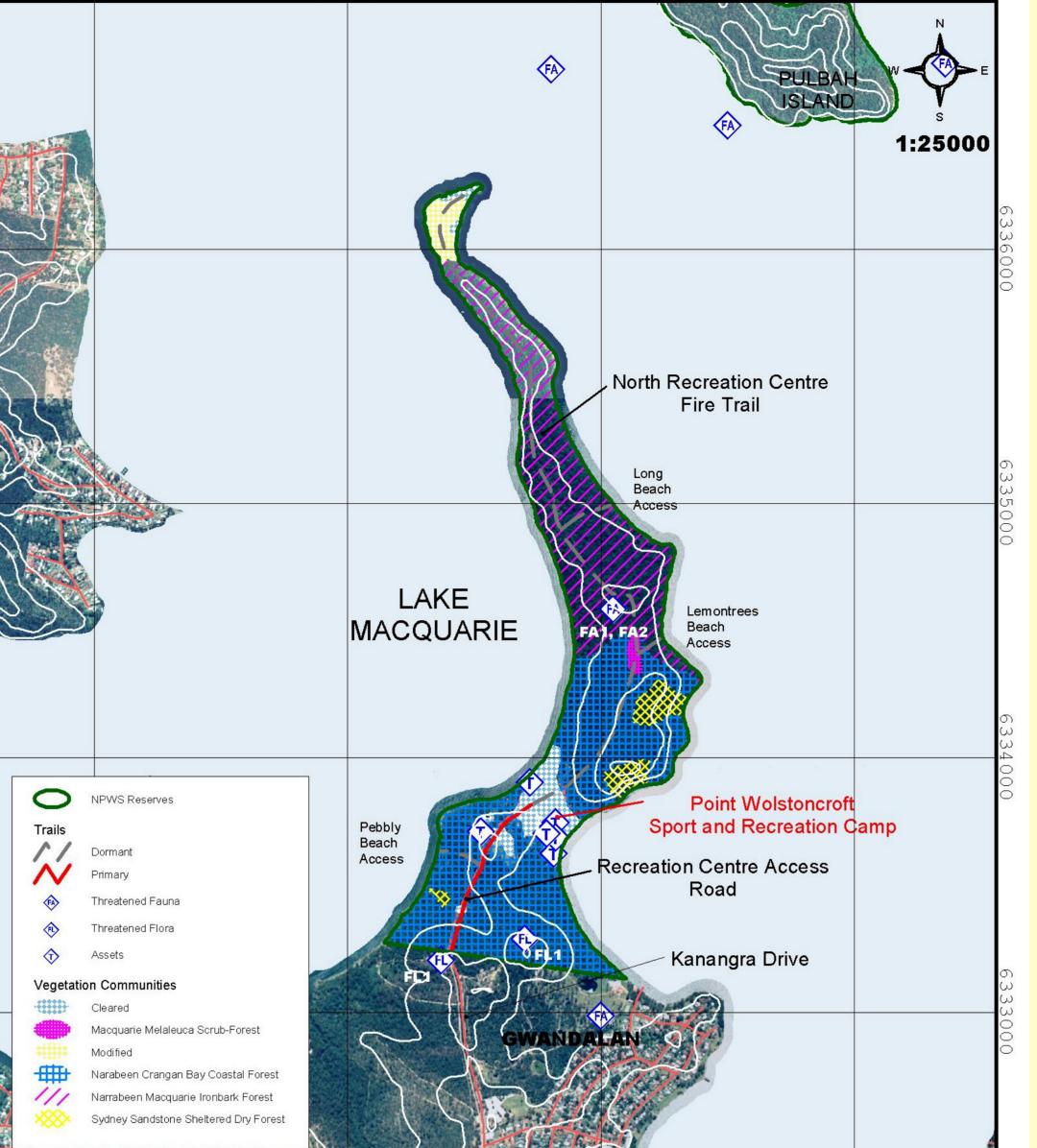
Operations Coordinator -NPWS).

Operations Coordinator (NPWS)).

Command & Control • ICS system will be implemented during all fire suppression activities

SEPP14 Wetlands).

Avoid steep terrain if possible.



# **Bushfire Suppression** Information

2005 / 2006

The information in this section will be updated annually based on fire history

and completed fire management works.

High or

(FFDI: >12)

# Threataned Fauna Management Strategies

ınr	Inreatened Fauna Management Strategies				
ID	Species Name	Fire Management Strategies			
FA1	Miniopterus australis Little Bentwing-bat Status - Vulnerable	<ul> <li>No fire around known roost sites (caves / tunnels / tree hollows).</li> <li>No fire, smoke or machinery around known nursery / hibernating caves.</li> <li>Avoid frequent fires in heathland habitat.</li> </ul>			
FA2	Miniopterus schreibersii oceanensis Eastern Bent-wing Bat Status - Vulnerable	<ul> <li>No fire around known roost sites (caves).</li> <li>No fire, machinery around known maternity caves.</li> </ul>			

## Threatened Flora Management Strategies

ID Species Name Fi	ire Management Strategies
FL1 Status - Vulnerable with the wind wind with the wind wind with the wind wind wind wind with the wind wind wind wind wind wind with the wind wind wind wind wind wind wind wind	void high frequency fires within known habitat. Itaintain a fire free interval of 15 years once in 100 years. Evoid trail construction, ground isturbance in known location.

### **Aboriginal Heritage Management Strategies**

Site Types Fire Management Strategies

Middens have	Avoid all ground disturbance including the
een identified	use of earth moving machinery, handline
on the lake's	construction and driving over sites.
oreshore.	<ul> <li>Avoid water bombing which may cause</li> </ul>
	ground disturbance.

### prescribed burn without damage.

• Site may be burnt by bushfire, back burn or

The statutory fire season occurs between 1 October and 31 March. This may be extended if weather conditions lead to increased fire danger outside of this period. Prescribed burning in this area is normally undertaken in spring and

### Fire Suppression Strategies

	0	
Fire Danger	Guidelines	
Low – Mod	• Subject to crew safety, undertake indirect,	
(FFDI: 0-12)	parallel or direct attack along existing control	
	lines with the aim of minimising the area burnt	
	without threatening values.	
	• Identify and survey alternate 'backup'	
	containment lines.	
	• Subject to crew safety and where possible,	
	implement threatened species and cultural	

#### If values are threatened or the fire danger is forecast to be >= High, then the construction of new control lines may be required.

heritage management guidelines.

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.

# \*\*Crew safety should always be the first priority\*\*

	<u> </u>
•	Subject to crew safety undertake indirect attac
	along existing control lines, and where necessar
	newly constructed control lines to link up
	existing control lines.

## Subject to crew safety, secure and deepen control lines along the next predicted downwind side of

Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines. Identify and survey alternate 'backup'

containment lines.

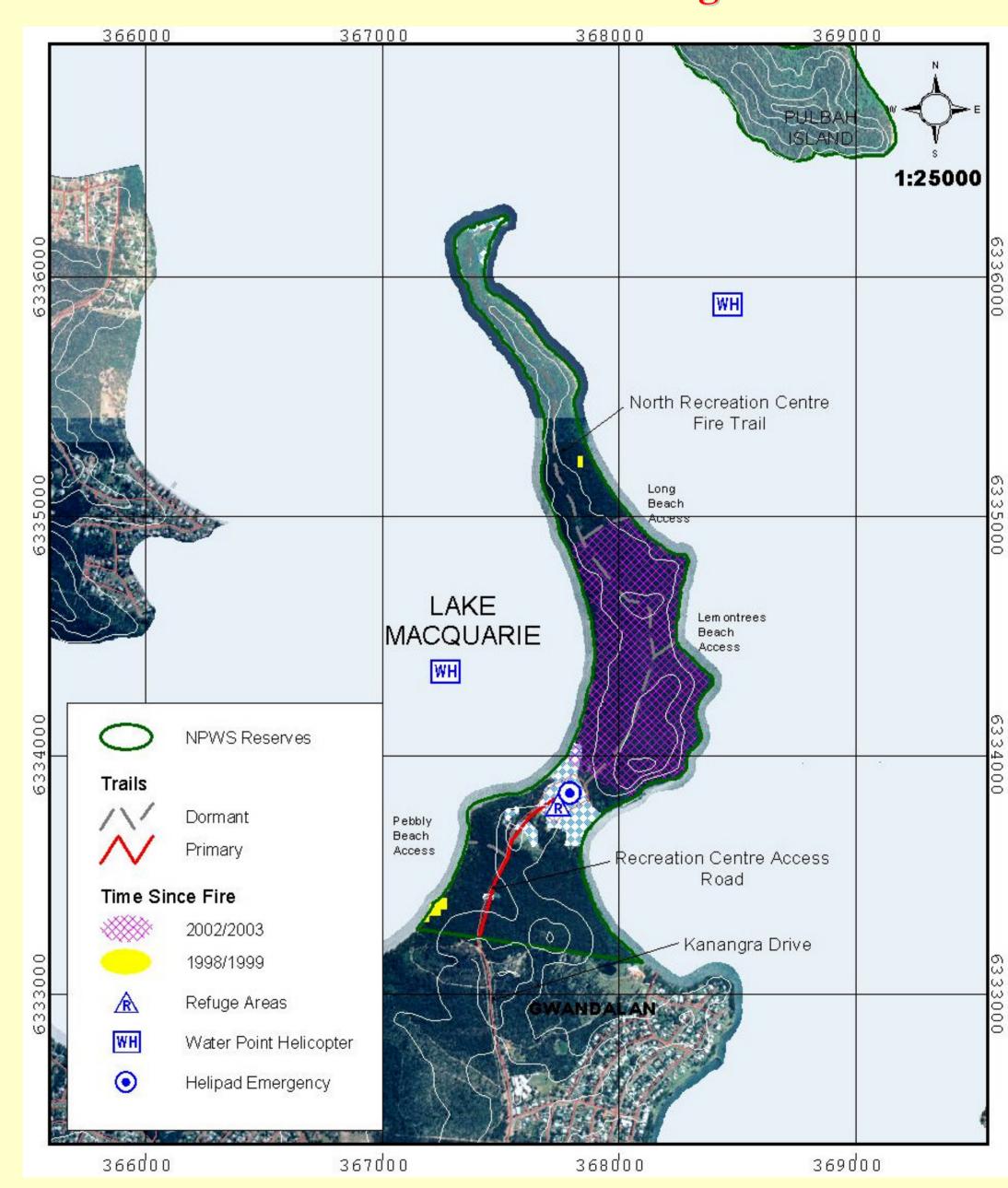
### **Important**

\*\*Crew safety should always be the first priority\*\* Ensure there is sufficient time to secure control lines before the fire reaches them. If there is not sufficient time to secure control lines,

fall back to the next potential control line.

Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
F4- Sydney	Minimum interval:	2002 (89.29%)	Moderate bushfire behaviour potential.
Sandstone	7 years.		
Sheltered Dry	Maximum interval:		
Forest	35 years.		

# Fire Control Advantages



This map illustrates fire control advantages that may be used during bushfire suppression operations.



# Lake Macquarie State Conservation Area **POSTER 5- MORISSET**

FIRE MANAGEMENT STRATEGY 2005 - 2006

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

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ISBN 1741222052

**Contacts &** 

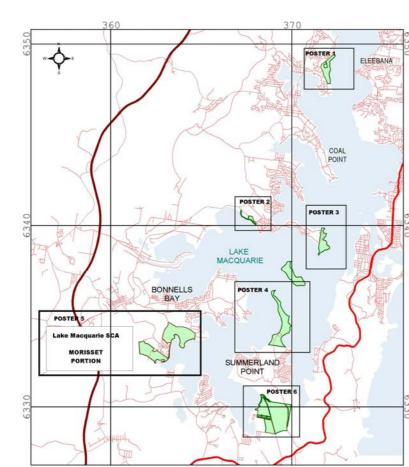
# **Communications**

#### Contact Details

Contact Details		
Agency	Position	Number
NSW National Parks &	Duty Officer	4320 4255
Wildlife Service	Regional Manager	4320 4201 / 0428 218 015
Central Coast Hunter Range	Regional Operations	4320 4232 / 0418 433 203
Region (CCHRR)	Coordinator	
_	Lakes Area Office	4358 0400
	Gosford Regional Office	4320 4200
Rural Fire Service	Duty Officer / Emergency	4955 2122 / 0418 684 681
	Lake Macquarie Fire Control	4955 2222
	Centre	
SES	District Emergency	4937 2912 / 0417 416 590
	Management Officer	
	Lake Macquarie	4921 0610
Police	Lake Macquarie	4942 9904
	Morisset	4973 1444
Ambulance	Bookings	131 233
	Emergency	000
Hospital	John Hunter	4921 3000
Council	Lake Macquarie City Council	4921 0333
Hunter Area Health Services	Morisset Hospital	4924 6500
	_	(via the Newcastle office)

#### **Communication Resources**

Service	Channel	Location / Comments
NPWS – VHF	24	Warrawalong
RFS – PMR	Main – 58	Lake Macquarie
(Fire Control Centre)	Other – 22	
RFS – GRN	195	Lake Macquarie
(Fire Control Centre)		_
UHF – CB		Good
Mobile Phone Coverage		Poor
Satellite Phone	118 7276 1881 578	The region has one satellite
		phone.



Date approved: 24 March 2006

#### **Map Details** To convert AGD66 to GDA94 Latitude – Decrease by 5.7 seconds Longitude – Increase by 4.1 seconds Northing – Increase by 190 metres Easting – Increase by 104 metres (GIS: Lake\_macquarie\_air.sid) Air Photo Catherine Hill Bay 9231-3-N Dooralong (GIS: Swansea.sid, Catherinehill.sid, Dooralong.sid) Map 7 and 11 (Central Coast) (GIS: Ubd\_morisset.tif)

# **Bushfire Risk Management Strategies**

### **Interpretation of Biodiversity Threshold Categories**

interpretation of Broaty ersity Timeshold Categories					
Category	Interpretation				
Overburnt	Protect from fire as far as possible.				
Overburnt	Past fire frequency has already exceeded biodiversity thresholds.				
	Protect from fire as far as possible.				
Vulnerable	The occurrence of fire this year will result in biodiversity thresholds				
	being exceeded.				

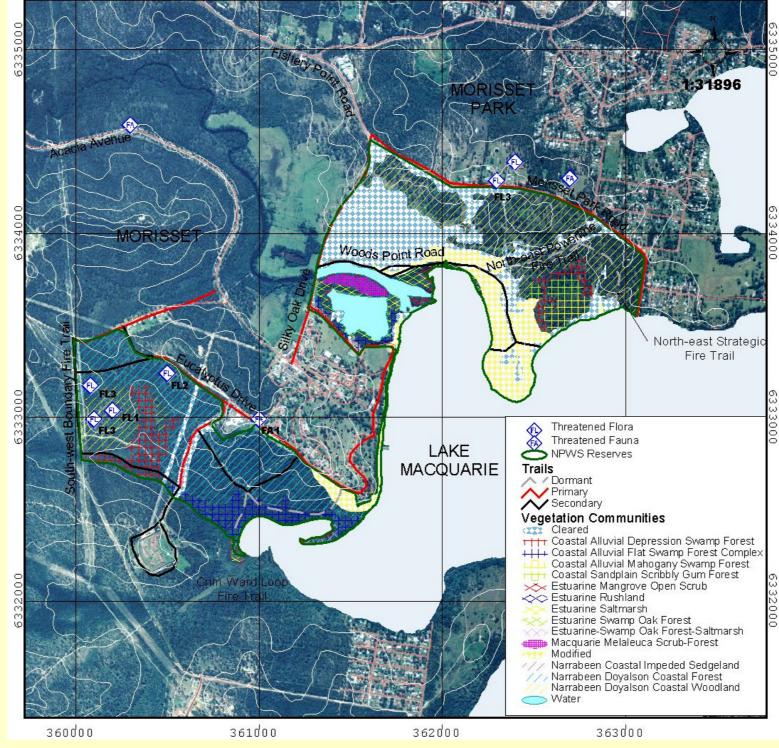
As far as possible implement cultural heritage management

HMZ's: 6, 7, 8, and 9.

#### **Bushfire Risk Management Strategies**

360000	361000	362000	363000	0	Dusinne Ki	isk management strategies
	Fist			63350	Fire Management Zone	Guidelines
Acada Avenue MOR	ISSET ISSET	MORISSE PARK  BF211  Woods Point Road  HM25	Maria STM ZZ	<b>6334000</b>	Asset Protection Zone	<ul> <li>Objectives</li> <li>To protect human life, including permanent residents, visitors and fire fighters from bushfires.</li> <li>To protect identified high risk assets which may include residential areas, utilities, camping areas, day use areas, urban interface, cultural heritage sites and other built assets.</li> <li>Strategies</li> <li>To initiate, where appropriate community education and community fireguard programs.</li> <li>APZ's 11- Lessee to mow/slash existing cleared area on a quarterly basis.</li> <li>APZ's 13 &amp;14 – Hunter Area Health Services to mow / slash existing cleared area on a quarterly basis.</li> <li>APZ 12 – NPWS to mow existing cleared area on a quarterly basis.</li> </ul>
South-west Boundary Fire Tra	AP714 Fe Com Ward Loop Fire Trail		APZ12  LAKE CQUARIE  NPWS Reserves Trails Dormant Primary Secondary Type of 50% Risk 50% Veg Type Biodiversity Threater Soverburnt and >	63 33 20 is Overburnt 00 ned by Fire	Strategic Fire Management Zone	<ul> <li>Objectives</li> <li>To reduce fire intensity and spotting distance to assist in the strategic and containment of bushfires.</li> <li>To reduce the probability of bushfires being ignited in areas of high bushfire risk.</li> <li>To compliment asset protection zones and to strengthen existing fire control advantages.</li> <li>To restrict the movement of bushfires between fire management zones.</li> <li>To restrict the movement of bushfires from other land onto NPWS parks and reserves onto neighbouring land.</li> <li>To break up large continuous areas of high bushfire behaviour potential to reduce the probability of large 'landscape' scale bushfires.</li> <li>Strategies</li> <li>SFMZ 2 – NPWS to review and maintain fuel loads at or below 15t/ha.</li> <li>SFMZ 3 – (Linear) Hunter Area Health Services to mow / slas existing cleared area on a quarterly basis.</li> </ul>
360000	361000	362000	Recently Burnt Fire Management Zo Asset Protection Heritage Area M Strategic Fire Ma	ones anagement anagement	Heritage Management	Objectives     To prevent the extinction of all species which are known to occuraturally within NPWS parks and reserves (conserve biodiversity).     To protect Aboriginal sites, historic heritage sites and other culturally significant features from fire.
					Zone	<ul> <li>Strategies</li> <li>As far as possible maintain fire regimes within specified intervals.</li> <li>As far as possible implement specified threatened species management guidelines.</li> </ul>

### **Assets and Fire Fuels**

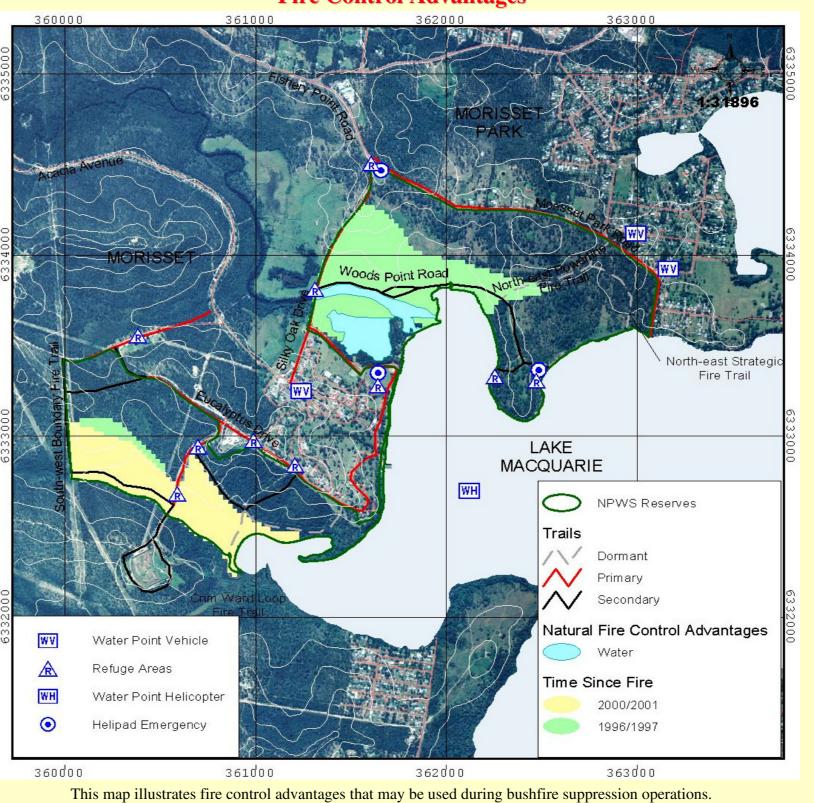


#### This map illustrates fire fuels and the location of assets for use in bushfire suppression operations

#### Fire Interval Guidelines, Fuels & Fire Behaviour Characteristics for **Vegetation Communities**

Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
Cleared		2001 (4.36%)	
F3 – Narrabeen	Minimum interval:	2001 (16.27%)	High bushfire behaviour potential.
Doyalson Coastal	7 years.		
Forest	Maximum interval:		
F7 – Coastal Sandplain	35 years.	Unknown	High bushfire behaviour potential.
Scribbly Gum Forest			
S2 – Macquarie		Unknown	Moderate bushfire behaviour potential.
Melaleuca Scrub-			
Forest			
SF2 – Coastal Alluvial		Unknown	Moderate bushfire behaviour potential.
Mahogany Swamp			
Forest			
SF3 – Coastal Alluvial		2001 (44.29%)	Moderate bushfire behaviour potential.
Depression Swamp			
Forest			
SF4 – Coastal Alluvial		2001 (54.79%)	Moderate bushfire behaviour potential.
Flat Swamp Forest			
Complex			
H1 – Narrabeen		2001 (95.59%)	High bushfire behaviour potential
Coastal Clay Heath			
W1 – Narrabeen		2001 (11%)	High bushfire behaviour potential.
Doyalson Coastal			
Woodland			

## **Fire Control Advantages**



# **Bushfire Suppression Information 2005 / 2006**

The information in this section will be updated annually based on fire history and completed fire management works.

ned Flora Managemen	nt Strategies	Fire Suppression Strategies
	-	

Thre	nreatened Flora Management Strategies		
ID	Species Name	Fire Management Strategies	
FL1	Acacia bynoeana Bynoe's Wattle Status - Endangered	<ul> <li>Avoid high intensity fires within known habitat.</li> <li>Maintain fire free interval of at least 5-8 years.</li> <li>Avoid fires during flowering period (summer).</li> <li>Avoid trail construction, ground disturbance in known locations.</li> </ul>	
FL2	Angophora inopina Status - Vulnerable	<ul> <li>Avoid high intensity fires within known habitat.</li> <li>Maintain a fire free interval of &gt;10 years.</li> </ul>	
FL3	Tetratheca juncea Status - Vulnerable	<ul> <li>Avoid high frequency fires within known habitat.</li> <li>Maintain a fire free interval of at least 15 years once in 100 years.</li> <li>Avoid trail construction, ground disturbance in known locations.</li> </ul>	

#### **Aboriginal Heritage Management Strategies**

Fire Management Strategies Middens have • Avoid all ground disturbance including the use of earth been identified moving machinery, handline construction and driving on the lake's

- Avoid water bombing which may cause ground
- Site may be burnt by bushfire, back burn or prescribed burn without damage.

foreshore.

The statutory fire season occurs between 1 October and 31 March. This may be extended if weather conditions lead to increased fire danger outside of this period. Prescribed burn in this area is normally undertaken in spring and Autumn.

Fire Danger	Guidelines
Low – Mod	• Subject to crew safety, undertake indirect,
(FFDI: 0-12)	parallel or direct attack along existing control
	lines with the aim of minimising the area burnt
	without threatening values.
	<ul> <li>Identify and survey alternate 'backup' containment lines.</li> </ul>
	• Subject to crew safety and where possible,
	implement threatened species and cultural
	heritage management guidelines.
	• If values are threatened or the fire danger is
	forecast to be >= High, then the construction of
	new control lines may be required.
	• 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.
	<u>Important</u>
	**Crew safety should always be the first priority**
High or	Subject to crew safety undertake indirect attack
above	along existing control lines, and where
(FFDI: >12)	necessary, newly constructed control lines to
	link up existing control lines.
	<ul> <li>Subject to crew safety, secure and deepen</li> </ul>
	control lines along the next predicted
	downwind side of the fire.
	• Subject to crew safety and where possible,
	implement threatened species and cultural

heritage management guidelines. Identify and survey alternate 'backup'

\*\*Crew safety should always be the first priority\*\*

Ensure there is sufficient time to secure control

lines before the fire reaches them.

If there is not sufficient time to secure control lines,

fall back to the next potential control line.

containment lines.

Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
F8 – Estuarine swamp	Fire Should be avoided.	2001 (4.8%)	Moderate bushfire behaviour potential.
Oak Forest			
S3 – Estuarine		2001 (12.8%)	Low bushfire behaviour potential.
Mangrove Open Scrub			
S8\F8\SM1 -		Unknown	
Estuarine Swamp Oak			
Forest Saltmarsh			
SM1 - Estuarine		2001 (4.19%)	Low bushfire behaviour potential

#### **General Operational Guidelines**

Issue / Area	Operational Guidelines
Containment Line	Use existing tracks and trails where possible.
Construction	Avoid steep terrain if possible.
	Wherever possible locate containment lines to avoid leaving unburnt fuels down slope.
Smoke Management	Close roads if smoke or fire fighting operations are likely to cause a traffic hazard.
	Notify neighbours of potential smoke hazard.
Aerial Ignition	May be used where considered appropriate.
Backburning	<ul> <li>As far as possible, backburning should take into account threatened species and cultural heritage guidelines.</li> </ul>
	<ul> <li>On days when the fire danger &gt; High, as far as possible, delay backburning until late afternoon – early evenin</li> </ul>
	when the temperature is decreasing and humidity increasing.
	Backburning may be safely undertaken during the day when the fire danger is < High
Water Bombing	Can be used to slow the spread of a fire, unlikely to extinguish a fire without support from ground crews.
.,	Ground crews must be warned of and be well clear of aerial bombing operations.
	<ul> <li>Aerial bombing may be used to cool down hot spots, to catch spot fires or to slow the rate of spread of fire to</li> </ul>
	increase the time available to undertake other suppression activities.
Tracks & Trails	Primary Fire Trails- considered to be either of strategic importance and/or is a primary feeder route to a
Trucks & Truits	network of secondary trails and is large enough to provide for Category 1 tankers.
	<ul> <li>Secondary Fire Trails – can be used for control in either fire suppression or mitigation operations, is of a</li> </ul>
	moderate standard and provides for Category 7/9 light fire tankers.
	Dormant Trails— is a previously existing fire trail or temporary trail used for previous fire suppression (or
	other) operations that is now closed. Minimum work is required to reopen the trail.
Visitor Management	Close roads if smoke or fighting operations are likely to cause a traffic hazard.
	Notify neighbours of potential smoke hazard.
	<ul> <li>Check and evacuate walking trails, known camping and picnic sites within and adjacent to the fire area.</li> </ul>
	<ul> <li>Close park to the public when it is considered necessary due to conditions, which create a very high to extrem</li> </ul>
	fire danger, or during fire fighting operations.
Restoration	All new fire breaks will be restored as part of the fire suppression operation.
	Should be addressed in an incident-action plan, which is compiled in accordance with the Fire Management
	Manual.
	All new firebreaks will be restored as part of the fire suppression operation.
Earth Moving	Can only be used with consent of NPWS and only if the probability of success is considered high.
Equipment	As far as possible, restrict use to routes and other previously disturbed areas.
1 1	Subject to operational constraints, minimise the length of break constructed
	Known threatened species locations and cultural heritage sites must not be disturbed and all personnel
	involved in control line construction must be briefed on threatened species and cultural heritage sites
	locations.
	• The route to be taken should be checked for heritage items prior to the use of machinery, preferably by a
	Y ▼ THE TOUGHOU DE LANGH SHOULD DE CHECKEU TOL HELHAYE HEITHS DITOL LO THE USE OF HIACHITIELY, DIETETADIY DY A
Foams, Wetting	specialist officer.
Foams, Wetting Agents, Retardants	<ul> <li>specialist officer.</li> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional</li> </ul>
Foams, Wetting Agents, Retardants	<ul> <li>specialist officer.</li> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional Operations Coordinator -NPWS).</li> </ul>
	<ul> <li>specialist officer.</li> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional Operations Coordinator -NPWS).</li> <li>Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and</li> </ul>
	<ul> <li>specialist officer.</li> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional Operations Coordinator -NPWS).</li> <li>Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and SEPP14 Wetlands).</li> </ul>
Agents, Retardants  Command & Control	<ul> <li>specialist officer.</li> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional Operations Coordinator -NPWS).</li> <li>Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and SEPP14 Wetlands).</li> <li>ICS system will be implemented during all fire suppression activities</li> </ul>
Agents, Retardants  Command & Control  Fire Advantage	<ul> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional Operations Coordinator -NPWS).</li> <li>Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and SEPP14 Wetlands).</li> <li>ICS system will be implemented during all fire suppression activities</li> <li>All fire advantages used during fire suppression operations are to be mapped so that they can be added to the</li> </ul>
Agents, Retardants  Command & Control	<ul> <li>specialist officer.</li> <li>Use permitted where considered appropriate (approval required from Area or Regional Manager or Regional Operations Coordinator -NPWS).</li> <li>Avoid the use of wetting and foaming agents in environmentally sensitive areas (eg. 20m of creek lines and SEPP14 Wetlands).</li> <li>ICS system will be implemented during all fire suppression activities</li> </ul>



# Lake Macquarie State Conservation Area POSTER 6- CHAIN VALLEY BAY FIRE MANAGEMENT STRATEGY 2005 - 2006

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Date approved: 24 March 2006

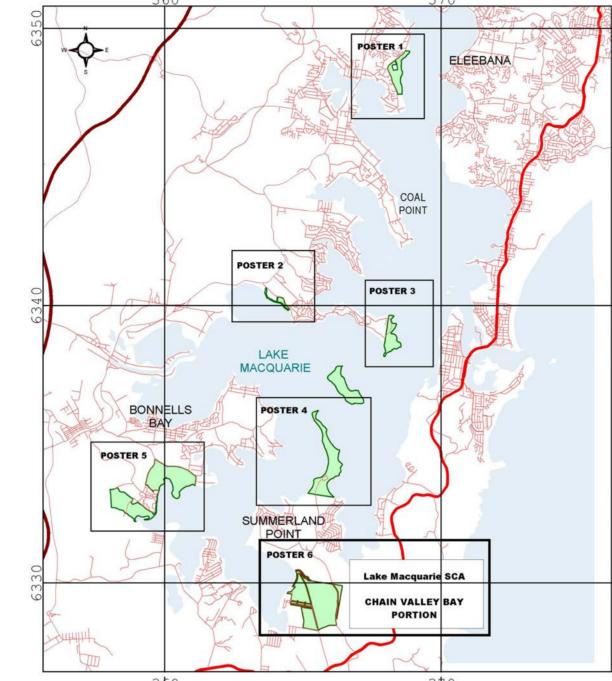
# Contacts & Communications

## Contact Details

Agency	Position	Number
NSW National Parks &	Duty Officer	4320 4255
Wildlife Service	Regional Manager	4320 4201 / 0428 218 015
Central Coast Hunter Range	Regional Operations	4320 4232 / 0418 433 203
Region (CCHRR)	Coordinator	
	Lakes Area Office	4358 0400
	Gosford Regional Office	4320 4200
Rural Fire Service	Duty Officer / Emergency	4955 2122 / 0418 684 681
	Lake Macquarie Fire Control	4955 2222
	Centre	
SES	District Emergency	4937 2912 / 0417 416 590
	Management Officer	
	Wyong Shire	4351 2244
Police	The Entrance	4332 6222
	Toukley	4390 1299
Ambulance	Bookings	131 233
	Emergency	000
Hospital	Wyong	4393 8000
Council	Wyong Shire Council	4350 5555

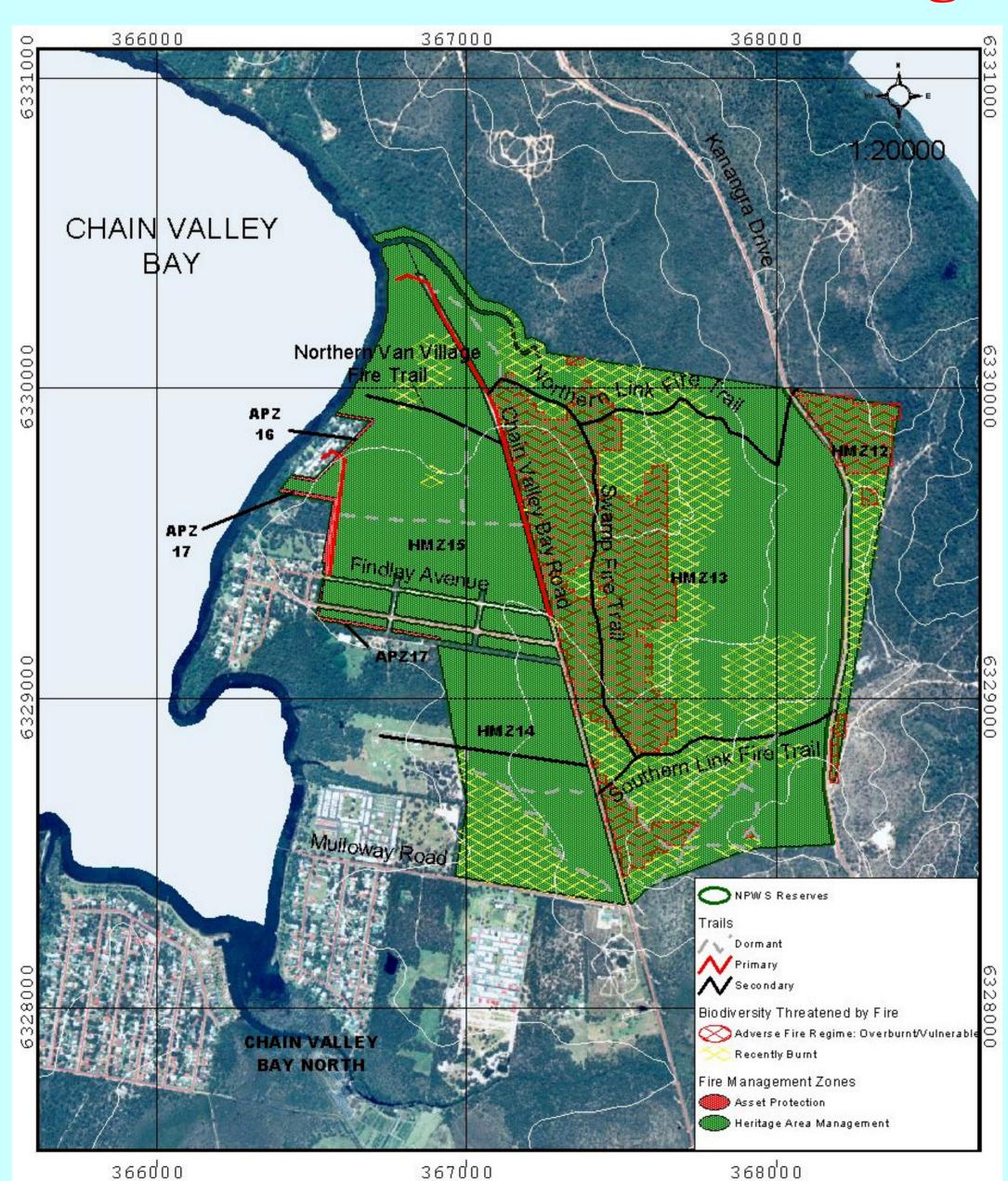
### **Communication Resources**

Service	Channel	<b>Location / Comments</b>
NPWS – VHF	27 /24	Mangrove / Warrawalong
RFS – PMR	Main – 58	Lake Macquarie
(Fire Control Centre)	Other – 22	
RFS – GRN	195	Lake Macquarie
(Fire Control Centre)		
UHF – CB		Good
Mobile Phone Coverage		Good
Satellite Phone	118 7276 1881 578	The region has one satellite
		phone.



	360	370
<b>Map Details</b>		
Projection	UTM AGD 1966	
	To convert AGD66 to GDA94	
	Latitude – Decrease by 5.7 seconds	
	Longitude – Increase by 4.1 seconds	S
	Northing – Increase by 190 metres	
	Easting – Increase by 104 metres	
Air Photo	(GIS: Lake_macquarie_air.sid, Man	nnering_air.sid)
1: 25 000 Topo Map	opo Map Catherine Hill Bay 9231-3-N	
	(GIS: Catherinehill.sid)	
UBD Map	Maps 12, 13, 22, 23 (GIS: Ubd_morisset.tif, Ubd_toukley.tif)	
<b>Contour Intervals</b>	10 metres	

# Bushfire Risk Management Strategies



# Interpretation of Biodiversity Threshold Categories

interpretation of blourversity Timeshold Categories		
Category	Interpretation	
	Protect from fire as far as possible.	
Overburnt	Past fire frequency has already exceeded biodiversity	
	thresholds.	
	Protect from fire as far as possible.	
Vulnerable	• The occurrence of fire this year will result in biodiversity	
	thresholds being exceeded.	

## **Bushfire Risk Management Strategies**

Fire Management Zone	Guidelines
Asset Protection Zone	<ul> <li>Objectives</li> <li>To protect human life, including permanent residents, visitors and fire fighters from bushfires.</li> <li>To protect identified high risk assets which may include residential areas, utilities, camping areas, day use areas urban interface, cultural heritage sites and other built assets.</li> <li>Strategies</li> <li>To initiate, where appropriate community education are community fireguard programs.</li> <li>APZ 16 – Van Village Lessee to mow existing cleared area on a quarterly basis.</li> <li>APZ 17 – Monitor fuel levels, implement mechanical fuel reduction program if required.</li> </ul>
	<ul> <li>Objectives</li> <li>To prevent the extinction of all species which are know to occur naturally within NPWS parks and reserves (conserve biodiversity).</li> <li>To protect Aboriginal sites, historic heritage sites and other culturally significant features from fire.</li> </ul>

### • As far as possible maintain fire regimes within specified Management Zone As far as possible implement specified threatened species

management guidelines. As far as possible implement cultural heritage management guidelines. HMZ's 12, 13, 14, 15.

# Fire Interval Guidelines, Fuels & Fire Behaviour Characteristics for Vegetation Communities

Vegetation Community	Fire Interval Guidelines	Last Burnt (Year & Total % Area)	Fuels & Fire Behaviour Characteristics
H2- Alluvial Coastal	Minimum interval:	2004 (96.30%)	High bushfire behaviour potential.
Intermediate Heath	7 years	2000 (94.7%)	
SF3 - Coastal Alluvial	Maximum interval:		Moderate bushfire behaviour potential.
Depression Swamp Forest	35 years	2004 (76.22%)	
		2000 (100%)	
SF4- Coastal Alluvial Flat		2004 (23.00%)	Moderate bushfire behaviour potential.
Swamp Forest Complex		2003 (0.84%)	
		2000 (41.11%)	
		1998 (7.83%)	
F3- Narrabeen Doyalson		2004 (10.47%)	High bushfire behaviour potential.
Coastal Forest		2003 (17.24%)	
		2000 (17.97%)	
W1- Narrabeen Doyalson		2004 (33.13%)	High bushfire behaviour potential.
Coastal Woodland		2003 (2.92%)	
		2000 (65.79%)	
		1999 (0.15%)	
		1998 (6.14%)	
SL1- Narrabeen Coastal		2003 (10.27%)	Moderate bushfire behaviour potential.
Impeded Sedgeland		1998 (8.56%)	
H1- Narrabeen Coastal	Minimum interval:	2004 (56.47%)	High bushfire behaviour potential.
Clay Heath	7 years	2003 (3.23%)	
	Maximum interval:	2000 (87.32%)	
	35 years		
C- Cleared	Not applicable	2003 (44.64%)	Not Applicable
1- Narrabeen Coastal  peded Sedgeland  I- Narrabeen Coastal  ay Heath	Maximum interval: 35 years	2000 (65.79%) 1999 (0.15%) 1998 (6.14%) 2003 (10.27%) 1998 (8.56%) 2004 (56.47%) 2003 (3.23%) 2000 (87.32%)	High bushfire behaviour potential.

Fire Supp	ppression Strategies	
Fire Danger	Guidelines	
Low – Mod (FFDI: 0-12)	<ul> <li>Subject to crew safety, undertake indirect, parallel or direct attack along existing control lines with the aim of minimising the area burnt without threatening values.</li> <li>Identify and survey alternate 'backup' containment lines.</li> <li>Subject to crew safety and where possible, implement threatened species and cultural heritage management guidelines.</li> <li>If values are threatened or the fire danger is forecast to be &gt;= High, then the construction of new control lines may be required.</li> <li>Ensure there is sufficient time to secure control lines</li> </ul>	
	- Liisure there is sufficient time to secure control lines	

before the fire gets to them.

### back to the next potential control line. **Important** \*\*Crew safety should always be the first priority\*\* Subject to crew safety undertake indirect attack along

• If there is insufficient time to secure control lines, fall

Thigh of	"	Subject to elew safety undertake mulicet attack along
above		existing control lines, and where necessary, newly
(FFDI: >12)		constructed control lines to link up existing control
		lines.
	•	Subject to crew safety, secure and deepen control lines
		along the next predicted downwind side of the fire.
	•	Subject to crew safety and where possible, implement
		threatened species and cultural heritage management
		quidalinas

**General Operational Guidelines** 

Containment Line

Construction

**Aerial Ignition** 

Water Bombing

Tracks & Trails

Restoration

Earth Moving

Equipment

Backburning

Identify and survey alternate 'backup' containment

\*\*Crew safety should always be the first priority\*\* Ensure there is sufficient time to secure control lines before the fire reaches them. If there is not sufficient time to secure control lines, fall back to the next potential control line.

• Use existing tracks and trails where possible.

• Notify neighbours of potential smoke hazard.

• May be used where considered appropriate.

Smoke Management • Close roads if smoke or fire fighting operations are likely to cause a traffic hazard.

when the temperature is decreasing and humidity increasing.

• Avoid steep terrain if possible.

#### Avoid trail construction, ground disturbance in known locations.

Status - Endangered

Tetratheca juncea Status - Vulnerable

		distuibance in known locations.			
Threatened Fauna Management Strategies					
ID	Species Name	Fire Management Strategies			
FA1	Crinia tinnula Wallum Froglet Status - Vulnerable	• Avoid fire and fire operations within potential / known habitat (acid <i>Melaleuca</i> swamps).			
FA2	Petaurus norfolcensis Squirrel Glider Status - Vulnerable	<ul> <li>Protect hollow bearing trees in locations where this species is known to occur.</li> <li>Avoid fire and machinery around known nests during breeding season (June-November).</li> <li>Utilise mosaic burn.</li> <li>No slashing trittering or tree removal.</li> </ul>			
		• No slashing, trittering or tree removal.			

**Threatened Flora Management Strategies** 

Angophora inopina • Avoid high intensity fires within

Genoplesium insignis • Unknown response to fire.

known habitat.

Fire Management Strategies

Maintain a fire free interval of >10

Maintain a fire free interval of >15

• Avoid high frequency fires within

years once in 100 years.

**Operational Guidelines** 

• As far as possible, backburning should take into account threatened species and cultural heritage guidelines.

• Can be used to slow the spread of a fire, unlikely to extinguish a fire without support from ground crews.

• Primary Fire Trails- considered to be either of strategic importance and/or is a primary feeder route to a

• Secondary Fire Trails – can be used for control in either fire suppression or mitigation operations, is of a

• Dormant Trails— is a previously existing fire trail or temporary trail used for previous fire suppression (or

• Check and evacuate walking trails, known camping and picnic sites within and adjacent to the fire area.

• Close park to the public when it is considered necessary due to conditions, which create a very high to extreme

• Should be addressed in an incident-action plan, which is compiled in accordance with the Fire Management

• Can only be used with consent of NPWS and only if the probability of success is considered high.

• Known threatened species locations and cultural heritage sites must not be disturbed and all personnel

involved in control line construction must be briefed on threatened species and cultural heritage sites

• Aerial bombing may be used to cool down hot spots, to catch spot fires or to slow the rate of spread of fire to

• On days when the fire danger > High, as far as possible, delay backburning until late afternoon – early evening

• Wherever possible locate containment lines to avoid leaving unburnt fuels down slope.

• Backburning may be safely undertaken during the day when the fire danger is < High

network of secondary trails and is large enough to provide for Category 1 tankers.

other) operations that is now closed. Minimum work is required to reopen the trail.

• Ground crews must be warned of and be well clear of aerial bombing operations.

increase the time available to undertake other suppression activities.

moderate standard and provides for Category 7/9 light fire tankers.

• All new fire breaks will be restored as part of the fire suppression operation.

• All new firebreaks will be restored as part of the fire suppression operation.

• As far as possible, restrict use to routes and other previously disturbed areas.

• Subject to operational constraints, minimise the length of break constructed

Visitor Management • Close roads if smoke or fighting operations are likely to cause a traffic hazard.

• Notify neighbours of potential smoke hazard.

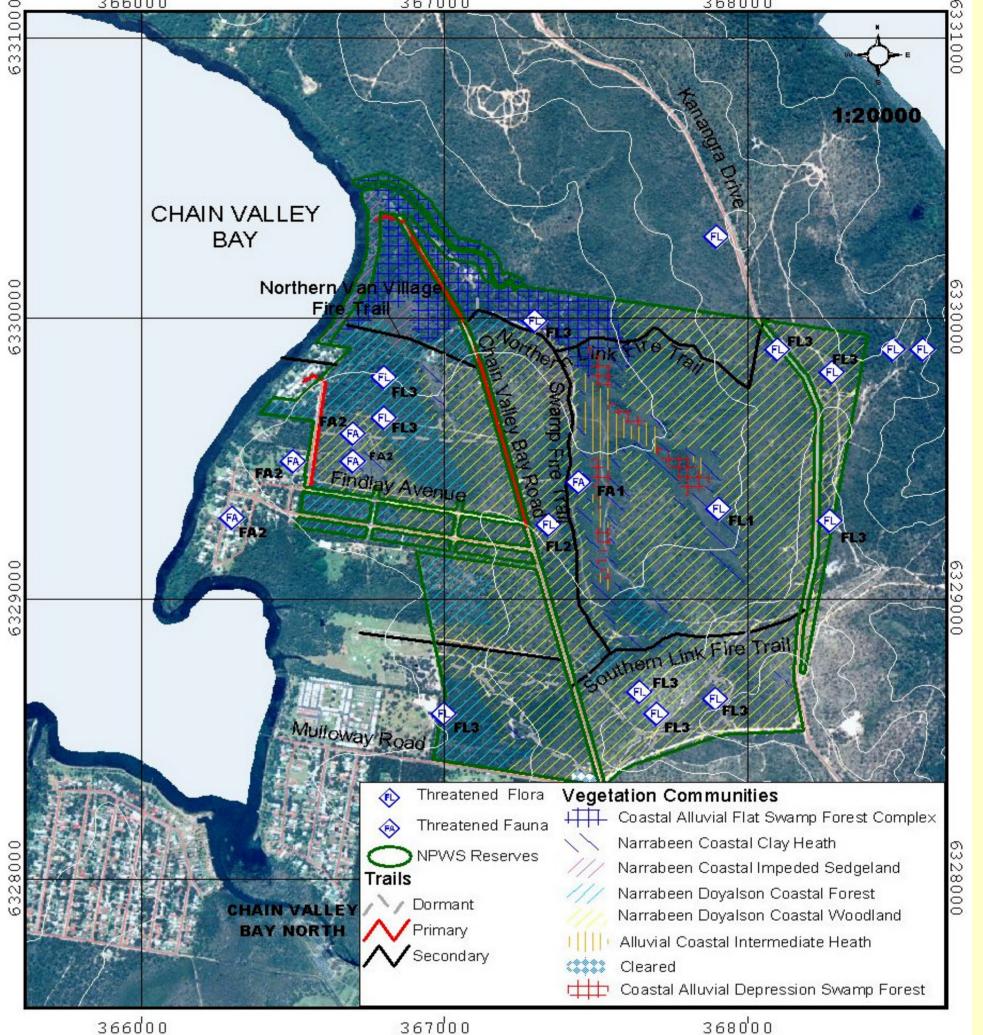
fire danger, or during fire fighting operations.

The statutory fire season occurs between 1 October and 31 March. This may be extended if weather conditions lead to increased fire danger outside of this period. Prescribed burning in this area is normally undertaken in spring and Autumn.

# **Bushfire Suppression Information** 2005/2006

The information in this section will be updated annually based on fire history and completed fire management works.

## **Assets and Fire Fuels**



3680'00 This map illustrates fire fuels and the location of assets for use in bushfire suppression operations.

## Abariainal II arita a Managamant Ctuataria

Aboriginal Heritage Management Strategies				
Site Types		Fire Management Strategies		
Middens have been identified on the lake's foreshore and on the northern end of Chain Valley Bay Road.	•	Avoid all ground disturbance including the use of earth moving machinery, handline construction and driving over sites.		
	•	Avoid water bombing which may cause ground disturbance. Site may be burnt by bushfire, back burn or prescribed burn without		

# Fire Control Advantages

