

Fire Management Plan

Boyle Road Bushland Conservation Reserve, Belli Park.



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Table of Contents

Introduction	2
Legislative requirements.....	2
Site description	2
Location	2
Landscape	2
Vegetation	2
Fauna	3
Summary of Ecological Issues.....	3
Fire hazard	3
State Planning Policy - Fire Hazard Assessment Methodology	3
Site Fire Hazard Assessment.....	4
Map 1 - Locality Map.....	6
Map 2 - Vegetation Map	7
Planning methodology	8
Field assessment	8
Planning method	8
Fire Management Zones	8
Fire Management Units.....	8
Map 3 -Aerial Photograph	9
Map 4 - Fire Management Zones	10
Map 5 - Fire Management Units	11
Map 6 - Fire Management Trails.....	12
Fire Management Units - Management Prescriptions.....	13
General recommendations.....	14
Glossary of terms	15
Bibliography	17

Introduction

This fire management plan has been prepared to address issues of community safety and ecological requirements for Boyle Road BCR (the reserve). The reserve is located in the western area of the shire near the town of Kenilworth.

Legislative requirements

Qld Fire and Rescue Service Act (1994)

Sunshine Coast Council and its corporatised entities as well as all other entities which are owned and/or managed on behalf of Council and who are responsible for the management of land, are considered to be a land occupier under the *Qld Fire and Rescue Service Act 1994* (s67). The *Qld Fire and Rescue Service Act* (1994) is the head of power for the Qld Fire and Rescue Service (QFRS) who administers the provisions of the Act and Regulations.

The definition of a land occupier under the act is:

“occupier of land” includes, where there is no person in actual occupation of the land, the person charged by the owner or by law with the management of the land.

The act also defines the term occupier.

“occupier”, used with reference to any premises, means the person in actual occupation or, if there is no such person, the owner.

Section 67 of the Act requires Council on becoming aware of a fire burning on land it occupies to take all reasonable steps to extinguish or control the fire and report the fire and its location to a fire officer as soon as possible.

The act also requires Council to obtain a permit to burn from the closest QFRS station or fire warden prior to conducting any burns within their property.

Local Laws

Sunshine Coast Regional Council Local Law No. 3 (Community Health and Environmental Management) 2011 and Sunshine Coast Regional Council Subordinate Local Law No. 3 (Community Health and Environmental Management) 2011 are the local laws that regulate fires in urban areas. It applies specifically to fires that do not require a permit under the Fire and Rescues Service Act. All burns undertaken by Council will be within the QFRS permit system so the local laws do not apply.

Site description

Location

The property is described as Lot 188 on M37834. The size of the property is approximately 48 hectares (see Map 1). Access to the reserve is via Boyle Road.

Landscape

The dominant landscape feature is the tributary of Belli Creek that runs through the reserve. A prominent ridge runs through the centre of the reserve from the south east to the north west.

Vegetation

Version 5 Regional Ecosystem mapping identifies three RE's within the reserve. The following information on this RE has been obtained from the Environmental Protection Agency. Vegetation mapping for the reserve is presented in Map 2.

12.3.11 - Open-forest to woodland of *Eucalyptus tereticornis*, *E. siderophloia* and *Corymbia intermedia*. *Corymbia tessellaris*, *Lophostemon suaveolens* and *Melaleuca quinquenervia* frequently occur and often form a low tree layer. Other species present in scattered patches or low densities include *Angophora leiocarpa*, *E. exserta*, *E. grandis*, *C. trachyphloia*, *C. citriodora*, *E.*

latisinensis, *E. tindaliae*, *E. racemosa*, *Melaleuca sieberi* and *M. viridiflora*. *E. seeana* may be present south of Landsborough. Occurs on Quaternary alluvial plains and drainage lines along coastal lowlands. Rainfall usually exceeds 1000mm/y. This RE is listed as “Of Concern”.

12.11.3 - Open-forest generally with *Eucalyptus siderophloia* and *E. propinqua* ± *E. microcorys*, *Lophostemon confertus*, *Corymbia intermedia*, *E. biturbinata*, *E. acmenoides*, *E. tereticornis*, *E. moluccana*, *Angophora leiocarpa*, *Syncarpia verecunda* with vine forest species and *E. grandis* or *E. saligna* in gullies. *Eucalyptus pilularis* and *E. tindaliae* sometimes present e.g. mid D'Aguilar Range, Conondale Range. Occurs predominantly on hills and ranges of Paleozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. This RE is listed as “Not of Concern”.

12.11.14 - *Eucalyptus crebra*, *E. tereticornis* grassy woodland. Other species including *Eucalyptus melanophloia*, *Corymbia clarksoniana*, *C. erythrophloia*, *C. tessellaris*, *Angophora* spp. may be present in low densities or in patches. Mid-layer generally sparse but can include low trees such as *Acacia bidwillii*, *Capparis* spp., *Dodonaea triquetra*, *Alphitonia excelsa* and *Xanthorrhoea* spp. Occurs on mid and lower slopes on Paleozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. This RE is listed as “Of Concern”.

In this reserve RE's 12.11.3 and 12.11.14 occupy the same polygons at a 70% to 30% ratio.

Garry Thomas identified 153 flora species in an assessment conducted in 2003 for Maroochy Shire Council, with 28 of these being introduced species.

Fauna

No detailed fauna surveys have been undertaken in Boyle Road BCR.

Summary of Ecological Issues

Effective fire management is required to maintain the range of vegetation communities. The open forest requires fire to ensure the grassy understorey is maintained. The South East Queensland Fire and Biodiversity Consortium recommend fire frequencies between 3-6 years to maintain grassy understoreys. In areas where there is also a shrub component these frequencies can be extended to 7-25 years.

Fire hazard

State Planning Policy - Fire Hazard Assessment Methodology

The State Government has released a State Planning Policy (SPP01/03) titled Mitigating the Adverse Affects of Flood, Bushfire and Landslip.

This SPP is predominantly to be referred to with respect to development within Queensland and stipulates that each local government is to develop a set of maps which clearly identify areas which are fire prone.

The SPP also provides a methodology for the assessment of Fire Hazard, which alters the previous methodology which has been used in Queensland until September, 2003.

The State Planning Policy uses the following parameters to determine a fire hazard rating for a specific area of land:

➤ Vegetation

The Qld Rural Fire Service in conjunction with the Qld Herbarium has developed a set of fire hazard ratings for vegetation using regional ecosystems as described by Sattler P & Williams R (1999) as the basis for prescribing a fire hazard score. This

rating is at a higher level than those provided within the SPP01/03 Guidelines.

A list of the vegetation communities / regional ecosystems is placed here along with their fire hazard rating.

Vegetation community	Hazard score
12.3.11	6
12.11.3	8
12.11.14	5

➤ Slope

Slope is classified into four slope categories as detailed below.

Slope	Hazard score
Gorges and mountains (>30%)	5
Steep Hills (>20% to 30%)	4
Rolling Hills (>10% to 20%)	3
Undulating (>5% to 10%)	2
Plain (0% to 5%)	1

[Note: For site-specific assessment of bushfire hazard, if the site is downhill from the hazard, the slope effect may be taken as zero as the fire intensity will be less. However, burning heavy fuels may roll downhill and trees may fall down, so recommended setbacks from the hazard still need to be observed.]

➤ Aspect

Aspect is classified into four classes which are detailed below.

Aspect	Hazard score
North to North-West	3.5
North-West to West	3
West to South	2
North to East	1
East to South and all land under 5% slope	0

The scores for the individual factors determined for vegetation communities, slope and aspect are added together to give a total for each sub-unit as follows:

Total hazard score = vegetation community hazard score + slope hazard score + aspect hazard score.

The total hazard score determines the severity of bushfire hazard for each sub-unit as set below.

Table A3.4: Hazard score ranges to identify the severity of bushfire hazard

Total hazard score	Severity of bushfire hazard
13 or greater	High
6 to 12.5	Medium
1 to 5.5	Low

Site Fire Hazard Assessment

Element	Description	Rating
Vegetation	12.11.3 (dominant Re with highest fire hazard rating)	8
Slope	Rolling Hills (>10% to 20%)	3
Aspect	North-West to West	3
Total		14

Using the SPP01-03 as a guideline to estimate the potential fire has been calculated at 14, which gives the site a high severity bushfire hazard rating.

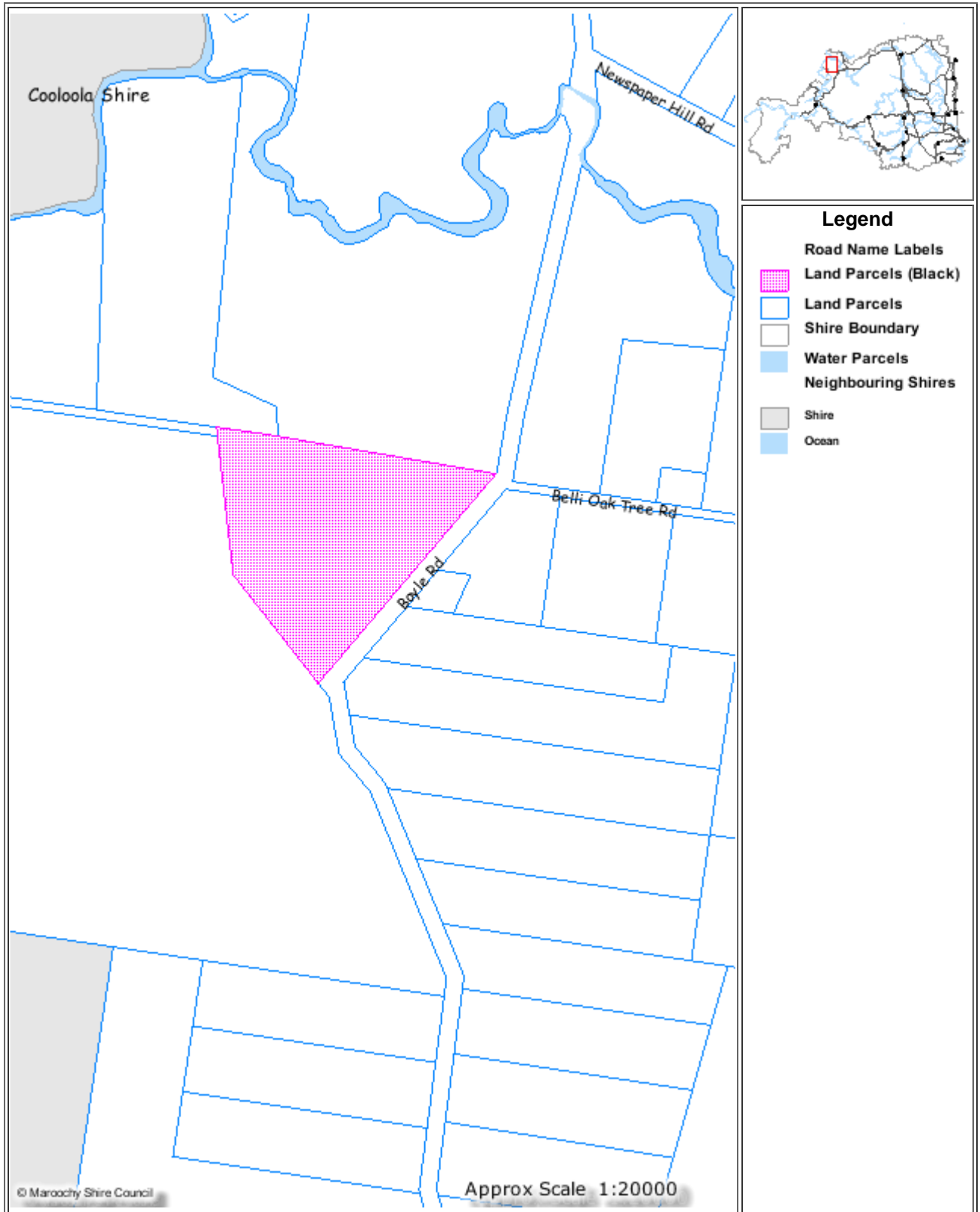
Other considerations

Overall the fire hazard has been assessed as being high. Fires can occur within the reserve and may impact the entire reserve due to the limited access.

There will be some risk to the adjacent private properties although this is not considered to be high given that the adjacent properties are grazed and have low fuel loads. Boyle Road on the eastern boundary provides good access for fire fighting vehicles.

The installation and maintenance of fire trails will be required in order to undertake planned burns without burning the entire reserve. The existing powerline easement can be used for burns in the north eastern corner. A temporary trail could be used as an ignition point along the main ridgeline for a burn encompassing the both Fire Management Units within the reserve.

The implementation of planned burns to reduce fuel loads can be utilised to manage the fire hazard. These burns could also include parts of the neighbouring private properties to further enhance the safety of local residents. Further liaison with the QFRS regarding fire management and future hazard reduction burns is required.



Map 1 - Locality Map

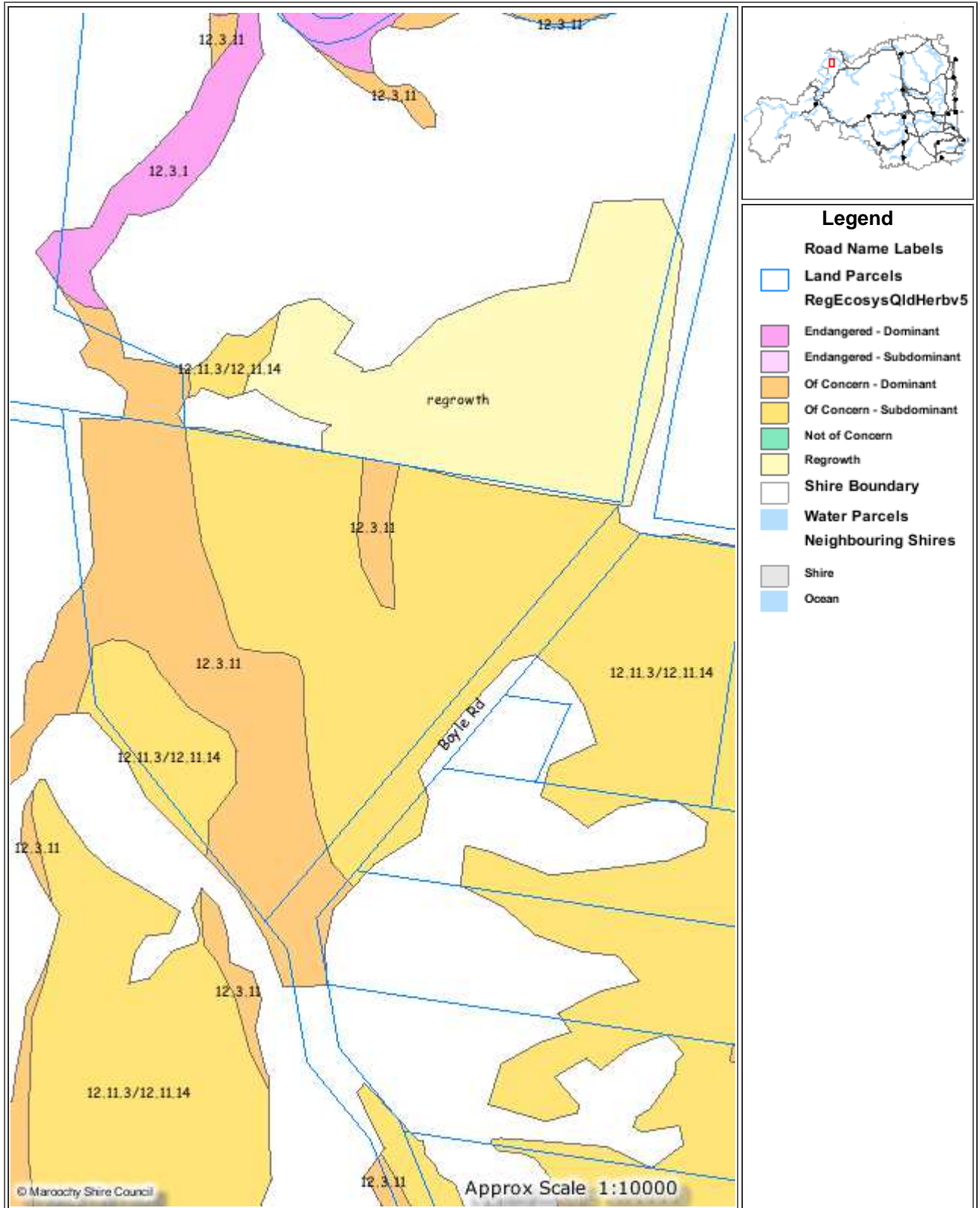
Boyle Road BCR

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13-9-2006



Map 2 - Vegetation Map

Boyle Road BCR - Vegetation Map (RE Version 5)

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13-9-2006

Planning methodology

Field assessment

The site assessment was undertaken in conjunction with the vegetation survey and recorded data such as slope, fuel loads and aspect and dominant species associations.

Planning method

To provide a method to describe appropriate bushfire management prescriptions it is essential to identify areas within the study area which require or are managed for particular purposes or particular outcomes.

This definition is undertaken using two spatial areas:

- Fire Management Zone (FMZ); and
- Fire Management Units (FMU)

Fire Management Zones

Fire Management Zones (FMZ) are those areas within a planning area which have specific management requirements.

Therefore as the site has only one area that requires specific management input with respect to fire this is described below and identified on Map 4.

FMZ	Description
Bushland Zone BZ	<ul style="list-style-type: none"> ▪ As the majority of the site is vegetated and will be retained in that state, all areas will be zoned as bushland.

Fire Management Units

Fire Management Units (FMU) are those areas within which fire can be managed to achieve the management objectives as identified in the FMZs.

The FMUs are defined by existing firebreaks, fire trails, internal tracks and property boundaries. The FMUs have been identified in Map 4.

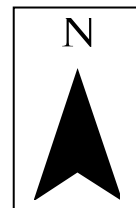
The fire management units allow for the development of management objectives of particular areas which have relevance to either:

- Property protection,
- Protection of sensitive and significant vegetation or habitats; and
- Management of appropriate fuel loads.

Map 3 -Aerial Photograph



Scale - 1:10 000



Map 4 - Fire Management Zones



Scale - 1:7 500



Map 5 - Fire Management Units



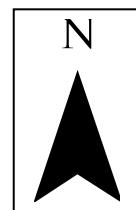
Scale - 1:7 500



Map 6 - Fire Management Trails



Scale - 1:7 500



Fire Management Units - Management Prescriptions

Block Number	Management Unit 1
Description	This Management Unit includes the western portion of the reserve. The area has a good cover of vegetation and has the main tributary of Belli Creek running through the centre of the management unit.
Access to FMU	Access to this unit is via Boyle Road and the fire trail that serves as the driveway for the adjacent resident.
Water sources	There are no fire hydrants in this area. Fire fighting water may be available from a small dam on Boyle Road on the eastern boundary of the reserve.
Vegetation communities	This area is dominated by RE 12.3.11 - <i>Eucalyptus siderophloia</i> , <i>E. tereticornis</i> , <i>Corymbia intermedia</i> open forest on alluvial plains usually near coast. There are also small areas of RE 12.11.3 - Open forest generally with <i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> on metamorphics ± interbedded volcanics and RE 12.11.14 - <i>Eucalyptus crebra</i> , <i>E. tereticornis</i> woodland on metamorphics ± interbedded volcanics on the perimeter of this unit. These occur as mixed RE polygons with RE 12.11.3 comprising 70% and RE 12.11.14 comprising 30%.
Fire Management Zones	Bushland Zone
Management objectives	<ul style="list-style-type: none"> ➤ Manage all biodiversity values within the unit; ➤ Manage as a burning unit with fire frequencies between 5-15 years to maintain the mixed grassy and shrubby understorey.
Management prescriptions	<ol style="list-style-type: none"> 1. Undertake planned burns every 5-15 years to maintain ecological values. 2. Extinguish all unplanned fires should they commence within the open forest/woodland components of the Management Unit.
Burning regime	Burning unit (5-15 years)

Block Number	Management Unit 2
Description	This Management Unit includes the eastern portion of the reserve. The area has a good cover of vegetation and has a small tributary of Belli Creek running through the centre of the management unit.
Access to FMU	Access to this unit is via Boyle Road.
Water sources	There are no fire hydrants in this area. Fire fighting water may be available from a small dam on Boyle Road on the eastern boundary of the reserve.
Vegetation communities	This area is dominated by RE 12.11.3 - Open forest generally with <i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> on metamorphics ± interbedded volcanics and RE 12.11.14 - <i>Eucalyptus crebra</i> , <i>E. tereticornis</i> woodland on metamorphics ± interbedded volcanics on the perimeter of this unit. These occur as mixed RE polygons with RE 12.11.3 comprising 70% and RE 12.11.14 comprising 30%. There is small area of RE 12.3.11 - <i>Eucalyptus siderophloia</i> , <i>E. tereticornis</i> , <i>Corymbia intermedia</i> open forest on alluvial plains usually near coast.
Fire Management Zones	Bushland Zone
Management objectives	<ul style="list-style-type: none"> ➤ Manage all biodiversity values within the unit; ➤ Manage as a burning unit with fire frequencies between 5-15 years to

	maintain the mixed grassy and shrubby understorey.
Management prescriptions	<ol style="list-style-type: none"> 1. Undertake planned burns every 5-15 years to maintain ecological values. 2. Extinguish all unplanned fires should they commence within the open forest/woodland components of the Management Unit.
Burning regime	Burning unit (5-15 years)

General recommendations

- Investigate the viability of a permanent or temporary fire trail along the main ridge for use during planned burns.
- Planned burns are to be undertaken as per the guidelines in this plan and in conjunction with the Belli Rural Fire Brigade.

Action Required	By whom	Priority	Timeframe
Investigate fire trail along main ridge	Council	Medium	Early 2008 - completed
Undertake planned burns	Council and QRFS	Medium	First burn possibly in 2008 or 2009.

Glossary of terms

Term	Definition
Access Point	Point of safe entry and exit onto a reserve area, of sufficient width and level surface to allow fire fighting and management vehicles entry into the reserve.
AFAC	Australian Fire Authorities Council. This national body has been established to coordinate research, training and education in fire throughout Australia.
Aspect	Aspect of a landscape is the direction that the face or slope of land faces when aligned to the magnetic compass. e.g., a slope facing west has a westerly aspect. In Maroochy Shire, the westerly and northerly aspects are usually the driest and hence more fire prone than easterly and southerly aspects.
Dwell time	Dwell time is the time for a flame or fire to burn at a specific point in a fuel matrix.
Fire Management Zone (FMZ)	A designated area within or contiguous with the planning area which requires specific management prescriptions as identified in the FMP or other management planning documents e.g. conservation protection zones pertain to an area of reserve that has significant flora, fauna or habitats which are intolerant to fire.
Fire Management Block (FMB)	A discrete area identified in a Fire Management Plan with a discernible operational boundary on which a specific planned burn is planned.
Fine Fuels	Dead, dry or otherwise combustible material of a diameter up to 6 mm. (e.g. twigs, leaves, grass).
Firebreak	A firebreak is a constructed or natural feature lacking the vegetation or fuel necessary to carry a ground fire, and that reduces the rate of spread and intensity of any fire that may occur in an area of standing vegetation.
Fire frequency	Fire frequency is the measurement of the number of years between successive fires that burn through a specified area.
Fire intensity	Fire intensity is the measurement of the heat generated by a fire over a given distance. Intensity is measured in kilowatts per metre kW/m.
Fire Management Plan (FMP)	A document outlining the management of fire hazards within a specific area of standing vegetation. It details the objectives for management of the area and the nature, including the application of planned burning and timing of specific management actions to be used to meet the defined objectives.
Fire prone	Fire prone is an assessment of an area of vegetation that has the potential to burn under suitable conditions.
Fire risk	The potential for a fire event to impact on infrastructure, cultural, historical or ecological assets within or contiguous with a bushland area.
Fire trail	A track, path or trail capable of being used as a point to conduct fire prevention or suppression activities. Fire trails are primarily for use for vehicles such as four-wheel drives.
Foliage Projected Cover (FPC)	Measure of canopy projection for a given community or area given as a percentage of the total area.
Fuel Free Zone (FFZ)	A Fuel Free Zone is an area of a firebreak, which contains virtually no fuel. This area usually consists of the firebreak proper and provides a fuel free zone against a property boundary of a built asset.
Fuel Load	Estimated volume of combustible fuels available in a defined area of vegetation type expressed as tonnes per hectare (t/ha).
Fuel matrix	Fuel matrix is a description of the types and locations of fuels within an area of vegetation e.g. a fuel matrix may consist of ground fuel

Term	Definition
	made up of leaves and sticks as well as suspended fuels in shrubs and bark in trees.
Fuel Reduced Zone (FRZ)	An area where available fine fuel or standing vegetation has been removed or reduced to a height less than 100 mm.
Hazard	A hazard is fuel complexes defined by volume, type, condition, arrangement and location that determine both the ease and probability of ignition, and fire suppression difficulty.
Inter Burn Period	The minimum or otherwise recommended time stated in years, between successive application of planned burns and occurrence of wildfire in an area.
Ladder Fuels	Arrangement of combustible material or vegetation structure providing potential for carrying fire vertically into the vegetation canopy. (see "suspended fuels")
Management Plan	A document relating to a specific area, outlining the variety of values and issues contained in that area and which describes the management objectives and actions to enable ongoing management of that area. Specific plans for fire management, weed management, visitor management etc. relate to single issues and form part of an integrated Management Plan for a specific area.
Planned burn	A fire which has been ignited by a person authorised under a QFRA "permit to burn" in an area of standing vegetation. The fire should conform to specific timing, extent and intensity as prescribed in a Fire Management Plan, and is under the control of the authorised person.
QFRA	Queensland Fire & Rescue Authority, including the Rural Fire Service and the Urban Division (Formerly the Queensland Fire Service)
Rate of spread	The relative forward movement of a fire thorough an area of standing vegetation. Rate of spread is usually based on the measurement of the size of the fire perimeter or the increase in area of the fire front.
Remnant Vegetation	Refers to areas of bushland or other vegetation types that have been separated from larger bushland areas within the city.
Standing Vegetation	Describes living and dead vegetation above the ground, including grasslands, heaths, wetlands, and open woodland to closed forest communities.
Stick Raking	Physical removal of dead vegetation and coarse forest litter.
Suspended Fuels	Elements of fine fuel elevated from the normally compressed ground layer fuels, and thereby drier and liable to create wind-borne "embers"(e.g. bark and leaves caught in branches, dead standing vegetation, flammable live vegetation).
Wildfire	Any unplanned or uncontrolled fire occurring in any area of standing vegetation.

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