Fire Management Plan

Mountain Creek Conservation Area, Mountain Creek.

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Table of Contents

Introduction

This fire management plan has been prepared to address community safety and the maintenance of ecological values of the Mountain Creek Conservation Area (the reserve). The reserve is located to the west of the Glenfields estate in Mountain Creek.

Legislative requirements

Qld Fire and Rescue Service Act (1994)

Sunshine Coast Regional Council (SCRC) and its corporatised entities as well as all other entities which are owned and/or managed on behalf of SCRC 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 (QRFS) 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 SCRC 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 it's location to a fire officer as soon as possible.

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

Local Laws – SCRC

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. Whilst the reserve is within the urban area 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 2 on SP107434 and Lot 907 on SP152530. The size of the combined properties is approximately 87 hectares (see Map 1).

A number of sealed roads provide access to the reserve with the primary access points from the end of Glenfields Boulevard, Coho Court and Mountain Ash Drive. Access can also be gained through a network of fire trails and walking tracks throughout the reserve (See photo 1 below).

Photo 1 – Example of fire trail/walking tracks in the reserve.

Landscape

The dominant landscape features are the large open coastal plain dominated by heath and Mountain Creek in the northern section of the reserve.

Vegetation

Version 6 Regional Ecosystem mapping identifies five RE's within the reserve. The following information on these RE's has been obtained from the Department of Environment and Heritage Protection. Vegetation mapping for the reserve is presented in Map 2.

12.9 – 10.14 - *Eucalyptus pilularis* tall open-forest with shrubby understorey. Other species include *Syncarpia glomulifera*, *S. verecunda*, *Corymbia intermedia*, *Angophora woodsiana* and *Eucalyptus microcorys* in coastal areas and species of RE 12.9-10.5 in drier sub coastal areas. *Eucalyptus pilularis* sometimes extends onto colluvial lower slopes. Occurs on Cainozoic and Mesozoic sediments especially sandstone. This RE is listed as "Least Concern".

Fire management guidelines for this RE are;

SEASON: Summer to winter.

INTENSITY: Plan for low to moderate. Unplanned occasional high intensity wildfire will occur.

INTERVAL: 4-8 years maintains a healthy grassy system. 8-20 years for shrubby elements of understorey.

STRATEGY: Aim for 40-60% mosaic burn. Needs disturbance to maintain RE structure (eucalypt overstorey with open understorey of predominantly non-rainforest species). Any moist sclerophyll that is relatively open with a mixture of grasses and shrubs should be a priority for fire management to retain RE structure.

ISSUES: Frequent fire is needed to maintain understorey integrity, keeping more mesic species low in the profile of the understorey so that other species can compete (Campbell and Clarke 2005). It is essential that wildfires are not the sole source of fire in this ecosystem. High intensity fires occur periodically through time, however frequent low to moderate intensity fires will create the disturbance required to keep the understorey diverse. Wildfire should be used as a catalyst to recreate the required frequency of disturbance. It is likely that mesic species will germinate after a high intensity fire and another fire soon after will be required (as recommended by Watson 2007). This RE may contain a high number of rare and threatened plant species which require appropriate fire management.

12.3.2 – *Eucalyptus grandis* ± E. *microcorys*, *Lophostemon confertus* tall open-forest with vine forest understorey ('wet sclerophyll'). Patches of *Eucalyptus pilularis* sometimes present especially in vicinity of sedimentary rocks (e.g. around Palmwoods). Fringing streams and in narrow gullies in high rainfall areas. This RE is listed as "Of Concern". Much of this RE is prone to infestation by weeds, especially *Lantana camara*. This RE requires fire for regeneration.

Fire management guidelines for this RE are;

SEASON: Late summer to autumn.

INTENSITY: Moderate to high.

INTERVAL: Minimum 20 years, maximum unknown (Campbell 2005), requiring further research.

STRATEGY: Needs disturbance to maintain RE structure (eucalypt overstorey, rainforest dominated but mixed species understorey). It is unlikely that mosaic burns will be achievable because fire would most likely be of higher intensity (i.e., likely to be a wildfire) and is only likely to occur at long intervals (at least 20+ years) during prolonged dry periods. In exceptional circumstances, different localities containing this ecosystem could be burnt to ensure a continuum of habitat availability across the broader landscape.

Using this strategy maximises the probability of spatial mosaics in the landscape.

ISSUES: Operationally there will be many areas of wet sclerophyll that cannot be safely burnt, and will only burn in wildfire. There is evidence that suggests that infrequent high intensity fires sustain the eucalypt overstorey. Wet sclerophyll has been shown to be a moving ecotone between vine forest and moist/dry sclerophyll.

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. This RE is listed as "Of Concern".

Fire management guidelines for this RE are;

SEASON: Summer to late-autumn.

INTENSITY: Low.

INTERVAL: 3-6 years.

STRATEGY: Aim to burn 40-60% of any given area. Spot ignition in cooler or moister periods encourages mosaics.

ISSUES: Control of weeds is a major focus of planned burning in most areas. Maintain ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas.

12.3.13 – Closed or wet heathland. Characteristic species include *Melaleuca thymifolia*, *Banksia robur*, *Xanthorrhoea fulva*, *Hakea actites*, *Leptospermum* spp. and *Baeckea frutescens*. Occurs on seasonally waterlogged Quaternary alluvial plains along coastal lowlands. This RE is listed as "Least Concern".

Fire management guidelines for this RE are;

SEASON: Late summer to winter.

INTENSITY: Moderate (to high; due to the inherent characteristics of highly flammable vegetation).

INTERVAL: 8-20 years.

STRATEGY: Aim for a burn mosaic of 40-80%. Ensure planned burn conditions are conducive to maintaining integrity of the landscape (i.e., use good soil moisture, recent rainfall and standing water on the ground).

ISSUES: Intervals at the upper end (12-20 years) of the recommended regime may be desirable to counteract detrimental impacts of a high intensity fire over 100% of landscape. This vegetation often contains obligate seed regenerating species and as such, the application of frequent fire may reduce species richness if the intervals between fire are not sufficient for plants to produce seed.

12.3.14a – *Eucalyptus racemosa* woodland to open-forest. Other canopy species may include *Corymbia intermedia*, *C. gummifera*, *Eucalyptus latisinensis*, *E. tindaliae* and *Melaleuca quinquenervia*. Occurs on Quaternary alluvial plains in near coastal areas. This RE is listed as "Of Concern".

Fire management guidelines for this RE are;

SEASON: Late summer to winter.

INTENSITY: Moderate (to high; due to the inherent characteristics of highly flammable vegetation).

INTERVAL: 8-20 years.

STRATEGY: Aim for a burn mosaic of 40-80%. Ensure planned burn conditions are conducive to maintaining integrity of the landscape (i.e., use good soil moisture, recent rainfall and standing water on the ground).

ISSUES: Intervals at the upper end (12-20 years) of the recommended regime may be desirable to counteract detrimental impacts of a high intensity fire over 100% of landscape. This vegetation often contains obligate seed regenerating species and as such, the application of frequent fire may reduce species richness if the intervals between fire are not sufficient for plants to produce seed.

A detailed flora survey was undertaken in 2007 by Garry Thomas for Maroochy Shire Council with 256 plant species identified. This includes 38 introduced plant species.

There are five flora species listed in the Nature Conservation (Wildlife) Regulations 1994 present within the reserve. These species are;

- *Eucalyptus conglomerata* (endangered)
- *Acacia attenuata* (vulnerable)
- *Acacia baueri* subsp. *baueri* (vulnerable)
- *Boronia rivularis* (near threatened)
- *Schoenus scabripes* (near threatened)

All of these species would be impacted by both prescribed and unplanned fires. The exact location of this species needs to be identified prior to undertaking any planned burns.

A recovery plan has been prepared for *Acacia attenuata* as it is also listed under the federal Environmental Protection and Biodiversity Conservation Act. Burning recommendations for management units in this reserve that contain *Acacia attenuata* have been developed in accordance with the recommendations within the recovery plan.

Fauna

Fauna surveys have been undertaken in the reserve by a student from the University of the Sunshine Coast as part of an honours project (Jones 2008). Trapping sites were established in the north western area of the reserve near the end of Glenfields Boulevard. Native species identified during trapping were;

- Yellow footed antechinus (*Antechinus flavipes*).
- Bush rat (*Rattus fuscipes*)
- Fawn-footed melolmys (*Melomys cervinipes*)
- Mountain brush-tail possum (*Trichosurus caninus*)
- Long-nosed bandicoot (*Parameles nasuta*)
- Northern brown bandicoot (*Isonodon macrourus*)

To minimise the impacts of prescribed burns of these fauna populations the reserve has been divided into a number of fire management units. This allows for a mosaic burning approach to be implemented ensuring that adjacent units are not burnt at the same time providing both refuge areas for wildlife as well as allowing recolonisation of burnt areas as they regenerate.

In addition to this burning operations will be undertaken in a way that minimises impacts on fauna populations. Techniques to be used include ignition patterns that ensure an escape route is available and burning under weather conditions that reduce the likelihood that 100% of a fire management unit will burn during a prescribed fire. Prescribed burns generally will aim for a burnt area of 50-75% of the total area.

Summary of Ecological Issues

Geographically the reserve has two distinctive landforms, the large open coastal plain dominated by wet heath with RE 12.3.13 dominant and the riparian areas along Mountain Creek (Map 3). Anecdotal evidence is that fire has been excluded for approximately 10-15 years

for much of the reserve. Periodic fire is required to maintain the vegetation communities within the reserve and is also required to maintain populations of rare plant species.

The large heathland area of the reserve is also adjacent to a section of Mooloolah River National Park. Given the limited access into this section and the volatility of this vegetation type any prescribed burning in this area would need to occur in cooperation with the Queensland Parks and Wildlife Service. This will result in a large fire so burning under conditions that promote a high degree of variability within the burnt area such as during conditions of high soil moisture or burning during the late afternoon and into the evening is required.

Given the large size of the reserve and the trail network along the Mountain Creek section the opportunity exists to undertake burns to create a mosaic of areas at different stages of post-fire regeneration. This will provide protection from intense wildfires for the adjacent residential areas and provide a range of post-fire habitats.

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 Landslide.

This SPP is predominantly to be referred to with respect to new development within Queensland and stipulates that each local government is to develop a set of maps which clearly identify areas which a 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
12.3.2	10
12.9 – 10.14	8
12.3.11	6
12.3.13	6
12.3.14	6

- **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

Aspect	Hazard score
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

Given the consistency of slope and aspect in the reserve the fire hazard assessment has been undertaken for dominant RE's in terms of distribution (12.3.2).

Element	Description	Rating
Vegetation	RE 12.3.2	10
Slope	Plain (0% to 5%)	1
Aspect	East to South and all land under 5% slope	0
Total		**11**

Element	Description	Rating
Vegetation	RE 12.3.11	6
Slope	Plain (0% to 5%)	1
Aspect	East to South and all land under 5% slope	0
Total		**7**

Using the SPP01-03 as a guideline the potential fire hazard for the reserve has been calculated at 11 and 7 respectively, which gives the site a medium severity bushfire hazard rating.

Other considerations

Whilst the fire hazard assessment above indicate a medium severity fire hazard, given the large areas of vegetation both with the reserve and the adjacent National Park there is the potential for large wildfires to occur. Given this risk Council maintains an extensive network of fire trails and fuel free zones both in the interface with the adjacent residential properties and within the reserve (Map 5).

In the interface with the large heathland area in the south of the reserve council maintains a fuel free zone approximately 8-10 metres wide. Maintenance of this area can be problematic as the low lying nature of the terrain means that this area remains waterlogged for long periods after heavy rain.

In the northern areas of the reserve there is a network of fire trails from 3-6 metres wide. The wider trails are located along the interface with the adjacent private properties and the internal trails serve a dual purpose as walking and fire trails.

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 are which require or are managed for particular purposes or particular outcomes.

This definition is undertaken using spatial areas.

Fire Management Units

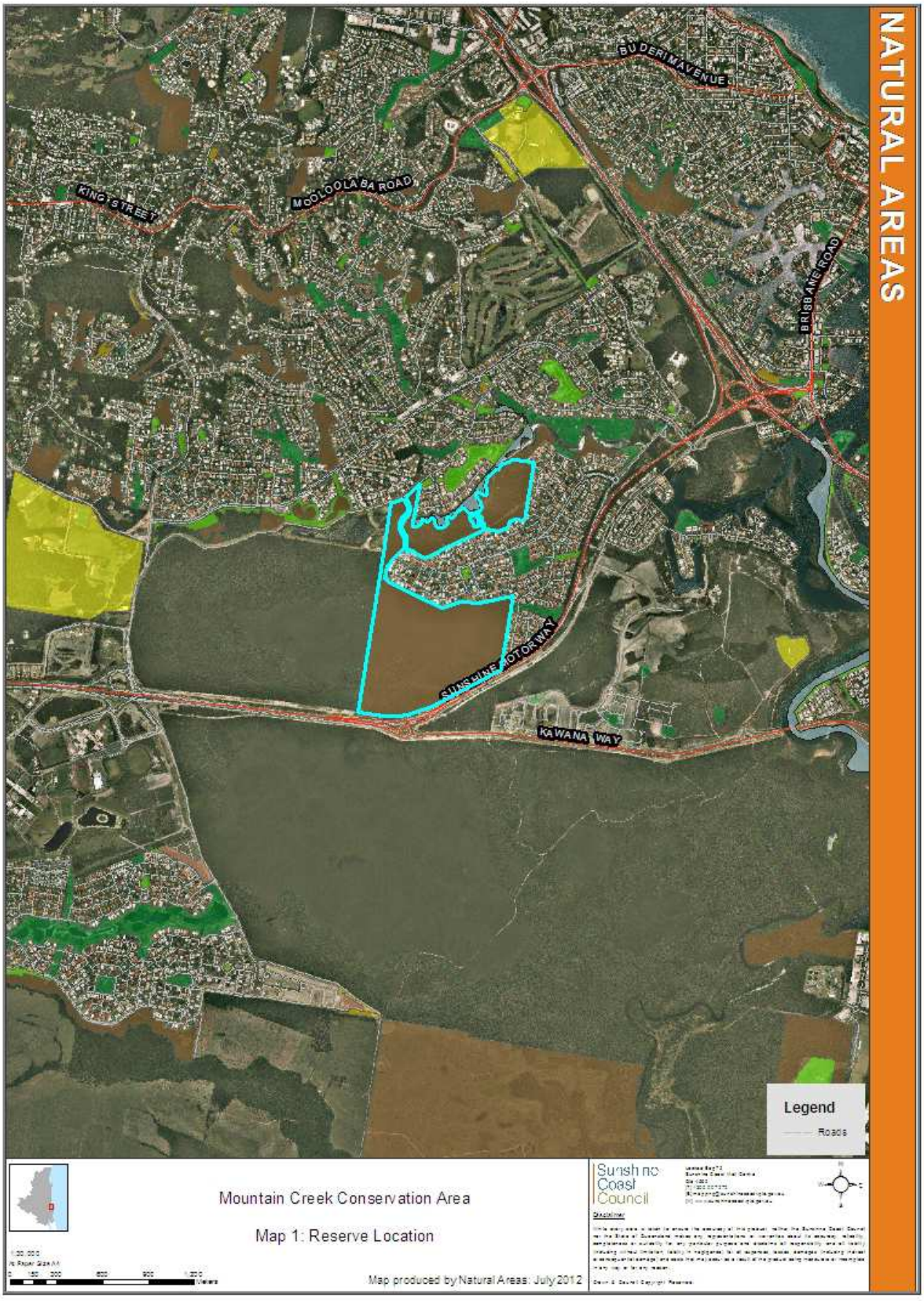
Fire Management Units (FMU) are those areas within which fire can be managed to achieve the management objectives.

The FMUs are defined by existing fire trails, internal tracks, fuel reduced zones 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:

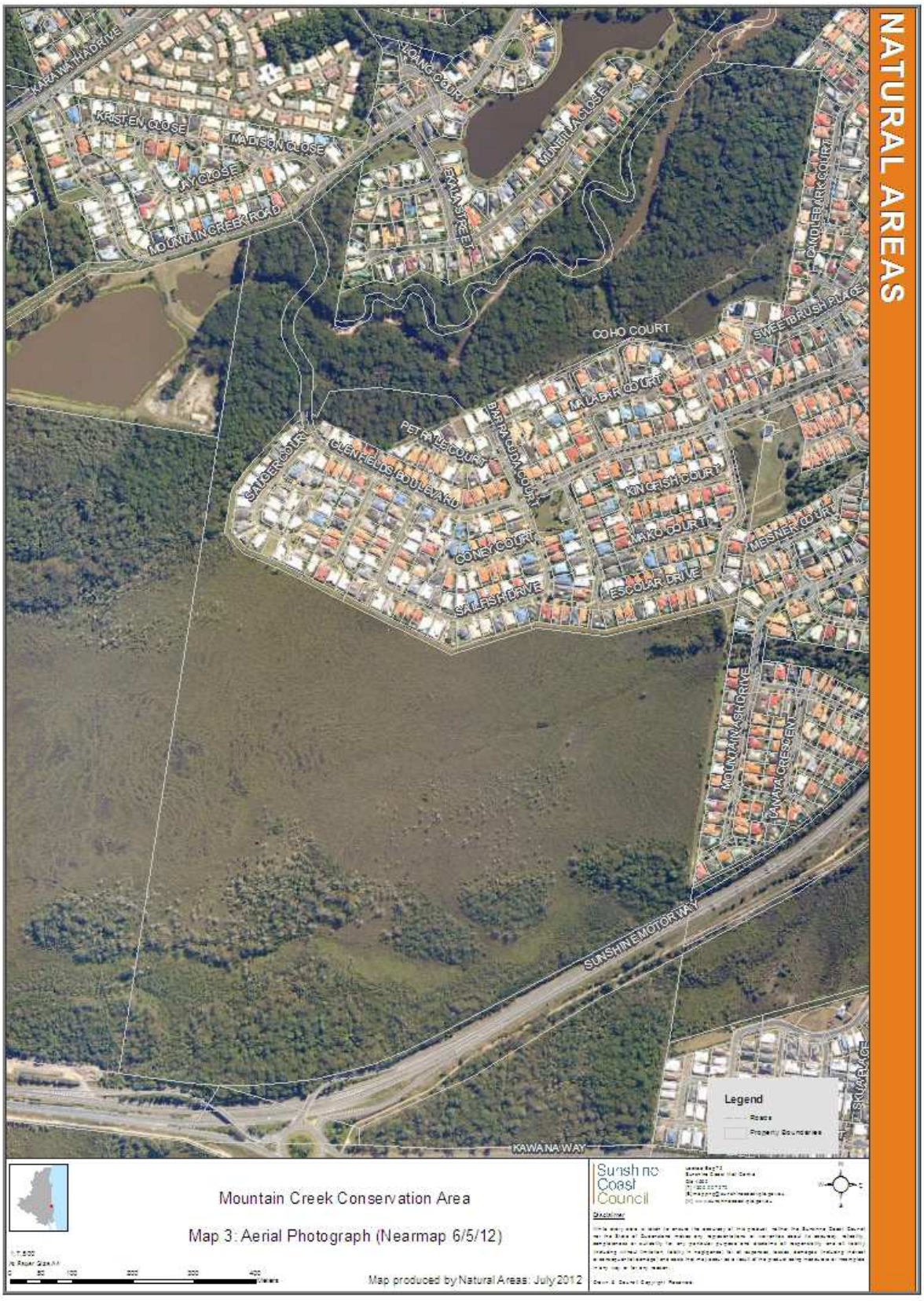
- Property protection,
- Protection of sensitive and significant vegetation or habitats; and
- Management of appropriate fuel loads.

Map 1 -Reserve Location



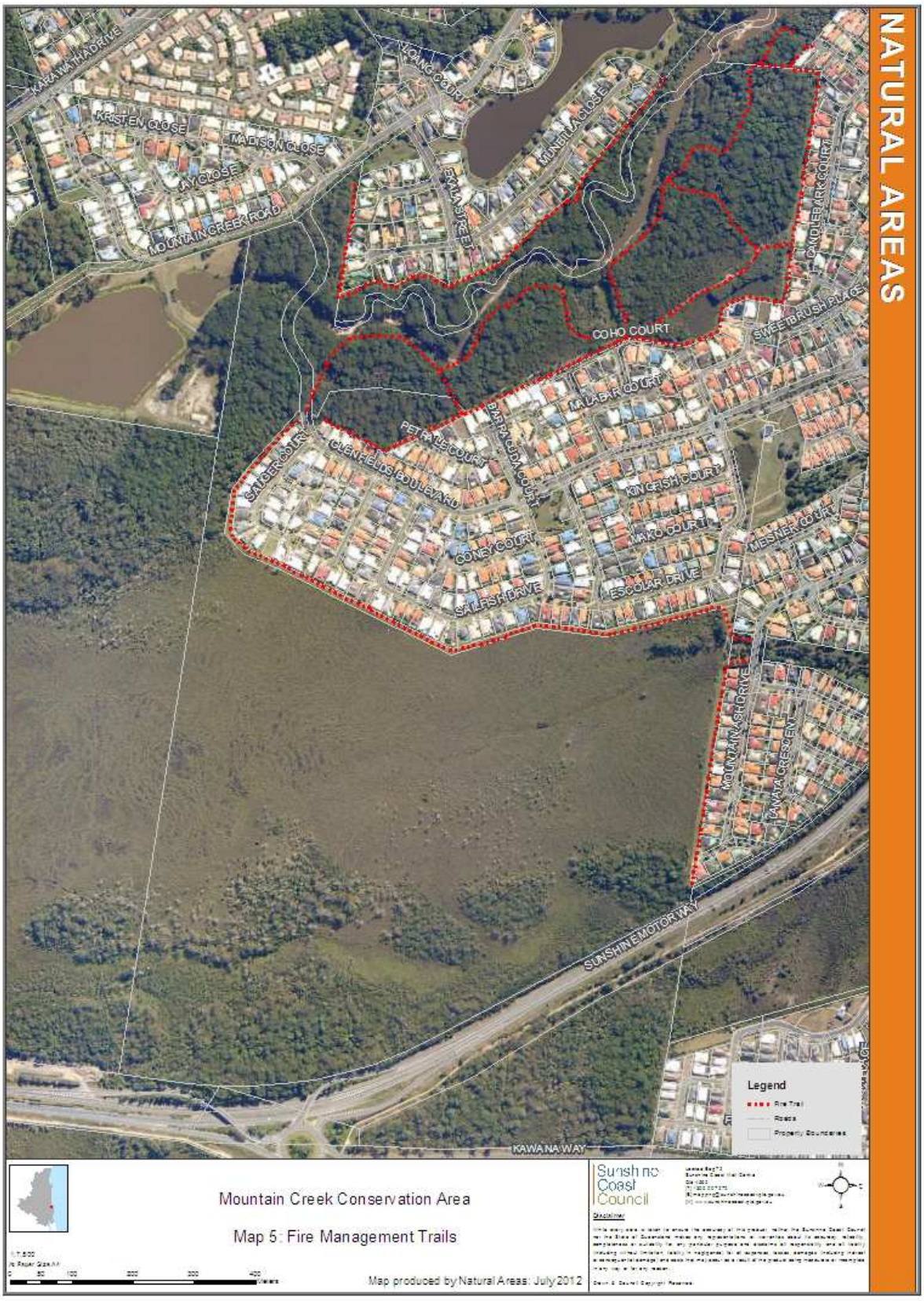
Map 2 -Regional Ecosystems

Map 3 -Aerial Photograph



Map 4 – Fire Management Units

Map 5 – Fire Management Trails



Map 6 – Fire History

Fire Management Units – Management Prescriptions

Block Number	Management Unit 1
Description	This management area is located in the southern portion of the reserve. The area has a good cover of vegetation dominated by wet heath. The management area is bounded on the west by Mooloolah River National Park and on the south by the Sunshine Motorway. The northern and eastern boundaries are the fire trail that runs along the south western boundary of the Glenfields estate (see Map 5).
Access to FMU	Access is via Glenfields Boulevard and Mountain Ash Drive.
Water sources	There are fire hydrants on local streets in the area.
Vegetation communities	This area is dominated by RE 12.3.13 - Closed heathland on seasonally waterlogged alluvial plains usually near coast.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 8-20 years to protect the ecological values of the reserve.
Management prescriptions	1. Undertake planned burns every 8-20 years to maintain ecological values. 2. Unplanned fires will be difficult to extinguish in this Management Unit given the very limited access. Control of unplanned fires would most likely occur through backburning from the fire trail along the south western boundary of the Glenfields estate.
Burning regime	Burning unit (8-20 years)

Block Number	Management Unit 2
Description	This management area is located in the northern portion of the reserve. The area has a good cover of vegetation dominated by shrubby open forest. The management area is bounded on all sides by the fire trail network (see Map 5).
Access to FMU	Access is via Glenfields Boulevard and Petrale Court.
Water sources	There are fire hydrants on local streets in the area.
Vegetation communities	This area is dominated by RE 12.3.2 - *Eucalyptus grandis* tall open forest on alluvial plains.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 8-10 years to protect the ecological values of the reserve, specifically the *Acacia attenuata* identified in this FMU. This frequency is in line with the National Recovery Plan for *A. attenuata*.
Management prescriptions	1. Undertake planned burns every 8-10 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 (8-10 years) (Prescribed burn 2012)

Block Number	Management Unit 3
Description	This management area is located in the northern portion of the park. The area has a good cover of vegetation dominated by shrubby open forest. The management area is bounded on all sides by the fire trail network (see Map 5).
Access to FMU	Access is via Coho Court and Petrale Court.
Water sources	There are fire hydrants on local streets in the area.
Vegetation communities	This area is dominated by RE 12.3.2 - *Eucalyptus grandis* tall open forest on alluvial plains.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-15 years to protect the ecological values of the reserve and establish a mosaic of burnt and unburnt areas.
Management prescriptions	1. Undertake planned burns every 10-15 years to maintain ecological values and establish a mosaic of burnt and unburnt areas. 2. Extinguish all unplanned fires should they commence within the open forest/woodland components of the Management Unit.
Burning regime	Burning unit (10-15 years)

Block Number	Management Unit 4
Description	This management area is located in the northern portion of the park. The area has a good cover of vegetation dominated by shrubby open forest with an area of heath in the southern section of the FMU. The management area is bounded on all sides by the fire trail network (see Map 5).
Access to FMU	Access is via Coho Court.
Water sources	There are fire hydrants on local streets in the area.
Vegetation communities	This area is dominated by RE 12.3.2 - *Eucalyptus grandis* tall open forest on alluvial plains with an area of RE 12.3.13 - Closed heathland on seasonally waterlogged alluvial plains usually near coast.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-15 years to protect the ecological values of the reserve and establish a mosaic of burnt and unburnt areas.
Management prescriptions	1. Undertake planned burns every 10-15 years to maintain ecological values and establish a mosaic of burnt and unburnt areas. 2. Extinguish all unplanned fires should they commence within the open forest/woodland components of the Management Unit.
Burning regime	Burning unit (10-15 years)

Block Number	Management Unit 5
Description	This management area is located in the northern portion of the park. The area has a good cover of vegetation dominated by heath. The management area is bounded on all sides by the fire trail network (see Map 5).
Access to FMU	Access is via Coho Court and Felicia Court.
Water sources	There are fire hydrants on local streets in the area.
Vegetation communities	This area is dominated by RE 12.3.13 - Closed heathland on seasonally waterlogged alluvial plains usually near coast.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 8-20 years to protect the ecological values of the reserve and establish a mosaic of burnt and unburnt areas.
Management prescriptions	1. Undertake planned burns every 8-20 years to maintain ecological values and establish a mosaic of burnt and unburnt areas. 2. Extinguish all unplanned fires should they commence within the open forest/woodland components of the Management Unit.
Burning regime	Burning unit (8-20 years)

Block Number	Management Unit 6
Description	This management area is located in the northern portion of the park. The area has a good cover of vegetation dominated by shrubby open forest. The management area is bounded on all sides by the fire trail network (see Map 5).
Access to FMU	Access is via Coho Court and Felicia Court.
Water sources	There are fire hydrants on local streets in the area.
Vegetation communities	This area is dominated by RE 12.3.2 - *Eucalyptus grandis* tall open forest on alluvial plains.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-15 years to protect the ecological values of the reserve and establish a mosaic of burnt and unburnt areas.
Management prescriptions	1. Undertake planned burns every 10-15 years to maintain ecological values and establish a mosaic of burnt and unburnt areas. 2. Extinguish all unplanned fires should they commence within the open forest/woodland components of the Management Unit.
Burning regime	Burning unit (10-15 years)

Block Number	Management Unit 7
Description	This management area is located in the northern portion of the park and runs along the banks of Mountain Creek. The area has a good cover of vegetation dominated by riparian vegetation. The management area is bounded on the western side by private property, on the northern side by Mountain Creek and on the southern side by the fire trail network (see Map 5).
Access to FMU	Access to this area is via Mountain Creek Road and Araluen Close.
Water sources	There are fire hydrants on local streets in the area.
Vegetation communities	This area is dominated by RE 12.3.2 - *Eucalyptus grandis* tall open forest on alluvial plains.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a non-burning unit given the riparian nature to protect the ecological values of the reserve given that this section has a high density of rainforest species in the mid and understorey.
Management prescriptions	1. Extinguish all unplanned fires should they commence within the open forest/woodland components of the Management Unit.
Burning regime	Non-burning unit

General recommendations

- Ongoing maintenance of fire trails throughout the reserve.
- Undertake prescribed burning in line with the recommendations in this plan.

Action Required	By whom	Priority	Timeframe
Maintenance of fire trails	SCC	Medium	Ongoing
Prescribed burns as per this plan	SCRC, QPWS and QFRS	Medium	Ongoing

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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