Fire Management Plan

Maroochy Bushland Botanic Gardens and Tall Gums Environmental Reserve, Tanawha.

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Sunshine Coast™ COUNCIL

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Introduction

This fire management plan has been prepared to address community safety and the maintenance of ecological values in Tanawha Tall Gums Conservation Area, Tall Gums Environmental Reserve and Maroochy Regional Bushland Botanic Gardens (the reserve). As these reserves share common boundaries and have large areas of contiguous vegetation a single Fire Management Plan has been developed. The reserve is located to the west of the Bruce Highway at Tanawha.

Legislative requirements

Qld Fire and Emergency Services Act (1990)

Sunshine Coast Council (SCC) and its corporatised entities as well as all other entities which are owned and/or managed on behalf of SCC and who are responsible for the management of land, are considered to be a land occupier under the *Fire and Emergency Services Act* 1990 (s67). The *Fire and Emergency Services Act* 1990 is the head of power for the Qld Fire and Emergency Services (QFES) 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 SCC 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 SCC to obtain a permit to burn from the closest QFES station or fire warden prior to conducting any burns within their property.

Local Laws – SCC

Sunshine Coast Council Local Law No. 3 (Community Health and Environmental Management) 2011 and Sunshine Coast 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 Emergency Services Act. All burns undertaken by Council will be within the QFES permit system so the local laws do not apply.

Site description

Location

The property is described as Lot 97 on SP269566 and Lot 20 on SP156668. The size of the combined properties is approximately 170 hectares (see Map 1).

A sealed road provides access to the reserve via Palm Creek Road from the north. Access can also be gained through a locked gate on Radbourne Road. A fire trail from Wilson Road provides access from the south (See photo 1 below).

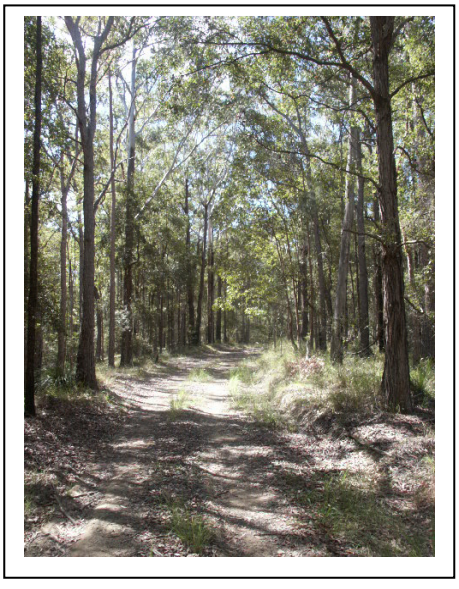


Photo 1 – Fire trail along main ridge.

Landscape

The dominant landscape features are the rainforest dominated gullies that run into Mountain Creek in the northern section of the reserve. Within the open space area there is a large dam that provides a focus for the Botanic Gardens. A series of ridges running from the southern boundary north divide the reserve.

Vegetation

Version 8 Regional Ecosystem mapping identifies six 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 subsp. 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*. This RE is listed as "Least Concern". (See photo 2 below)

Photo 2 – *Eucalyptus pilularis* open forest.

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).

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. 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. A follow-up burn soon after a high intensity wildfire can be considered to reduce germinating mesic species. This RE may contain a high number of rare and threatened plant species which require appropriate fire management.

12.3.1 – Complex to simple notophyll vine forest. *Waterhousea floribunda* is predominant fringing stream channels. Other species can include *Cryptocarya hypospodia, C. obovata, C. triplinervis, Argyrodendron trifoliolatum, Ficus coronata, F. fraseri, F. macrophylla* forma *macrophylla, Aphananthe philippinensis, Elaeocarpus grandis, Grevillea robusta, Castanospermum australe* and *Syzygium francisii*. *Ficus racemosa* and *Nauclea orientalis* in north of bioregion. *Eucalyptus* spp. emergents (e.g. *E. grandis*) and *Araucaria cunninghamii*; less commonly *Agathis robusta* may also be present. Occurs on Quaternary alluvial plains and channels. This RE is listed as "Endangered".

Fire management guidelines for this RE are;

STRATEGY: Do not burn deliberately. Protection relies on broad-scale management of surrounding country. May need active protection from wildfire in extreme conditions or after prolonged drought. Planned burns should not create a running fire into vine forest. Ensuring conditions of good soil moisture and moisture of litter in surrounding communities will limit fire behaviour/intensity.

ISSUES: Fire sensitive and not normally flammable. Some preliminary work suggests rainforest seedling germination from planned burning activities will assist the establishment of seedlings in newly burnt areas, especially due to smoke. There may be issues with lantana and other weeds from fire and other disturbance. Remnants may be limited by frequent fire at the margins; this requires further research.

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. Much of this RE is prone to infestation by weeds, especially *Lantana camara*. This RE requires fire for regeneration. This RE is listed as "Of Concern".

Fire management guidelines for this RE are;

SEASON: Late summer to autumn.

INTENSITY: Moderate to high.

INTERVAL: Minimum 20 years, maximum unknown, 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.

12.9-10.17d - Open forest generally containing *Eucalyptus siderophloia*, *E. propinqua*, *Corymbia intermedia*. Other characteristic species include *Lophostemon confertus*, *Eucalyptus microcorys* and *E. acmenoides* or E. *portuensis*. Other species that may be present locally include *Corymbia trachyphloia* subsp. *trachyphloia*, *C. citriodora* subsp. *variegata*, *E. longirostrata*, *E. carnea*, E. *moluccana* and occasional vine forest species. Hills and ranges on Cainozoic and Mesozoic sediments. 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. 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. A follow-up burn soon after a high intensity wildfire can be considered to reduce germinating mesic species. This RE may contain a high number of rare and threatened plant species which require appropriate fire management.

12.9-10.1 - Tall open forest. Canopy species include *Eucalyptus resinifera*, *E. grandis*, *E. robusta*, *Corymbia intermedia* +/- *E. microcorys*, *Melaleuca quinquenervia*, *Syncarpia glomulifera* subsp. *glomulifera* and *Lophostemon confertus*. Occurs on Cainozoic and Mesozoic sediments. This RE is listed as "Of 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).

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. A grassy system is especially important for species such as the eastern bristlebird and its habitat. 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. A follow-up burn soon after a high intensity wildfire can be considered to reduce germinating mesic species. This 'of concern' RE contains a number of rare and threatened plant species (e.g., Boronia keysii) which require appropriate fire management.

12.9-10.16 - Microphyll to notophyll vine forest +/- *Araucaria cunninghamii*. Characteristic species include *Argyrodendron* sp. (Kin Kin W.D.Francis AQ81198), *Araucaria cunninghamii*, *Agathis robusta*, *Backhousia myrtifolia*, *Cupaniopsis parvifolia*, *Dendrocnide photinophylla*, *Rhodosphaera rhodanthema*, *Flindersia australis*, *F. xanthoxyla*, *Drypetes deplanchei*, *Olea paniculata*, *Diospyros geminata*, *Gossia bidwillii*, *Excoecaria dallachyana* and *Vitex lignum-vitae*. Occurs on Cainozoic and Mesozoic sediments. This RE is listed as "Of Concern".

Fire management guidelines for this RE are;

STRATEGY: Do not burn deliberately. Protection relies on broad-scale management of surrounding country. May need active protection from wildfire in extreme conditions or after prolonged drought. Planned burns should not create a running fire into vine forest. Ensuring conditions of good soil moisture and moisture of litter in surrounding communities will limit fire behaviour/intensity.

ISSUES: Fire sensitive and not normally flammable. Some preliminary work suggests rainforest seedling germination from planned burning activities will assist the establishment of seedlings in newly burnt areas, especially due to smoke. There may be issues with lantana and other weeds from fire and other disturbance. Remnants may be limited by

frequent fire at the margins; this requires further research.

A detailed flora survey was undertaken in 1998 by Ann Moran for Maroochy Shire Council with 347 plant species identified. This includes 39 introduced plant species.

The western portion of the reserve (Tall Gums Environmental Reserve) was purchased by Council in 2014. A detailed flora survey was undertaken by Garry Thomas and found 211 native species and 16 introduced species.

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

- *Ricinopcarpos speciosus* (vulnerable)
- *Helicia ferruginea* (vulnerable)
- *Pararistolochia praevenosa* (near threatened)

Ricinocarpos speciosus is likely to be the only of these four species to be impacted by fire as the others occur in the rainforest communities. The exact location of this species needs to be identified prior to undertaking any planned burns.

Fauna

No detailed fauna surveys have been undertaken in the reserve. Site inspection shows evidence of fauna such as scats, tree scratching and soil disturbance have been observed. There are regular sightings of Koalas within the reserve.

Given the large size of the reserve and permanent water in the dams and streams it is likely that a range of fauna is present within the reserve. Surveying of fauna populations is recommended.

Summary of Ecological Issues

The reserve is dominated by open forest with RE 12.9 – 10.14 dominant. Anecdotal evidence is that fire has generally been excluded for approximately 40 years and this has encouraged the expansion of rainforest species from the gullies into the open forest communities. Periodic fire is required to maintain the grassy open forest understorey. The rainforest communities along the main creek lines require protection from inte nse fire for their long term survival.

Photo 3 – Rainforest vegetation along gully.

There are several nearby private properties that are well vegetated which give the potential for an intense wildfire to impact on the reserve. Undertaking planned burns will help to maintain the grassy open forest and reduce the impact on the rainforest communities in the event of a severe wildfire. Engaging neighbouring residents to discuss fire management activities may lead to planned burns that utilise landscape features such as ridgelines and creeks as boundaries rather than property boundaries.

Given the large size of the reserve 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 and provide a range of post-fire habitats.

Fire hazard

State Planning Policy – Fire Hazard Assessment Methodology

The State Government replaced State Planning Policy (SPP01/03) with a new single SPP in 2013. This SPP also includes state-wide mapping of bushfire hazards.

The SPP is predominantly to be referred to with respect to new development within Queensland. The SPP mapping data provides a trigger for local governments to investigate and consider the relevant interest and does not automatically preclude development. The mapping is amended from time to time to ensure the most recent state information is available.

The Sunshine Coast Council Planning Scheme 2014 includes bushfire hazard mapping that was prepared using the old methodology from SPP 1/03. Both mapping products show the reserve has a mixture of high to very high bushfire hazard areas as well as low hazard areas where the vegetation is dominated by rainforest species. Both mapping products are provided below in Maps 3a & 3b.

Other considerations

There are vegetated land parcels surrounding the reserve, which increases the overall area of vegetation available during a bushfire and the potential for landscape scale bushfires to enter the reserve. Overall the fire hazard has been assessed as being high, given the large size of the reserve and large areas of vegetation on nearby private properties.

There are significant assets that require protection from fire. These include the Arts & Ecology Centre as well as recreational infrastructure associated with the botanic gardens such as picnic tables and shelters, public toilets and interpretive items throughout the developed area of the reserve. Given the high degree of community participation and ownership of the botanic gardens it is essential that effective protection measures be in place to reduce the impact of any wildfires to this infrastructure (see Photo 4).

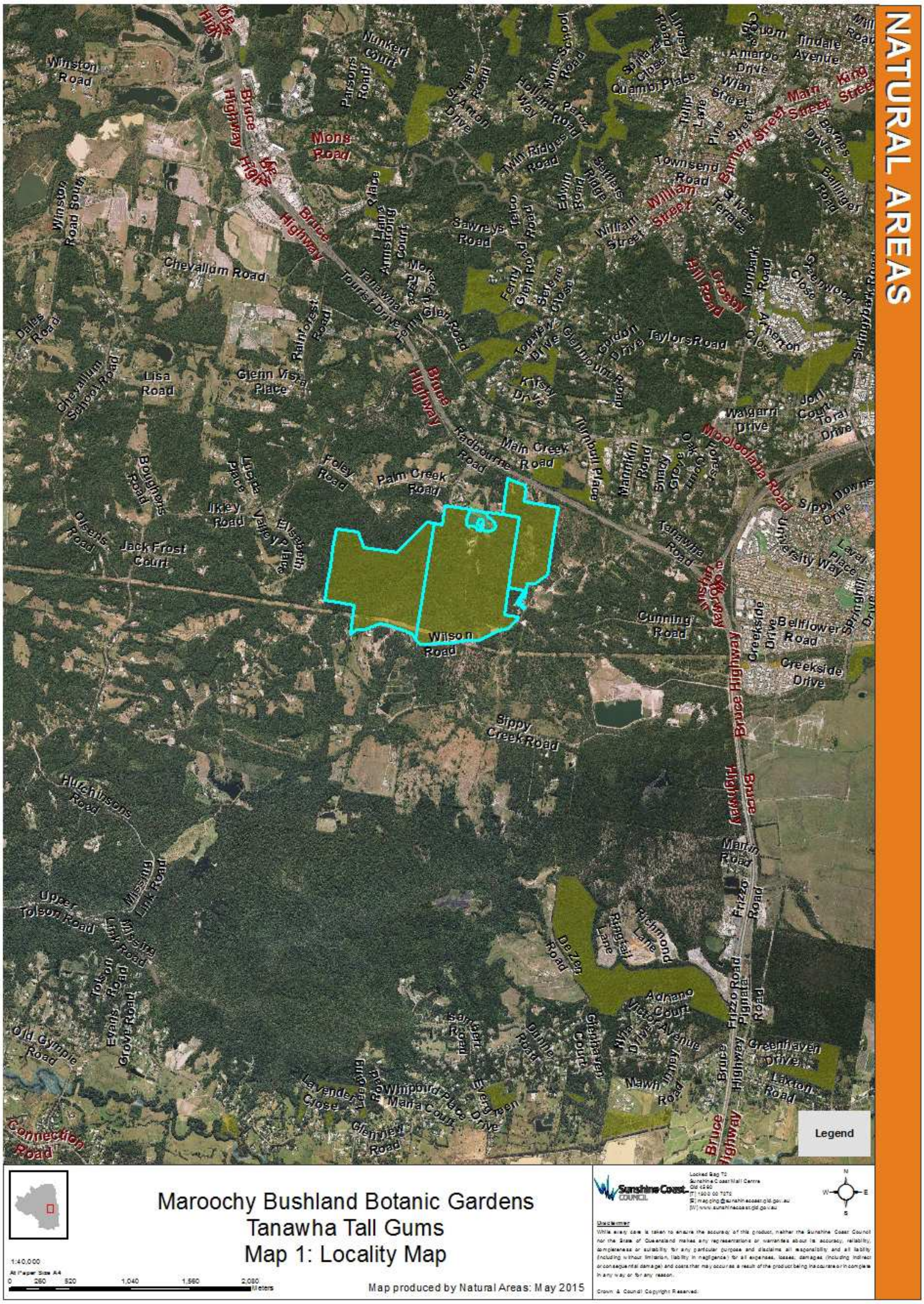
Photo 4 – Arts & Ecology Centre.

There are a number of historical tracks within the reserve that have been reopened for use in fire management activities. The re-establishment of these tracks is useful for undertaking planned burns, and as fire trails for the control of low to medium intensity wildfires.

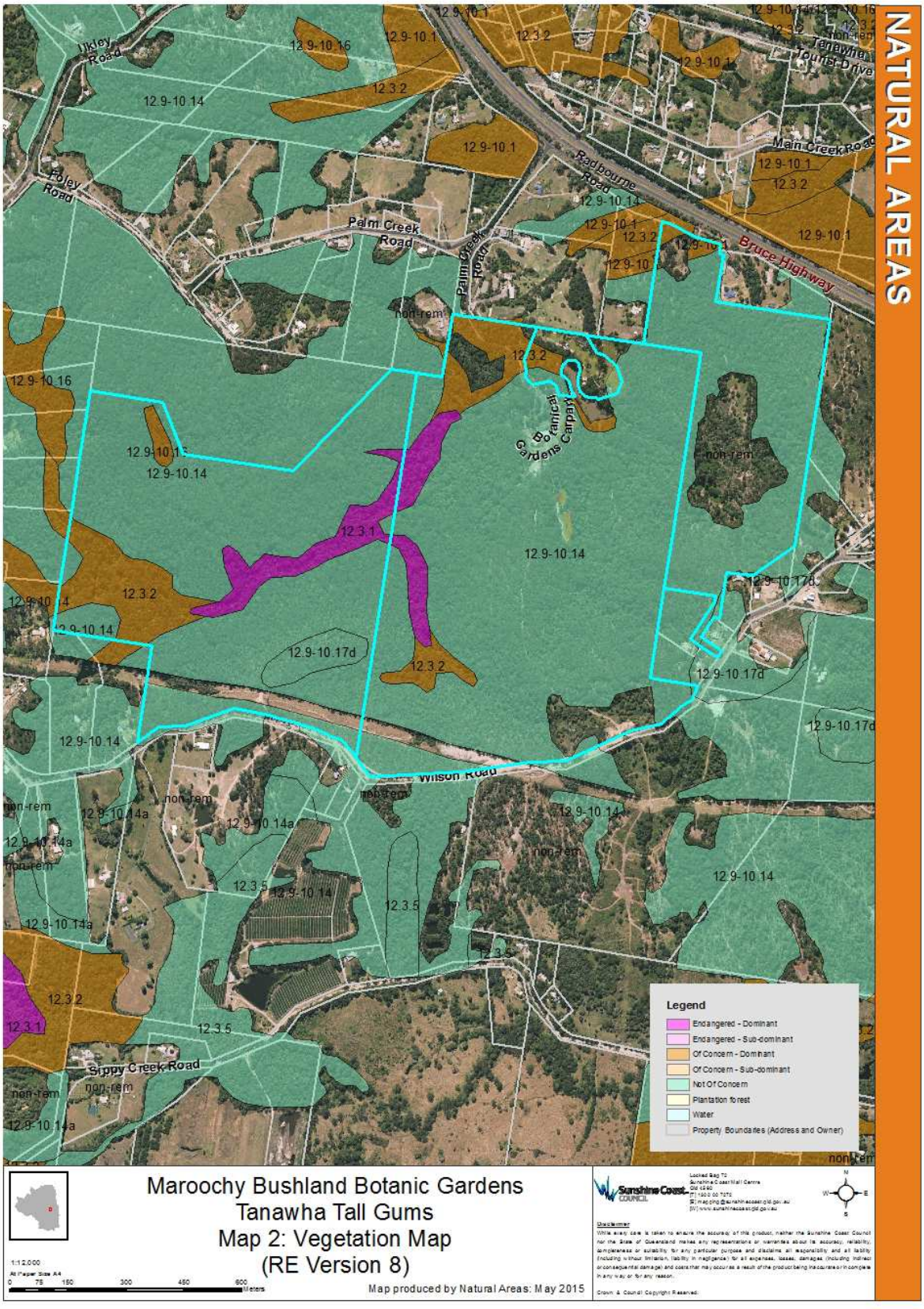
The primary fire trails provide access along the two main ridgelines. Additional new fire trails and walking tracks have created a number of Fire Management Units for planned burn operations. The Fire Management Units are presented in Map 5 and the Fire Trail network is presented in Map 6.

The existing sealed roads and car park provides good protection for the Arts & Ecology Centre in the event of a wildfire as both a fuel free area and to provide access for fire fighting vehicles. Specific firefighting water tanks were installed when the building was constructed. The large dam and spillway area provides an additional source of firefighting water.

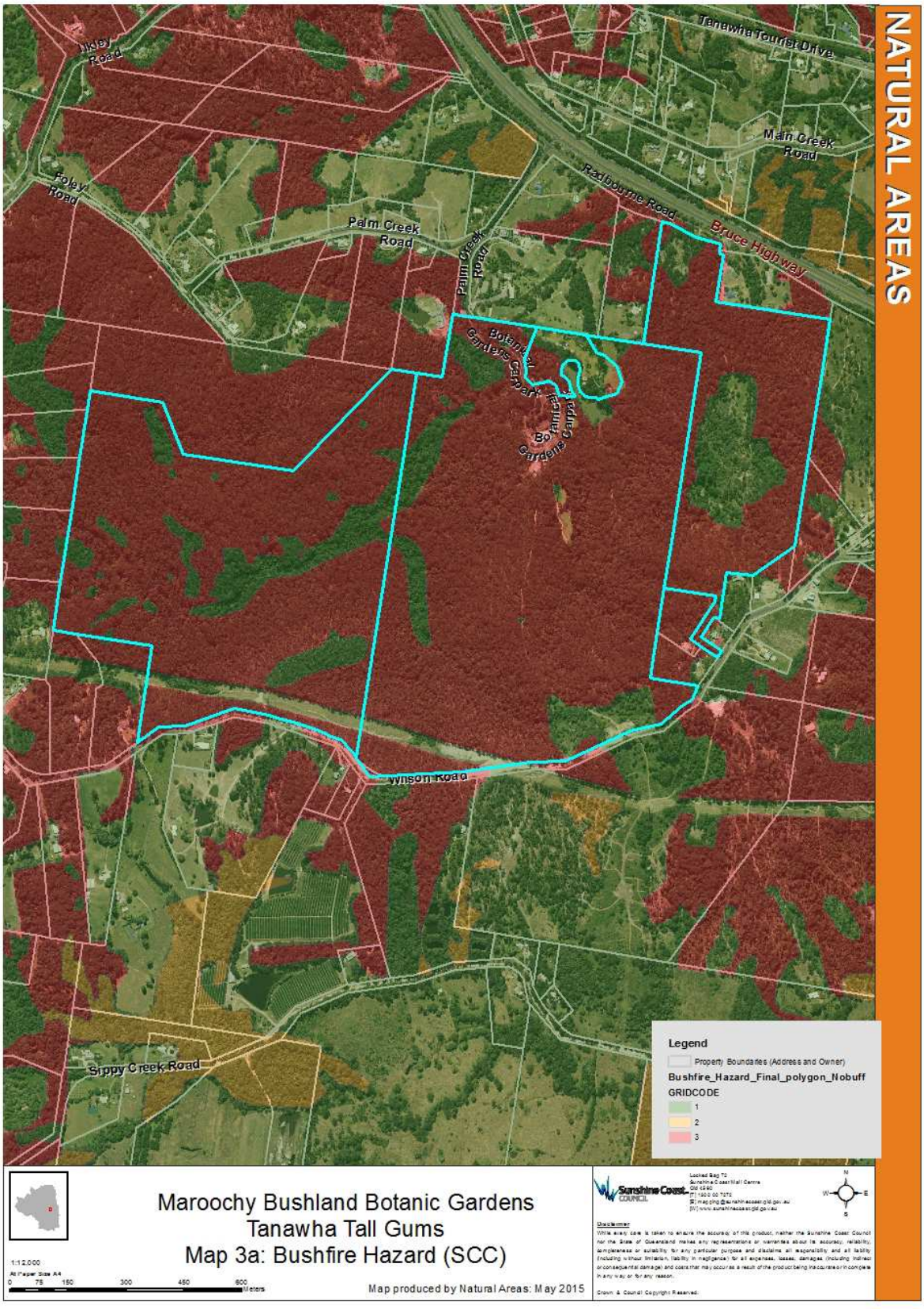
Map 1 – Locality Map



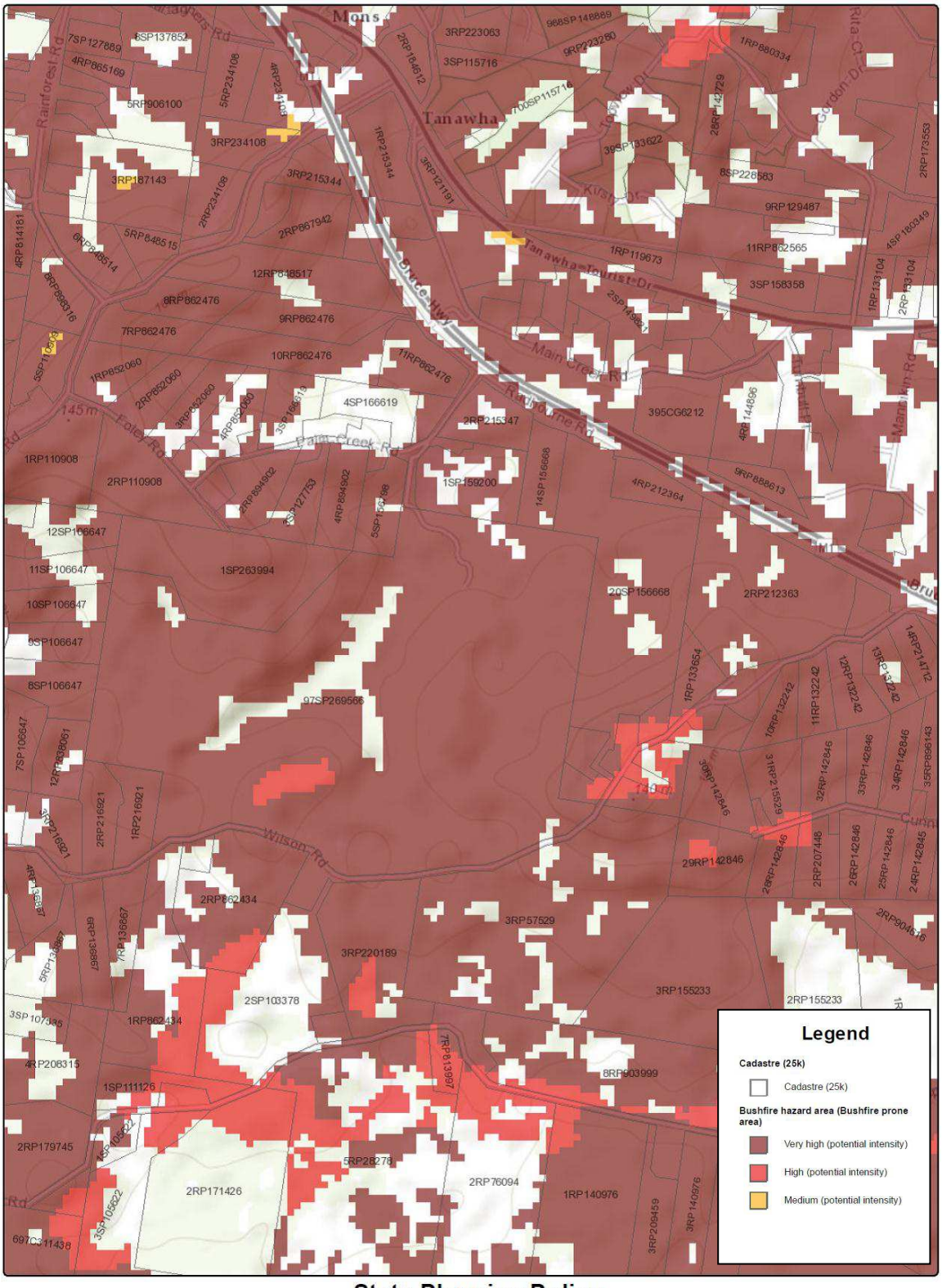
Map 2 – Vegetation Map



Map 3a – Bushfire Hazard Map (SCC)



Map 3b – Bushfire Hazard Map (SPP)



State Planning Policy

Local government development assessment

Department of State Development Infrastructure and Planning

Queensland Government

0 95 190 380 570 760

Metres

Date: 15/05/2015

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. The department holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties.
Please note whilst Bushfire Hazard Areas have not been triggered they may still apply.

Planning methodology

Field assessment

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

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 firebreaks, fire trails, internal tracks and property boundaries.

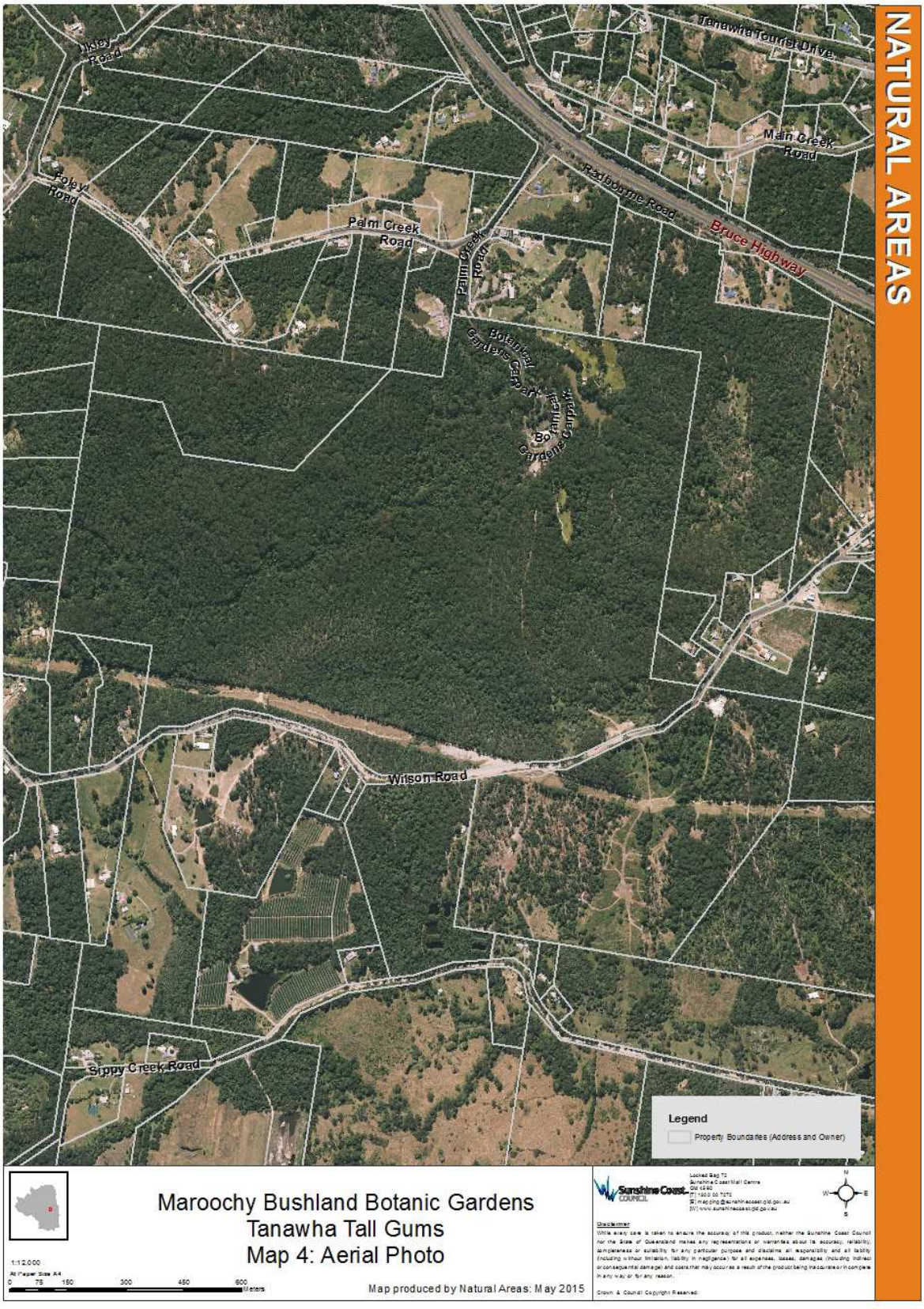
The FMUs have been identified in Map 5.

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

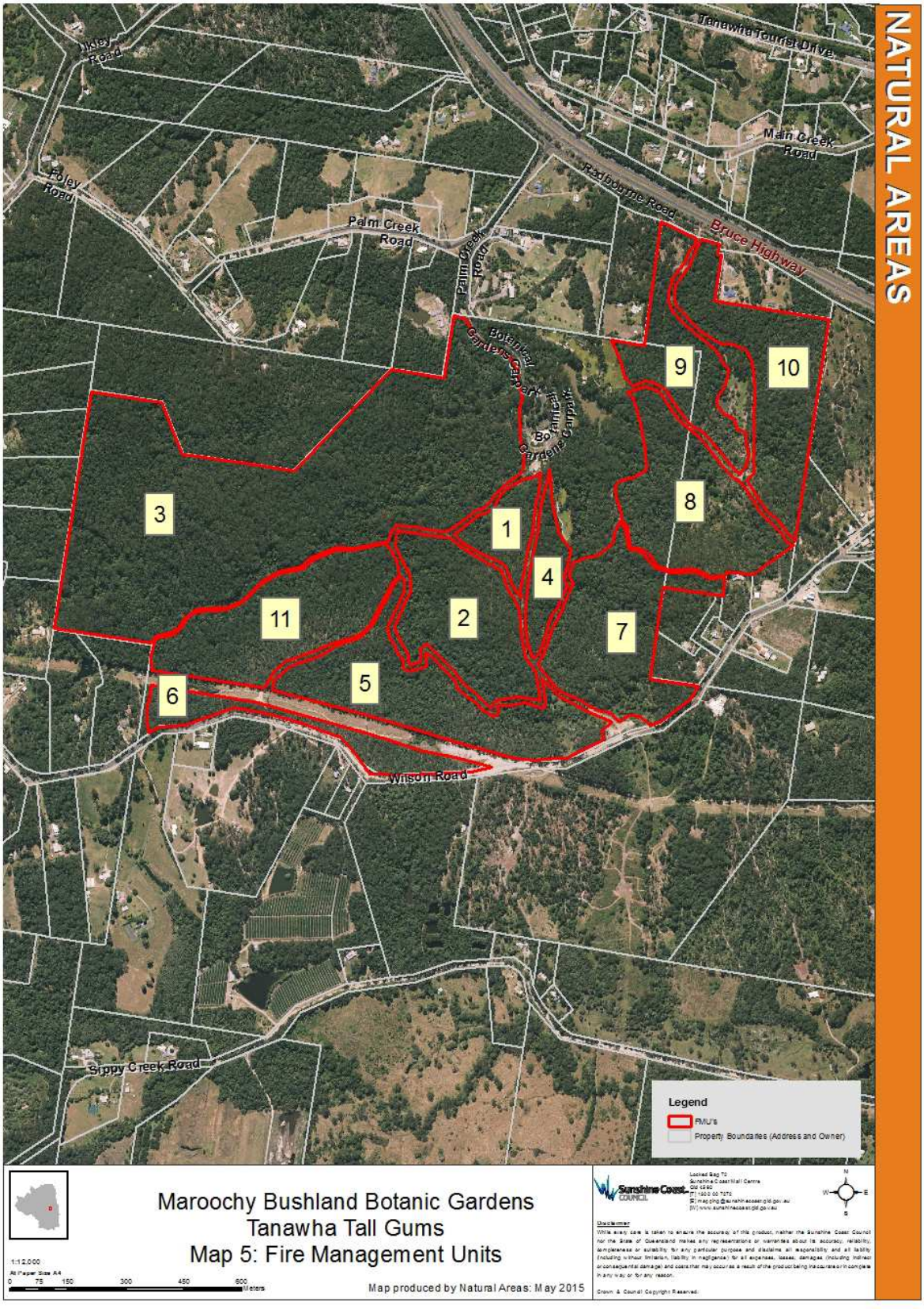
- Property protection,
- Protection of sensitive and significant vegetation or habitats; and

Management of appropriate fuel loads.

Map 4 -Aerial Photograph



Map 5 – Fire Management Units



Map 6 – Fire Management Trails

Map 7 – Fire History

Fire Management Units – Management Prescriptions

Block Number	Management Unit 1
Description	This management area is located in the central portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest. The management area is bounded on the west by FMU3 and on the south by FMU2. The eastern boundary is the main fire trail that leads to Wilson Rd and the northern boundary is the main car park (see Map 5).
Access to FMU	Access is via Palm Creek Road and Wilson Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
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.
Management prescriptions	1. Undertake planned burns every 10-15 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 (10-15 years) Last burnt in 2009

Block Number	Management Unit 2
Description	This management area is located in the central portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest. The management area is bounded on the western and southern sides by upland creek walk. The eastern boundary is the main fire trail that leads to Wilson Rd and the northern boundary is the fire trail between FMU1 & FMU3 (see Map 5).
Access to FMU	Access is via Palm Creek Road and Wilson Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
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.
Management prescriptions	1. Undertake planned burns every 10-15 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 (10-15 years)

Block Number	Management Unit 3
Description	This management area is located in the north-western portion of the reserve. The area has a good cover of vegetation with rainforest communities dominant along Mountain Creek and open forest along the ridges and slopes. The management area is bounded on west and north by private property, on the east by the Gardens carpar and on the south by FMU1, FMU2 & FMU11 (see Map 5).
Access to FMU	Access is via Palm Creek Road and Wilson Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks. Along the waterways the vegetation is dominated by RE 12.3.1 – Gallery rainforest (Notophyll vine forest) on alluvial plains, merging into RE 12.3.2 – *Eucalyptus grandis* tall open forest on alluvial plains in the northern section.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a non-burning unit to protect the rainforest vegetation along Mountain Creek. ➢ If neighbouring properties wish to undertake planned burns it is possible to allow low intensity burns to self extinguish on reaching the edges of the rainforest community.
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

Block Number	Management Unit 4
Description	This management area is located in the central portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest. The management area is bounded on the south, east and west sides by the fire trail network and on the north by the sculpture garden (see Map 5).
Access to FMU	Access is via Palm Creek Road and Wilson Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
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.
Management prescriptions	1. Undertake planned burns every 10-15 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 (10-15 years)

Block Number	Management Unit 5
Description	This management area is located in the southern portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest merging into rainforest along the creeklines The management area is bounded on the east and north by the upland creek walk, on the west by FMU11 and by a slashed power easement on the south (see Map 5).
Access to FMU	Access is via the slashed power easement.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks. There are some small areas of 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. Allow low intensity burns to self extinguish on reaching the edges of the rainforest community. Do not undertake planned burns during dry conditions when fire may impact on the rainforest communities.
Management prescriptions	1. Undertake planned burns every 10-15 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 (10-15 years)

Block Number	Management Unit 6
Description	This management area is located in the south-western portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest. The management area is bounded on the north by a slashed power easement, to the south by Wilson Road and to the west by private property (see Map 5).
Access to FMU	Access is via the slashed power easement and Wilson Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
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.
Management prescriptions	1. Undertake planned burns every 10-15 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 (10-15 years)

Block Number	Management Unit 7
Description	This management area is located in the south eastern portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest with some rainforest species establishing along the creeklines. There are some areas near Wilson Road by *Lantana camara*. The management area is bounded on the east by private property, on the north by FMU8, on the west by FMU4 and on the south by the main fire trail (see Map 5).
Access to FMU	Access to this area via the fire trail network and via private properties to the east.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-25 years to protect the ecological values of the reserve.
Management prescriptions	1. Undertake planned burns every 10-25 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 (10-25 years)

Block Number	Management Unit 8
Description	This management area is located in the eastern portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest. The management area is bounded on the east and north by the fire trail network, on the west by the sculpture garden and on the south by FMU7 and private property (see Map 5).
Access to FMU	Access is via Radbourne Road and Palm Creek Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens. The small dam on the eastern boundary of this Unit may be accessible by light attack vehicles for water supply.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-25 years to protect the ecological values of the reserve.
Management prescriptions	1. Undertake planned burns every 10-25 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 (10-25 years) Last burnt in 2010

Block Number	Management Unit 9
Description	This management area is located in the northern portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest with some disturbed regrowth in the southern portion. The management area is bounded on the east and south by the fire trail network, on the west by private property and on the north by Radbourne Road (see Map 5).
Access to FMU	Access is via Radbourne Road and Palm Creek Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens. The small dam on the northern boundary of this Unit may be accessible by light attack vehicles for water supply.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-25 years to protect the ecological values of the reserve.
Management prescriptions	1. Undertake planned burns every 10-25 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 (10-25 years)

Block Number	Management Unit 10
Description	This management area is located in the north eastern portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest with rainforest species establishing along the creek line. The management area is bounded on the northern and eastern sides by private property and on the western and southern sides by the main fire trail in Tanawha Tall Gums Conservation Area (see Map 5).
Access to FMU	Access is via Radbourne Road and Palm Creek Road.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens. The small dam on the fire trail may be accessible by light attack vehicles for water supply.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-25 years to protect the ecological values of the reserve.
Management prescriptions	1. Undertake planned burns every 10-25 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 (10-25 years)

Block Number	Management Unit 11
Description	This management area is located in the south western portion of the reserve. The area has a good cover of vegetation dominated by grassy open forest with rainforest along the creek line. The management area is bounded on the east by FMU2 & FMU5, on the west by private property, on the north by FMU 3 and on the south by the cleared power easement (see Map 5).
Access to FMU	Access is via Palm Creek Road and Wilson Road. Fire trail access into this unit is very limited.
Water sources	There are no fire hydrants in the area. Fire fighting water is available from the dam spillway in the Bushland Botanic Gardens.
Vegetation communities	This area is dominated by RE 12.9 – 10.14 - *Eucalyptus pilularis* tall open forest on sedimentary rocks.
Management objectives	➢ Manage all biodiversity values within the unit; ➢ Manage as a burning unit with fire frequencies between 10-25 years to protect the ecological values of the reserve.
Management prescriptions	1. Undertake planned burns every 10-25 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 (10-25 years)

General recommendations

- Undertake ongoing maintenance works on the fire trail network.
- Undertake prescribed burns as per this plan as resources and conditions allow.
- Investigate further those areas where private properties directly adjoin reserve boundaries to identify possible planned burns using landscape features as control lines.

Action Required	**By whom**	**Priority**	**Timeframe**
Maintenance works along fire trail network	SCC – contractor	Low	Ongoing
Undertake burns as per this FMP	SCC and QFES	Medium	Ongoing
Liaison with neighbours	SCC	Medium	As required