Sunshine Coast COUNCIL

Racemosa Environment Reserve Management Plan

2016 - 2026

Your Environment Levy in action

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Acknowledgements

Council wishes to thank all contributors and stakeholders involved in the development of this document.

Disclaimer

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Contents

1. Executive Summary

Racemosa Environment Reserve contributes 113.74 hectares of land to the region's conservation estate, protecting one of the most unique tracts of coastal lowland plains complex in the region. Sunshine Coast Councils Environmental Levy Land Acquisition Program funded the purchase of this 101.77 hectares site in 2011.

Racemosa Environment Reserve is situated approximately one kilometre southeast of the Landsborough village within the Pumicestone Passage catchment. A series of meandering streams traverse the landscape, draining the nearby catchment area south into Mellum Creek.

The subtle variations in topography support a mosaic of vegetation types, all of which have been significantly reduced buy landclearing throughiout the SEQ bioregion.

Four different regional ecosystems have been identified within this reserve, including three Of concern, and one listed as 'Endangered' under the *Vegetation Management Act 1999* (VMA). 73% of Racemosa Environment Reserve contains the 'Endangered' regional ecosystem RE 12.5.3. (*Eucalyptus racemosa subsp. racemosa* woodland on remnant tertiary surfaces), which is among the most poorly conserved RE on the Sunshine Coast (12% of its original extent remaining in the SCLGA).

Within these vegetation communities exists a rich diversity of native fauna and flora.

Fauna and flora surveys have identified at least 179 native plant and 84 native fauna species, including one plant species listed as 'Endangered'' and two 'acid frogs' listed as 'Vulnerable' under the *Nature Conservation Act 1992*. Furthermore, many of the species observed are uniquely adapted to the nutrient poor soils and acidic water associated with Coastal lowland plain ecosystems.

The occurrence of migratory birds and drought waifs[1] on site indicates that the site serves as an important refuge. Its location in the landscape also provides an important link between larger tracts of vegetation occurring to the south, north and northwest.

Habitat condition asessments conducted in 2012 identified the site with predominantly 'good' and 'very good' vegetation condition with 'moderate' and 'very poor' areas occurring along watercourses and the fire trail.

Since acquisition, the Sunshine Coast Council Natural Areas Environmental Operations branch has coordinated a range of establishment works to protect the reserve's inherent biodiversity values. These include:

- Fauna and flora surveys
- Fire trail upgraded and illegal tracks closed 2012
- Local biosecurity matters addressed through targeted weed control
- Approximately 3 hectares of exotic Slash Pine (*Pinus elliotti*) removed
- Threatened species mapped
- Annual Bush Regeneration Works Plan.

The Racemosa Environment Reserve Management Plan is supported by Councils Environment Reserves Network Management Plan (ERNMP)—an overarching guide to reserve management across the Sunshine Coast. From this Racemosa Environnment Reserve is in the "Conservation Reserve" category.

Under the conservation reserve category the management intent is to "*protect and enhance the site's significant terrestrial, riparian and aquatic habitats including various plant and animal communities"* The natural and cultural values in this category are highly sensitive to external impacts and therefore "*access is restricted and is managed through research permits and direct Council supervision".*

[1] An individual or group that migrate outside of their usual distribution in response to drought conditions.

2. Acknowledgements

Sunshine Coast Council acknowledges the establishment and management funding contributions received for this project under the Sunshine Coast Council Environment Levy Land Acquisition and Establishment Program.

Council also wishes to thank Birdlife Sunshine Coast for contributing bird species lists; Ron Farmer and Barbara and Ron Williams for providing a detailed history of the site and surrounding area; and Australia Zoo for providing previous fauna and flora survey reports.

Acknowledgement of Country

Sunshine Coast Regional Council acknowledges the traditional Country of the Kabi Kabi Peoples of the coastal plains and hinterlands of the Sunshine Coast and recognise that these have always been places of cultural, spiritual, social and economic significance.

We wish to pay respect to their Elders – past, present and emerging – and acknowledge the important role Aboriginal and Torres Strait Islander people continue to play within the Sunshine Coast community.

3. Introduction

This management plan supports Sunshine Coast Council's corporate vision "to be Australia's most sustainable region - healthy, smart and creative".

In order to achieve this, council's Environment and Liveability Strategy 2017 sets the strategic directions for the preservation and enhancement of the natural environment and the liveability of the region. The Natural Environment's biodiversity outcome is to ensure native plants, animals and habitats are healthy, resilient and valued by the community.

A key policy position to delivering on this outcome is that priority habitat areas are protected, enhanced, connected and responsive to changing environmental conditions.

3.1 Purpose of the Management Plan

This Management Plan provides an adaptive management framework developed under nationally recognised guidelines and principles of protected area management (see **Appendix 1**).

The purpose of this Plan is to describe the reserve's ecological, cultural, social and economic values and express the associated management actions required to maintain or enhance these values.

The Management Plan is subject to a 10 year review schedule underpinned by the framework of actions, relevant monitoring and evaluation strategies, and performance indicators described in this plan.

4. Description of the Reserve

4.1. Location and Description

Racemosa Environment Reserve is located at Hardwood Road, Landsborough (see **Figure 1**). The reserve comprises two lots—Lot 456 on CG2857 (SCC freehold) and Lot 744 on CG2857 (water reserve - SCC trustee)—with a total area of 113.74 hectares.

The main access to the reserve is via Wintzloff Road. Additional access to the northern and eastern boundaries is obtained via Forestry Road, off Steve Irwin Way. A fire trail off the northern boundary is the only existing trail in the reserve (see **Appendix 2a**).

The northern and eastern reserve boundaries adjoin pine plantations (Beerwah State Forest), while the landscape to the south and west is dominated by rural residential lots. Nestled in the southeast corner of the "L" shaped site is a private property that retains small patches of native vegetation along its eastern and southern boundaries.

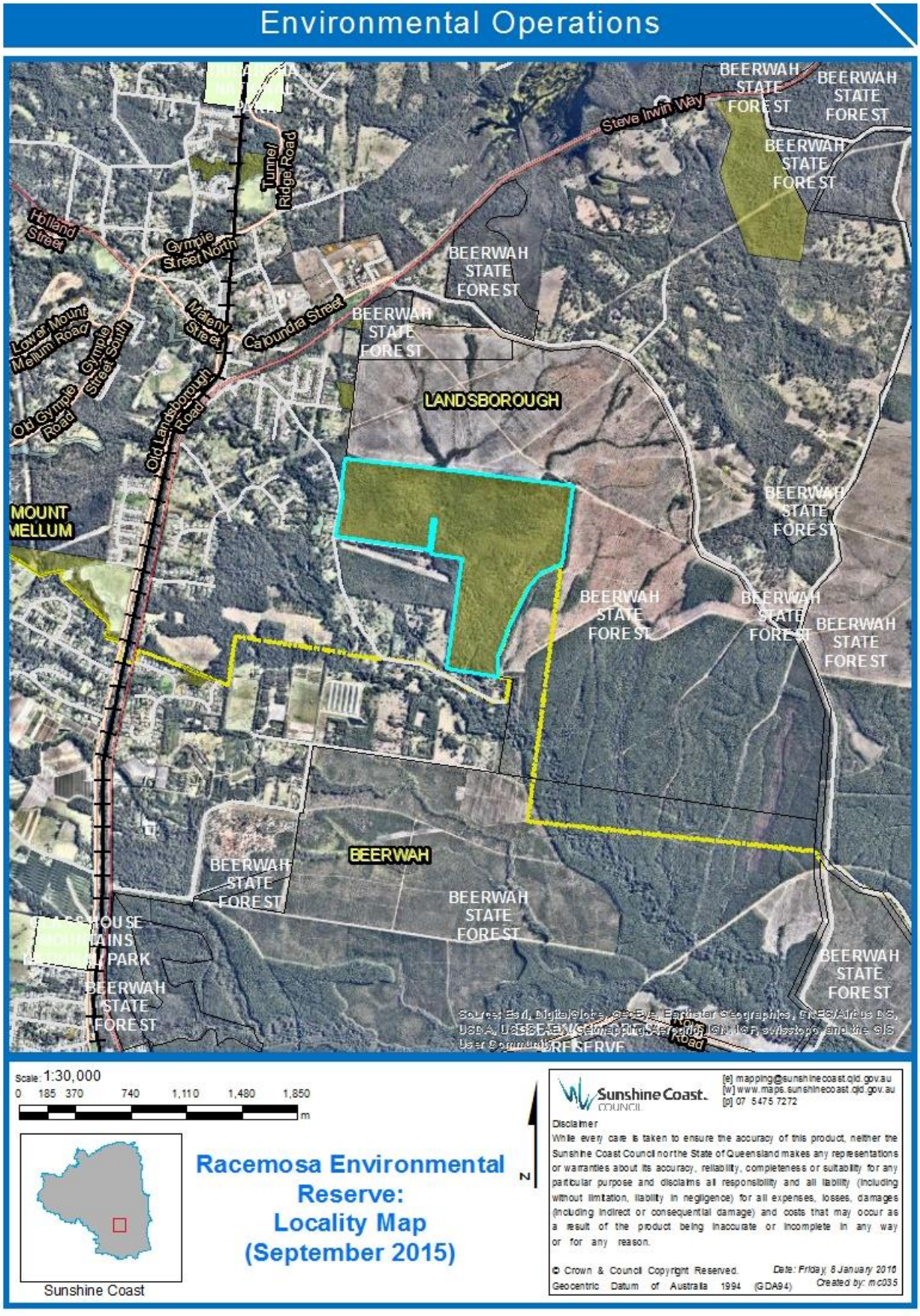
Racemosa Environment Reserve forms part of a near continuous tract of connecting and core habitats spanning from the Glasshouse Mountains National Parks in the southwest, to Pumicestone Passage and Bribie Island National Park in the southeast, through to Dularcha National park and Ewen Maddock Dam in the north (see **Appendix 2b**). The reserve is also closely situated to a regional corridor identified in the Queensland Government Biodiversity Planning and Assessment Mapping (BPA) for southeast Queensland (see **Appendix 2c**).

The site's geology is defined as Landzone 3 and Landzone 9-10 under the Queensland Government's RE mapping (v8), however ground truthing determined that geological features associated with Landzone 9-10 are absent from the site (see **Appendix 2d** and **Figure 2**). Landzones 3 and 5 observed on site are described by Wilson and Taylor (2012) as:

- *Landzone 3: Alluvial river and creek flats currently under freshwater influence, inland lakes and associated wave built lunettes. Includes a diverse range of soils.*
- *Landzone 5: Near level or gently undulating plains with sandy or loamy soils, and plateau remnants with moderate to deep soils usually overlying duricrust.*

The reserve area retains relatively simple landform features ranging from approximately 18 to 32 metres above sea level. Features include gentle slopes and rises, creek flats (and other flat areas), gully lines and terraces. Several watercourses ranging from Stream Order (SO)1 to 4 traverse the northern portion of the reserve and flow into a single, SO5 watercourse which runs south across the far southern boundary (see **Appendix 2e**).

Figure1. Landscape Features of Racemosa Environment Reserve



4.2 Recent History and land use

4.2.1 Surrounding Landscape

Properties around Landsborough were first surveyed in 1916 as part of the Soldier Settlers Scheme that occurred after World War 1.

The majority of the landscape surrounding Racemosa Environment Reserve has been historically cleared.

Clearing for pine plantations north and east of the reserve site occurred just prior to 1979, when the first plantation was established (Venz, P 2015 pers. comm., 11 Dec). LandSat imagery (1972) shows that prior to clearing, a large, homogenous patch of native vegetation occurred over the reserve site and adjoining land to the north and south (see **Figure 2a** & **2b**).

The property immediately south of Wintzloff Road was utilised for cattle grazing since at least the 1970s (Farmer, R 2015 pers.comm. 4 Nov). Grazing activities have since ceased and a large portion of the property is currently dominated by Slash Pine wildlings (see Figure **Figure** 2d).

Large rural residential lots were established along Hardwood Road before 1972, while the development of smaller residential estate lots commenced around the early 1990s (see **Figure 2a, 2c** & **2d**).

A waste management facility, situated in the upper catchment of the reserve on Forestry Road, was operational between 1972 and 2000. A sewerage treatment plant, situated adjacent to the waste facility, commenced operation in 1999 and underwent minor modifications in 2006 to increase the capacity (see **Figure 2c** & **2d**).

Plantation areas to the north and east of the reserve have been recently harvested (2014-15) and are in the process of being replanted (Venz, P 2015 pers. comm., 11 Dec).

4.2.2 Racemosa Environment Reserve

A number of old tree stumps observed along the northern boundary of Lot on plan 456CG2857 indicate that some timber logging has historically occurred at the site (Williams, B 2016 pers.comm. 25 Feb). No vegetation clearing is known to have occurred in recent times on this property, with at least the two previous owners maintaining the area for conservation (Farmer, R 2015, pers.comm. 4 Nov; Williams, B 2016 pers.comm. 25 Feb).

Lot on plan 744CG2857 is a Queensland Government-owned water reserve. No vegetation clearing is known to have occurred on this property with the exception of a cleared fire trail.

Aerial images show that minimal change to native vegetation cover has occurred between 1991 and 2015 although a proliferation of Slash Pine wildlings has occurred along reserve boundaries (see **Figure 2**).

Two high intensity fires are known to have occurred at the site in the mid 1970s and between 1995-96, (Farmer, R 2015 pers.comm. 4 Nov). Little is known of the circumstances surrounding the 1970s fire, while the latter was a controlled burn lit after the large bushfires that occurred between Beerwah and the Glasshouse Mountains in 1994. The boundary of the site was graded to create a fire break.

Prior to the 1990s, the property immediately south of Wintzloff Road was regularly burnt by the owners but did not spread into the reserve (Farmer, R 2015 pers.comm. 4 Nov). Also, in 2007, a car was illegally burnt on an adjoining forestry track causing an isolated fire in the northeast corner of the reserve.

Recently harvested pine plantation area adjacent northern boundary of reserve (2015)

Figure 2: LandSat imagery (1972) showing homogenous vegetation cover over the reserve site and adjacent areas to the north and east.

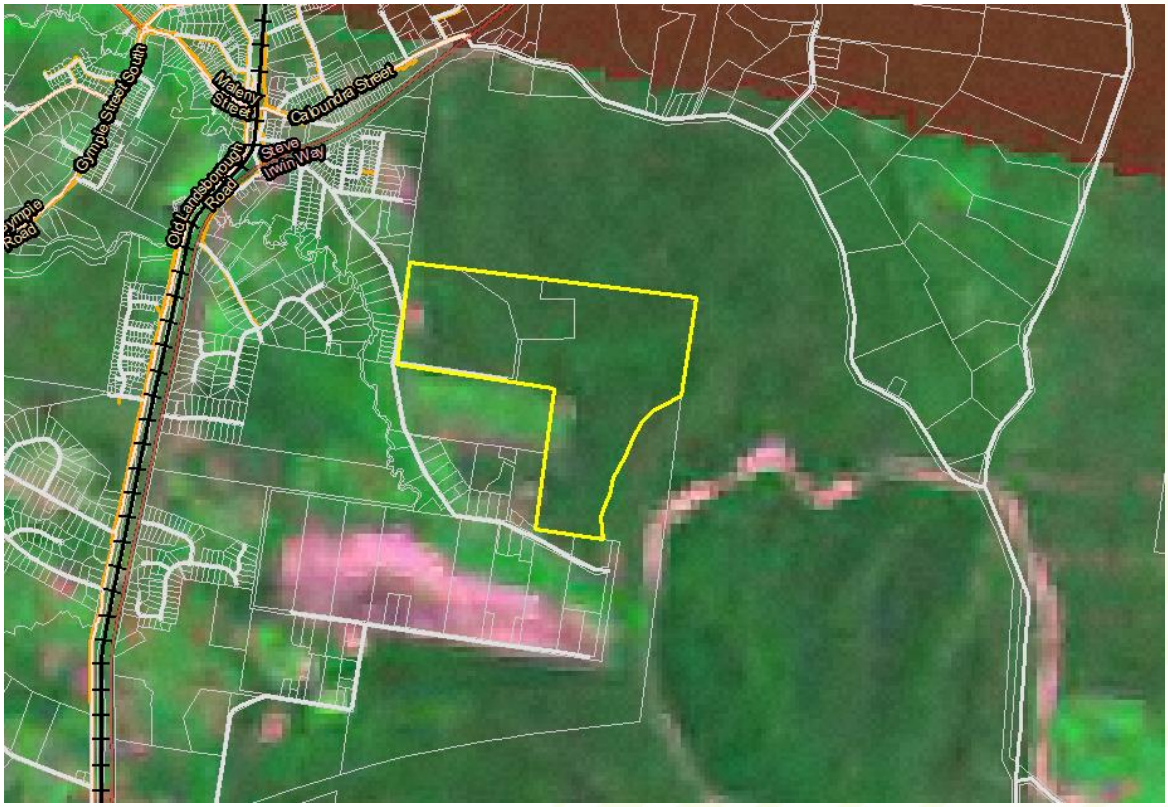


Figure 2b. LandSat imagery (1980) showing removal of vegetation north and east of site.

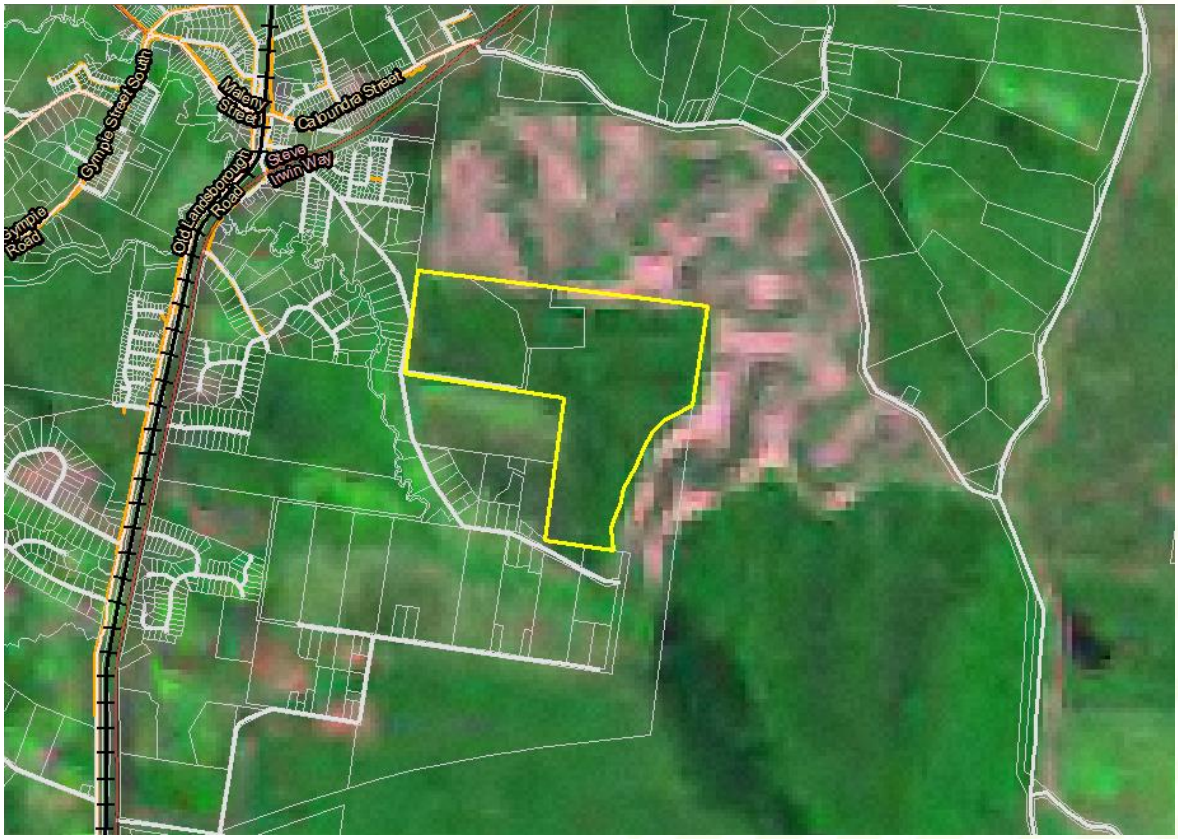


Figure 2c. Aerial image (1991) showing maturity of pine plantations and maintained forestry trails.

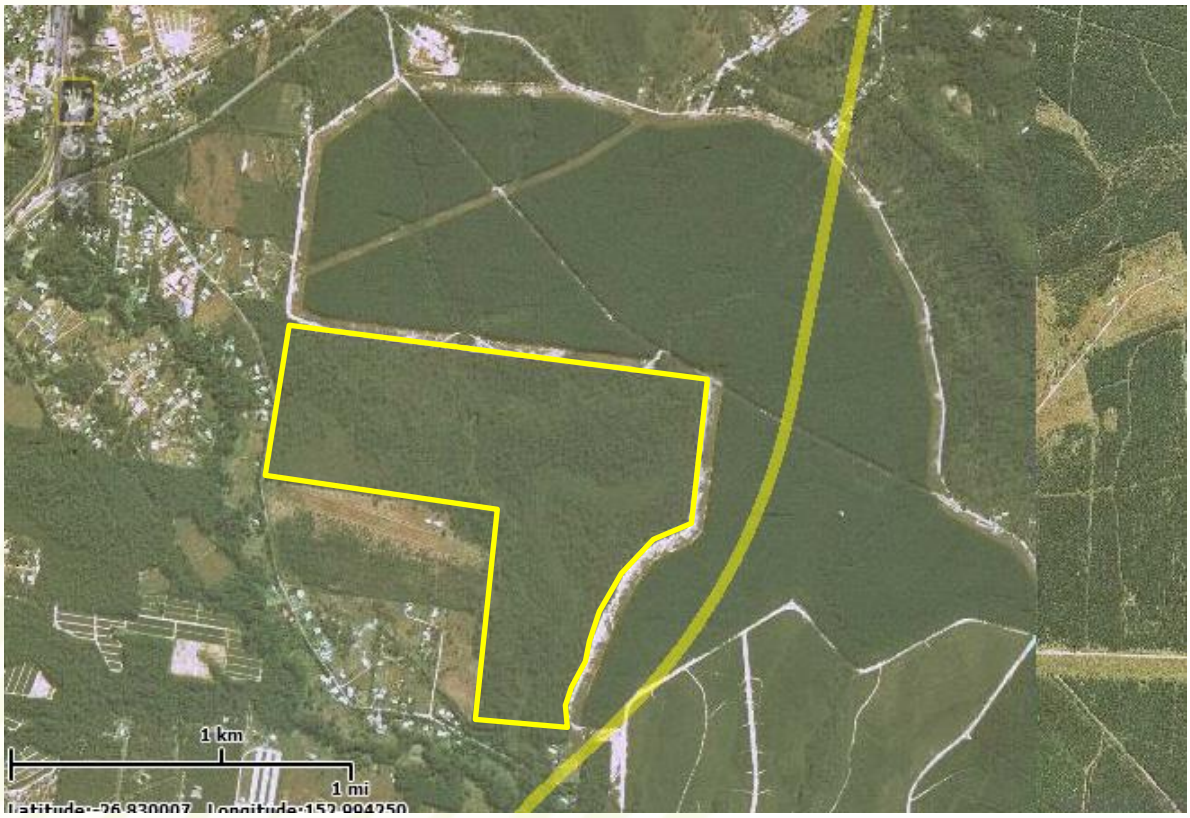
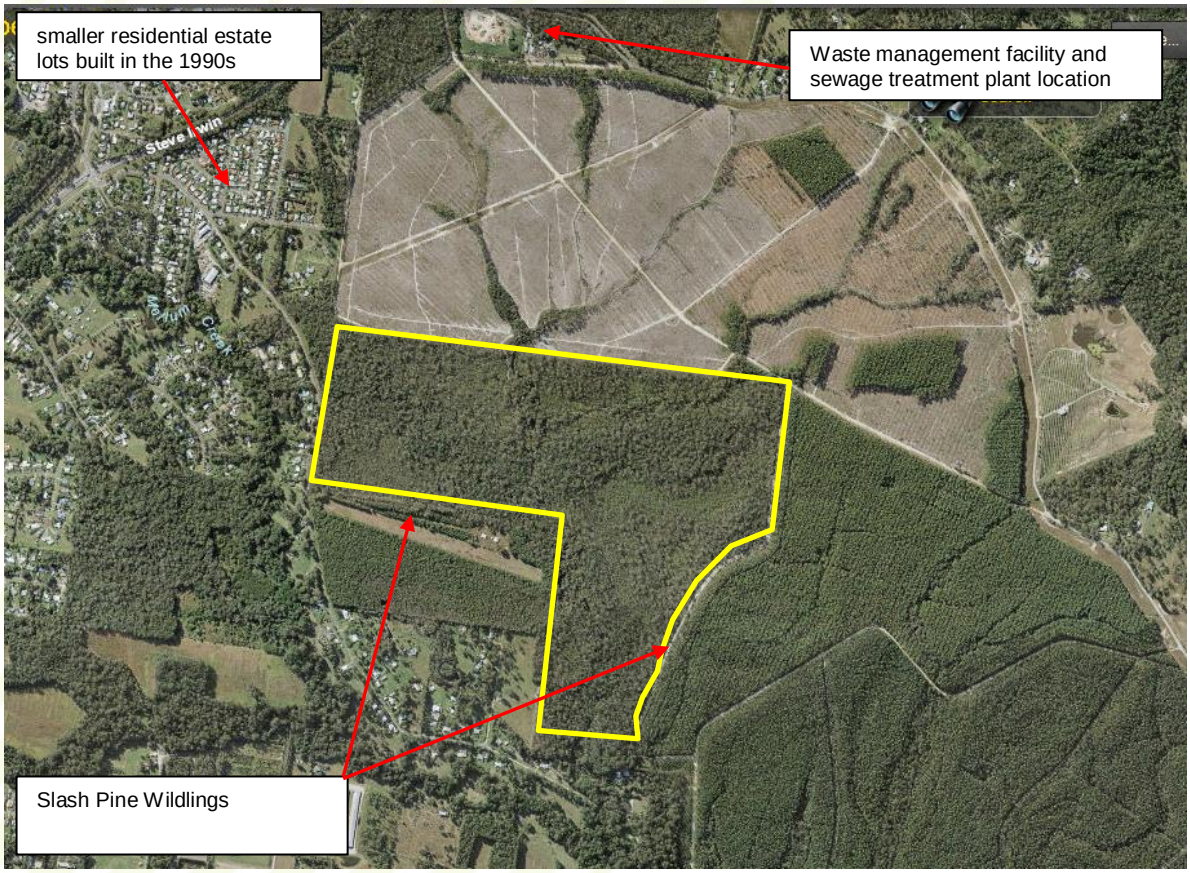


Figure 2d. Aerial image (2015) showing encroachment of Slash Pine and surrounding land use changes.



5. Establishment Works

All properties purchased under the Environment Levy Land Acquisition Program receive a 3-5 year annual allocation of funding as a percentage of the purchase price from the Environment Levy budget for establishment works. This initial injection of funds covers the establishment costs and prepares the reserve for future on-going maintenance.

The status of establishment works is described in Table 1. From 2016 the reserve will be managed by the Natural Areas Operational Management team, guided by this Management Plan and the following supporting technical documents also summarised in this plan:

- Bushland Operational Assessment (BOA) (ArborCare QLD)
- Draft Fire Management Plan (Aug 2016)
- Racemosa Environment Reserve Flora Assessment (Thomas 2012)
- Racemosa Environment Reserve, Fauna Survey Report (Fox 2012)
- Camera survey (Burnett & Kroenert 2015)

The draft Natural Areas Master Management Plan 2015 provides a strategic management framework which includes reserve management principles, service level guidelines, and management resources required to guide and prioritise operational activities.

Table 1: Status of establishment works at Racemosa Environment Reserve.

Establishment Activity	Description	Status
Condition Assessment	Commission the preparation of a resilience based condition assessment to guide management planning.	BOAs completed 2012 (Lot 456 on CG2857) and 2013 (Lot 744 on CG2857)
Restoration Works Plan	Commission the preparation of a bush Restoration works plan	RWP completed 2012.
Weed Management	According to the works plan all high priority areas are targeted for weed removal	Annual works plan implemented in line with reserve service level
Trail Maintenance	Fire trails mapped and upgraded	Completed 2012. Periodic maintenance as required.
Sediment and Erosion Control	No risk identified	
Access Gate and fencing	2 x locked access gates installed. Vehicle exclusion fencing installed.	Complete 2012
Revegetation	Nil 'Planting' as per 2012 BOA	N/A
Signage	Environment Levy regulatory signage	Installed 2012
Tenure Protection	SCC Planning Scheme 2014 (statutory) identifies Environmental Reserves, Riparian Protection Areas, Wetlands and Native Vegetation Areas as map overlays.	Current
Values assessment	Fauna survey, flora survey and cultural heritage database searches; Recreational values assessment	Complete 2015; Preliminary assessment undertaken 2016
Hazards removed	Overhanging boundary trees	Removed 2014

5.1 Planning and Maintenance

The ongoing planning and maintenance requirements of Racemosa Environment Reserve are guided by Council's Service Level Reserve Score (rank 1-3 for each biodiversity and recreation score).

Scores are based on a range of values including size, linkages, and noteworthy species, biodiversity and community values.

The biodiversity score for Racemosa Environment Reserve is "B1 District". **Table 2** and **Table 3** list service level requirements under this category. No recreational score has been assigned as there is no existing infrastructure to support recreational usage.

Table 2: Racemosa Environment ReserveService Level category B1 – District Reserve[1]

Category	MP	SMI	BOA	Flora Survey	Fauna Survey	FMP	Works Plan
*B1	✓	✓	✓	✓	✓	✓	✓
Frequency	*Frequency will be determined as an outcome of the Natural Areas Master Management Plan 2014*						*Annual*
Current Status	*Complete 2016*	*N/A*	*Complete 2012*	*Complete 2012*	*Complete 2012*	*Scheduled Aug 2016*	*Complete 2012*

*Note: The above table provides an overview of the required planning documentation required. *B# = Biodiversity Class; SMI: Statement of Management Intent, BOA: Bushland Operational Assessment; FMP: Fire Management Plan*

Table 3: Maintenance Service Levels

Category	B1
Inspections	Monthly
Weed management	Monthly
Revegetation	Annual
Controlled burning – if required	As per FMP
Fire trail management drainage / surface maintenance	Annual
Fire trail slashing	1-6/yr
Fuel reduced zones vegetation management	1-6/yr
Tree management	Annual
Urgent & hazardous matter arising	24-48hrs

[1] this biodiversity score will likely be upgraded to a Regional category once the state mapped RE's have been amended to reflect flora assessment results.

6. Reserve Values

6.1 Ecological Values

Racemosa Environment Reserve provides an important refuge for a range of local and endemic species while facilitating movements by migratory species across the landscape.

Natural values described below have been compiled from the following sources:

- Flora assessment report (Thomas 2012)
- Post-wet season fauna assessment report (Fox 2012)
- Camera trap survey (Burnett & Kroenert 2015)
- SCC Koala survey (Woosnam 2014)
- Bird list (Birdlife Sunshine Coast 2013)
- Ecological reports written prior to acquisition (LAMR 2003, Czechura 2003, Lyon 2009).
- Personal observations by Council ecologists and local resident (Farmer, R 4 Nov 2015)

6.1.1 Vegetation Communities

The observed vegetation communities at Racemosa Environment Reserve differ from the Queensland Government's regional ecosystem mapping for the site. Flora assessments identified four REs at the reserve, of which only one (RE12.3.13) is identified in the Queensland Government's RE mapping (v8) (see **Table 4** and **Appendix 2d**).

'Endangered' RE12.5.3 constitutes 73% of the Racemosa Environment Reserve Area.

One observed RE not mapped by the Queensland Government is 'Endangered' and one is Of Concern with respect to *Vegetation Management Act 1999* Vegetation Management class (VM class) and Biodiversity Status (BD status). These two REs make up 73% and 1% of the reserve area respectively. The remaining two observed REs are Least Concern with respect to VM class although their BD status is Of concern (see **Table 4** and **Figure 3).**

The Sunshine Coast Biodiversity Report Card (2015) provides an assessment of the current status of regional ecosystems found within the region.

The report shows that RE12.5.3 is also among the most poorly conserved and 'Vulnerable' REs found on the Sunshine Coast, with only 12% of the pre-clearing extent remaining (see Appendix 3a). RE 12.3.5 and 12.3.13 have also experienced substantial losses to their regional pre-clearing extents (68% and 68% respectively).

Furthermore, only a proportion of their remaining regional extent is represented in protected areas such as National Parks, Nature Refuges, Environment Levy Acquired Properties and environmental covenants (see Appendix 3b).

Management Actions

- Submit application to Queensland Government to ammend RE mapping for site through a Property Map of Assessable Vegetation (PMAV)

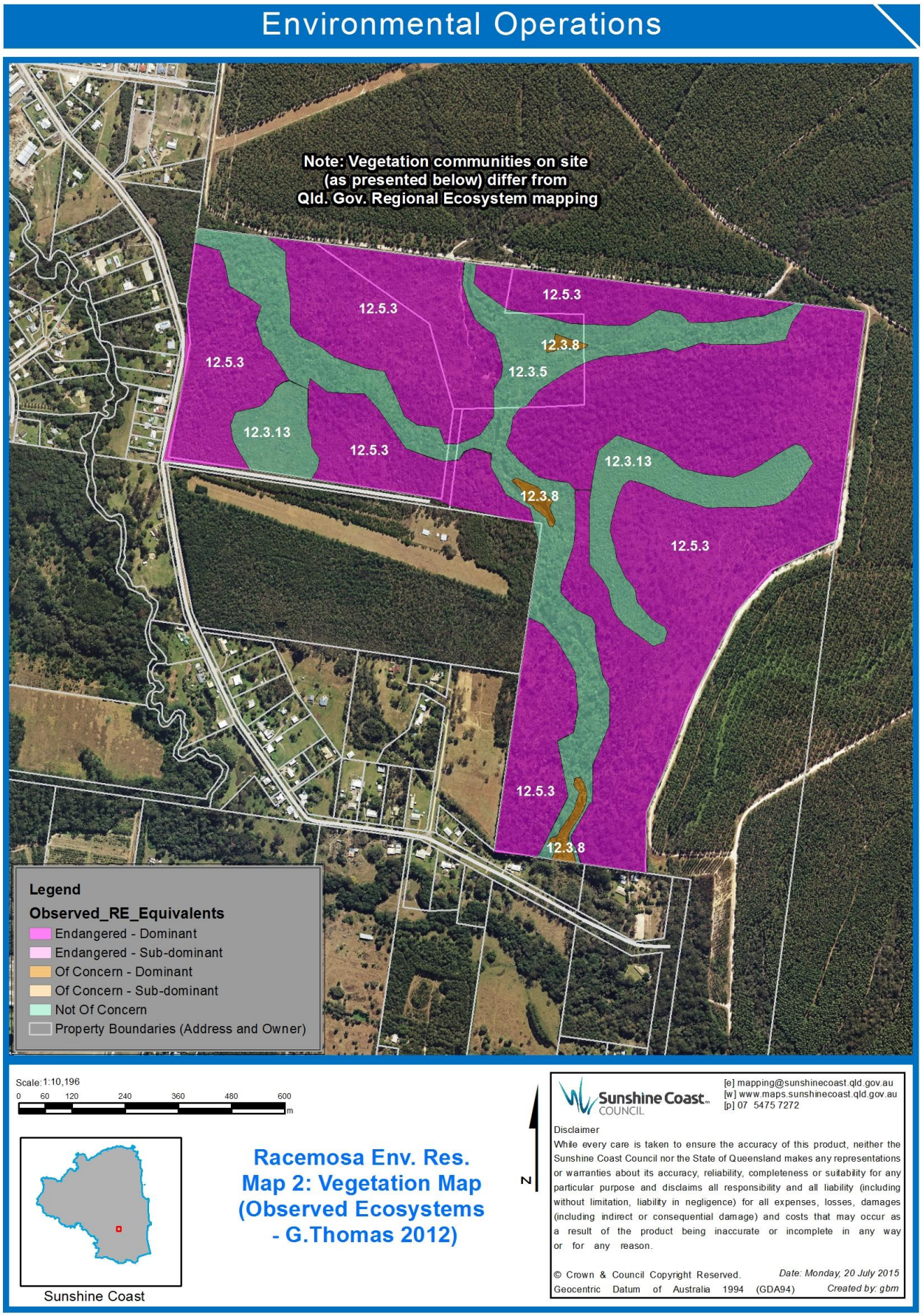
Eucalyptus woodlands on raised crests

Table 4: Observed regional ecosystems of Racemosa Environment Reserve

Vegetation Community	RE	VM Class / BD status	Description	Distribution in the reserve[2]
Eucalypt	12.5.3	'Endangered' / 'Endangered'	Tall to very tall open forest with *Eucalyptus racemosa, E. tindaliae, Corymbia trachyphloia, C.intermedia* and *Syncarpia glomulifera* on remnant Tertiary surfaces	Flats, gentle rises and slopes occurring on non-alluvial substrates Constitutes 82.8ha (72.9%) of reserve area
Heath	12.3.8	Of Concern / Of Concern	Wetlands and swamps with *Rhynchospora corymbosa, Nymphoides indica, Philydrum lanuginosum, Triglochin procerum, Gahnia clarkei, Blechnum indicum*, occasionally scattered *Melaleuca* *quinquenervia* and *Lophostemon suaveolens* are present on alluvial substrates	Three relatively small patches of vegetation occurring along the central and southern portions of the main watercourse, and along a tributary in the central northern portion of the site Constitues 1.0 ha (0.9%) of the reserve area
	12.3.13	Least Concern / Of Concern	Low wet heath with a suite of mixed species; also present are trees and taller shrubs, including *Melaleuca quinquenervia, M. sieberi* and *Hakea actites*, on alluvial substrates	Seasonally inundated alluvial plains occurring near the western boundary adjacent Wintzloff Road, and in the central eastern portion of the site Constitutes 9.3 ha (8.2%) of the reserve area
Melaleuca	12.3.5	Least Concern / Of Concern	Tall open forest with *Melaleuca quinquenervia, Lophostemon suaveolens* and *Eucalyptus robusta,* sedges, ferns as well as scattered notophyll forest species on alluvial substrates	Dominates riparian areas associated with the main watercourse and its major tributaries Constitutes 20.2 ha (17.8%) of the reserve area

[2] Site specific RE distribution map is provided in the Racemosa Environment Reserve Flora Assessment report, 2012.

Figure 3: Observed regional ecosystem mapping for Racemosa Environment Reserve



6.1.2 Flora

A total of 204 plant species were identified in the 2012 flora assessment including 179 native and 25 exotic species. An additional 80 plant species (62 native and 18 exotic or planted native species) were recorded during a previous flora assessment at Lot 456 on plan CG2857 (LAMR 2003). See **Appendix 4** for all flora survey species lists.

179 native plant species were identified at Racemosa Environment Reserve in 2012 including the *NCA* 'Endangered' Christmas Bells and the Sunshine Coast 'Significant fauna species', Wax Flower.

The area supports one 'Endangered' plant species listed under the Queensland Government's *Nature Conservation Act 1992* (NCA) and one Sunshine Coast Council listed 'Significant Flora Species' (See **Table 5**).

Christmas Bells (Image G. Morgan)

Table 5: Noteworthy plant species found at Racemosa Environment Reserve

Common Name	Scientific Name	Status
Christmas Bells	*Blandfordia grandiflora*	'Endangered' (NCA)
Wax Flower	*Philotheca myoporoides* subsp. *queenslandica*	Significant (SCC)

6.1.3 Fauna

The 2012 post-wet season fauna survey and 2013 camera trap survey located a moderate diversity of native fauna at Racemosa Environment Reserve. Surveys identified 84 native vertebrate fauna species, comprising the following numbers of species in each of the major terrestrial vertebrate fauna groups:

- 44 bird species
- 7 ground dwelling mammal species
- 1 arboreal mammal species
- 12 micro bat species
- 11 reptile species
- 7 amphibian species
- 2 fish species

An additional 21 bird species were identified by Birdlife Sunshine Coast in 2013.

Previous data records and surveys compiled by Gregory Czechura (Queensland Museum) for the period between the 1970s and 2003, recorded a total of 243 native vertebrate fauna species including: 162 bird; 23 mammal; 40 reptile and 19 amphibian species. This suggests that a significant biodiversity impact event or events have occurred around this site in the past 30 to 40 years.

See **Appendix 5** for fauna survey inventories.

According to local Resident R. Farmer (2015 pers. Comm., 4 Nov), pure dingoes used to

frequent the area and were last observed in March and August 2000. Dingoes observed since 2000 have been dingo-dog hybrids.

Two 'acid frog' species, the Wallum Rocketfrog and Wallum Froglet (listed as 'Vulnerable' under the NCA); the Rufous Fantail (EPBC Act listed Terrestrial Migratory bird species); and Swamp Wallaby (SCC listed 'Significant Fauna Species') were recorded at the site in 2012. An additional two Terrestrial Migratory bird species, the Rainbow Bee-eater and Spectacled Monarch, were identified by Birdlife Sunshine Coast in 2013.

Two 'Vulnerable' acid frog species, the Wallum Rocketfrog and Wallum Froglet, and three Terrestrial Migratory bird species, the Rufous Fantail, Rainbow Bee-eater and Spectacled Monarch, were recorded between 2012 and 2013.

18 additional species listed under the EPBC Act, NCA or SCS significant speciesscc have been identified in or near the water reserve between the 1970s and 2003. This included 'declining woodland birds', 'drought waifs' and a number of 'altitudinal and latitudinal migrants'. Czechura (2003) notes that a number of these species have only been recorded rarely or appear to have disappeared from the site or local area.

A fauna survey undertaken by Australia Zoo wildlife rangers in 2009, and observations by the late Steve Irwin, and Terry Irwin, recorded several known and additional listed EVNT fauna at the site (Lyon 2009).

The status of all listed EVNT and locally significant species recorded at Racemosa Environment Reserve is shown in **Table 6** below. The reserve also contains suitable habitat and previous nearby records of other listed EVNT species including:

- Water Mouse (*Xeromys myoides*)
- Long-nosed Potoroo (*Potorous tridactylus tridactylus*) (recorded within 5km)
- Black-necked Stork (*Ephippiorhynchus asiaticus*)
- Grey Goshawk (*Accipiter novaehollandiae*)
- Ground Parrot (*Pezoporus wallicus wallicus*)
- Powerful Owl (*Ninox strenua*)
- Tusked Frog (*Adelotus brevis*)
- Richmond Birdwing (*Ornithoptera richmondia*) (Currently no host plants)
- Honey Blue-eye (*Pseudomugil mellis*)
- Mt. Emu She-oak (*Allocasuarina emuina*)
- Swamp Stringbark (*Eucalyptus conglomerata*)
- Whipstick Wattle (*Acacia attenuata*)

The Spotted Harrier (*Circus assimilis*), Swamp Harrier (*Circus approximans*) and Black Kite (*Milvus migrans*) have also been observed near the reserve margins.

Despite the occurrence of suitable habitat and historical records within 5 kilometres of the reserve, no Long-nosed Potoroo were identified during targeted surveys in 2012 and 2013, suggesting that the species does not occur at the site (Burnett & Kroenert 2013).

Koalas have been recorded 1.2 km from the site however no scats were found during a targeted search in 2014, and none have been seen or heard at an adjoining property since the 1970s (AKF 2015, Woosnam 2014, R. Farmer 2015 pers.comm., 4 Nov).

Management Actions

- Monitor existing populations of EVNT and Locally significant fauna and flora to detect changes in population size
- Undertake targeted fauna assessments for EVNT and Locally significant species likely to occur at reserve, or previously recorded by Czechura between the 1970s and 2003
- Promote partnerships for monitoring, data collection and research
- Review opportunities to plant Richmond Birdwing Vine (*Pararistolochia praevenosa*)

Table 6: Noteworthy fauna species known to occur at Racemosa Environment Reserve

Common Name	Scientific Name	Status
Racemosa Environment Reserve, Fauna Survey Report (Fox 2012)		
Wallum Rocketfrog	*Litoria freycineti*	'Vulnerable' (NCA)
Wallum Froglet	*Crinia tinnula*	'Vulnerable' (NCA)
Rufous Fantail	*Rhipidura rufifrons*	Migratory Terrestrial; Marine (EPBC Act)
Swamp Wallaby	*Wallabia bicolor*	Significant (SCC)
Birdlife Sunshine Coast (2013)		
Rainbow Bee-eater	*Merops ornatus*	Migratory Terrestrial (EPBC Act)
Spectacled Monarch	*Monarcha trivirgatus (Symposiachrus trivirgatus)*	Migratory Terrestrial; Marine (EPBC Act)
Australia Zoo 'Heathlands'Wildlife Reserve Ecological Summary Report (2009)		
Platypus	*Ornithorhynchus anatinus*	Special least concern (NCA)
Krefft's Tiger Snake	*Notechis scutatus*	'Vulnerable' (EPBC Act)
Wallum Rocketfrog	*Litoria freycineti*	'Vulnerable' (NCA)
Wallum Froglet	*Crinia tinnula*	'Vulnerable' (NCA)
Beerwah Water Reserve - Fauna Assessment (1970s to 2003)		
Wallum Rocketfrog	*Litoria freycineti*	'Vulnerable' (NCA)
Wallum Froglet	*Crinia tinnula*	'Vulnerable' (NCA)
Wallum Sedgefrog	*Litoria olongburensis*	'Vulnerable' (EPBC Act; NCA)
Platypus	*Ornithorhynchus anatinus*	Special least concern (NCA)
Echidna	*Tachyglossus aculeatus*	Special least concern (NCA)
Greater Glider	*Petauroides volans*	Significant (SCC)
Swamp Wallaby	*Wallabia bicolor*	Significant (SCC)
Grey-headed Flying-fox	*Pteropus poliocephalus*	'Vulnerable' (EPBC Act)
Great Egret	*Ardea alba*	Migratory Wetland; Marine (EPBC Act)
Square-tailed Kite	*Lophoictinia isura*	'Near Threatened' (NCA)
White-bellied Sea-eagle	*Haliaeetus leucogaster*	Migratory Terrestrial; Marine (EPBC Act)

Wedge-tailed Eagle	*Aquila audax*	Significant (SCC)
Bush Stone-Curlew	*Burhinus grallarius*	Significant (SCC)
Latham's Snipe	*Gallinago hardwickii*	Migratory Wetland; Marine (EPBC Act)
Glossy Black Cockatoo	*Calyptorhynchus lathami*	'Vulnerable' (NCA)
Oriental Cuckoo	*Cuculus saturatus*	Significant (SCC)
Fork-tailed Swift	*Apus pacificus*	Migratory Marine (EPBC Act)
White-throated Needletail	*Hirundapus caudacutus*	Migratory Terrestrial; Marine (EPBC Act)
Rainbow Bee-eater	*Merops ornatus*	Migratory Terrestrial; Marine (EPBC Act)
Yellow-tufted Honeyeater	*Lichenostomus melanops*	Significant (SCC)
Crested Shrike-tit	*Falcunculus frontatus*	Significant (SCC)
Rufous Fantail	*Rhipidura rufifrons*	Migratory Terrestrial; Marine (EPBC Act)
Lewin's Rail	*Lewinia pectoralis (Rallus pectoralis*	'Near Threatened' (NCA)

'Acid frog' habitat occurring alongside Wintzloff Road

6.1.4 Ecosystems

Wetlands have important ecosystem functions—they filter pollutants to improve water quality and provide important habitat for fauna and flora. They also have important social and economic values since they support recreation, agriculture and fishing industries (DERM n.d).

The Queensland Government maps wetlands as High Ecological Significance and General Ecological Significance according to the degree of wetland conservation values.

A large proportion of Racemosa Environment Reserve has been mapped as High Ecological Significance (HES) wetlands and general Ecological Significance (GES) wetlands, corresponding with major waterways and seasonally waterlogged alluvial plains at the site (see **Appendix 2f)**.

The site is also situated within the Pumicestone Passage catchment. Pumicestone Passage is is a listed Ramsar site where tidal wetlands and water systems are protected within the Moreton Bay Marine Park.

6.1.5 Habitat

This site is identified as Core Habitat under the Sunshine Coast Environnment and Liveability Strategy—Biodiversity Network Blueprint (Part C) and provides habitat opportunities for many different fauna groups (see **Appendix 2b**). Habitat features include: numerous tree and log hollows of different sizes; ephemeral creeks; permanent creeks with large pools and sheltered hollows on banks; melaleuca swamps; and thick ground cover comprising sedges and grasses.

A range of EVNT and locally significant species are dependent on the areas preserved habitat characteristics (See **Appendix 2g**). For example, habitats with a dense understorey provide suitable habitat for Swamp Wallabies while permanent creeks with sheltered hollows on banks provide ideal habitat for Platypus. Conversely, the 'acid frogs' are adapted to and show preference for acidic waters, ephemeral perched swamps and emergent sedges.

6.2 Cultural and Social Values

6.2.1 Indigenous

Racemosa Environment Reserve is located within the native title application area boundary of the Kabi Kabi People.

At the time of purchase there were no Aboriginal cultural heritage sites recorded in the State Aboriginal Cultural Heritage Database or Register for Lot on plan 456CG2857 and 744CG2857. However, the absence of recorded Aboriginal cultural heritage may simply reflect a lack of cultural heritage surveys in this area. There are a number of known Aboriginal Cultural Heritage sites located in the Landsborough area and, as the majority of the Racemosa Environment Reserve is undeveloped and undisturbed, there is potential for unrecorded Aboriginal cultural heritage to be present.

All Aboriginal cultural heritage is protected under the Queensland *Aboriginal Cultural Heritage Act 2003*, and penalties can apply for any harm caused. The legislation applies a cultural heritage duty of care whereby any person carrying out an activity must take all reasonable and practical measures to ensure the activity does not harm Aboriginal cultural heritage. To assist in meeting this duty of care, there are *Aboriginal Cultural Heritage Act 2003*

Duty of Care Guidelines that should be followed. It is a requirement under these guidelines for the relevant aboriginal party to be consulted prior to any works that will cause ground disturbance in a previously undisturbed area.

Management Actions

- Consult Kabi Kabi First Nation prior to any works that will cause ground disturbance in a previously undisturbed area.

6.2.2 Recreation

Racemosa Environment Reserve has not been assigned a recreational score as there is no existing recreational infrastructure on the site. There are no existing links to a trail network south of Steve Irwin Way, with the closest network occurring southwest of Ewen Maddock Dam approximately 3.3 kilometres from the reserve.

The reserve has a centralised location one kilometre from Landsborough village and fifteen kilometres from Caloundra South—a master planned community intended to house 50,000 people in the next 30 years. Furthermore, the Sunshine Coast Open Space Strategy 2011 puts a recreational park in close proximity to the reserve (see **Appendix 2h, 2i**).

In light of these factors, future recreational use should be considered at this reserve. As such, a benefit/cost analysis table has been provided as a tool to inform this decision (see **Table 7**).

Providing recreational trails have negligible impacts to the reserve's natural values and align with the Sunshine Coast Recreational Trail Plan 2012, the reserve may be classified as Recreational (R) under the proposed three zone—Recreational, Educational and Sanctuary—classification system (draft Natural Areas Masterplan 2015).

Management Actions

- Analyse the cost/benefit table in **Appendix 6** to inform the most appropriate opportunities for this site
- Develop a draft landscape plan for any proposed trails
- Review public access within the broader context of the Recreational Trails Plan and the draft Natural Areas Master Management Plan

6.2.3 Eco-recreation

In 2013, the community group Birdlife Sunshine Coast conducted a bird survey at the site and the University of the Sunshine Coast used the site for a research project targeting Long-nosed Potoroos. In both cases, Council was provided with survey findings to inform future management at the site.

Other opportunities may present in future for public restoration projects, environmental education, and research pertaining to the reserve's natural values and ecosystem functions.

Management Actions

- Promote partnerships with community groups such as Birdlife Sunshine Coast
- If feasible conduct educational seminars and guided interpretive walks for local community
- Provide opportunities to involve the local community in public restoration projects where appropriate

6.2.4 Restoration

As part of establishment works, contractors have been employed to undertake weed management in accordance with the RWP.

No public restoration projects have occurred at this reserve to date.

Management Actions

- Any future planting activities to include food and habitat plants for EVNT and locally significant fauna

6.3 Economic Values

Conservation of natural values at Racemosa Environment Reserve may contribute to the local and broader economy.

For example, Sunshine Coast reserves are a major drawcard for tourism—providing an aesthetically pleasing environment; opportunities for nature tourism; and habitat for a rich biodiversity of flora and fauna that draws wildlife enthusiasts.

Tourism and hospitality are key industries on the Sunshine Coast, contributing $1,078.7 million to the local economy and employing 15% of the labour force between 2013/14.

In addition, conservation of the reserve's wetland values may indirectly contribute to the commercial and recreational fishing industry by improving water quality downstream.

6.4 Condition of Values

Despite the surrounding land uses, the condition of vegetation according to categories prescribed by Buchanan (1989) is 'Good' (Thomas 2012).

Bushland Operational Assessments (BOAs) were completed for this site in 2012 (see **Figure 4**). The BOA is useful as a vegetation condition assessment tool which guides bush restoration activities. The BOA determines the 'condition' of a site according to the level of resilience, structural diversity and recruitment.

According to **Figure 4**, the condition of most of the reserve is 'very good' to 'good' with less resilient and structurally diverse areas, mapped as moderate and very poor, occurring along major watercourses and the fire access track.

The condition of most of the Reserve is 'very good' to 'good'.

The abundance of weeds along boundaries and watercourses indicates that weeds from the surrounding landscape are directly encroaching the reserve and in some cases, are being transported by water. For example, Salvinia located in a watercourse at the southern reserve boundary has been linked to Salvinia occurring upstream of Mellum Creek.

Several potential sources of pollutants occur in the upstream catchment of the reserve. Stormwater outlets for a housing estate to the northwest, and the sewerage treatment plant to the north, are in close proximity to watercourses that flow directly into the site, and may deliver high nutrient runoff during heavy rainfall events (See **Figure 1** and **2**).

The waste management facility to the north received domestic, commercial and industrial wastes from the local area between 1970 and 2000. Given the north to south slope of the land, it is possible that groundwater (and therefore leachate) will move south and impact the reserve.

The recent decline in fauna diversity may be attributed to vegetation clearing in the surrounding landscape. The decline in fauna diversity suggests that surrounding land uses are acting as a barrier for wildlife recruitment into Racemosa Environment Reserve from other areas—leading to concerns about the long-term viability of some fauna and flora populations.

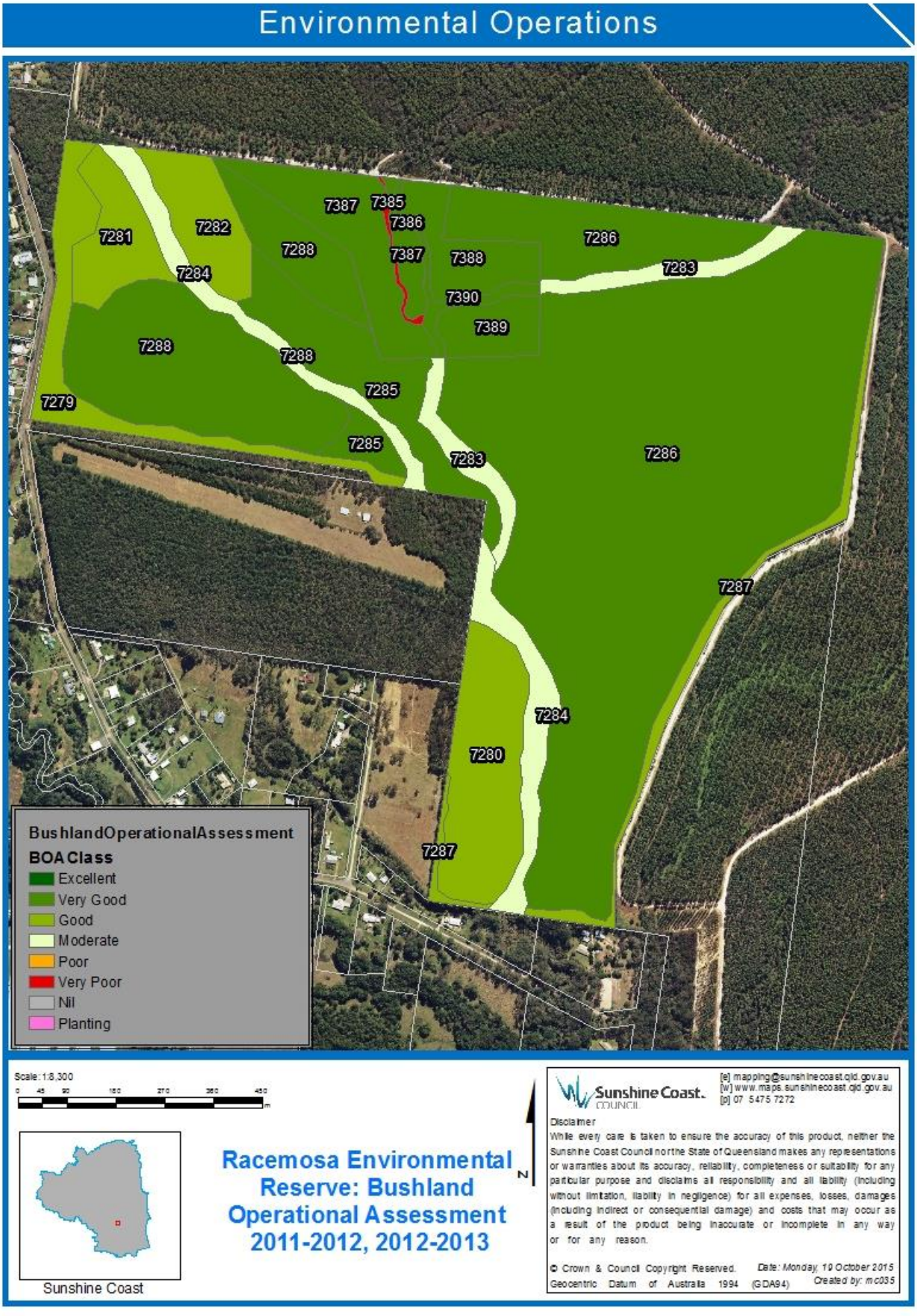
Pine plantations may also be a source of instream sediment during periods of harvest when soils are exposed.

Management Actions

- Undertake a BOA every five years to determine changes in vegetation condition and to measure success of restoration works
- Undertake periodic water quality assessments to determine general stream health and water quality upstream and downstream of the reserve
- Investigate options for HQ Plantations to create native vegetation corridors through surrounding pine plantations
- Collaborate with adjacent property owners to facilitate coordinated weed management

Pine tree wildlings established at the reserve boundary along Hardwood Road (2015)

Figure 4. Vegetation Condition Assessment at time of purchase. (BOA map 2011-12 = Lot 456 on CG2857; 2012-13 = Lot 744 on CG2857).



7. Bioregional and Landscape Context

The bioregional landscape descriptions which have been included here may be used to support any future recognition of this site as part of a national reserve system[3].

7.1. IBRA

Interim Biogeographic Regionalisation for Australia (IBRA) is endorsed by all levels of government as a key tool for identifying land for conservation. Australia's landscapes have been classified into 89 large geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. Under the latest IBRA (7), Racemosa Environment Reserve is located in the SEQ bioregion (no.74) which has a total area of 62,484.2 square kilometres.

7.2 Catchment

Racemosa Environment Reserve is situated in the Pumicestone Passage catchment and Mellum Creek subcatchment. A series of meandering streams traverse the landscape, draining the nearby catchment south into Mellum Creek via the main watercourse.

7.3 Local Planning Context

The area falls within the Sunshine Coast Council Planning Area. Under the Sunshine Coast Planning Scheme 2014 the conservation values of this site have been identified and protected.

7.4 CAR Contribution

Comprehensive: There are four regional ecosystems occurring within the Racemosa Environment Reserve which are included in the SEQ bioregion and SEQ04-Sunshine Coast Gold Coast Lowlands sub-region province.

Adequate: The reserve comprises 113.74 hectares of remnant and High Value Regrowth vegetation (see **Figure 3** and **Appendix 2j**). Vegetation is predominantly observe to be in 'good' to 'very good' condition indicating an overall high level of resilience within the reserve.

Although interrupted by roads and various land uses, the reserve provides an important link between extensive corridors and isolated remnant patches scattered throughout the landscape—therefore providing ecological viability and integrity for numerous populations, species and ecological communities.

Representative: The unique mosaic of RE's found within the Racemosa Environment Reserve provide representation of the pre-clearing landscape that once existed along the coastal lowland plains of the Sunshine Coast and broader SEQ bioregion.

Furthermore, RE12.5.3 is one of the most poorly conserved REs in the SEQ bioregion and the SCLGA. Presently, only 5% (606 ha) of the Sunshine Coast pre-clearing extent is protected in the conservation estate—of which 82.8 ha is contained within Racemosa Environment Reserve. A further 627 ha is required to obtain the desired 10% (of pre-clearing extent).

Management Actions

- Consider further land acquisition to increase core and connecting habitat in the local area

[3] Australian Government, 2009, *Australia's Strategy for the National Reserve System, 2009 – 2030,* endorsed by the Natural Resource Management Ministerial Council (NRMMC), ACT.

8. Management Issues

8.1 Regional Background

The SEQ region is the most densely populated part of Queensland, experiencing rapid growth over the previous two decades, (Ambrey and Fleming, 2011.

The SEQ bioregion has been identified as an area which is at a critical threshold, where increased development throughout the urban footprint is likely to lead to increasing loss and degradation of remaining ecosystems and their fauna (Peterson et al., 2007).

Biodiversity loss is an important issue for this region, therefore the restoration and recovery of significant habitat corridors, catchments, and remnant vegetation, such as that which occurs at Racemosa Environment Reserve, will play

an important role in protecting ecological function and associated biodiversity for SEQ.

8.2 Preliminary Risk Analysis

Throughout the establishment phase of works undertaken on this reserve, a range of risks have been identified in the Regeneration Works Plan and by Council, which may affect Council's capacity to protect and restore biodiversity values of this site. These include:

- Slash Pine (*Pinus elliottii*) recruitment
- Other woody weeds eg. Camphor Laurel (*Cinnamomum camphora*)
- Aquatic Weeds (*Salvinia molesta*)
- Sedimentation in the creek system
- Grass and herbaceous weeds in creek system
- Rubbish dumping on roadside edges;
- Track erosion
- Uncontrolled access
- Pest animals and plants
- Koala fodder harvesting
- Tenure security
- Wildfire and Arson

Table 7 below highlights the corresponding opportunities proposed to address each of the risks identified here.

Table 7: Summary of reserve management risks and opportunities

Risks	Opportunities
Slash Pine (*Pinus elliottii*) recruitment	Locate and remove Slash Pine within the reserve and along the road reserve (See RWP)
Woody weeds eg Camphor Laurel and Umbrella Tree	Locate and remove woody weeds
Aquatic weeds. Salvinia *(Salvinia molesta*) occurs in a watercourse at the southern boundary. Reinfestation risks following biocontrol may occur due to upstream occurrence of Salvinia.	Partnership with SCC Community Services branch to use biocontrol methods. Weevle released on site in 2015. Monitoring is underway. Continued catchment-wide approach and local treatment required.
Sedimentation in creek system	Implement erosion control measures as required Install barricades to restrict illegal access by horses, dogs, mountain and trail bikes Monitor causes of sedimentation external to reserve HQ Plantations partnership
Exotic grass and herbaceous weeds in creek system	Control exotic grasses and herbaceous weeds on edges and in creeks.
Rubbish dumping on roadside edges	Locate and remove rubbish Increase surveillance
Inappropriate fire regime having negative impacts on flora and fauna	Develop a Fire Management Plan that aims to preserve the mosaic of habitats and species existing at the site. Design recreational trails to be simultaneously used as fire breaks for mosaic burns.
Illegal Koala fodder harvesting	Advise fodder harvesting operators to cease harvesting (Completed March 2013)

Track erosion	Undertake maintenance activities in accordance with the Open Space Landscape Infrastructure Manual
Uncontrolled access to reserve causing degradation of natural values and track erosion	Erect signage Install locked gates at Wintzloff Road and the fire trail Install barricades to restrict illegal access around locked gates Construct recreation trails to avert high conservation areas and increase public surveillance
Pest animals	Monitoring for pest animals occurred in March 2015. Continue to monitoring pest animals and impacts to EVNT species and habitat Informed pest management program; monitor progress University partnerships
High costs associated with managing weeds.	Environment Levy provides opportunity for adequate establishment investment to build long term resilience and reduce future maintenance costs. Class 2 and 3 weeds currently managed Undertake weed management in accordance with RWP—Increased efficiency Partnerships with community and recreation groups Partnership with HQ Plantations
Declines to EVNT flora and fauna populations and their habitat	Monitor existing populations and habitat Undertake additional targeted searches for EVNT species identified as likely to occur in reserve. Record specimen locations and inform Council and contractors working on site. University and community group partnerships Local land acquisition to expand core and connecting habitat
Tenure does not guarantee long term environmental protection	Progress legal mechanism to protect conservation values in perpetuity (e.g. nature refuge) Compatible recreational use Educational use
Wildfire and Arson	Implement Racemosa Fire Management Plan (Draft)

8.3 Invasive Animals and Plants

A total of 50 invasive plants have been identified at this site) (Thomas, 2012; LAMR 2003; bush regeneration contractor reports 2012 – 2015). See **Appendix 7a** for a full species list, biosecurity matters and locally significant species under the SCC LGA Biosecurity Plan.

9 species are listed “Priority” invasive plants under the Biosecurity Act:

- Camphor laurel
- Lantana
- Giant salvinia
- Groundsel bush

- Common giant rat's tail grass
- Kudzu
- Broad leaved pepper tree.

Fauna surveys have detected the following eight pest animals at the site:

- Feral Pig (*Sus scrofa*) - restricted invasive
- Domestic Horse (*Equus caballus*)
- Cane Toad (*Rhinella marina*) – locally significant
- Red Fox (*Vulpes vulpes*) – restricted invasive
- Dingo (*Canis lupus*) – restricted invasive
- Domestic Cat (*Felis cattus*)
- House Mouse (*Mus musculus*) -
- Black Rat (*Rattus rattus*)

Of these, two (the fox and dingo) are listed restricted invasive under the Biosecurity Act. In the SCC LGA Biosecurity Plan 2017 these are assigned localised management under the catchment response. (See **Appendix 7b** for all pest animals and response details).

A juvenile pig was observed on a forestry track running along the northern boundary (Fox 2012), although no obvious signs of pig damage have been observed in the reserve. Horse tracks have been observed along the fire trail and are presumably from domestic horses. Some track erosion has occurred as a result.

Council manages pest animal populations through its Animal Education and Control Unit in accordance with the Sunshine Coast Local Government Bisecurity Plan 2017. A targeted pest animal survey undertaken in 2015 (duration 4 weeks) recorded two wild dogs at this site. A dead wallaby was also observed that may have been killed by a dog.

Management Actions

- Implement pest management activities in line with the most recent RWP and Sunshine Coast Local Government Area Biosecurity Plan
- Review BOA and RWP every five years

8.4 Fire

The composition and structure of understorey vegetation at Racemosa Environment Reserve are indicators of limited fire management in recent years—consistent with accounts by R.Farmer (pers.comm. 4 Nov 2015) discussed in Section 2.2.

Previous fires occurring at the reserve in the 1970s and mid 1990s were of high intensity and incorporated the whole reserve. This type of fire management may have negatively impacted the reserve's fauna populations due to:

a) the lack of connectivity to other native remnants that would act as fire refuges; and

b) the speed and intensity of fires limiting the time for fauna to move to refuges.

The potential for inappropriate fire regimes to negatively impact on the reserve's natural values highlights the importance of having a fire management program that conserves the mosaic of habitat types and sensitive fauna and flora species occurring on site.

Fox (2012) recommends that some patches be left unburnt for 20 years or longer, and that fire be excluded from moist habitats.

The development of a detailed fire management plan will provide guidance for asset protection and for maintaining ecological processes.

The area has an existing maintained fire trail which provides access for management purposes and emergencies (see **Appendix 2a)**. Further access will be created using temporary fire breaks, while future recreational tracks may provide additional permanent fire breaks. Access will be limited to authorised vehicles only through locked gates.

The HQPlantations Fire Management Plan, supplemented by more specific information and tools, provide procedural guidance for fire management on HQPlantations Plantation licence land. The plan highlights HQ Plantations' legal obligations to prevent and control fire through construction and maintenance of fire breaks, reduction of fire hazards and by taking reasonal steps to prevent fire spreading to adjoining land. The plan also highlights the importance of close liaison with neighbours in wildfire prevention,

and of meeting environmental, cultural and social responsibilities.

Management Actions

- Finalise Fire Management Plan (scheduled 2015 – 2016).
- FMP to give due consideration to the ecological requirements of EVNT / locally significant fauna and flora, and associated habitat
- Design future recreational trails to be simultaneously used as fire breaks for planned burns.
- Fire management program at reserve should consider the HQPlantations Fire Management Plan and supplementary fire management related documentation for Beerwah State Forest

8.5 Erosion

Sandy and loamy soils associated with Landzones 3 and 5 at Racemosa Environment Reserve are highly susceptible to erosion, particularly during heavy rainfall events.

Fortunately, dense vegetation cover provides natural protection against erosion throughout much of the site and watercourse banks are predominantly stable.

Land use in the surrounding landscape may also contribute to additional erosion at the site. For example, stormwater outlets in close proximity to upstream watercourses may significantly increase water flowing into the reserve during heavy rainfall events. Furthermore, harvesting of pine plantations exposes highly erodible soils and increases overland waterflow, potentially resulting in increased water flows and sediment loads to the reserve.

Weed control methods used by contractors aim to prevent the occurrence of erosion impacts. Methods such as ‘Frill and fill’, ‘stem injection’ and ‘cut and swab’ woody weeds are felled or killed and left insitu.

Management Actions

- Implement erosion control measures where required in accordance with Council’s Erosion and Sediment Control Manual (Version 1.2)
- Install locked gates at fire trail and Wintzloff Road (and barricades around gates where necessary) to prevent track erosion caused by trespassing vehicles and domestic horses
- Undertake freshwater ecology assessments, especially following heavy rainfall events, to monitor changes in watercourse sediment loads
- Factor highly erodible soils into future track construction

8.6 Salinity/Acidity

A portion of the southern reserve extent corresponding with existing watercourses is mapped as 'land above 5m AHD and below 20m AHD' under the Sunshine Coast Planning Scheme 2014 Acid Sulphate Soils (ASS) mapping (See **Appendix 2k**). The balance of the reserve area is not triggered by ASS mapping.

Acidic water is typical of Coastal lowland plain ecosystems and the presence of 'acid frogs' indicates that suitable acidic breeding habitats are present on site. No negative impacts pertaining to salinity or acidity have been observed however water quality assessments are required to accurately measure salinity and acidity levels on site.

The upstream catchment is also not triggered by ASS mapping therefore limiting the potential of upstream activities, such as forestry harvesting, to cause negative impacts relating to acidity.

In any case, Forestry is required to act in accordance with the VMA, which specifies that no adverse effects on the environment are permitted to occur as a result from the disturbance of acid sulfate soils caused by forestry practices. Otherwise the disturbed area must be treated in accordance with the Queensland Acid Sulfate Soil Technical Manual - Soil Management Guidelines Version 3.8.

Management Action

- Any works undertaken at reserve are to be in accordance with the Sunshine Coast Planning Scheme 2014 Acid sulphate Soils Overlay Code

8.7 Historical Land Use

8.7.1 Vegetation Clearing

A number of old tree stumps observed along the northern boundary of Lot on plan 456CG2857 indicate that some timber logging has historically occurred at the site (Williams, B 2016 pers.comm. 25 Feb). No other known historical clearing has occurred at the reserve. The abundance of medium and large tree hollows is indicative of the mature age of native trees in the reserve.

Extensive vegetation clearing has occurred in the surrounding landscape.

Management Action

- Inform private landholders of Conservation Partnership initiatives that will assist them to restore core and connecting habitat on their properties

8.7.2 Stock Grazing

Old fencing along reserve boundaries was erected by previous adjoining land owners for cattle grazing.Stock grazing in the surrounding landscape has had no obvious impact in the reserve.

Management Action

- Remove existing fencing that is not required or presents a risk to staff, contractors or fauna

8.7.3 Timber Extraction

A number of old tree stumps observed along the forestry road (near the water reserve) suggest that some timber logging has historically occurred at the site (Williams, B 2016 pers.comm. 25 Feb).

Slash Pine plantations adjoin the northern and eastern boundaries while the property immediately south of Wintzloff Road has been heavily overrun by Slash Pine wildlings.

Slash Pine wildlings are currently being managed at the reserve. Logs have been left insitu to provide habitat opportunities for fauna.

Management Action

- Continue to manage Slash Pine wildling and allow for ongoing natural recruitment of native species.
- Partnerships with industry to manage future wildling recruitment at this site

8.7.4 Visitor Use and Impact

The adjacent Beerwah State Forest is used for recreational activities. Horse and trail bike riders are known to illegally access the reserve's fire trail via forestry trails causing track erosion.

Access to the fire trail and Wintzloff Road is not currently available to the public without prior consent.

Management Action

- Install barricades in accordance with Council's Open Space Landscape Infrastructure Manual to restrict illegal access by horses, mountain and trail bikes
- Ensure trail footprint is minimised and managed to prevent increased pest animal access via the trail network

8.8 Climate Change

Research to date indicates that climate change will accelerate a decline in biodiversity through loss of plant and animal species, loss of habitat, proliferation of weed species, and increased bush fire risks. Stream processes may also be impacted by increased flood events.

Sunshine Coast Council Climate Change and Peak Oil Strategy 2010-2020 recognises that climate change is a significant long-term threat to the areas biodiversity. Protecting habitat, rehabilitating areas, enhancing wildlife corridors and reducing pest species are suggested to help wildlife **adapt** to changing conditions and also provide **mitigation** in the potential to sequester carbon.

Management Action

- Build resilience in stream ecosystems by restoring riparian vegetation and controlling bank and bed erosion
- Ensure surrounding landuse does not adversely affect the natural hydrological processes of the site.
- If feasible, consider additional land acquisition to provide increased core habitat and connectivity

9. Implementation Plan

9.1 Purpose of the Protected Area

To protect and restore the biodiversity values associated with the reserve; to create, consolidate and protect future connectivity values to link the existing surrounding conservation estate; and to facilitate nature based recreation and education.

9.2 Management objectives

- Manage the area in order to perpetuate, in as natural a state as possible, representative examples of regional ecosystems, biotic communities, genetic resources and unimpaired natural processes
- Maintain viable and ecologically functional populations and assemblages of native species at densities sufficient to conserve ecosystem integrity and resilience in the long term;
- Contribute in particular to conservation of wide-ranging species, regional ecological processes and migration routes;
- Manage visitor use for inspirational, educational, cultural, and recreational purposes, at a level which will not cause significant biological or ecological degradation to the natural resources;
- Take into account the non-exclusive native title rights of the Kabi Kabi People;
- Contribute to local economies through ecological knowledge, habitat restoration and tourism

9.3 Protection Mechanism

The majority of Racemosa Environment reserve is freehold tenure owned by Sunshine Coast Council (lot of plan 456 on CG2857); the water reserve which is incorporated into the Racemosa Environment reserve management area is a separate lot (Lot on plan 744 on CG2857) where Council is the trustee for the Queensland Government. Under the SCC Planning Scheme 2014 the whole reserve area is protected for the purpose of environmental management and conservation

The intent of reserve management established through this management plan is therefore to ensure the conservation values are maintained so that the current protection mechanisms are not compromised.

9.4 Restoration Goals

Restoration activities at Racemosa Environment Reserve aim to maintain and enhance existing natural values and improve overall resilience of vegetation.

The Racemosa Environment Reserve Restoration Works Plan 2012 (RWP) describes priorities for restoration based on the reserve's BOA mapping. To further assist restoration, the site has been partitioned into five management zones that govern the types of activities required to improve each zone's BOA classification.

All vegetation management activities undertaken on this site are guided by this works plan. The works plan will be reviewed every five years.

9.4.1 Significant Fauna and Flora

A number of Commonwealth, state and locally listed fauna and flora species have been found at Racemosa Environment Reserve (see **Table 5** and **6**).

Recovery plans for Commonwealth listed EVNT species and ecological communities have been made or adopted under the EPBC Act. Once a recovery plan is in place, Australian Government agencies must act in accordance with that plan.

The following plans are available for EVNT species relevant to Racemosa Environment Reserve:

- National recovery plan for the wallum sedgefrog and other wallum-dependent frog species (2006)
- Draft National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus* (2009)
- Wildlife Conservation Plan for Migratory Shorebirds (2006) (for management of Latham's Snipe)

Additional plans available to inform management of noteworthy species at Racemosa Environment Reserve include:

- Threat abatement plan for predation by feral cats (2015)
- Threat abatement plan for predation by European Fox (2008)
- Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads
- Consultation Document on Listing Eligibility and Conservation Actions - *Petauroides volans* (greater glider)
- Recovery Plan for the Bush Stone-curlew *Burhinus grallarius* (NSW Government 2006)
- Saving our species Species Action Statement – Square-tailed Kite (Lophoictinia isura) (NSW Government 2014)

The Species Recovery Information Gateway (SPRING) is a Queensland Government initiative that provides information about the conservation and recovery of Queensland's native plant and animal species, particularly EVNT species. This includes a prioritisation framework that uses multiple criteria to prioritise native species and guide conservation management and recovery.

Under the framework, the management of Grey-headed Flying-fox is ranked as a critical priority and management of Christmas Bells, Wallum Froglet and Glossy Black Cockatoo are ranked as high priority in Queensland. Management of the Elf Skink is ranked as a high priority in Southeast Queensland.

Other requirements for noteworthy fauna include:

- Protecting habitat for the Elf Skink that prefers moist conditions under leaf litter (Queensland Museum, 2007). Threats to this species include habitat alterations which may open the canopy cover, lower moisture levels and reduce litter accumulation, (DNR, DoE and EA, 1988).
- Maintaining forest areas with a dense understorey for Rufous Fantail and Swamp Wallaby (DoE 2006, Van Dyck et. al. 2013)
- Maintaining or revegetating with She-oaks (Allocasuarina sp.) and less commonly used food trees (eucalypts, angophoras, acacias and hakeas) for Glossy Black Cockatoos (DEC 2004).

Management Action

- Manage reserve in accordance with national recover plans for Wallum Rocketfrog, Wallum Froglet, Grey-headed Flying-fox and Latham's Snipe, relevant to this site.
- Adopt SPRING guidelines for the management of Grey-headed Flying-fox, Christmas Bells, Wallum Froglet, Elf Skink and Glossy Black Cockatoo, relevant to this site
- Ensure management actions consider fauna and flora survey recommendations.
- Protect habitat for Swamp Wallaby, Elf Skink, Rufous Fantail and other species with a similar requirement for forest understorey vegetation.
- Ensure managers and contractors are aware of the species on site, their location and their requirements for survival
- Ensure management activities do not negatively impact on important habitat areas

9.4.2 Management Actions

The following section provides a table of all of the management actions reported in this document and shows the associated work plan linked to the service level category for this reserve.

Table 8: Management Implementation Plan for Racemosa Environment Reserve.

Management Actions	Relevant documentation	Status	Priority
Vegetation Communities			
• Submit application to Queensland Government to ammend RE mapping for site through a Property Map of Assessable Vegetation (PMAV)	Section 6.1.1	Not started	Medium
Native Fauna and Flora			
• Monitor existing populations of EVNT and locally significant fauna and flora to detect changes in population size	Racemosa Environment Reserve, Fauna Survey Report, Section 6.1.2 and 6.1.3	Not assessed	Ongoing
• Undertake targeted fauna assessments for EVNT and locally significant species likely to occur at reserve, or previously recorded by Czechura between the 1970s and 2003	Racemosa Environment Reserve, Fauna Survey Report, Section 6.1.2 and 6.1.3	Not assessed	Low
• Promote partnerships for monitoring, data collection and research	Section 6.1.2 and 6.1.3	Not started	Medium
• Review opportunities to plant Richmond Birdwing Vine (*Pararistolochia praevenosa*)	Section 6.1.3	Not started	Low
Cultural Heritage values			
• Consult Kabi Kabi First Nation prior to any works that will cause ground disturbance in a previously undisturbed area	*Aboriginal Cultural Heritage Act 2003* Duty of Care Guidelines; Section 6.2.1	As required	Ongoing
Recreation, Eco-recreation and Restoration			
• Analyse the cost/benefit table to determine the most appropriate zoning for this site under the Recreational, Educational and Sanctuary classification system.	Section 6.2.2	Not started	Medium
• Develop a draft landscape plan for any proposed trails		Not started	Medium
• Review public access within the broader context of the Recreational Trails Plan and the Natural Areas Master Management Plan		Underway	Medium

Management Actions	Relevant documentation	Status	Priority
• Promote partnerships with community groups such as Birdlife Sunshine Coast	Section 6.2.3	Underway	Medium
• If feasible, Conduct educational seminars and guided interpretive walks for local community	Section 6.2.4	Not started	Low
• Provide opportunities to involve the local community in public restoration projects where appropriate	Section 6.2.4	As required	Low
• Future planting activities to include food and habitat plants for EVNT and locally significant fauna	Section 6.2.4	Noted	Low
Condition of Values			
• Undertake a BOA every five years to determine changes in vegetation condition and to measure success of restoration works.	Section 6.4, 8.3 and 9.4	Next BOA scheduled 2017	Delivered/Ongoing
• Undertake periodic water quality assessments to determine general stream health, water quality upstream and downstream of the reserve and wetland conservation values	Section 6.4 and 6.3	Not started	Medium
• Consider options to create native vegetation corridors through the surrounding pine plantations	Section 6.4	Not started	Low
• Collaborate with adjacent property owners to facilitate coordinated weed management	Section 6.4; Sunshine Coast Local Government Area Biosecurity Plan 2017	Not started	Medium
Bioregional and landscape context			
• Consider further land acquisition to increase core and connecting habitat in the local area	Section 7, Sunshine Coast Environment and Liveability Strategy 20170, Environment Levy Land Acquisition Program	Noted	Ongoing
Environmental weeds, declared plants and pest animals			
• Implement pest management activities in line with the most recent RWP and Sunshine Coast Local Government Area Biosecurity Plan 2017	Section 8.3	Underway	Delivered/Ongoing
• Review BOA and RWP every five years.	Section 8.3	Scheduled 2017	Delivered/Ongoing

Management Actions	Relevant documentation	Status	Priority
Fire			
• Finalise Fire management plan	Section 8.4; FMP	Final draft scheduled 2016-2017	High
• FMP to give due consideration to the ecological requirements of EVNT and locally significant species and associated habitat.	Section 8.4; FMP; Racemosa Environment Reserve, Fauna survey Report	Underway	Ongoing
• Design future recreational trails to be simultaneously utilised as fire breaks for mosaic burns	Section 8.4; FMP	As required	Ongoing
• Fire management program at reserve should consider the HQPlantations Fire Management Plan and supplementary fire management related documentation for Beerwah State Forest	Section 8.4; HQPlantations Fire Management Plan	As required	Ongoing
Erosion			
• Install locked gates at fire trail and Wintzloff Road (and barricades around gates where necessary) to reduce track erosion caused by trespassing vehicles and domestic horses	Section 8.5	Complete 2012	Delivered/Ongoing
• Implement erosion control measures	Section 8.5	As required	Ongoing
• Undertake freshwater ecology assessments, especially following heavy rainfall events, to monitor changes in watercourse sediment loads	Section 8.5	Not started	Medium
• Factor highly erodible soils into future track construction	Section 8.5	As required	Low
Salinity/acidity			
• Any works undertaken at reserve are to be in accordance with the Sunshine Coast Planning Scheme 2014 Acid sulphate Soils Overlay Code	Section 8.6; Sunshine Coast Planning Scheme 2014 Acid sulphate Soils Overlay Code	Not started	Medium

Management Actions	Relevant documentation	Status	Priority
Historical Land Use			
<u>Vegetation Clearing</u> • Inform private landholders of Conservation Partnership initiatives that will assist them to restore core and connecting habitat on their properties	Section 8.7.1		Medium
<u>Stock Grazing</u> • Remove existing fencing that is not required or presents a risk to staff, contractors or fauna. <u>Timber Extraction</u> • Continue to manage Slash Pine wildling and allow for ongoing natural recruitment of native species. • Partnerships with industry to manage future wildling recruitment at this site	Section 8.7.2 Section 8.7.3 Section 8.7.3	Not started	High Ongoing Medium
Visitor Use and Impact			
• Ensure trail footprint is minimised and managed to prevent increased pest animal access via the trail network • Install barricades in accordance with Council's Open Space Landscape Infrastructure Manual to restrict illegal access by horses, mountain and trail bikes	Section 8.7.4 Section 8.7.4; Open Space Landscape Infrastructure Manual	As required Installation complete 2012; Annual maintenance	Ongoing Delivered/Ongoing
Climate Change			
• Build resilience in stream ecosystems by restoring riparian vegetation and controlling bank and bed erosion • If feasible, consider additional land acquisition to provide increased core habitat and connectivity • Ensure surrounding landuse does not adversely affect the natural hydrological processes of the site.	Section 8.8 Section 8.8 Section 8.8	Underway Underway Noted	Ongoing Ongoing Ongoing

Management Actions	Relevant documentation	Status	Priority
Restoration Goals *(NB: also includes actions related to the implementation of the Regeneration Works Plan)*			
• Manage reserve in accordance with national recover plans for Wallum Rocketfrog, Wallum Froglet, Grey-headed Flying-fox and Latham's Snipe, relevant to this site	Section 9.4.1	Underway	Ongoing
• Adopt SPRING guidelines for the management of Grey-headed Flying-fox, Christmas Bells, Wallum Froglet, Elf Skink and Glossy Black Cockatoo, relevant to this site	Section 9.4.1	Underway	Ongoing
• Ensure management actions consider fauna and flora survey recommendations.	Section 9.4.1	Underway	Delivered/Ongoing
• Protect habitat for Swamp Wallaby, Elf Skink, Rufous Fantail and other species with a similar requirement for forest understorey vegetation.	Section 9.4.1	Underway	Delivered/Ongoing
• Ensure managers and contractors are aware of the species on site, their location and requirements for survival	Section 9.4.1	Underway; as required	Delivered/Ongoing
• Ensure management activities do not negatively impact on important habitat areas	Section 9.4.1	Underway; as required	Delivered/Ongoing

* MMP: Master Management Plan; SMI: Statement of Management Intent; BOA: Bushland Operational Assessment; FMP: Fire Management Plan; NRS: National Reserve System; MP: this Management Plan; RWP: Restoration Works Plan; Priority: Ongoing = Actions that will continue to be undertaken in the life of the MP; High = Actions that will commence within the next 12 months; Medium = Actions that will commence within the next two years; Low = Actions that will commence within the next five years

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9.5 Finance and Resourcing

The Natural Area management program delivers the restoration, maintenance and development of Council's Environmental Reserve network.

9.5.1 Establishment

Establishment activities are funded under Council's Environment Levy Establishment Program which applies to each new reserve for a period of approximately three to five years when all major planning reports and establishment works are implemented.

9.5.2 Operational

The levy operational budget is used for on-going maintenance of the reserve, following establishment. An annual operational budget is determined by the service level classification for each reserve which is based on several factors including:

- biodiversity values and risk
- reserve condition, function and size
- recreation and educational opportunities
- minimum community expectations

The ongoing management and maintenance of the Racemosa Environment Reserve will continue to be funded by the Environment Levy Program.

9.5.3 Community Nature Conservation Partnerships Unit

The Community Nature Conservation Partnerships supports Council's reserve management and maintenance—engaging and supporting community volunteers in actively protecting and rehabilitating the region's environmental assets on public lands and includes over 1,000 volunteers.

9.5.4 Healthy Places Unit

In conjunction with the Natural Areas team, the Healthy Places team fulfils and delivers Council's statutory responsibility to manage impacts of plants and animals within Council reserves.

9.6 Monitoring

The SEQ Natural Resource Management Plan uses the Monitoring, Evaluation, Reporting and Improvement (MERI) plan. **Figure 5** shows the MERI program logic which provides time-frames and outcomes linked to the management plan objectives which can be assessed during monitoring and evaluation.

The MERI plan provides a framework to:

1. evaluate the contribution of the reserve to the overall Sunshine Coast reserve network
2. evaluate the effectiveness of the methodology and approach used
3. incorporate lessons learned into future work in the area of land purchased for inclusion in Council's reserve estate.

Permanent watercourse at Racemosa Environment Reserve (Image G.Morgan)

Figure 5: MERI Program Logic – based on the National Reserve System and SEQ NRM Plan

Outcomes	CouncilOwned/managed Environmental Reserve
Long-term outcomes (20 years)	This site will contribute to a well-managed, comprehensive reserve network protecting in perpetuity examples of at least 80% of the extant native ecosystems present in the Sunshine Coast Region .
Environment outcomes (5 years)	Reduced threat from invasive species Thematic Links GERI; Improved ecological connectivity Increased representativeness of regional ecosystems Increased protection of under-represented RE's Enhanced resilience of the protected areas to disturbance Protected native habitat Address Matters of National Environmental Significance
Protection and management outcomes (5 years)	Managers are effectively implementing management actions of the Management Plan
Engagement and capacity outcomes (5 years)	Managers have the capacity for effective management planning
Immediate outcomes (biophysical and non-biophysical outcomes)	High value areas (including those within under-represented bioregions) are prioritised for acquisition and managed for nature conservation
Proponent influence activities	Partnership purchases (Discretionary grants)

9.7 Communications Plan

Preliminary consultation for this management plan has been based on input from stakeholders within Council. This includes recreational, conservation, community partnerships, and cultural heritage sectors. The first draft version of the plan was developed following this consultation.

Public and external stakeholder groups were then invited to comment on the first draft through the Council web site and specific targeted notifications.

9.7.1 Publicity about the Values and Achievements

Council will continue to provide information to the public via reports, publications, newsletters, and webpages and through media outlets as and when suitable opportunities present.

9.8 Management Plan Review Schedule

The Management Plan will be reviewed after five years in line with the MERI guidelines, supported by the five year review of the Restoration Works Plan.

It is anticipated that this management plan will only be comprehensively evaluated after 10 years of implementation underpinned by the framework of actions; relevant monitoring and evaluation strategies, described in this plan.

Blue Tongue Nunyi-um at Racemosa Environment Reserve

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Appendices

Appendix 1: National Reserve System Principles of Protected Area Management

Interconnectedness of values and places

Protected area management aims to incorporate and integrate natural values, Indigenous cultural values and broader community and historic heritage values.

Protected areas are also part of broader bioregional, social, cultural and economic landscape and they should be managed in this context.

Good neighbour

Protected area managers are economically and socially part of local and regional communities and recognise the need to be valued, responsible, and active local and regional community participants and members.

Community participation and collaboration

Protected areas are conserved for the benefit of and with the support of the community and this is best achieved through awareness, understanding and involvement.

Environmental stewardship

Responsibility for protecting and conserving protected area values extends beyond the management body to include lessees, licensees, relevant public and private authorities, visitors, neighbours and the wider community.

Transparent decision making

The framework and processes for decision-making should be open and transparent. The reasons for making decisions should be publicly available, except to the extent that information, including information that is culturally sensitive or commercial-in-confidence, needs to be treated as confidential.

Effective and adaptive management

Protected area management should apply an adaptive management approach to support continuous improvement in management. This includes monitoring the outcomes of management and taking account of the findings of monitoring and other research to improve management effectiveness. Management decisions should have a firm scientific basis or be supported by relevant experience. Management bodies need to maintain and improve their capacity to learn from experience, to value and build staff expertise and draw on input from other stakeholders.

Appropriate use

Access to and use of protected areas must be consistent with the long term protection of their values, the maintenance of physical and ecological processes and agreed management objectives.

Indigenous people's knowledge and role

Protected areas are part of landscapes that have supported and continue to give identity to Indigenous people who have traditional and historical connections to and knowledge of the land. Indigenous people are recognised and respected as the original custodians of the lands, waters, animals and plants within protected areas. Their living and spiritual connections with the land through traditional laws, customs and beliefs passed on from their ancestors are also recognised. The role of Indigenous organisations in the protection and management of country is acknowledged.

Applying the "precautionary principle"

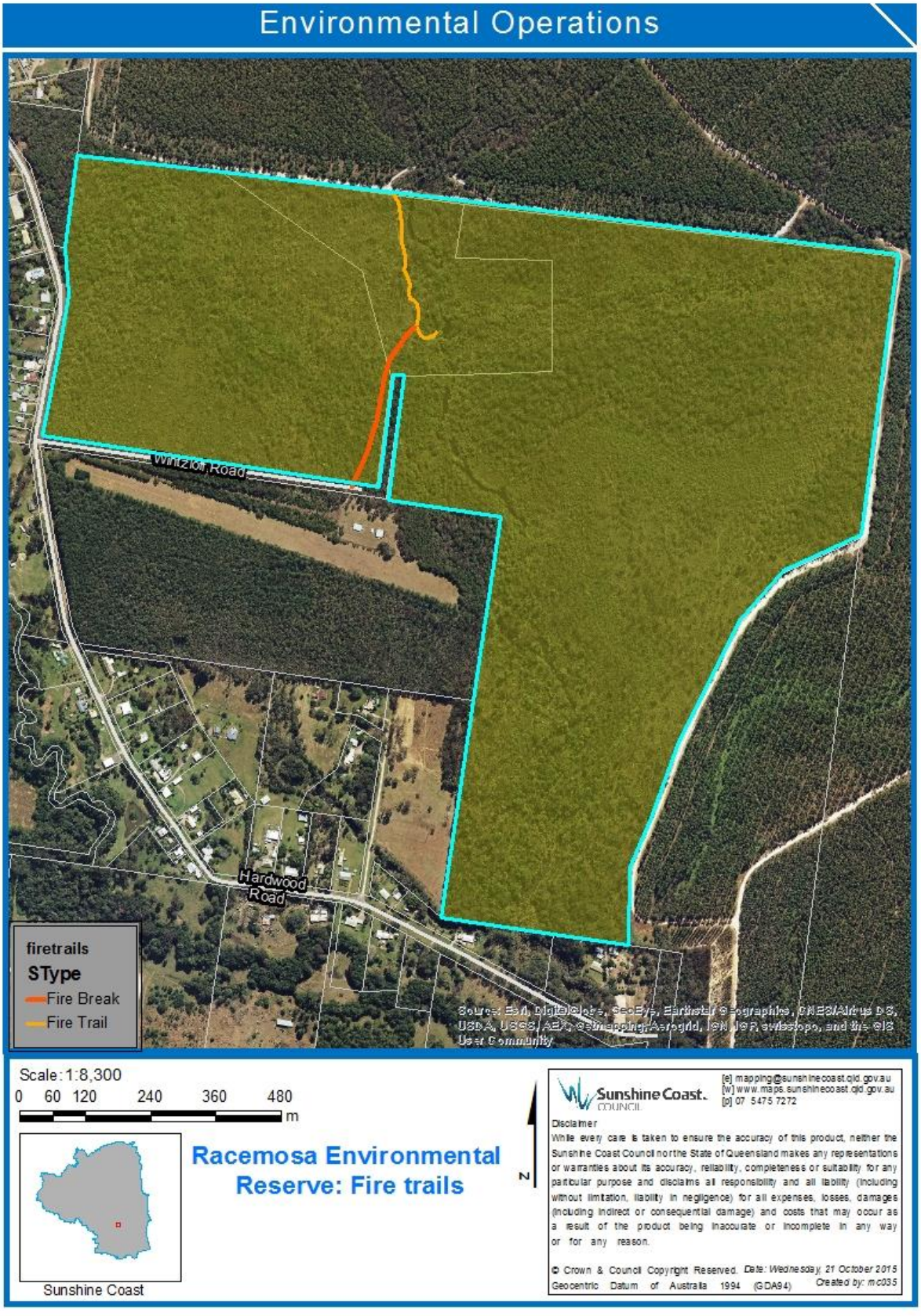
Protection of the natural and cultural heritage of the NRS should include identifying and taking appropriate actions to avert and actively manage emerging threats and risks. Effective management must be based on the best available information. However, where there are threats or potential threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation or harmful disturbance to natural and cultural places.

Inter-generational and intra-generational equity

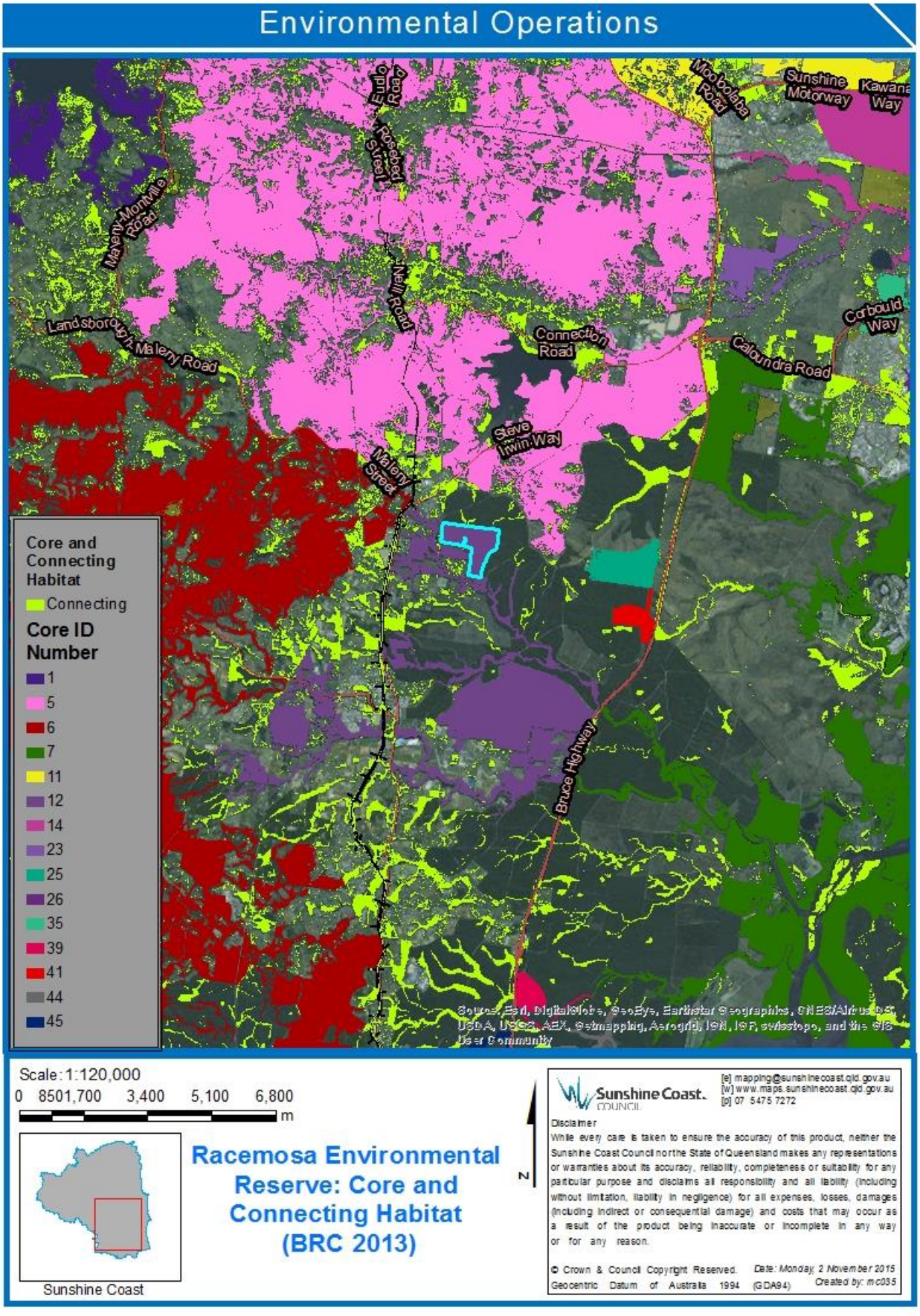
Management seeks to ensure that the health, diversity and productivity of the environment and the integrity and significance of cultural places are maintained or enhanced for the benefit of future generations and that decisions affecting current generations are socially equitable.

Appendix 2: State, regional and local mapping

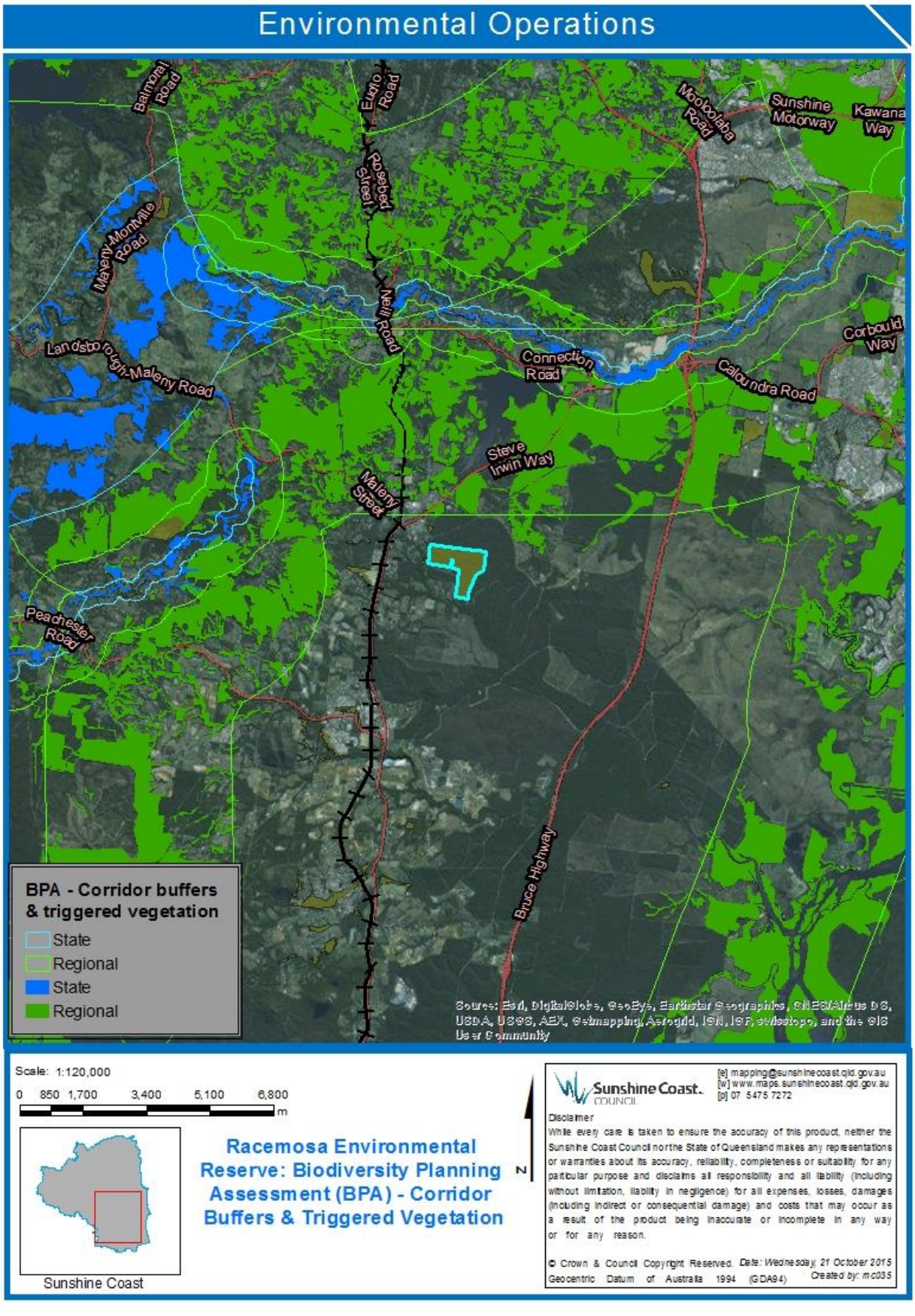
2a) Existing Firetrails and Proposed Fire Breaks



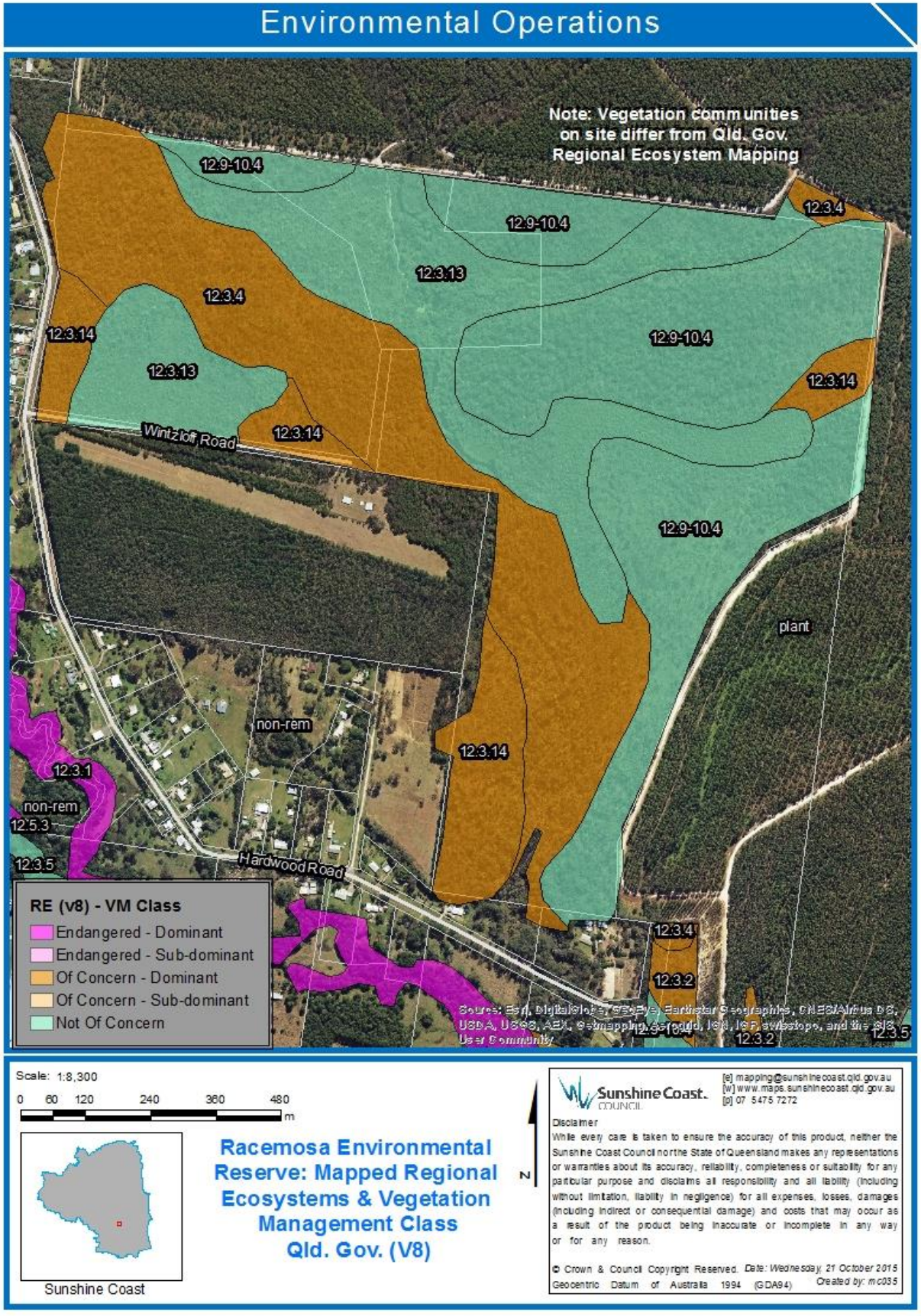
2b) Core and Connecting Habitat (BRC 2013)



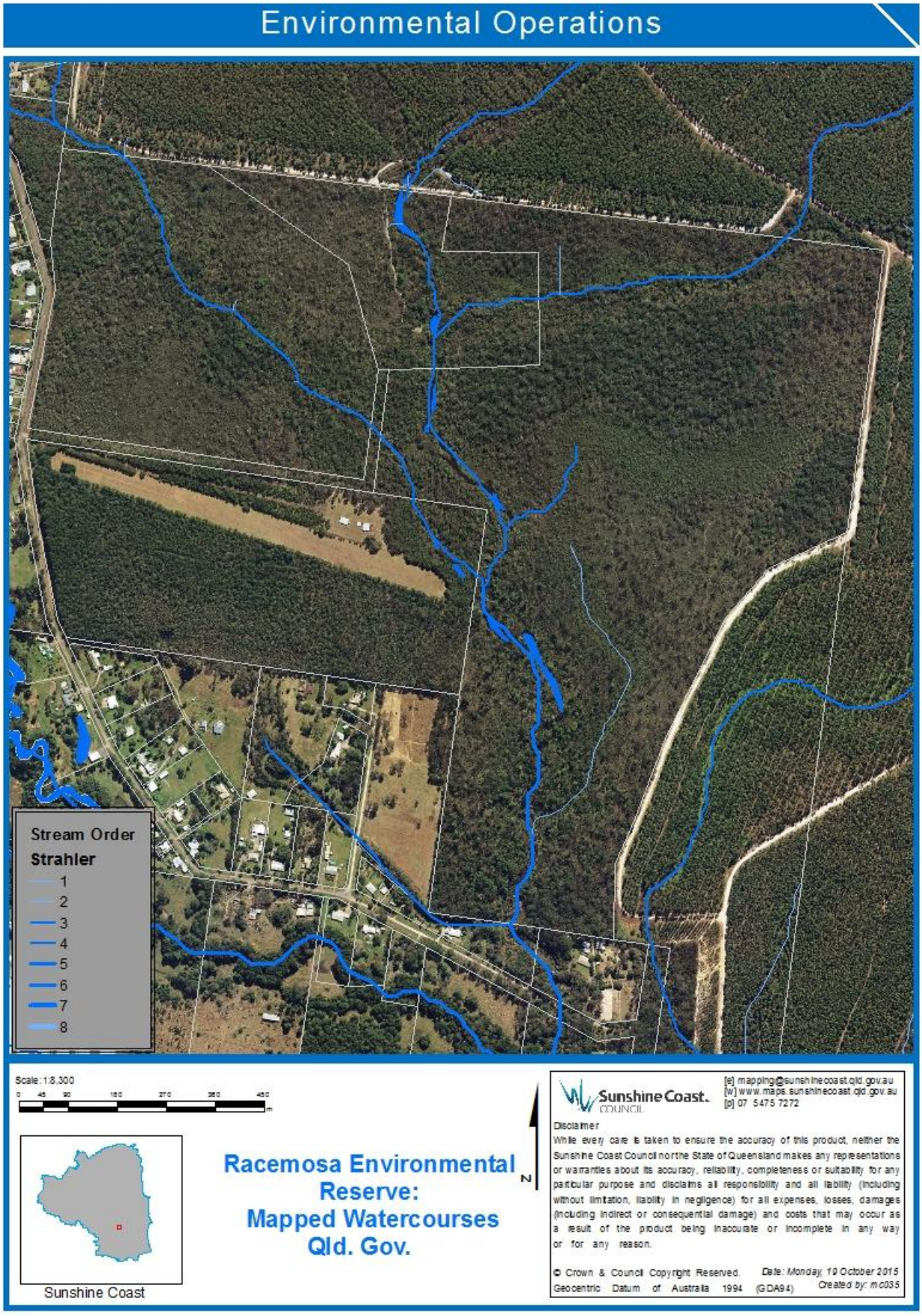
2c) Biodiversity Planning Assessment (PBA) – State and regional corridors



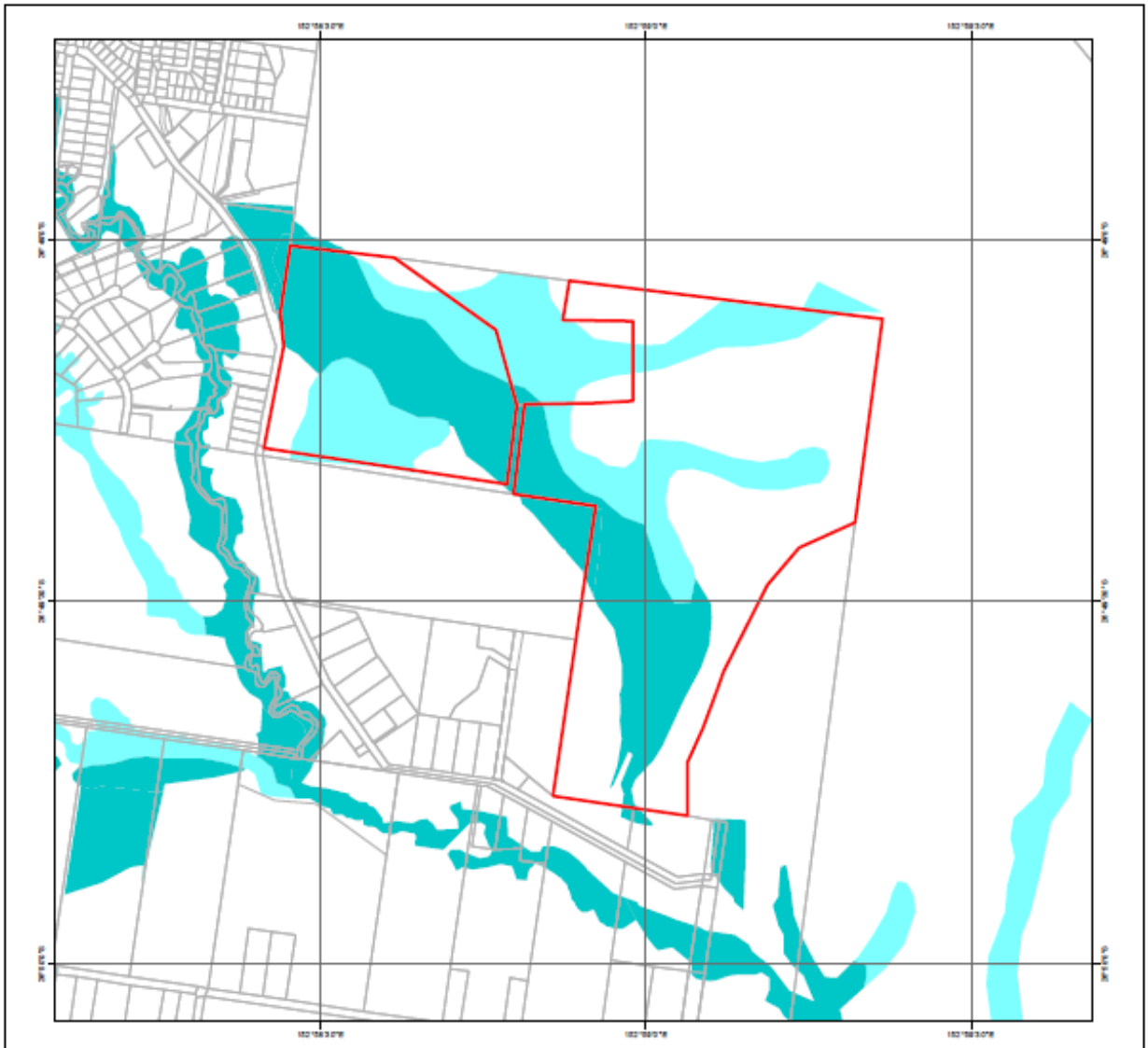
2d) Mapped regional ecosystems V8 (including Landzones) – Vegetation Management Class



2e) Mapped Watercourses



2f) Mapped Wetlands of Ecological Significance



Map of Referable Wetlands for the Environmental Protection Act 1994

Requested By: MAREE.CLANCY2@SUNSHINECOAST.QLD.GOV.AU
Date: 21 Oct 15 Time: 15.39.53

Centred on Lot on Plan:
458 CG2867

- Selected Land Parcel
- Cadastral Boundary
- HES Wetland
- GES Wetland

Queensland Government

LOCALITY DIAGRAM

N

0 140 280 420 560 700 m

Note:
This map shows the location of wetlands on the Map of Referable Wetlands which are defined under the Environmental Protection Regulation 2008.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 81A of the Environmental Protection Regulation 2008. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

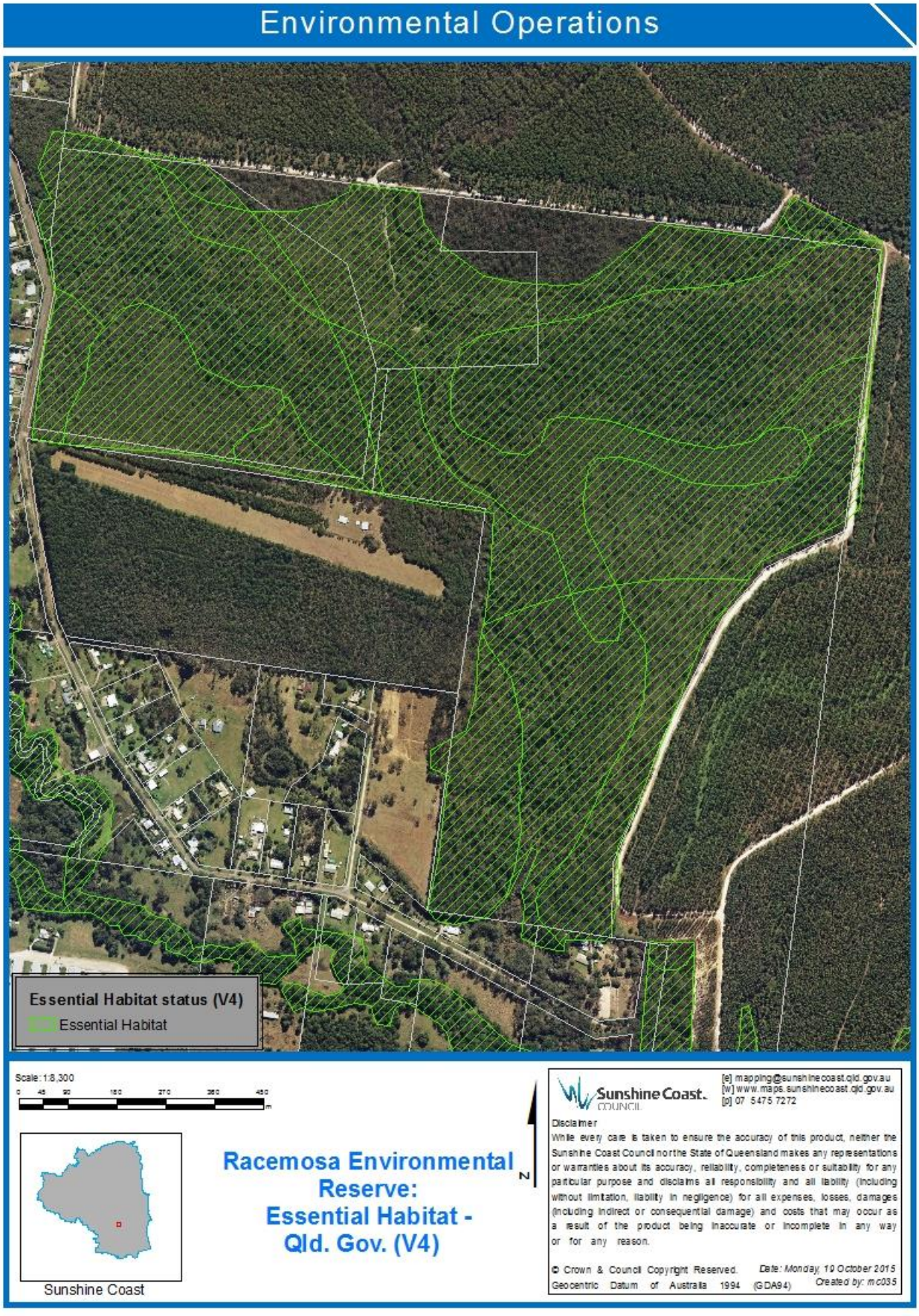
This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at <www.ehp.qld.gov.au> or email <planning.support@ehp.qld.gov.au>

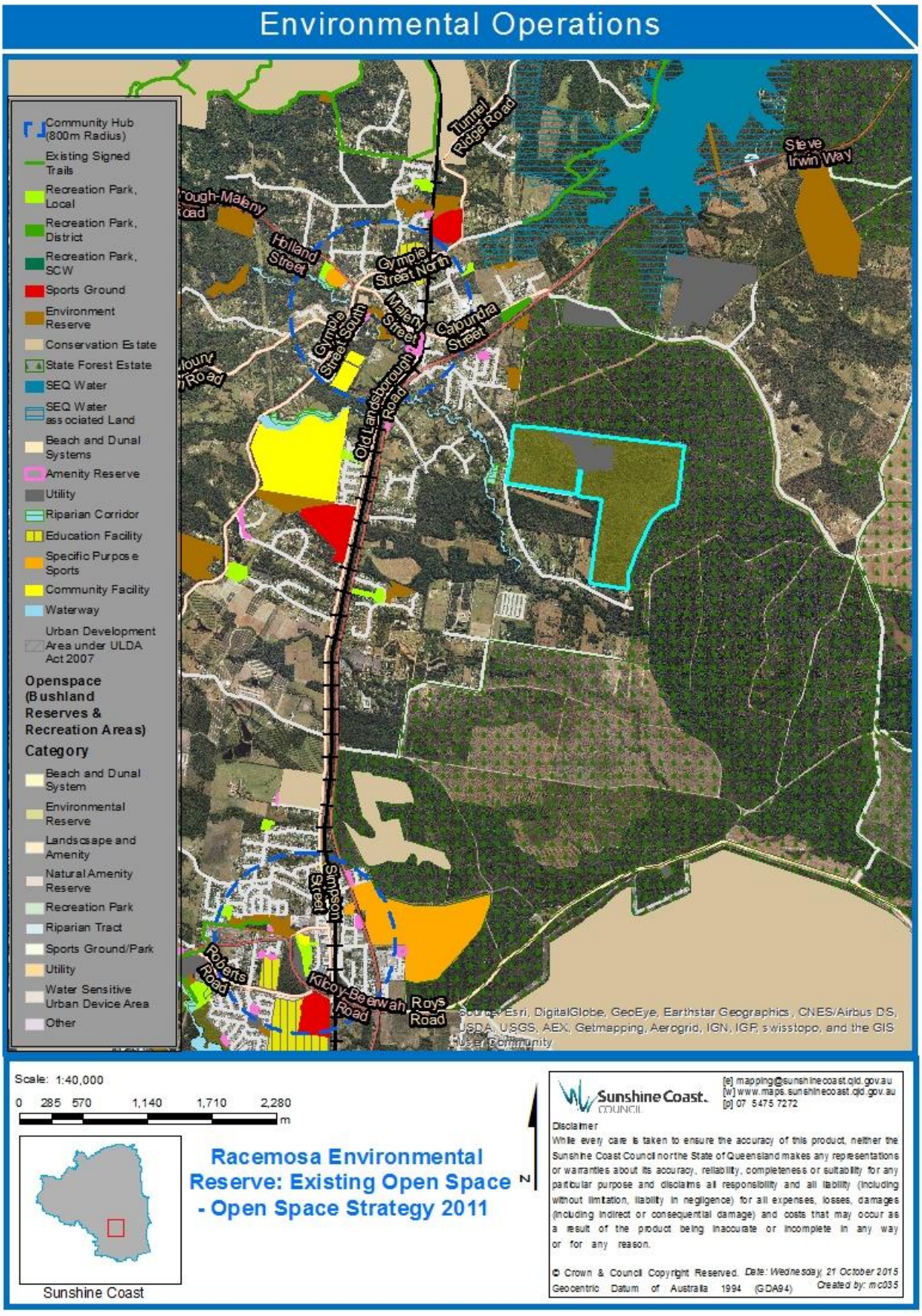
This product is projected into GDA 1994 MGA Zone 56

Page 2 of 2

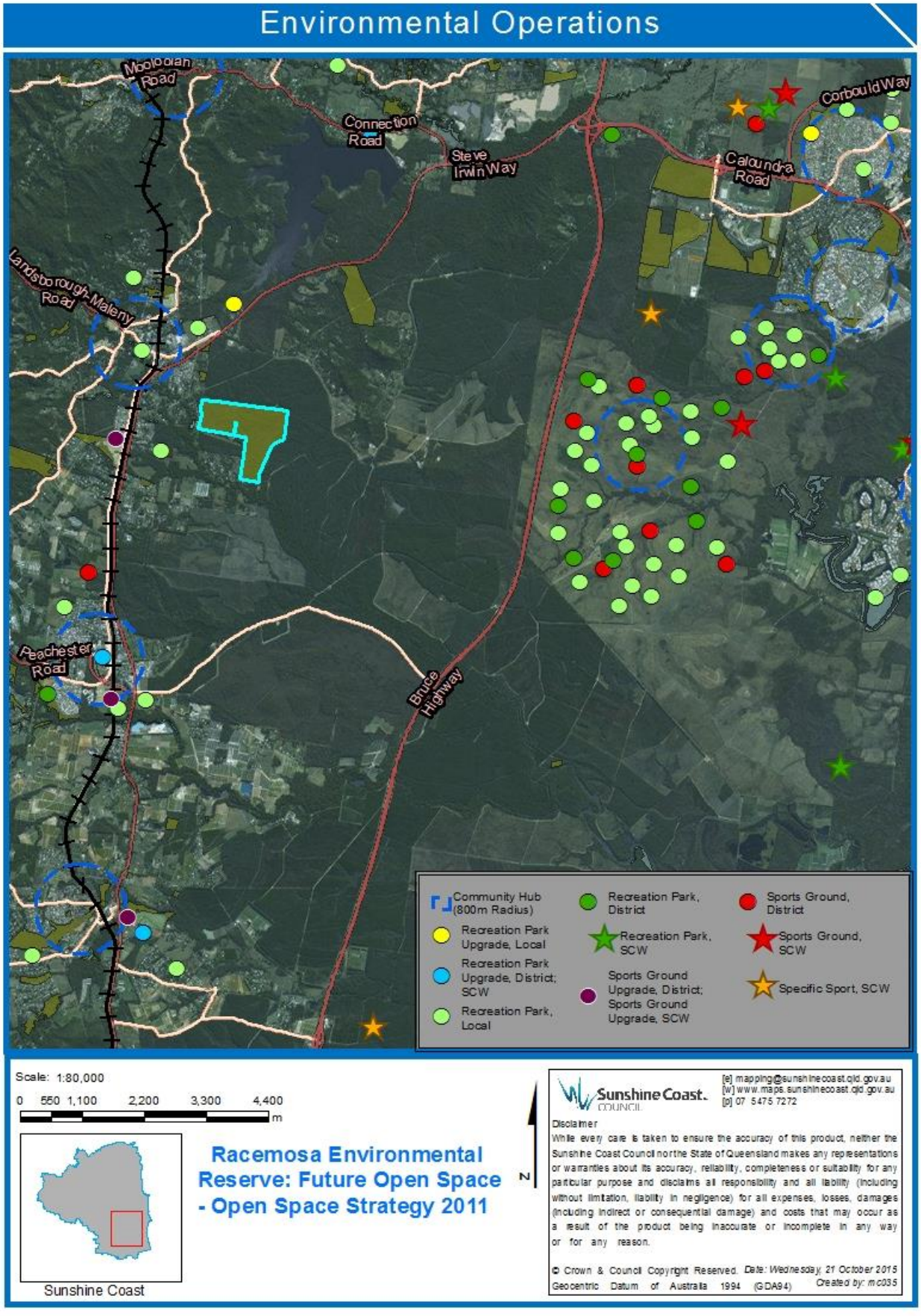
2g) Mapped Essential Habitat



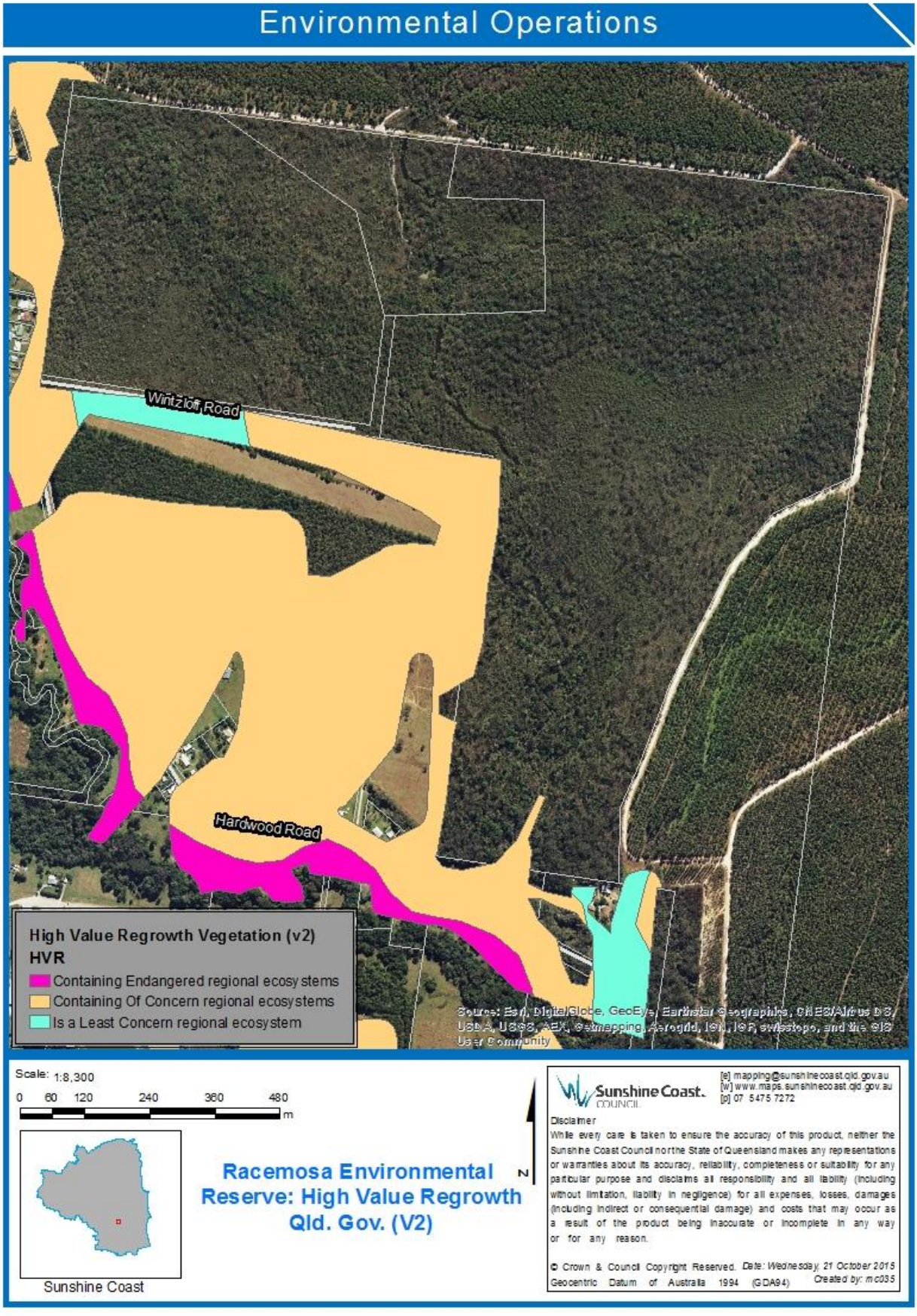
2h) SCC **Existing** Regional Open Space Planning Areas



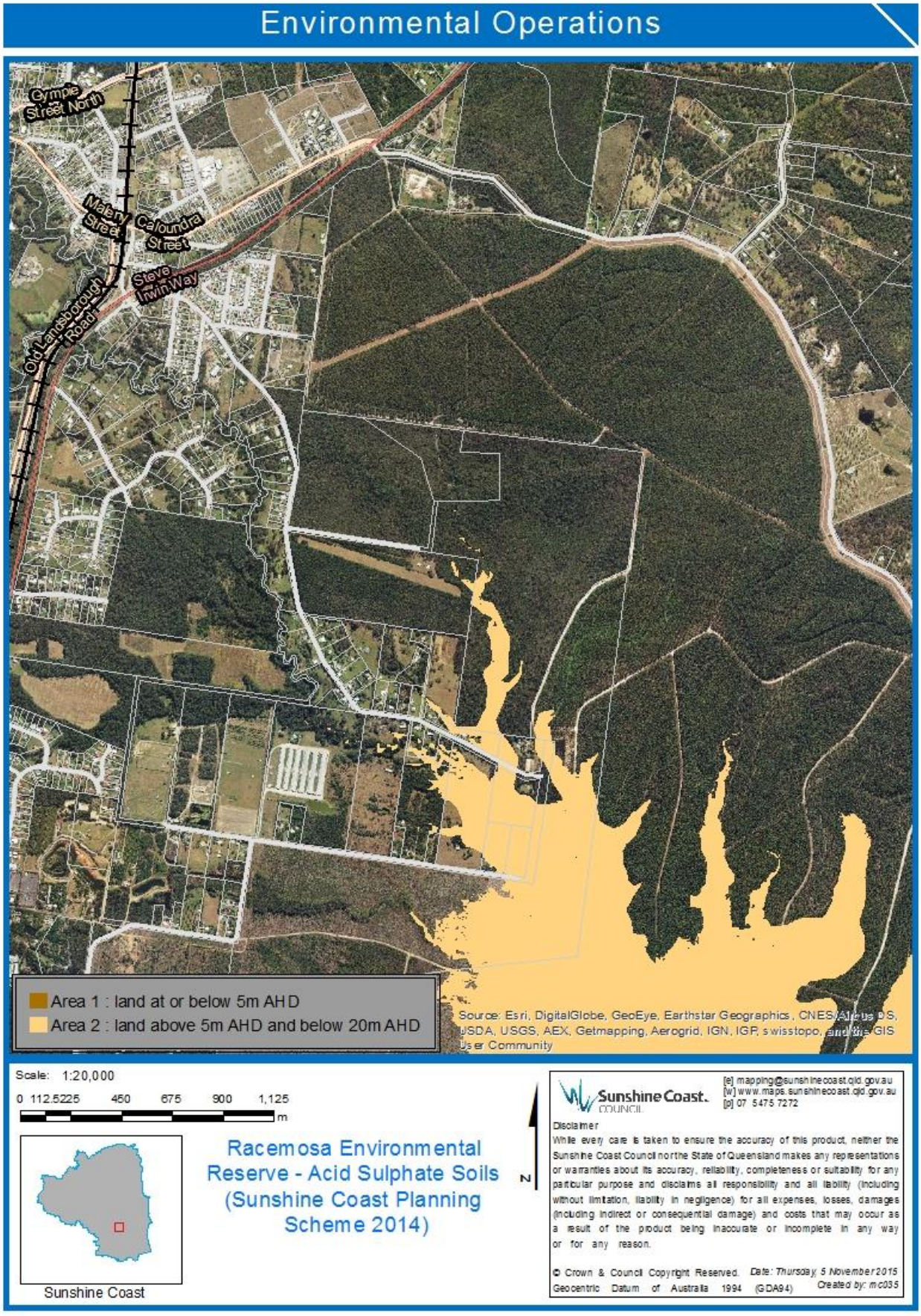
2i) SCC **Future** Regional Open Space Planning Areas



2j)High Value Regrowth (V2)



2k) Acid sulphate soils (Sunshine Coast Planning Scheme 2014)



Appendix 3: Sunshine Coast Priority regional ecosystems

3a) Status of vegetation communities on the Sunshine Coast

Vegetation Community	RE	SCLGA Pre-clearing extent (Ha)	SCLGA Current extent (Ha)	SCLGA 'Vulnerable' [3] Loss (%)	Conservation status (VMA)	SCLGA Poorly Conserved REs (Target RE)	Extent currently protected	Additional area required to adequately represent (ha)	SEQ poorly Conserved REs
Eucalypt	12.5.3	12,332	1,445	88	'Endangered'	✓	606 (5%)	627	✓
Heath	12.3.8	281	216	23	Of Concern		88 (31%)		
Heath	12.3.13	4,189	1,331	68	Least Concern		945 (23%)		
Melaleuca	12.3.5	10,213	3,230	68	Least Concern		1,297 (13%)		

A regional ecosystem is considered to be a 'target' based on one or more of the following factors: 1) VMA *'Endangered'* conservation status; 2) 'Vulnerable' at a SCLGA scale; 3) having lost more than 70% of its Sunshine Coast pre-clearing extent; 4) Poorly conserved at a SCLGA scale (>10% of SC pre-clearing extent protected); 5) Poorly conserved at a SEQ scale (>10% of SEQ pre-clearing extent protected); 6) Commonwealth EPBC listed critically 'Endangered' ecosystems (Lowland sub-tropical rainforest)

3b) Extent of observed regional ecosystems in Sunshine Coast conservation estate

Vegetation Community	RE	Pre-clearing extent	Current Extent	Protected areas (Ha)					Voluntary Conservation Areas (Ha)	Total extent of RE within conservation estate (Ha)
				Nature Refuge	Covenant	State	Council	Total extent in protected areas	Land for Wildlife	
Eucalypt	12.5.3	12,332	1,445	0	8	578	20	606	62	668
Heath	12.3.8	281	216	0	0	50	37	88	7	95
Heath	12.3.13	4,189	1,331	0	2	780	163	945	7	952
Melaleuca	12.3.5	10,213	3,230	0	9	855	433	1,297	10	1,397

[3] Vulnerable = Loss of < 70% of pre-clearing extent

Appendix 4: Flora Species Lists

4a) Racemosa Environment Reserve Flora Assessment (Thomas, G 2012)

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Acacia complanata	MIMOSACEAE				SH	Flat-stemmed Wattle	g	l	-	-	-	-	-	x	C
Acacia hubbardiana	MIMOSACEAE				SH	Yellow Prickly Moses	g	l	-	-	x	x	-	x	C
Acacia longissima	MIMOSACEAE				T	Narrow-leaf Wattle	-	l	-	-	x	-	-	x	R/U
Acacia melanoxylon	MIMOSACEAE				T	Blackwood	-	-	m	-	x	-	-	-	U
Acacia penninervis v. longiracemosa	MIMOSACEAE				ST	Hickory Wattle	-	l	-	-	x	-	-	x	R/U
Acacia suaveolens	MIMOSACEAE				SH	Sweet Wattle	-	l	-	-	-	x	-	x	O
Acrotriche aggregata	ERICACEAE				SH	Red Cluster Heath	-	l	-	-	-	-	-	x	U
Ageratina riparia *	ASTERACEAE	25	LC		H	Mist Flower	g	-	-	-	x	-	-	-	A
Ageratum houstonianum *	ASTERACEAE	115	GEP		H	Blue Top	g	-	-	-	x	-	-	-	C
Allocasuarina littoralis	CASUARINACEAE				T	Coastal She Oak	g	l	m	-	-	-	-	x	C
Alphitonia excelsa	RHAMNACEAE				T	Red Ash	g	l	m	-	x	-	-	x	C
Amyema miquelii	LORANTHACEAE				H	Mistletoe	-	-	-	c	-	-	-	x	U/O
Andropogon virginicus *	POACEAE		LC		H	Whisky Grass	g	-	-	-	-	-	-	x	O
Archontophoenix alexandrae #	ARECACEAE		GEP		T	Alexander Palm	-	l	-	-	x	-	-	-	U
Archontophoenix cunninghamiana	ARECACEAE				T	Picabeen/Bangalow Palm	g	l	-	-	x	-	-	-	O
Ardisia crenata *	MYRSINACEAE		LC		SH	Coral Berry	-	l	-	-	x	-	-	-	R
Ardisia humilis *	MYRSINACEAE		LC		ST	Low Shoebutton	-	l	-	-	x	-	-	-	R
Aristida warburgii	POACEAE				H	Speargrass	g	-	-	-	-	-	-	x	O
Babingtonia bidwillii	MYRTACEAE				SH	Twiggy Myrtle	-	l	m	-	x	-	-	-	R/U

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Baloskion pallens	RESTIONACEAE				H	Pale Cord Rush	g	-	-	-	-	x	-	-	U
Baloskion tetraphyllum ssp meiostachyum	RESTIONACEAE				H	Tassel Cord Rush	g	-	-	-	x	-	-	-	O
Banksia aemula	PROTEACEAE				T	Wallum Banksia	-	l	m	-	-	-	-	x	U
Banksia oblongifolia	PROTEACEAE				SH	Dwarf Banksia	g	l	-	-	x	x	-	x	C
Banksia robur	PROTEACEAE				SH	Broad-leaved Banksia	g	l	-	-	x	x	x	-	C
Banksia spinulosa v. collina	PROTEACEAE				SH	Golden Candlesticks	g	l	-	-	-	-	-	x	C
Baumea articulata	CYPERACEAE				H	Jointed Twigrush	g	-	-	-	x	-	x	-	U
Baumea juncea	CYPERACEAE				H	Bare Twigrush	g	-	-	-	x	-	-	-	O
Baumea rubiginosa	CYPERACEAE				H	Soft Twigrush	g	-	-	-	-	x	-	-	O
Bidens pilosa *	ASTERACEAE	110	LC		H	Pitchforks	g	-	-	-	-	-	-	x	U
Billardiera scandens	PITTOSPORACEAE				V	Climbing Apple-berry	g	l	-	-	x	-	-	x	C
Blechnum indicum	BLECHNACEAE				F	Bungwahl	g	-	-	-	x	-	x	-	C
Bossiaea heterophylla	FABACEAE				SH	Variable Bossiaea	-	l	-	-	-	-	-	x	R
Brachiaria mutica *	POACEAE		LC		H	Parra Grass	g	-	-	-	x	-	x	-	O
Burchardia umbellata	COLCHICACEAE				H	Milkmaids	g	-	-	-	-	x	-	-	U
Calochlaena dubia	DICKSONIACEAE				F	False Bracken	g	-	-	-	x	-	-	x	U
Carex brunnea	CYPERACEAE				H	Greater brown sedge	g	-	-	-	x	-	-	-	O/C
Cassytha glabella	LAURACEAE				V	Slender dodder-laurel	g	-	-	-	x	x	-	-	O
Cassytha pubescens	LAURACEAE				V	Dodder Vine	g	-	-	-	-	x	-	-	C
Caustis blakei	CYPERACEAE				H	Foxtail	g	-	-	-	-	-	-	x	C
Caustis recurvata	CYPERACEAE				H	Curly Wig	g	-	-	-	-	x	-	-	U/O
Centella asiatica	APIACEAE				H	Pennywort	g	-	-	-	x	-	-	-	U
Chorizandra cymbaria	CYPERACEAE				H	Heron bristle rush	g	-	-	-	x	x	-	-	O/C
Christella dentata	THELYPTERIDACEAE				F	Dinung	g	-	-	-	x	-	-	-	U

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Cinnamomum camphora *	LAURACEAE	8	LC	C3	T	Camphor Laurel	g	l	m	-	x	-	-	-	C
Cissus hypoglauca	VITACEAE				V	Five leaf water vine	g	l	-	-	x	-	-	-	R
Commelina diffusa	COMMELINACEAE				H	Native Wandering Jew	g	-	-	-	x	-	-	-	U/O
Conospermum taxifolium	PROTEACEAE				H	Devil's Rice	-	l	-	-	-	x	-	-	R/U
Corymbia gummifera	MYRTACEAE				T	Red Bloodwood	-	l	m	c	-	-	-	x	O
Corymbia intermedia	MYRTACEAE				T	Pink Bloodwood	-	l	m	c	x	-	-	x	O
Corymbia trachyphloia	MYRTACEAE				T	Brown Bloodwood	-	l	m	c	x	x	-	x	O
Cryptocarya glaucescens	LAURACEAE				T	Jack wood	-	l	m	-	x	-	-	-	U
Cupaniopsis anacardioides	SAPINDACEAE				T	Tukeroo	-	l	-	-	x	-	-	-	R
Cyanthillium cinerea	ASTERACEAE				H	Little ironweed	g	-	-	-	-	-	-	x	U
Cyathea cooperi	CYATHEACEAE				F	Scaly Tree Fern	-	-	m	-	x	-	-	-	R
Cymbidium madidum	ORCHIDACEAE				H	Native Cymbidium	-	l	-	-	x	-	-	-	R
Cymbopogon refractus	POACEAE				H	Barbed Wire Grass	g	-	-	-	-	-	-	x	U
Cyperus polystachyos	CYPERACEAE				H	Bunchy sedge	g	-	-	-	x	-	x	-	U
Dampiera sylvestris	GOODENIACEAE				H	Blue fan flower	g	-	-	-	x	x	-	x	A
Daviesia umbellulata	FABACEAE				SH	Bitter Pea	g	l	-	-	-	-	-	x	O/C
Dianella caerulea	LAXMANNIACEAE				H	Blue Flax Lilly	g	-	-	-	x	x	-	x	O
Dianella revoluta	LAXMANNIACEAE				H	Spreading Flax-Lily	g	-	-	-	-	-	-	x	U
Drosera spathulata	DROSERACEAE				H	Sundew	g	-	-	-	-	x	-	x	C
Drymaria cordata	CARYOPHYLLACEAE				H	Tropical Chickweed	g	-	-	-	x	-	-	-	U
Dysoxylum rufum	MELIACEAE				T	Hairy Rosewood	g	-	-	-	x	-	-	-	R

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Elaeocarpus reticulatus	ELAEOCARPACEAE				ST	Blueberry Ash	-	l	-	-	x	-	-	x	U
Empodisma minus	RESTIONACEAE				H	Spreading Rope Rush	g	-	-	-	-	-	-	x	O
Endiandra discolor	LAURACEAE				T	Rose Walnut	g	l	m	-	x	-	-	-	U
Endiandra sieberi	LAURACEAE				T	Corkwood	-	l	-	-	x	-	-	-	R
Entolasia stricta	POACEAE				H	Wiry Panic	g	-	-	-	x	x	-	x	A
Epacris obtusifolia	ERICACEAE				SH	Common Heath	-	l	-	-	-	-	-	x	R/U
Epacris pulchella	ERICACEAE				SH	Wallum Heath	g	l	-	-	-	x	-	-	O
Erechtites valerianifolia *	ASTERACEAE				H	Brazilian Fireweed	g	-	-	-	-	-	-	x	U
Eriocaulon australe	ERIOCAULACEAE				H	Tall Pipewort	g	-	-	-	x	-	-	-	R
Eriocaulon scariosum	ERIOCAULACEAE				H	Common Pipewort	g	-	-	-	x	-	-	-	U
Erythrina crista-gallii *	FABACEAE				T	Cockspur Coral Tree	-	l	m	-	x	'-	-	-	U/O
Eucalyptus pilularis	MYRTACEAE				T	Black Butt	-	-	-	c	-	-	-	x	U
Eucalyptus racemosa	MYRTACEAE				T	Scribbly Gum	-	l	m	c	x	-	-	x	C
Eucalyptus robusta	MYRTACEAE				T	Swamp Mahogany	-	-	m	c	x	-	-	-	O
Eucalyptus tindaliae	MYRTACEAE				T	Qld White Stringybark	-	l	m	c	x	-	-	x	C
Ficus coronata	MORACEAE				T	Creek Sandpaper Fig	-	l	-	-	x	-	-	-	U
Flindersia brayleana #	RUTACEAE				T	Queensland Maple	-	l	-	-	-	-	-	x	R
Gahnia clarkei	CYPERACEAE				H	Tall Saw sedge	g	-	-	-	x	x	x	-	O/C
Gahnia sieberiana	CYPERACEAE				H	Red-fruited Saw sedge	g	-	-	-	x	-	-	-	U
Gleichenia dicarpa	GLEICHENIACEAE				F	Pouched Fern	g	-	-	-	x	-	-	-	O
Gleichenia mendellii	GLEICHENIACEAE				F	Coral Fern	g	-	-	-	x	-	-	-	O
Glochidion ferdinandi v. ferdinandi	PHYLLANTHACEAE				T	Cheese Tree	-	l	m	-	x	-	-	-	O

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Glochidion sumatranum	PHYLLANTHACEAE				T	Umbrella Cheese Tree	-	l	-	-	x	-	-	-	U
Glycine clandestina v clandestina	FABACEAE				V	Twining Glycine	g	-	-	-	-	-	-	x	U
Gompholobium virgatum v virgatum	FABACEAE				SH	Wallum Wedge Pea	g	l	-	-	-	-	-	x	U
Gonocarpus micranthus	HALORAGACEAE				H	Creeping raspwort	g	-	-	-	-	x	-	-	O
Goodenia hederacea	GOODENIACEAE				H	Ivy Goodenia	g	-	-	-	x	x	-	-	C
Goodenia rotundifolia	GOODENIACEAE				H	Star Goodenia	g	-	-	-	-	-	-	x	U/O
Grevillea leiophylla	PROTEACEAE				SH	Dwarf Spider Oak	-	l	-	-	-	-	-	x	U
Hakea actites	PROTEACEAE				SH	Wallum Hakea	-	l	-	-	x	x	-	x	A
Hakea florulenta	PROTEACEAE				SH	Three-veined Hakea	-	l	-	-	x	-	-	x	O/C
Hibbertia aspera	DILLENIACEAE				SSH	Rough Guinea Flower	g	l	-	-	-	-	-	x	O
Hibbertia salicifolia	DILLENIACEAE				V	Willow Guinea Flower	g	-	-	-	-	x	-	-	U/O
Hibbertia vestita	DILLENIACEAE				SSH	Hairy Guinea Flower	g	-	-	-	x	x	-	x	C/A
Hydrocotyle tripartita	APIACEAE				H	Slender pennywort	g	-	-	-	x	-	-	-	U/O
Hypericum gramineum	CLUSIACEAE				H	Small St. John's Wort	g	-	-	-	x	-	-	-	U
Hypolepis muelleri	DENNSTAEDTIACEAE				F	Harsh Ground Fern	g	-	-	-	x	-	-	-	U
Imperata cylindrica	POACEAE				H	Blady Grass	g	-	-	-	-	-	-	x	C
Ischaemum australe	POACEAE				H	Large bluegrass	g	-	-	-	-	x	-	-	O
Ischaemum fragile	POACEAE				H		g	-	-	-	-	x	-	-	O/C
Jagera pseudorhus	SAPINDACEAE				T	Foam Bark	-	l	-	-	x	-	-	-	R
Lantana camara *	VERBENACEAE	1	LC	C3	SH	Lantana	g	l	-	-	x	-	-	-	O
Laxmannia gracilis	LAXMANNIACEAE				H	Slender Wire Lilly	g	-	-	-	-	-	-	x	U

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Lepidosperma laterale v angustum	CYPERACEAE				H	Variable sawsedge	g	-	-	-	x	-	-	x	C
Lepidosperma longitudinale	CYPERACEAE				H	Common Sawsedge	g	-	-	-	-	-	-	x	O
Lepironia articulata	CYPERACEAE				H	Tube Sedge	g	-	-	-	x	-	-	-	U
Leptospermum polygalifolium	MYRTACEAE				ST	Wild May	-	l	-	-	x	x	-	-	O
Leptospermum semibaccatum	MYRTACEAE				SH	Heath May	-	l	-	-	-	-	-	x	U
Leptospermum speciosum	MYRTACEAE				SH	Broad-leaved Tea Tree	-	l	-	-	x	x	-	-	O
Leptospermum trinervium	MYRTACEAE				SH	Paperbark tea-tree	-	l	-	-	-	-	-	x	O/C
Leptospermum whitei	MYRTACEAE				ST	Paperbark tea-tree	-	l	-	-	-	x	-	-	U/O
Lepyrodia scariosa	RESTIONACEAE				H	Scaly Rush	g	-	-	-	x	x	-	x	O
Leucopogon leptospermoides	ERICACEAE				SH	Beard heath	-	l	-	-	-	-	-	x	U
Ligustrum sinense *	OLEACEAE	21	SM	C3	ST	Small Leaved Privet	-	l	-	-	x	-	-	-	U/O
Lindsaea ensifolia	LINDSAEACEAE				F	Lace fern	g	-	-	-	x	-	-	-	O
Lindsaea incisa	LINDSAEACEAE				F	Screw Fern	g	-	-	-	x	-	-	-	O
Lindsaea microphylla	LINDSAEACEAE				F	Lacy Wedge Fern	g	-	-	-	x	-	-	-	U
Lobelia alata	CAMPANULACEAE				H	Angled Lobelia	g	-	-	-	x	-	-	-	U
Lobelia purpurascens	CAMPANULACEAE				H	White Root	g	-	-	-	x	-	-	x	O
Lomandra hystrix	LAXMANNIACEAE				H	Matt Rush	g	-	-	-	x	-	-	-	O
Lomandra longifolia	LAXMANNIACEAE				H	Spinyhead Matt Rush	g	-	-	-	x	-	-	x	O/C
Lomatia silaifolia	PROTEACEAE				SH	Crinkle Bush	-	l	-	-	-	-	-	x	O
Lophostemon suaveolens	MYRTACEAE				T	Swamp Box	g	l	m	-	x	-	x	-	C
Marsdenia lloydii	APOCYNACEAE				V	Corky Milk Vine	g	-	-	-	-	-	-	x	R

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Megathyrsus maximus *	POACEAE	20	SM/LC		H	Guinea Grass	g	-	-	-	x	-	-	-	U
Melaleuca nodosa	MYRTACEAE				SH	Pricklyleaf Paperbark	-	l	-	-	-	x	-	-	U/O
Melaleuca pachyphylla	MYRTACEAE				SH	Wallum Bottlebrush	-	l	-	-	-	x	-	-	U
Melaleuca quinquenervia	MYRTACEAE				T	Broad-leaf Paperbark	g	l	m	c	x	x	x	-	A
Melaleuca sieberi	MYRTACEAE				ST		g	l	m	-	x	x	-	x	A
Melastoma malabathricum	MELASTOMATACEAE				SH	Blue Tongue	-	l	-	-	x	x	x	x	O
Melicope elleryana	RUTACEAE				T	Pink Euodia	g	l	m	-	x	-	-	-	C
Mischarytera lautereriana	SAPINDACEAE				T	Corduroy Tamarind	-	l	-	-	x	-	-	-	R
Monotoca scoparia	EPACRIDACEAE				SH	Prickly Broom Heath	-	l	-	-	-	-	-	x	O
Morinda jasminoides	RUBIACEAE				V	Jasmine morinda	g	-	-	-	x	-	-	-	R
Neolitsea dealbata	LAURACEAE				T	Grey Bollywood	-	l	-	-	x	-	-	-	R
Notelaea ovata	OLEACEAE				SH	Netted Mock Olive	g	l	m	-	-	-	-	x	O
Nymphaea capensis *	NYMPHAEACEAE				H	Cape Blue Waterlilly	g	-	-	-	x	-	x	-	O
Nymphoides indica	MENYANTHACEAE				H	Water Snowflake	g	-	-	-	x	-	x	-	U
Oplismenus hirtellus ssp imbecillus	POACEAE				H	Slender panic grass	g	-	-	-	x	-	-	-	U
Ottochloa gracillima	POACEAE				H	Shade Grass	g	-	-	-	x	-	-	-	O
Panicum effusum v simile	POACEAE				H	Hairy panic	g	-	-	-	x	-	-	x	O
Parsonsia straminea	APOCYNACEAE				V	Monkey Vine	g	l	m	-	x	-	-	x	O
Paspalum mandiocanum *	POACEAE		LC		H	Broadleaf Paspalum.	g	-	-	-	x	-	-	-	U
Paspalum urvillei *	POACEAE				H	Vasey Grass	g	-	-	-	-	-	-	x	U

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Patersonia glabrata	IRIDACEAE				H	Leafy Purple Flag	g	-	-	-	-	-	-	x	R
Patersonia sericea	IRIDACEAE				H	Silky Purple Flag	g	-	-	-	-	-	-	x	R
Persicaria strigosa	POLYGONACEAE				H	Spotted Knotweed	g	-	-	-	x	-	x	-	O
Persoonia stradbrokensis	PROTEACEAE				SH	Broad-leaf Geebung	-	l	-	-	-	x	-	-	U
Persoonia virgata	PROTEACEAE				SH	Narrow-leaf Geebung	-	l	-	-	x	x	-	-	O
Petalostigma triloculare	PICRODENRACEAE				ST	Long-leaf Bitter Bark	g	l	m	-	-	-	-	x	O
Petrophile shirleyae	PROTEACEAE				SH	Cone bush	-	l	-	-	-	x	-	x	O
Philotheca myoporoides ssp queenslandica	RUTACEAE		SFS		SH	Wax Flower	-	l	-	-	-	x	-	-	O/C
Philydrum lanuginosum	PHILYDRACEAE				H	Frog's Mouth	g	-	-	-	x	-	x	-	O
Pimelea linifolia ssp linifolia	THYMELAEACEAE				H	Slender Rice Flower	g	l	-	-	x	x	-	-	O
Pinus elliottii *	PINACEAE		LC		T	Slash Pine	g	l	m	c	x	-	-	x	C
Piper hederaceum	PIPERACEAE				H	New Holland Pepper	-	l	-	-	x	-	-	-	R
Pittosporum revolutum	PITTOSPORACEAE				SH	Yellow Pittosporum	g	l	-	-	x	-	-	x	R
Psychotria loniceroides	RUBIACEAE				SH	Rusty Psychotria	-	l	-	-	x	-	-	-	R
Pteridium esculentum	DENNSTAEDTIACEAE				F	Common Bracken Fern	g	-	-	-	x	-	-	x	C
Ptilothrix deusta	CYPERACEAE				H	Ptilothrix	g	-	-	-	-	x	-	x	A
Pultenaea myrtoides	FABACEAE				SH	Myrtle Pea-Bush	-	l	-	-	-	-	-	x	O
Pultenaea paleacea	FABACEAE				SH	Chaffy Bush Pea	-	l	-	-	x	x	-	x	O
Pultenaea villosa	FABACEAE				SH	Bronze Bush Pea	-	l	-	-	-	-	-	x	C
Rhodomyrtus psidioides	MYRTACEAE				T	Native Guava	-	l	m	-	x	-	-	-	R
Rhynchospora corymbosa	CYPERACEAE				H	Corymbed Beak-sedge	g	-	-	-	x	-	x	-	C/A

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Sacciolepis indica	POACEAE				H	India cupscale-grass	g	-	-	-	x	-	-	-	U
Salvinia molesta *	SALVINIACEAE	10	GS/SM	C2	F	Giant Salvinia	g	-	-	-	x	-	x	-	U/O
Schefflera actinophylla #	ARALIACEAE		LC		T	Umbrella Tree	-	l	m	-	x	-	-	-	U
Schizaea bifida	SCHIZAEACEAE				F	Forked Comb Fern	g	-	-	-	-	-	-	x	U
Schizaea dichotoma	SCHIZAEACEAE				F	Branched Comb Fern	g	-	-	-	-	-	-	x	O
Schizomeria ovata	CUNONIACEAE				T	Crab Apple	-	-	m	-	x	-	-	-	R
Schoenus brevifolius	CYPERACEAE				H	Zig-Zag Bog Rush	g	-	-	-	-	x	-	x	O
Schoenus melanostachys	CYPERACEAE				H	Black Bog Rush	g	-	-	-	x	x	-	x	C
Schoenus paludosus	CYPERACEAE				H	Swamp Rush	g	-	-	-	-	x	-	-	O
Senna pendula v. glabrata *	CAESALPINIACEAE	45	LC		SH	Winter Senna	g	l	-	-	x	-	-	-	U
Setaria sphacelata v sericea *	POACEAE		LC		H	Sth African Pigeon grass	g	-	-	-	x	-	-	-	U/O
Sida rhombifolia *	MALVACEAE	153	GEP		H	Sida	g	-	-	-	x	-	-	-	R
Smilax australis	SMILACACEAE				V	Austral Smilax	g	l	-	-	-	x	-	x	U
Smilax glyciphylla	SMILACACEAE				V	Sarsaparilla	g	-	-	-	x	-	-	x	O
Sporadanthus caudatus	RESTIONACEAE				H		g	-	-	-	-	x	-	-	O
Sprengelia sprengelioides	EPACRIDACEAE				SH	Sprengelia	-	l	-	-	-	x	-	-	O
Stephania japonica	MENISPERMACEAE				V	Snake Vine	g	-	-	-	x	-	-	-	R/U
Sticherus lobatus	GLEICHENIACEAE				F	Spreading Fan Fern	g	-	-	-	x	-	-	-	O
Strangea linearis	PROTEACEAE				SH	Strangea	-	l	-	-	-	x	-	x	O
Syagrus romanzoffiana *	ARECACEAE	75	LC		T	Cocos Island Palm	-	l	-	-	x	-	-	-	U
Syncarpia glomulifera	MYRTACEAE				T	Turpentine	g	l	m	c	x	-	-	x	C

Taxon	Family	Qld Herb. (2002)	Status	LP Act 2002	G/F	Common Name	g	l	m	c	12.3.5	12.3.13	12.3.8	12.5.3	Abund.
Tetratheca thymifolia	TREMANDRACEAE				H	Black eyed Susan	-	l	-	-	-	x	-	x	O
Trema tomentosa	ULMACEAE				ST	Native Peach	-	l	-	-	x	-	-	-	U/O
Tricoryne elatior	JOHNSONIACEAE				H	Flat-stemmed rush-lily	g	-	-	-	-	-	-	x	U/O
Triglochin procera	JUNCAGINACEAE				H	Water ribbons	g	-	-	-	x	-	-	-	U
Trophis scandens	MORACEAE				V	Burny Vine	g	-	-	-	x	-	-	-	R
Velleia spathulata	GOODENIACEAE				H	Northern Velleia	g	-	-	-	-	-	-	x	U/O
Villarsia reniformis	MENYANTHACEAE				H	Running Marsh Flower	g	-	-	-	x	-	x	-	O/C
Viola banksii	VIOLACEAE				H	Native Violet	g	-	-	-	x	-	-	-	O/C
Xanthorrhoea fulva	XANTHORRHOEACEAE				SH	Swamp Grass tree	g	-	-	-	x	x	-	-	C
Xanthorrhoea johnsonii	XANTHORRHOEACEAE				SH	Forest Black-Boy	g	-	-	-	x	-	-	x	C
Xylomelum salicinum	PROTEACEAE				ST	Coastal Woody Pear	-	l	-	-	x	-	-	x	O
Xyris juncea	XYRIDACEAE				H	Dwarf Yellow Eye	g	-	-	-	-	x	-	-	O
Zieria laxiflora	RUTACEAE				SH	Wallum Zieria	g	l	-	-	x	-	-	x	U/O
Zieria minutiflora	RUTACEAE				SH	Small Flowered Zieria	-	-	-	-	x	-	-	x	U

KEY TO FLORA SPECIES LISTS AND COMMUNITY STRUCTURE/FLORISTIC DATA

Key to Flora Species List:

Presence/Absence in Strata and Height Levels
Presence or absence of a species at each of five strata levels (ground-lower-mid-canopy-emergent) in a community is depicted for sites:
- = Not Present in Strata **g** = Ground Stratum (<1m) **l** = Lower stratum (1-3m)
m = Midstratum (3m to subcanopy level) **c** = Canopy

Abund. = Site Relative Abundance Ratings [estimation only]
R = Rare (< 5 plants) **U** = Uncommon (6 -10 Plants) **O** = Occasional (11-20 plants) **C** = Common (21-30 plants)
A = Abundant (>31 plants) **[Dist]** = Disturbed areas (occurs in cleared and regrowth) **# Planted** = landscape planting

Growth/Life Form (G/LF)
T = Tree **ST** = Small Tree **SH** = Shrub **SSH** = Subshrub **V** = Vine **H** = Herb **F** = Fern

Status
E = Endangered (*NCA 1994*) **V** = Vulnerable (*NCA 1994*) Vl = Vulnerable (*EPBC 1999*)
NT = Near Threatened (*NCA 1994*) **SFS** = Significant Flora Species(*Sunshine Coast Council 2010-2020)*
GEP, LC, SM from Sunshine Coast Council, Draft Pest Management Plan 2011-2015; see Appendix 4 for further explanation

Qld Herb. 2002 = Queensland Herbarium, 2002 and **LP Act 2002** = Land Protection Act 2002; see Appendix 4 for further explanation

Descriptive Superscripts
* = Weed or Pest plant **#** = Australian native plant outside natural geographic range

Regional Ecosystem (RE) Data
X = Present in RE
- = Not Present in RE

4b) Flora attributes and values--Irwin Property Landsborough (LAMR 2003)

Acacia complanata	*Chorizandra sphaerocephala*	*Epaltes australis*
Acacia disparrima	*Christella dentata*	*Eragrostis curvula**
Acacia hubbardiana	*Chrysophyllum cainito**	*Eragrostis elongata*
Acacia melanoxylon	*Cinnamomum camphora **	*Erechtites valerianifolia **
Acacia suaveolens	*Commelina ensifolia*	*Eriocaulon australe*
Acrotriche aggregata	*Corymbia gummifera*	*Eriocaulon scariosum*
*Ageratina riparia **	*Corymbia intermedia*	*Erythrina x sykesii**
*Ageratum houstonianum **	*Corymbia trachyphloia*	*Eucalyptus carnea*
Allocasuarina littoralis	*Crassocephalum crepidioides**	*Eucalyptus pilularis*
Alphitonia excelsa	*Cryptocarya glaucescens*	*Eucalyptus racemosa*
Amyema miquelii	*Cryptocarya microneura*	*Eucalyptus robusta*
*Andropogon virginicus **	*Cupaniopsis anacardioides*	*Eucalyptus tindaliae*
Archontophoenix cunninghamiana	*Cuscata campestris**	*Ficus benjamina**
Aristida warburgii	*Cyanthillium cinerea*	*Ficus coronata*
Axonopus fissifolius	*Cyathea cooperi*	*Gahnia clarkei*
*Baccharis halimifolia**	*Cyclosorus interruptus*	*Gahnia sieberiana*
Baloskion pallens	*Cymbopogon refractus*	*Gleichenia dicarpa*
Banksia aemula	*Cyperus polystachyos*	*Gleichenia mendellii*
Banksia oblongifolia	*Dampiera sylvestris*	*Glochidion ferdinandi*
Banksia oblongifolia x robur	*Daviesia umbellulata*	*Glochidion sumatranum*
Banksia robur	*Desmodium uncinatum**	*Gompholobium pinnatum*
Banksia spinulosa	*Dianella caerulea*	*Gompholobium virgatum*
Bauera capitata	*Dianella revoluta*	*Gonocarpus chinensis*
Baumea planifolia	*Dicranopteris linearis*	*Gonocarpus micranthus*
Baumea rubiginosa	*Dillwynia floribunda*	*Goodenia rotundifolia*
Baumea teretifolia	*Drosera peltata*	*Grevillea leiophylla*
*Bidens pilosa **	*Drosera pygmaea*	*Grevillea robusta*
Billardiera scandens	*Drosera spathulata*	*Guioa semiglauca*
Blechnum indicum	*Drymaria cordata*	*Haemodorum tenuifolium*
*Brachiaria mutica **	*Drynaria rigidula*	*Hakea actites*
Burchardia umbellata	*Dysoxylum mollissimum*	*Hakea florulenta*
Callistemon pachyphyllus	*Elaeocarpus obovatus*	*Hibbertia vestita*
Calochlaena dubia	*Elaeocarpus reticulatus*	*Hypericum gramineum*
Carex brunnea	*Eleocharis equisetina*	*Hypolepis muelleri*
Cassytha glabella	*Empodisma minus*	*Imperata cylindrica*
Cassytha pubescens	*Endiandra discolor*	*Ischaemum australe*
Caustis blakei	*Endiandra sieberi*	*Ischaemum fragile*
Caustis recurvata	*Entolasia marginata*	*Lantana camara **
Centella asiatica	*Entolasia stricta*	*Laxmannia gracilis*
Chorizandra cymbaria	*Epacris pulchella*	*Lepidosperma laterale*

Lepidosperma longitudinale	*Morinda jasminoides*	*Rhynchospora corymbosa*

Lepironia articulata	*Murdannia graminea*	*Sacciolepis indica*
Leptospermum juniperinum	*Murdannia graminea*	*Schefflera actinophylla**
Leptospermum liversidgei	*Notelaea ovata*	*Schizaea bifida*
Leptospermum polygalifolium	*Nymphaea gigantea*	*Schizaea dichotoma*
Leptospermum semibaccatum	*Oplismenus hirtellus*	*Schoenus apogon*
Leptospermum trinervium	*Ottochloa gracillima*	*Schoenus brevifolius*
Leptospermum whitei	*Panicum effusum*	*Schoenus melanostachys*
Lepyrodia interrupta	*Panicum maximum** *(Megathyrsus maximus)*	*Schoenus paludosus*
Lepyrodia scariosa	*Parsonsia straminea*	*Scleria sphacelata*
Leucopogon leptospermoides	*Paspalidium gausum*	*Scoparia dulcis**
*Ligustrum sinense **	*Paspalum scrobiculatum*	*Setaria sphacelata*
Lindsaea dimorpha	*Paspalum urvillei **	*Sida rhombifolia **
Lindsaea ensifolia	*Paspalum wettsteinii* (P. virgatum)*	*Smilax australis*
Lindsaea microphylla	*Passiflora edulis**	*Smilax glyciphylla*
Litsea australis	*Passiflora suberosa*	*Solanum seaforthianum**
Lobelia alata	*Patersonia fragilis*	*Sporadanthus caudatus*
Lobelia membranacea	*Patersonia glabrata*	*Sporobolus natalensis**
Lobelia purpurascens	*Persicaria strigosa*	*Sprengelia sprengelioides*
Lomandra filiformis	*Persoonia stradbrokensis*	*Stackhousia viminea*
Lomandra hystrix	*Persoonia tenuifolia*	*Stephania japonica*
Lomandra longifolia	*Persoonia virgata*	*Strangea linearis*
Lomandra multiflora	*Petrophile shirleyae*	*Stylidium debile*
Lomatia silaifolia	*Philotheca myoporoides*	*Stylidium graminifolium*
Lophostemon confertus	*Philydrum lanuginosum*	*Syncarpia verecunda*
Lophostemon suaveolens	*Phyllota phylicoides*	*Syzygium uniflorum**
Lygodium microphyllum	*Pimelea linifolia*	*Tetratheca thymifolia*
Macaranga tanarius	*Pinus elliottii **	*Themeda triandra*
*Macroptilium atropurpureum**	*Piper novae-hollandiae (P. hederaceum)*	*Thysanotus tuberosus*
Mallotus philippensis	*Pittosporum revolutum*	*Tricoryne elatior*
Melaleuca nodosa	*Platycerium bifurcatum*	*Trophis scandens*
Melaleuca quinquenervia	*Pseudanthus orientalis*	*Velleia spathulata*
Melaleuca sieberi	*Pseuderanthemum variabile*	*Xanthorrhoea fulva*
Melaleuca thymifolia	*Psidium guineense**	*Xanthorrhoea johnsonii*
Melastoma affine	*Psychotria loniceroides*	*Xanthorrhoea latifolia*
Melicope elleryana	*Pteridium esculentum*	*Xanthosia pilosa*
*Melinis minutiflora**	*Ptilothrix deusta*	*Xylomelum salicinum*
Mirbelia rubiifolia	*Pultenaea paleacea*	*Zieria minutiflora*
Mitrasacme paludosa	*Pultenaea villosa*	
Monotoca sp. "Fraser Island"	*Rapanea variabilis*	

* = Introduced Taxa (Included planted native taxa)

Appendix 5: Fauna Species Lists

5a) Racemosa Environment Reserve, Fauna Survey Report (Fox 2012)

Family	*Scientific Name*	Common Name	Method of Capture	Status		
Amphibians				**EPBC Act**	**NC Act**	**SCRC**
Bufonidae	*Rhinella marina*	Cane Toad	Opportunistic, Funnels, Pitfalls			
Hylidae	*Litoria fallax*	Eastern Dwarf Tree Frog	Opportunistic			
Hylidae	*Litoria freycineti*	Wallum Rocketfrog	Opportunistic, funnels		V	
Limnodynastidae	*Limnodynastes peronii*	Striped Marsh Frog	Opportunistic, Funnels, Pitfalls			
Myobatrachidae	*Crinia tinnula*	Wallum Froglet	Funnels		V	
Myobatrachidae	*Crinia signifera*	Common Froglet	Funnels			
Myobatrachidae	*Pseudophryne major*	Large Toadlet	Opportunistic, Funnels, Pitfalls			
Myobatrachidae	*Pseudophryne raveni*	Copper-backed Toadlet	Funnels, Pitfalls			
Mammals						
Dasyuridae	*Antechinus flavipes*	Yellow Footed Antechinus	Elliot			
Peramelidae	*Isoodon macrourus*	Northern Brown bandicoot	Cage			
Macropodidae	*Wallabia bicolor*	Swamp Wallaby	Opportunistic			Y
Muridae	*Melomys burtoni*	Grassland Melomys	Elliot, cage			
Muridae	*Melomys cervinipes*	Fawn-footed Melomys	Elliot			
Muridae	*Rattus lutreolus*	Swamp Rat	Elliot			
Equidae	*Equus caballus*	Horse	Opportunistic			
Suidae	*Sus scrofa*	Pig	Opportunistic			
Reptiles						
Agamidae	*Physignathus lesueurii*	Water Dragon	Opportunistic			
Agamidae	*Pogona barbata*	Common Bearded Dragon	Funnel, Opportunistic			
Elapidae	*Cacophis harriettae*	White-crowned Snake	Funnel			

Family	*Scientific Name*	Common Name	Method of Capture		Status	
Elapidae	*Vermicella annulata*	Bandy Bandy	Funnel			
Pygopodidae	*Lialis burtonis*	Burton's Snake-lizard	Funnel			
Pythonidae	*Morelia spilota*	Carpet Python	Opportunistic			
Scincidae	*Cryptoblepharus virgatus*		Opportunistic			
Scincidae	*Lampropholis delicata*	Garden Skink	Funnel, Opportunistic			
Scincidae	*Lampropholis amicula*		Opportunistic			
Scincidae	*Eulamprus quoyii*	Eastern Water Skink	Opportunistic, pitfall			
Varanidae	*Varanus varius*	Lace Monitor	Opportunistic			
Fish						
Eleotridae	*Gobiomorphus australis*	Striped Gudgeon	Fish trap			
Eleotridae	*Hypseleotris compressa*	Empire Gudgeon	Fish trap			
Birds						
Acanthizidae	*Smicrornis brevirostris*	Weebill	Opportunistic			
Acanthizidae	*Gerygone mouki*	Brown Gerygone	Opportunistic			
Accipitridae	*Haliastur spenurus*	Whistling Kite	Opportunistic			
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren	Opportunistic			
Anatidae	*Chenonetta jubata*	Australian Wood (Maned) Duck	Opportunistic			
Artamidae	*Gymnorhina tibicen*	Australian Magpie	Opportunistic			
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird	Opportunistic			
Artamidae	*Strepera graculina*	Pied Currawong	Opportunistic			
Cacatuidae	*Calyptorhynchus funereus*	Yellow-tailed Black Cockatoo	Opportunistic			
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	Opportunistic			
Campephagidae	*Lalage leucomela*	Varied Triller	Opportunistic			
Columbidae	*Macropygia amboinensis*	Brown Cuckoo-Dove	Opportunistic			
Columbidae	*Geopelia humeralis*	Bar-shouldered Dove	Opportunistic			
Columbidae	*Geopelia placida*	Peaceful Dove	Opportunistic			
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	Opportunistic			
Corvidae	*Corvus orru*	Torresian Crow	Opportunistic			

Family	*Scientific Name*	Common Name	Method of Capture	Status		
Cuculidae	*Cacomantis pallidus*	Pallid Cuckoo	Opportunistic			
Cuculidae	*Eudynamys orientalis*	Eastern Koel	Opportunistic			
Dicruridae	*Dicrurus bracteatus*	Spangled Drongo	Opportunistic			
Halcyonidae	*Dacelo novaeguineae*	Laughing Kookaburra	Opportunistic			
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	Opportunistic			
Maluridae	*Malurus melanocephalus*	Red-backed Fairy-wren	Opportunistic			
Meliphagidae	*Entomyzon cyanotis*	Blue-faced Honeyeater	Opportunistic			
Meliphagidae	*Phylidonyris niger*	White-cheeked Honeyeater	Opportunistic			
Meliphagidae	*Lichenostomus chrysops*	Yellow-faced Honeyeater	Opportunistic			
Meliphagidae	*Lichenostomus leucotis*	White-eared Honeyeater	Opportunistic			
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater	Opportunistic			
Meliphagidae	*Manorina melanocephala*	Noisy Miner	Opportunistic			
Meliphagidae	*Meliphaga lewinii*	Lewin's Honeyeater	Opportunistic			
Meliphagidae	*Myzomela sanguinolenta*	Scarlet Honeyeater	Opportunistic			
Meliphagidae	*Philemon corniculatus*	Noisy Friarbird	Opportunistic			
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	Opportunistic			
Oriolidae	*Oriolus sagittatus*	Olive-backed Oriole	Opportunistic			
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush	Opportunistic			
Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler	Opportunistic			
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler	Opportunistic			
Pardalotidae	*Pardalotus striatus*	Striated Pardalote	Opportunistic			
Podargidae	*Podargus strigoides*	Tawny Frogmouth	Opportunistic			
Psophodidae	*Psophodes olivaceus*	Eastern Whipbird	Opportunistic			
Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet	Opportunistic			
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	Opportunistic			
Rhipiduridae	*Rhipidura rufifrons*	Rufous Fantail	Opportunistic	M		
Strigidae	*Ninox boobook*	Southern Boobook	Opportunistic			
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis	Opportunistic			

Status: **EPBC Act**: E = endangered, V = vulnerable, M = Migratory. **NC Act**: E = endangered, V = vulnerable, NT = near threatened. **SCRC**: Significant species as per the Sunshine Coast Draft Biodiversity Strategy 2010 - 2020

5b) Camera trap survey fails to locate long-nosed potoroos P. tridactylus at Racemosa Environment Reserve (Burnett & Kroenert 2015)

Species	No. camera sites at which species occurred
yellow-footed antechinus, *Antechinus flavipes*	2
northern brown bandicoot, *Isoodon macrourus*	7
short-eared brushtail possum, *Trichosurus caninus*	2
swamp wallaby, *Wallabia bicolor*	5
fawn-footed melomys, *Melomys cervinipes*	2
grassland melomys, *Melomys burtoni*	1
bush rat, *Rattus fuscipes*	2
swamp rat, *Rattus lutreolus*	1
red fox, *Vulpes vulpes*	1
grey shrike thrush, *Colluricincla harmonica*	1
pacific black duck, *Anas superciliosa*	1
laughing kookaburra, *Dacelo novaehollandiae*	1
lace monitor, *Varanus varius*	2

5c) Birdlife Sunshine Coast (4th May 2013)

Birdlife Sunshine Coast											
Species	**1**	**2**	**3**	**Total**	**Br**	**Species**	**1**	**2**	**3**	**Total**	**Br**
Australian Brush Turkey						Brahminy Kite	1				
Brown Quail						Brown Goshawk					
Magpie Goose						Collared Sparrowhawk					
Plumed Whistling-Duck						Grey Goshawk					
Wandering Whistling-Duck						Spotted Harrier					
Black Swan						Swamp Harrier					
Australian Wood Duck						Nankeen Kestrel					
Green Pygmy-Goose						Australian Hobby					
Grey Teal						Brolga					
Chestnut Teal						Purple Swamphen					
Northern Mallard						Buff-banded Rail					
Pacific Black Duck	1					Baillon's Crake					
Hardhead						Spotless Crake					
Australasian Grebe						Dusky Moorhen					
Great Crested Grebe						Erasian Coot					
Rock Dove						Beach Stone-curlew					
White-headed Pigeon						Australian Pied Oystercatcher					
Spotted Dove						Black-winged Stilt					
Brown Cuckoo-Dove	4					Pacific Golden Plover					
Emerald Dove						Red-capped Plover					
Crested Pigeon						Lesser Sand Plover					
Peaceful Dove	16					Greater Sand Plover					
Bar-shouldered Dove	5					Black-fronted Dotterel					
Wonga Pigeon						Masked Lapwing					
Wompoo Fruit-Dove						Comb-crested Jacana					
Rose-crowned Fruit-Dove						Latham's Snipe					
Topknot Pigeon	15					Black-tailed Godwit					
Tawny Frogmouth						Bar-tailed Godwit					
White-throated Nightjar						Whimbrel					
Australian Owlet-nightjar						Eastern Curlew					
White-throated Needletail						Terek Sandpiper					
Australasian Darter						Grey-tailed Tattler					
Little Pied Cormorant						Common Greenshank					
Great Cormorant						Marsh Sandpiper					
Little Black Cormorant						Ruddy Turnstone					
Pied Cormorant						Great Knot					
Australian Pelican						Red Knot					
Black-necked Stork						Red-necked Stint					
White-necked Heron						Sharp-tailed Sandpiper					
Eastern Great Egret						Curlew Sandpiper					
Intermediate Egret						Little Tern					
Cattle Egret						Gull-billed Tern					
Striated Heron						Caspian Tern					
White-faced Heron						Whiskered Tern					
Little Egret						White-winged Black Tern					
Nankeen Night-Heron						Common Tern					
Glossy Ibis						Lesser Crested Tern					
Australian White Ibis	2					Crested Tern					
Straw-necked Ibis						Silver Gull					
Royal Spoonbill						Glossy Black-Cockatoo	3				
Yellow-billed Spoonbill						Yellow-tailed Black-Cockatoo	5				
Eastern Osprey						Galah					
Black-shouldered Kite						Long-billed Corella					
Pacific Bazza						Little Corella					
White-bellied Sea-Eagle						Sulphur-crested Cockatoo	2				
Whistling Kite						Rainbow Lorikeet	6				

Species			Total	Br	Species			Total	Br
Scaly-breasted Lorikeet					Eastern Whipbird	4			
Little Lorikeet					Varied Sittella				
Australian King Parrot	2				Crested Shrike-tit				
Crimson Rosella					Black-faced Cuckoo-shrike				
Pale-headed Rosella					White-bellied Cuckoo-shrike				
Pheasant Coucal					Cicadabird				
Eastern Koel					Varied Triller	1			
Channel-billed Cuckoo					Golden Whistler	12			
Shining Bronze-Cuckoo	6				Rufous Whistler	2			
Little Bronze-Cuckoo					Little Shrike-thrush				
Pallid Cuckoo					Grey Shrike-thrush	2			
Fan-tailed Cuckoo	1				Australasian Figbird				
Brush Cuckoo	1				Olive-backed Oriole				
Southern Boobook					White-breasted Woodswallow				
Azure Kingfisher					Dusky Woodswallow				
Laughing Kookaburra	4				Grey Butcherbird	1			
Forest Kingfisher					Pied Butcherbird				
Sacred Kingfisher					Australian Magpie				
Collared Kingfisher					Pied Currawong	1			
Rainbow Bee-eater	3				Spangled Drongo	1			
Dollarbird					Rufous Fantail	1			
Noisy Pitta					Grey Fantail	30			
White-throated Treecreeper	3				Willie Wagtail				
Green Catbird					Torresian Crow	1			
Regent Bowerbird					Leaden Flycatcher				
Satin Bowerbird					Restless Flycatcher				
Red-backed Fairy-wren					White-eared Monarch				
Variegated Fairy-wren	6				Black-faced Monarch				
Yellow-throated Scrubwren					Spectacled Monarch	2			
White-browed Scrubwren	2 4				Magpie-Lark				
Large-billed Scrubwren					Paradise Riflebird				
Brown Gerygone					Rose Robin				
Mangrove Gerygone					Pale Yellow Robin				
White-throated Gerygone	3 H				Eastern Yellow Robin	4			
Striated Thornbill					Golden-headed Cisticola				
Brown Thornbill	25				Australian Reed-Warbler				
Spotted Pardalote	8				Tawny Grassbird				
Striated Pardalote	8				Little Grassbird				
Eastern Spinebill					Silvereye				
Lewin's Honeyeater	3				Welcome Swallow	3			
Yellow-faced Honeyeater	20				Fairy Martin				
Mangrove Honeyeater					Tree Martin				
Bell Miner					Russet-tailed Thrush				
Noisy Miner	1				Common Starling				
Little Wattlebird	2				Common Myna				
Dusky Honeyeater					Mistletoebird				
Scarlet Honeyeater	12				Double-barred Finch				
Brown Honeyeater	6				Red-browed Finch	12			
New Holland Honeyeater					Chestnut-breasted Mannikin				
White-cheeked Honeyeater	1				House Sparrow				
White-throated Honeyeater	10				Australasian Pipit				
White-naped Honeyeater									
Blue-faced Honeyeater									
Noisy Friarbird	3				Total No of Species				
Little Friarbird									
Striped Honeyeater					Total No of Birds				
Logrunner									

5d) Beerwah Water Reserve - Fauna Assessment (Czechura, G 2003)

Beerwah Water Reserve Site – Amphibia

Species	Common Name	Comments
Hylidae		
Litoria caerulea	Green Treefrog	
Litoria gracilenta	Graceful Treefrog	
Litoria fallax	Eastern sedgefrog	
Litoria olongburiensis	Wallum Sedgefrog	
Litoria peronii	Emerald-spotted Treefrog	
Litoria tyleri	Laughing Treefrog	
Litoria rubella	Naked Treefrog	
Litoria nasuta	Striped Rocketfrog	
Litoria freycineti	Wallum Rocketfrog	
Myobatrachidae		
Limnodynastes peronii	Striped Marshfrog	
Limnodynastes tasmaniensis	Spotted Marshfrog	
Limnodynastes ornatus	Ornate Burrowing-frog	
Limnodynastes terraereginae	Scarlet-sided Pobblebonk	
Pseudophryne raveni	Copper-backed Broodfrog	
Pseudophryne major	Great Brown Broodfrog	
Crinia tinnula	Wallum Froglet	
Crinia signifera	Clicking Froglet	
Uperolia fusca	Sandy Gungan	
Bufonidae		
Bufo marinus	Cane Toad	

Boerwah Water Reserve Site – Reptilia

Species	Common Name	Comments
Chelidae		
Chelodina expansa	Broad-shelled River Turtle	
Emydura signata	Brisbane Short-necked Turtle	
Gekkonidae		
Gehyra dubia	Dtella	
Oedura tryoni	Spotted Velvet Gecko	
Agamidae		
Diporiphora australis	Tommy Roundhead	
Physignathus lesueurii	Eastern Water Dragon	
Pogona barbata	Common Bearded Dragon	
Varanidae		
Varanus gouldii	Gould's Goanna	
Varanus varius	Lace Monitor	
Scincidae		
Anomalopus verreauxii	Verreaux's Skink	
Calyptotis scutirostrum	burrowing skink	
Carlia follorum	Burnett's Skink	
Carlia pectoralis	rainbow skink	
Carlia vivax	Lively Skink	
Ctenotus arcanus	striped skink	
Ctenotus robustus	Eastern Striped Skink	
Ctenotus taeniolatus	Copper-tailed Skink	
Cryptoblepharus virgatus	Wall Skink	
Cyclodomorphus gerrardii	Pink-tongued Skink	
Erolicoscincus graciloides	Elf Skink	
Eulamprus martini	Martin's Skink	
Eulamprus quoyii	Eastern Water Skink	
Lampropholis delicata	Northern Grass Skink	
Lampropholis guichenoti	Southern Grass Skink	
Morethia taeniopleura	Fire-tailed Skink	
Tiliqua scincoides	Blue-tongued Skink	
Typhlopidae		
Ramphotyphlops nigrescens	blind snake	
Boidae		
Morelia spilota	Carpet Python	
Colubridae		
Boiga irregularis	Brown Tree Snake	
Dendrelaphis punctulatus	Common Tree Snake	
Tropidonophis mairii	Keelback	
Elapidae		
Cacophis harriettae	White-crowned Snake	
Demansia psammophis	Yellow-faced Whipsnake	
Demansia vestigiata	Black Whipsnake	
Hemiaspis signata	Marsh Snake	
Pseudechis porphyriacus	Red-bellied Black Snake	
Pseudonaja textilis	Eastern Brown Snake	
Rhinoplocephalus nigrescens	Small-eyed Snake	
Tropidechis carinatus	Rough-scaled Snake	
Vermicella annulata	Bandy Bandy	

Beerwah Water Reserve Site – Mammalia

Species	Common Name	Comments
Ornithorhynchidae		
Ornithorhynchus anatinus	Platypus	
Tachyglossidae		
Tachyglossus aculeatus	Echidna	
Dasyuridae		
Antechinus flavipes	Yellow-footed Antechinus	
Planigale maculata	Common Planigale	
Peramelidae		
Isoodon macrourus	Northern Brown Bandicoot	
Perameles nasuta	Long-nosed Bandicoot	
Petauridae		
Petaurus breviceps	Sugar Glider	
Pseudocheiridae		
Petauroides volans	Greater Glider	
Pseudocheirus peregrinus	Common Ringtail Possum	
Phalangeridae		
Trichosurus vulpecula	Common Brushtail Possum	
Macropodidae		
Wallabia bicolor	Swamp Wallaby	
Pteropodidae		
Pteropus alecto	Black Flying Fox	
Pteropus poliocephalus	Grey-headed Flying Fox	
Pteropus scapulatus	Little Red Flying Fox	
Vespertilionidae		
Miniopterus australis	Common Bent-wing Bat	
Myotis moluccarum	Large-footed Myotis	
Rhinolophus megaphyllus	Eastern Horseshoe Bat	
Saccolaimus flaviventris	Yellow-bellied Bat	
Muridae		
Hydromys chrysogaster	Water Rat	
Melomys sp	melomys	
Mus musculus	House Mouse	
Rattus fuscipes	Bush Rat	
Rattus lutreolus	Swamp Rat	
Rattus rattus	Black Rat	
Felidae		
Felis cattus	House Cat	
Canidae		
Canis lupus	Dingo	
Vulpes vulpes	Red Fox	

Beerwah Water Reserve Site – Aves

Species	Common Name	Comments
Odontophoridae		
Coturnix ypsilophora	Brown Quail	
Coturnix chinensis	King Quail	
Anatidae		
Chenonetta jubata	Australian Wood Duck	
Anas superciliosa	Pacific Black Duck	
Podicipidae		
Tachybaptus novaehollandiae	Australasian Little Grebe	
Anhingidae		
Anhinga melanogaster	Darter	
Phalacrocoridae		
Phalacrocorax sulcirostris	Little Black Cormorant	
Phalacrocorax melanoleucos	Little Pied Cormorant	
Ardeidae		
Ardea pacifica	White-necked Heron	
Egretta novaehollandiae	White-faced Heron	
Egretta garzetta	Little Egret	
Ardea intermedia	Intermediate Egret	
Ardea alba	Great Egret	
Nycticorax caledonicus	Nankeen Night Heron	
Ixobrychus flavicollis	Black Bittern	
Threskiornithidae		
Threskiornis spinicollis	Straw-necked Ibis	
Threskiornis moluccа	Australian White Ibis	
Accipitridae		
Elanus axillaris	Black-shouldered Kite	
Aviceda subcristata	Pacific Baza	
Haliastur indus	Brahminy Kite	
Haliastur sphenurus	Whistling Kite	
Lophoictinia isura	Square-tailed Kite	
Accipiter cirrhocephalus	Collared Sparrowhawk	
Accipiter fasciatus	Brown Goshawk	
Accipiter novaehollandiae	Grey Goshawk	
Haliaeetus leucogaster	White-bellied Sea-Eagle	
Hieraaetus morphnoides	Little Eagle	
Aquila audax	Wedge-tailed Eagle	
Falconidae		
Falco berigora	Brown Falcon	
Falco cenchroides	Nankeen Kestrel	
Falco peregrinus	Peregrine Falcon	
Falco longipennis	Australian Hobby	
Rallidae		
Amaurornis olivaceus	Bush-Hen	
Gallirallus philippensis	Buff-banded Rail	
Rallus pectoralis	Lewin's Rail	
Gallinula tenebrosa	Dusky Moorhen	
Burhinidae		
Burhinus grallarius	Bush Stone-Curlew	

Turnicidae		
Turnix varia	Painted Button-Quail	
Turnix maculosa	Red-backed Button-Quail	
Scolopacidae		
Gallinago hardwickii	Latham's Snipe	
Charadriidae		
Vanellus miles	Masked Lapwing	
Columbidae		
Streptopelia chinensis	Spotted Turtle-Dove	
Geopelia striata	Peaceful Dove	
Geopelia humeralis	Bar-shouldered Dove	
Chalcophaps indica	Emerald Dove	
Phaps chalcoptera	Common Bronzewing	
Phaps elegans	Brush Bronzewing	
Ocyphaps lophotes	Crested Pigeon	
Ptilinopus superbus	Superb Fruit-Dove	
Cacatuidae		
Calyptorhynchus lathami	Glossy Black-Cockatoo	
Calyptorhynchus funereus	Yellow-tailed Black-Cockatoo	
Psittacidae		
Trichoglossus haematodus	Rainbow Lorikeet	
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	
Glossopsitta pusilla	Little Lorikeet	
Alisterus scapularis	Australian King-Parrot	
Platycercus adscitus	Pale-headed Rosella	
Cuculidae		
Cuculus saturatus	Oriental Cuckoo	
Cuculus pallidus	Pallid Cuckoo	
Cacomantis flabelliformis	Fan-tailed Cuckoo	
Cacomantis variolosus	Brush Cuckoo	
Chrysococcyx basalis	Horsfield's Bronze Cuckoo	
Chrysococcyx lucidus	Shining Bronze Cuckoo	
Eudynamys scolopacea	Common Koel	
Scythrops novaehollandiae	Channel-billed Cuckoo	
Centropus phasianus	Pheasant Coucal	
Strigidae		
Ninox connivens	Barking Owl	
Ninox novaeseelandiae	Southern Boobook	
Tytonidae		
Tyto alba	Barn Owl	
Tyto novaehollandiae	Masked Owl	
Podargidae		
Podargus strigoides	Tawny Frogmouth	
Caprimulgidae		
Eurostopodus mystacalis	White-throated Nightjar	
Aegothelidae		
Aegotheles cristatus	Australian Owlet-Nightjar	
Apodidae		
Apus pacificus	Fork-tailed swift	
Hirundapus caudacutus	White-throated Needletail	

Alcedinidae		
Alcedo azurea	Azure Kingfisher	
Halcyonidae		
Dacelo novaeguineae	Laughing Kookaburra	
Todiramphus macleayii	Forest Kingfisher	
Todiramphus sanctus	Sacred Kingfisher	
Meropidae		
Merops ornatus	Rainbow Bee-eater	
Coraciidae		
Eurystomus orientalis	Dollarbird	
Pittidae		
Pitta versicolor	Noisy Pitta	
Climacteridae		
Cormobates leucophaeus	White-throated Treecreeper	
Maluridae		
Malurus lamberti	Variegated Fairy-Wren	
Malurus melanocephalus	Red-backed Fairy-Wren	
Pardalotidae		
Pardalotus punctatus	Spotted Pardalote	
Pardalotus striatus	Striated Pardalote	
Sericornis frontalis	White-browed Scrubwren	
Sericornis magnirostris	Large-billed Scrubwren	
Gerygone olivacea	White-throated Gerygone	
Acanthiza pusilla	Brown Thornbill	
Acanthiza reguloides	Buff-rumped Thornbill	
Acanthiza lineata	Striated Thornbill	
Smicrornis brevirostris	Weebill	
Meliphagidae		
Anthochaera chrysoptera	Little Wattlebird	
Philemon citreogularis	Little Friarbird	
Philemon corniculatus	Noisy Friarbird	
Plectorhyncha lanceolata	Striped Honeyeater	
Entomyzon cyanotis	Blue-faced Honeyeater	
Manorina melanocephala	Noisy Miner	
Meliphaga lewinii	Lewin's Honeyeater	
Lichenostomus chrysops	Yellow-faced Honeyeater	
Lichenostomus leucotis	White-eared Honeyeater	
Lichenostomus melanops	Yellow-tufted Honeyeater	
Melithreptus albogularis	White-throated Honeyeater	
Phylidonyris nigra	White-cheeked Honeyeater	
Acanthorhynchus tenuirostris	Eastern Spinebill	
Myzomela sanguinolenta	Scarlet Honeyeater	
Lichmera indistincta	Brown Honeyeater	
Petroicidae		
Microeca fascinans	Jacky Winter	
Petroica rosea	Rose Robin	
Petroica multicolor	Scarlet Robin	
Eopsaltria australis	Eastern Yellow Robin	
Cinclosomidae		
Psophodes olivaceus	Eastern Whipbird	
Neosittidae		
Daphoenositta chrysoptera	Varied Sittella	

Pachycephalidae	
Falcunculus frontatus	Crested Shrike-Tit
Pachycephala pectoralis	Golden Whistler
Pachycephala rufiventris	Rufous Whistler
Colluricincla harmonica	Grey Shrike-Thrush
Colluricincla megarhyncha	Little Shrike-Thrush
Dicruridae	
Monarcha melanopsis	Black-faced Monarch
Monarcha trivirgatus	Spectacled Monarch
Myiagra rubecula	Leaden Flycatcher
Myiagra inquieta	Restless Flycatcher
Rhipidura leucophrys	Willie Wagtail
Rhipidura rufifrons	Rufous Fantail
Rhipidura fuliginosa	Grey Fantail
Grallina cyanoleuca	Magpie-Lark
Dicrurus bracteatus	Spangled Drongo
Campephagidae	
Coracina novaehollandiae	Black-faced Cuckoo-Shrike
Coracina papuensis	White-bellied Cuckoo-Shrike
Coracina tenuirostris	Cicadabird
Lalage leucomela	Varied Triller
Oriolidae	
Oriolus sagittatus	Olive-backed Oriole
Sphecotheres viridis	Figbird
Artamidae	
Artamus leucorynchus	White-breasted Woodswallow
Artamus cyanopterus	Dusky Woodswallow
Artamus minor	Little Woodswallow
Cracticus torquatus	Grey Butcherbird
Cracticus nigrogularis	Pied Butcherbird
Gymnorhina tibicen	Australian Magpie
Strepera graculina	Pied Currawong
Corvidae	
Corvus orru	Torresian Crow
Ptilonorhynchidae	
Ptilonorhynchus violaceus	Satin Bowerbird
Motacillidae	
Anthus novaeseelandiae	
Passeridae	
Taeniopygia bichenovii	Double-barred Finch
Neochmia temporalis	Red-browed Finch
Lonchura castaneothorax	Chestnut-breasted Mannikin
Lonchura punctulata	Nutmeg Mannikin
Dicaeidae	
Dicaeum hirundinaceum	Mistletoebird
Hirundinidae	
Hirundo neoxena	Welcome Swallow
Hirundo nigricans	Tree Martin
Hirundo ariel	Fairy Martin
Sylviidae	
Acrocephalus stentoreus	Clamorous Reed-Warbler
Megalurus timoriensis	Tawny Grassbird
Megalurus gramineus	Little Grassbird

Cinclorhamphus cruralis	Brown Songlark	
Cinclorhamphus mathewsi	Rufous Songlark	
Cisticola exilis	Golden-headed Cisticola	
Zosteropidae		
Zosterops lateralis	Silvereye	
Muscicapidae		
Zoothera heinei	Russet-tailed Thrush	
Sturnidae		
Sturnus vulgaris	Common Starling	
Acridotheres tristis	Common Myna	

Appendix 6: Benefit/cost analysis table to inform potential opportunities at Racemosa Environment Reserve

Opportunities	Risks
Recreational zoning (for multi-use or shared use recreational activities such as walking, mountain bikes and/or horse riding)	
• Provide economic benefit to the local community • Increased public surveillance of illegal activities • Recreational trails serve dual purpose as fire breaks to facilitate planned mosaic burns • Opportunities to engage the local community over trail proposal and design, and involve community in site-based management of trails and weeds • Provides for an affordable means of exercise in close proximity for local residents and to the Landsborough village • Cycling was undertaken by 11% of Australians during the 12 months prior to the 2009 Exercise, Recreation and Sport Survey (Recreational Trail Plan 2012) • In 2004, 54 percent of Queensland residents participated in trail-based activities including walking for exercise, cycling (including BMX and mountain bikes), bushwalking and horse riding (Recreational Trail Plan 2012) • Provision of multi-use trails in natural areas is currently below the Sunshine Coast community expectations (Recreational Trail Plan 2012) • Meets Sunshine Coast community expectations to provide more multi-use trails in natural areas (Recreational Trail Plan 2012) • Provide recreational opportunities to cater for expected population growth in locality and adjacent localities	• Moderate to high potential for weed entry via recreational trails • feral animals are known to utilise recreational trails to increase activity in bushland areas • Increase potential for illegal access by trail bikes using multi-use recreational trails, resulting in compliance costs • Moderate to high potential for erosion along trails • Potential to impact on important habitat areas and EVNT species • Trails and increased traffic to create potential barriers for sensitive fauna • Financial costs associated with the installation and maintenance of recreational infrastructure. NB. highly erodible soils are likely to require regular maintenance and upgrading • Car parking is required to facilitate utilisation of trails • Potential barrier to obtaining perpetual protection of values through a legally binding mechanism such as a Nature Refuge under the NCA. • Landsborough is not identified under the Recreational Trails Plan 2012 as a locality with no signed trails or a locality where the provision of signed trails is less than adequate. • Safety issues and potential conflict associated with multi-use and no opportunity to separate trails due to limitations at this site • Duplication of provision. Existing multi-use trails in Landsborough-Mt Mellum locality and nearby Mooloolah Valley. For example, Ewen Maddock Dam provides a range of recreational opportunities in close proximity to Landsborough. Proposals to further develop and upgrade mountain bike and multi-use trails in surrounding localities. • Trail is unlikely to be long enough to facilitate mountain-biking and horse riding. • Unlikely to have high tourism value and scenic amenity therefore not considered a priority under the Recreational Trail Plan 2012

Opportunities	Risks
Recreational zoning (for low impact walking trails only)	
• Provide economic benefit to the local community • Enables appreciation and awareness of natural landscape values and provides incentives for preservation • Increased public surveillance of illegal activities • Recreational trails serve dual purpose as fire breaks to facilitate planned mosaic burns • Opportunities to engage with community over trail proposal and design • Opportunities to involve the local community in site-based management of trails and weeds • Opportunities for education and interpretive signage • Potential linkages to a proposed recreational park (see **Appendix 2i**) • Single use trails provide safety for bush walkers and other low impact recreational users • Provide recreational opportunities to cater for expected population growth in locality and adjacent localities • Walking has the highest participation rate of all physical activities Australia wide and in Southeast Queensland (Recreational Trail Plan 2012) • Address the suggestion by walkers, bird watchers and environmentalists to be separated from mountain bike riders (Sunshine Coast Recreation Trail Plan 2012) • Opportunity to establish as bird trail given the high diversity of birds on site (Nearest council-managed bird trail is in Noosa)	• Some potential for weed entry via recreational trails • feral animals are known to utilise via recreational trails to increase activity in bushland areas • Increase potential for illegal access via recreational trails and compliance costs • Some potential for erosion along trails • Potential to impact on important habitat areas and EVNT species • Trails and increased traffic to create potential barriers for sensitive fauna species • Financial costs associated with the installation and maintenance of recreational infrastructure. NB. highly erodible soils are likely to require regular maintenance and upgrading • Car parking is potentially required to facilitate utilisation of trails • Potential barrier to obtaining perpetual protection of values through a legally binding mechanism such as a Nature Refuge under the *Nature Conservation Act 1992.* • Landsborough is not identified under the Recreational Trails Plan 2012 as a locality with no signed trails or a locality where the provision of signed trails is less than adequate. • Ewen Maddock Dam provides a range of recreational opportunities in close proximity to Landsborough
Educational zoning- controlled access, maintain existing trails	
• Increased opportunities for monitoring, data collection and research • Facilitate partnerships with research institutions • Provide an outdoor study area for students	• Financial costs associated with the installation and maintenance of educational infrastructure • Erosion and maintenance of existing trails

Opportunities	Risks
• Research to contribute to conservation at this site and similar sites • Facilitate partnerships with community groups such as Birdlife Sunshine Coast • Opportunities to conduct educational seminars and guided interpretive walks for local residents and wildlife enthusiasts • No net increase to existing trail infrastructure	
Sanctuary zoning – fire trails only	
• Minimum financial costs associated with installation and maintenance of educational infrastructure • No negative impacts associated with trails and increased traffic • Protect areas of high environmental value from human impact • Provides control sites for monitoring reserve impacts	• Limits opportunities for recreational and educational usage and associated benefits • Limits contribution towards local tourism and associated economic benefits

Appendix 7:

7a) Exotic and Invasive Plants at the Racemosa Environment Reserve

Common Name	Scientific Name	Commonwealth	Queensland	SCC LGA Biosecurity Plan 2107
Racemosa Environment Reserve Flora Assessment (Thomas 2012)				
Ageratina riparia	Mist Flower			
Ageratum houstonianum	Blue Top			
Andropogon virginicus	Whisky Grass			Locally significant
Archontophoenix alexandrae	Alexander Palm			Locally significant
Ardisia crenata	Coral Berry		Priority Invasive	Locally significant; catchment response - targeted landscape management
Ardisia humilis	Low Shoebutton		Priority Invasive	Locally significant; catchment response - contain spread and protect sites
Bidens pilosa	Cobbler's Pegs			
Brachiaria mutica	Para Grass			Locally significant
Cinnamomum camphora	Camphor Laurel		Priority Invasive-restricted	Catchment response - targeted landscape management
Erechtites valerianifolia	Brazilian Fireweed			Locally significant
Erythrina crista-galli	Cockspur Coral Tree			
Flindersia brayleana	Queensland Maple			Locally significant
Lantana camara	Lantana	WoNS	Priority Invasive - restricted	Local Control
Ligustrum sinense	Small-leaved Privet			
Megathyrsus maximus	Guinea Grass			
Nymphaea capensis	Cape Blue Waterlily			
Paspalum mandiocanum	Broad Leaf Paspalum			Locally significant
Paspalum urvillei	Vasey's Grass			
Pinus elliottii	Slash Pine			
Salvinia molesta	Giant Salvinia	WoNS	Priority Invasive-restricted	Localised management
Schefflera actinophylla	Umbrella Tree			Locally significant
Senna pendula v. glabrata	Winter Senna			
Setaria sphacelata v. sericea	Sth African Pigeon Grass			Local control
Sida rhombifolia	Sida			Locally significant
Additional species recorded in Flora Attributes and Values – Irwin Property (LAMR 2003)				
Axonopus fissifolius	Carpet Grass			Locally significant

Baccharis halimifolia	Groundsel Bush		Priority Invasive - restricted	Catchment response - targeted landscape management
Chrysophyllum cainito	Star Apple			
Crassocephalum crepidioides	Thickhead			
Cuscuta campestris	Dodder			Locally significant
Desmodium uncinatum	silverleaf desmodium			
Eragrostis curvula	African lovegrass			Locally significant; catchment response - contain spread and protect sites
Erythrina x sykesii	Coral Tree			Locally significant
Ficus benjamina	Weeping Fig			Locally significant
Macroptilium atropurpureum	Siratro			Locally significant
Melinis minutiflora	Molasses Grass			Locally significant
Paspalum wettsteinii (P. virgatum)	Saltwater Couch			
Passiflora suberosa	Corky Passionflower			Locally significant
persicaria strigosa	Spotted Knotweed			
Psidium guineense	West Indies Guava			Locally significant
Scoparia dulcis	Scoparia Weed			
Solanum seaforthianum	Brazilian Nightshade			Locally significant
Sporobolus natalensis	Comon Giant Rat's Tail Grass		Priority Invasive - restricted	Catchment response - targeted landscape management
Syzygium uniflorum				
Additional species recorded in contractor reports (2012-2015)				
Cyperus papyrus	Dwarf Papyrus			Locally significant
Nephrolepis cordifolia	Fishbone Fern			Locally significant
Pueraria montana var. lobata	Kudzu		Priority Invasive- restricted	Catchment response – eradicate
Schinus terebinthifolius	Broad leaved Pepper Tree		Priority Invasive - restricted	Catchment response - targeted landscape management
Solanum hispidum	Giant Devil's Fig			Locally significant Catchment response – localised management
Spathodea campanulata	African Tulip Tree		Other Restricted Invasive category 3	

Queensland = status under the Queensland *Land Protection (Pest and Stock Route Management) Act 2002;* Sunshine Coast Local Government Area Biosecurity Plan 2017; WoNS=Weeds of National Significance

7b) Invasive animals at Racemosa Environment Reserve

Common Name	Scientific Name	Queensland	SCC LGA Biosecurity Plan 2017
Racemosa Environment Reserve Flora Assessment (Thomas 2012)			
Sus Scrofa	Feral Pig	Priority Invasive animal - restricted	Catchment management response – targeted landscape management
Equus caballus	Domestic Horse		
Rhinella marina	Cane Toad		Locally significant
Camera trap survey fails to locate long-nosed potoroos *P. tridactylus* at Racemosa ER			
Vulpes vulpes	Red Fox	Priority Invasive animal - restricted	Catchment management response- localised management
Additional species recorded in or near Beerwah Water reserve boundary (Czechura 2003)			
Canis lupus	Dingo	Priority Invasive animal - restricted	Catchment management response- localised management
*Felis cattus**	Domestic Cat		
Mus musculus	House Mouse		
Rattus rattus	Black Rat		

Queensland = status under the Queensland *Land Protection (Pest and Stock Route Management) Act 2002;* Sunshine Coast Local Government Area Biosecurity Plan 2017.

*Cats which are not domestic are listed Priority Invasive animal – “restricted”

Glossary and Abbreviations

AHD

Australian Height Datum

BOA

Bushland Operational Assessment

CAR system

Comprehensive: examples of all types of regional-scale ecosystems in each IBRA region should be included in the National reserve System.

Adequate: sufficient levels of each ecosystem should be included within the protected area network to provide ecological viability and to maintain the integrity of populations, species and communities.

Representative**:** the inclusion of areas at a finer scale, to encompass the variability of habitat within ecosystems.

DEHP

Department of Heritage Protection

EPBC Act

Environment Protection and Biodiversity Conservation Act 1999

ELS

Environment and Liveability Strategy

EVNT

'Endangered', 'Vulnerable' and 'Near Threatened' species listed by the state and / or Commonwealth government.

FMP

Fire Management Plan

GES Wetlands

General Ecological Significance Wetlands

HES Wetlands

High Ecological Significance Wetlands

IBRA

Interim biogeographical Regionalisation of Australia

IUCN

International Union for the Conservation of Nature

LGA

Local Government Area

MERI

Monitoring, Evaluation, Reporting, and Improvement

MP

Management Plan

NCA

Nature Conservation Act 1992

NRS

National Reserve System

OC

Of Concern

RE

Regional ecosystem

RWP

Regeneration Works Plan

SCC

Sunshine Coast Council

SCLGA

Sunshine Coast Local Government Area

SEQ

Southeast Queensland

Locally significant fauna and flora

Fauna and flora species listed as Locally significant

SMI

Statement of Management Intent

VMA

Vegetation Management Act 1999

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