Noosa Bushland Reserves Strategic Management Plan 2021 – 2026

Acknowledgement of Country

Noosa Shire Council acknowledges the traditional Country of the Kabi Kabi peoples and recognises that these have always been places of cultural, spiritual and social significance.

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

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Table of Contents

List of Figures:

1. Introduction

Noosa Shire is internationally recognised as being a destination of choice for residents and visitors alike. The shire contains extensive areas of natural bushland and areas of biodiversity value that are of significance internationally.

Noosa shire entirely comprises the land areas of the Noosa Biosphere Reserve, making it an area that is globally recognised as having outstanding environmental values, whilst achieving a balanced relationship between humans and the environment.

The *Noosa Biodiversity Assessment Report* commissioned by Noosa Council revealed that 55% of the shire's terrestrial area contains native vegetation, and that approximately one third of the shire is under some form of protective tenure. These protected tenures include National Parks, Nature Refuges, Voluntary Conservation Agreements and Council's bushland reserves. These 178 Council bushland reserves cover a total area of 3,469 hectares and protect a remarkable range of native ecosystems.

Noosa's bushland reserves play an important role in protecting biodiversity, acting as wildlife corridors between large core areas of native vegetation, contributing to good water quality in the shire's waterways, and providing residents and visitors with a range of nature-based recreational opportunities. The community is very much engaged in the management of many of these reserves, with an active Bushland Care program in place within the shire.

The *Noosa Bushland Reserve Strategic Management Plan* is the operational mechanism for the implementation of several targets identified within the *Noosa Environment Strategy*. The Noosa Bushland Reserve Network delivers values across all 4 themes of the *Noosa Environment Strategy,* namely: Biodiversity; Waterways, Wetlands and Coasts; Sustainable Living; and, Climate Change Adaptation and Resilience.

This Bushland Reserve Strategic Management Plan;

- describes the values and threats to biodiversity within Council's bushland reserve network
- analyses tenure and protective status
- prioritises individual reserves for active management based on a set of values and feasibility of achieving reserve resilience
- provides a series of recommendations at both the planning and operational levels to achieve cost effective outcomes.

1.1 Council's Bushland Reserve Network

Noosa Council's bushland reserve estate is termed 'network' to acknowledge the interconnection between land parcels in terms of movement of native animals and dissemination of plant pollen and propagules. The complex (and largely unknown) patterns of wildlife movement on seasonal, altitudinal and diurnal scales transcends reliance solely on protected areas as repositories for biodiversity. Native vegetation within road reserves, and both rural and urban private properties playing a major role as both habitat and corridors for native species.

A snapshot of the bushland reserve network's biodiversity values indicate that the reserves:

- Contain 413 hectares of 'Endangered' and 1,345 hectares "Of Concern" Regional Ecosystems (Biodiversity Status under the *Vegetation Management Act 1999*).
- Protect a number of poorly-conserved Regional Ecosystems. For example the endangered rainforest community (Regional Ecosystem (RE) 12.5.13) at Cooroibah Conservation Park is one of the largest protected patches within the greater Sunshine Coast region of this poorly-conserved Commonwealth-listed Lowland Subtropical Rainforest.

- Protects 100 hectares of Commonwealth-listed Critically Endangered *Subtropical Lowland Rainforests of Australia* ecological community and 63.3 hectares of Commonwealth-listed *Subtropical and Temperate Coastal Saltmarsh* ecological community.
- Provide habitat for a diverse range of State and Commonwealth listed native fauna and flora, including *Boronia keysii*, the Shire's floral emblem.

Similar to other areas of native vegetation in south-east Queensland, Noosa Council's bushland reserve network is facing a number of pressures that threaten its biodiversity values. Many of the reserves within Noosa Shire are degraded to some extent and will require a large amount of effort to restore them to an ecologically resilient condition.

The key pressures on these biodiversity values are:

- Pest animals directly impacting on native fauna and flora populations;
- Invasive plants displacing native vegetation and transforming ecosystems;
- Nutrient and sediment pollution of waterways and wetlands with associated impacts on biodiversity;
- Inappropriate fire regimes. Insufficient fire activities to maintain the 88.5% fire adapted vegetation communities within reserves;
- Interference to vegetation from adjoining property owners;
- Impacts on reserve integrity from unauthorised recreational vehicle use;
- Wildlife/resident conflicts.

1.2 Reserve prioritisation

To ensure the shire's bushland reserve network is managed to the highest standard possible, it is necessary to prioritise where the finite resources are best allocated to achieve its objectives.

The prioritisation process used within this plan has addressed the biodiversity values (taken largely from the *Noosa Biodiversity Assessment Report*), waterway values, carbon sink values and social values of each reserve. The feasibility for each reserve to be restored to an ecologically resilient state, with consideration of realistic operational resource availability, is a particularly relevant consideration and has been identified for each reserve as part of the preparation of this plan. This and other data was determined by seeking the views of the Council Stakeholder Group who manage the entirety of the bushland reserve network and hold in-depth knowledge of the majority of reserves.

The philosophy behind prioritising reserves for their feasibility to recover recognises that it is best and most cost-efficient to manage the more ecologically resilient reserves first, as better biodiversity outcomes can be achieved with the limited program resourcing available to manage the reserve estate. Implicit in this philosophy is the reality that some of the smaller highly-degraded reserves in urban areas, while still possessing some biodiversity, waterway and social values, may not be able to be restored to an ecologically resilient condition in the near future.

1.3 Purpose of the Plan

The *Noosa Bushland Reserves Strategic Management Plan 2021 – 2026 (*The Plan) outlines the values and management issues within Council's bushland reserve network.

The Plan provides recommendations as to how Council should manage its bushland reserve network over the next five years to achieve the bushland reserve network's objectives as presented in section 2. In addition to refining and defining the management planning framework for the Natural Areas Program, three reserve management program categories ('Protect', 'Enhance', and 'Monitor') have been allocated to the prioritised reserves with associated planning documentation required identified.

It is intended that the Plan will provide an over-arching plan for all Council owned and managed Bushland Reserves, and establish clear and consistent management objectives for all issues that relate to or impact upon Noosa's bushland reserve values for the next five years.

2. Vision & Objectives

2.1 Council's Vision for Noosa Bushland Reserves Network

The *Noosa Bushland Reserve Strategic Management Plan* is the operational mechanism for the implementation of several targets identified within the *Noosa Environment Strategy.* The Noosa Environment Strategy sets the 'big picture' for our environment and sustainability across all plans and subsequent implementation documents. The Noosa Bushland Reserve Network will deliver outcomes across all of the 4 themes of the *Noosa Environment Strategy* being Biodiversity; Waterways, Wetlands and Coasts; Climate Change Adaptation and Resilience; and Sustainable living.

The following vision statement provides an overarching framework for driving the management of Noosa Council's bushland reserves network:

"Council's Bushland Reserve Network is protected, enhanced and valued by the Noosa community for its natural, cultural and social values."

2.2 Noosa Bushland Reserve Network's Objectives

The principal objectives listed below contribute towards achieving the Noosa bushland reserves network vision.

1. *Protect and improve biodiversity values within the bushland reserve network using best practice management.*
2. *Contribute towards improvement of water quality within the Noosa River, Mary River and coastal creek catchments.*
3. *Identify and protect Indigenous and European cultural heritage sites within the bushland reserve network.*
4. *Develop and foster partnerships with the community.*
5. *Manage hazardous vegetation, bushfire, flooding and pest species within the bushland reserve network according to Council's policies, plans, risk appetite and legislative requirements.*
6. *Provide opportunities for outdoor recreational activities that are compatible and complementary with natural and cultural heritage values within the bushland reserve network.*
7. *Work with bushland reserve neighbours to achieve mutually beneficial biodiversity and community safety outcomes.*
8. *Identify and implement carbon sequestration and preservation activities within the bushland reserve network.*

Figure 1 shows the Noosa Bushland Reserve Network Objectives and how they relate to the outcomes of the Noosa Environment Strategy.

Ref#	Objective	Noosa Environment Strategy 2019 Outcomes
1	Protect and improve biodiversity values within the bushland reserve network using best practice management.	Biodiversity- B, D, E, F and G
2	Contribute towards improvement of water quality within the Noosa River, Mary River, Maroochy River and coastal creek catchments.	Waterways, wetlands and coasts- A, B, D, H & I
3	Identify and protect Indigenous and European cultural heritage sites within the reserve network.	Biodiversity- E. Waterways, wetlands and coasts- A
4	Develop and foster partnerships with the community.	Biodiversity- E. Waterways, wetlands and coasts- A
5	Manage hazardous vegetation, bushfire, flooding and pest species within the reserve network according to Council's policies, plans, risk management procedures and legislative requirements.	Biodiversity- G. Climate change adaptation and resilience-B, D and F
6	Provide opportunities for outdoor recreational activities that are compatible and complementary with natural and cultural heritage values within the reserve network.	N/A
7	Work with bushland reserve neighbours to achieve mutually beneficial biodiversity and community safety outcomes.	Biodiversity- E. Waterways, wetlands and coasts- A
8	Identify and implement carbon sequestration and preservation activities within the reserve network.	Sustainable living- A

Figure 1 – Relationship between Environment Strategy and this document

3. Statutory & Strategic Obligations

The *Noosa Bushland Reserves Strategic Management Plan 2021– 2026* sits under the *Noosa Environment Strategy* and complements and fulfils a large range of local, regional, state, national and international plans, strategies, charters, agreements and statutory obligations.

The Plan will have particularly strong links and implementation relevance to the following strategic documents:

- Conservation Land Guideline
- Climate Change Response Plan (currently in draft)
- Noosa River Plan (currently in draft)
- Coastal Management Plan (not yet developed)
- Biosecurity Plan
- Bushland Reserve Strategic Fire Management Plan
- Koala Conservation Plan

Figure 2 provides an outline of the Noosa Council Environmental Planning Framework.

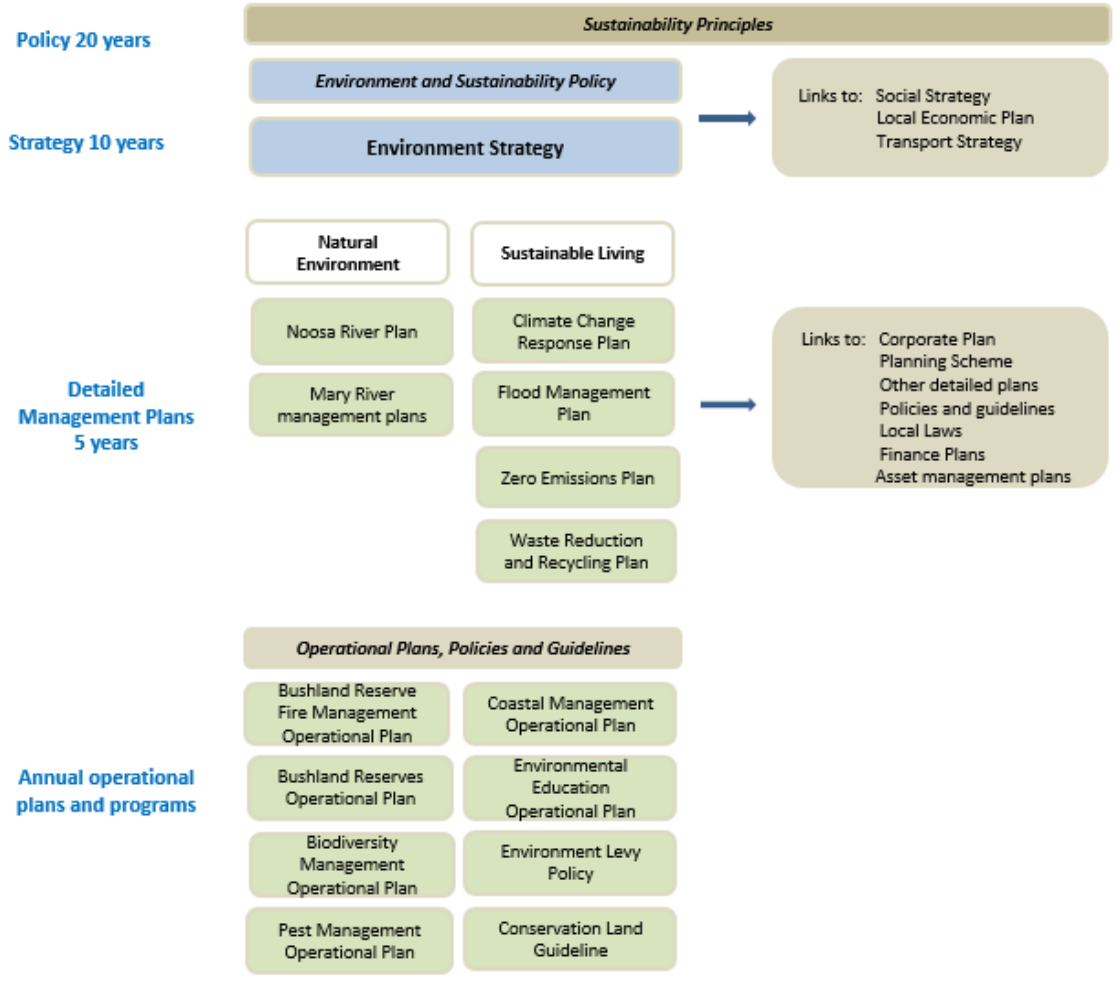


Figure 2 - Noosa Council Environment Planning Structure

3.1 Legislative Drivers

The *Noosa Bushland Reserves Strategic Management Plan 2021 – 2026* and on-ground actions within the bushland reserves program require compliance with the following legislation.

Level	Legislation
National	*Environment Protection and Biodiversity Conservation Act 1999*
State	*Aboriginal Cultural Heritage Act 2003*
	Agricultural Chemicals Distribution Control Act 1998
	Biosecurity Act 2014
	Coastal Protection and Management Act 1995
	Environmental Offset Act 2014
	Environmental Protection Act 1994
	Fire and Rescue Service Act 1990
	Nature Conservation Act 1992;
	Land Act 1994
	Local Government Act 2009 (QLD) (LGA 2009)
	SEQ Regional Plan 2009 – 2031
	Planning Act 2016 & Planning Regulation 2017 (Schedule 10) - including Koala impacts.
	State Planning Policy July 2017 & State Interest Guidelines (various)
	Vegetation Management Act 2009
	Water Act 2000
	State Planning Policy 2/10 Koala Conservation in SEQ
Local	*Noosa Council Planning Scheme 2020*
	Priority Infrastructure Plan (Local Government Infrastructure Plan)

Figure 3 – Legislative Drivers

3.2 Planning Drivers

The *Noosa Bushland Reserves Strategic Plan 2021 – 2026* aligns with and complements a multitude of local, state, national and international non-legislative policies, plans and strategies. The principal policies, plans and strategies that influence the Plan are detailed below.

Level	Document	Direct Mention or Direct Relevance to Noosa Bushland Reserves Strategic Management Plan 2021 – 2026
National	Numerous Threatened Species and Ecological Community National Recovery Plans and Conservation Advice Statements registered under the *Environmental Protection and Biodiversity Conservation Act 1999.*	Actions contained within Recovery Plans and Conservation Advice Statements, particularly on-ground actions have direct implementation through reserve management operations. Reserves that have identified EPBC listed species and/or ecological communities will require special consideration of Recovery Plan and Conservation Advice Statement recommendations during Reserve Management Plan and Ecological Restoration Plan development. Commonwealth Government biodiversity investment is directed primarily towards actions that address threats to EPBC listed species & ecological communities.
State	Back On Track actions for biodiversity : taking action to achieve species conservation in the South East Queensland Natural Resource Management Region 2010	The Back On Track framework identifies various actions (Planning, Research, On-ground, Community Capacity Building) that relate to prioritised fauna and flora species. Actions for each species should be addressed within Management Plans at the reserve level where applicable.
Regional	Burnett Mary NRM and Climate Adaptation Plan 2015	The BM NRM plan provides actions and targets relevant to natural bushland across the Burnett Mary region. Actions contained within the plan are both

		relevant to on-ground works within the reserves but also provide potential opportunity for additional financial resourcing for on-ground works.
	South East Queensland Natural Resource Management (SEQ NRM) Plan 2014 —2031	The SEQ NRM plan provides actions and targets relevant to natural bushland across the SEQ region. Actions contained within the plan are both relevant to on-ground works within the reserves but also provide potential opportunity for additional financial resourcing for on-ground works.
Local	Noosa Council Corporate Plan 2017-2037	The Corporate Plan has set a 20 year goal for environmental outcomes and has set a 5 year goal for actions within Key Focus Areas. One goal is to develop the Environment Strategy and Subordinate plans and strategies.
	Noosa Council Environment Strategy 2019	The Environment Strategy provides the overarching guidance for the development and implementation of a broad range of environment-related plans that contain many of the detailed actions, responsibilities and timeframes for delivery.
	Noosa Cultural Plan 2019 - 2023	The Noosa Cultural Plan identified Indigenous Cultural Heritage as a priority focus area stating that Council will work with Kabi Kabi/Gubbi Gubbi first nation's people to increase the awareness and understanding of our local indigenous cultural heritage. The Bushland Reserve Strategic Plan contains an objective stating the above.
	Noosa Council Environment Levy Policy 20198	The Environment Levy Policy outlines the environmental and administrative principles that will provide direction for the allocation of Environment Levy funds by Council. This has strong integration with the Bushland Reserve Strategic Management Plan with land acquisition and Environmental Grants program initiatives.
	Noosa Council Open Space Study 2017	Whilst not an Action Plan, the Study has strong links and integration with the Bushland Reserves Strategic Management Plan and is the guiding document for the generation of new reserves through the auditing and development assessment process.
	Noosa Local Government Area Draft Biosecurity Plan 2019-2024	The Biosecurity Plan contains Noosa Council's strategic actions for the management of high priority pest plants and animals within the Noosa Shire Area. Several Actions with direct application to the Noosa Bushland Reserves Strategic Management Plan exist within the Plan. Relevant priorities, objectives and actions have been directly integrated into the Plan Actions listed in Section 10 of this Plan.
	Climate Change Response Plan	The Climate Change Response Plan identifies healthy and resilient natural systems and carbon sequestration as a theme and strategic priority.
	Noosa Bushland Reserve Strategic Fire Management Plan	The Noosa Bushland Reserve Strategic Fire Management Plan has identified priority reserves based on a risk assessment basis. This document refines priorities and resources for specific fire management activities. While this plan is relevant, an alternate fire management planning arrangement is recommended within this plan moving forward.
	Noosa Shire Koala Conservation Plan 2016	The Noosa Shire Koala Conservation Plan identified a number of actions that have direct implementation within the bushland reserve network planning and implementation process.
	Noosa Coastal Hazards Adaptation Plan	The Noosa Coastal Hazards Adaptation Plan is a subset plan from the Climate Change Response Plan. This plan identifies areas impacted by Storm Tide inundation and Sea Level Rise
	Tree Management on Public Land Policy 2018	This policy applies to all Council public land including parks, road reserves and other council owned land including community facilities. The policy states: i) Trees are valuable assets and must be managed accordingly; ii) Council maintains a general commitment to the sustainable management of trees on public land and also the greening of open space; and iii) Unavoidable removal of trees from public land may be offset with planting to ensure there is no net loss of trees on Council controlled land. Offset Sites are likely to be within the Bushland Reserve Network.

Figure 4 - Planning Drivers

4. Bushland Reserve Values

Within Noosa Council's bushland reserve network there exists a range of values that are highly regarded by the Noosa community.

4.1 Biodiversity values

Biodiversity values within Noosa Shire have been recently documented in the *Noosa Biodiversity Plan*. Key values are summarised as:

- Approximately 55% of the shire is covered in native vegetation (46.8% classified remnant (Eco Logical 2016), with >40,000 ha in remnant condition.
- A diverse range of vegetation communities, which can be classified into 61 Regional Ecosystems (REs). While Noosa Shire comprises 3.9% of the total area of SEQ, it contains representations of 39% of the REs that can occur in the bioregion. Refer Figure 5.
- Unique ecosystems including rare sub-tropical examples of patterned fens, coastal lagoon systems, sand lakes and dune systems.
- A number of ecological communities, flora and fauna species that are recognised and protected under state and federal environmental law, including the critically endangered lowland rainforest community.
- A large diversity of wildlife and plants (~1,340 species of plants and 348 species of terrestrial vertebrate animals). At least 217 species of birds, 45 species of reptiles, 55 species of mammals, and 31 species of frogs are known from the area. This includes endemic species and Gondwanan relicts.
- Habitat for key and iconic fauna species including Koala, Glossy Black-Cockatoo, Water Mouse, Ground Parrot, Coxen's Fig Parrot, acid frogs, Cooloola Blind Snake, sea turtles, migratory shorebird species, Mary River Cod and Australian Lungfish.
- Critical habitats, including internationally recognised migratory bird habitats of conservation importance, and sea turtle nesting sites.
- A highly connected network of core habitat areas from a diverse cross-section of ecosystem types and altitudinal ranges.
- The healthiest river system in the SEQ region.
- A network of diverse wetlands which are in good ecological condition and encompass over 16,000 ha. Many are recognised as being of national or state significance.

Figure 5 - Regional Ecosystems represented in Noosa bushland reserves

Regional Ecosystems	Total Area (ha)
12.1.1	35.3
12.1.2	28.08
12.1.3	153.11
12.2.1	1.04
12.2.5	95.04
12.2.7	361.45
12.2.9	62.37
12.2.12	174.2
12.2.13	14.37
12.2.14	92.67
12.2.15	36.15
12.3.1a	62.79
12.3.2	77.21
12.3.4	215.89
12.3.5	219.91
12.3.6	25.74
12.3.11	12.24
12.3.13	15.84
12.3.14	8.42
12.3.14a	5.7
12.5.2a	2.52
12.5.3	215.57
12.5.4	5.73
12.5.6c	35.77
12.5.9	53.45
12.5.13a	27.98
12.8.13	1.32
12.8.20	5.2
12.9-10.1	255.74
12.9-10.4	142.72
12.9-10.7a	1.73
12.9-10.14	31.29
12.9-10.16	9.54
12.9-10.17	15.67
12.11.2	0.14
12.11.3	6.27
12.11.10	8.16
12.11.16	9.6
12.12.3	10.3
12.12.12	5.2
12.12.15	0.11

- An extensive protected reserve system that plays a critical role in conservation management across the SEQ region. Over one third of the shire is covered by protected reserves, the largest being Great Sandy National Park.

Further information of the above values protected in Council's bushland reserve network is presented in Figure 6.

Figure 6 - EPBC Ecological Communities and Essential Habitat Statistics

	Number of Reserves	Total Area (ha)
EPBC Ecological communities* EPBC ecological communities include: 12.1.1, 12.3.1, 12.3.20, 12.5.13, 12.11.10 12.1.1 and 12.1.2	45	163.63
Essential Habitat	114	2039.99

Bushland Reserve Biodiversity Profile: Pinaroo Park

This small 6.2 hectare reserve at Noosa Junction preserves a coastal waterbody that provides habitat for a number of frog species. Black She Oaks (*Allocasuarina littoralis*) within Pinaroo Park are preferred feed trees for the vulnerable Glossy Black-Cockatoo (*Calyptorhynchus lathami)* which are regularly seen there. Pinaroo Park also contains habitat for Koala's (*Phascolarctos cinereus)* and Grey-headed Flying Foxes (*Pteropus poliocephalus*). Pinaroo Park is a mixture of recreational mown areas and bushland, and is highly valued by the local community.

Figure 7 - Reserve representation by Broad Vegetation Groups

Broad Vegetation Group	BVG Description	Total Area (ha)
2a	Complex evergreen mesophyll-notophyll vine forest frequently with *Araucaria cunninghamii* (hoop pine) from foothills to ranges. (land zones 11, 12, 8) (WET, SEQ, CQC) (Tracey 1982 2a)	8.16
4a	Notophyll and mesophyll vine forest with feather of fan palms in alluvia and in swampy situations on ranges or within coastal san masses. (land zones 3, 11, 12, 2) (SEQ, WET, CQC, CYP) (Tracey 1982 2b,3b, 3c)	1.04
4b	Evergreen to semi-deciduous mesophyll to notophyll vine forest, frequently with *Archontophoenix* spp. (palms) fringing streams. (land zones 3, [10]) (CYP, SEQ, WET, CQC, GUP) (Tracey 1982 1c)	62.79
5a	*Araucarian* notophyll/microphyll and microphyll vine forests of southern coastal bioregions. (land zones 8, 11, 5, 9) (SEQ)	38.84
8a	Wet tall open forest dominated by species such as *Eucalyptus grandis* (flooded gum) or *E. saligna*, *E. resinifera* (red mahogany), *Lophostemon confertus* (brush box), *Syncarpia glomulifera* (turpentine), *E. laevopinea* (silvertop stringybark). Contains a well-developed understorey of rainforest components, including ferns and palms, or the understorey may be dominated by sclerophyll shrubs. (land zones 12, 8, 10, 11, 3, 5, 9, 2) (SEQ, WET, BRB, CQC, [NET])	333.2
8b	Moist open forests to tall open forests mostly dominated by *Eucalyptus pilularis* (blackbutt) on coastal sands, sub-coastal sandstones and basalt ranges. Also includes tall open forests dominated by *E. montivaga, E. obliqua* (messmate stringybark) and *E. campanulata* (New England ash). (land zones 12, 9, 11, 2, 5, 8) (SEQ, [CQC])	76.66
9a	Moist eucalypt open forests to woodlands dominated by a variety of species including *Eucalyptus siderophloia* (red ironbark), *E. propinqua* (small-fruited grey gum), *E. acmenoides* (narrow-leaved white stringybark), *E. microcorys* (tallowwood), *E. carnea* (broad-leaved white mahogany), *E. tindaliae* (Queensland white stringybark), *Corymbia intermedia* (pink bloodwood), *Lophostemon confertus* (brush box). (land zones 11, 12, 9-10, 5, 8) (SEQ)	22.05
9f	Woodlands dominated by *Corymbia* spp. e.g.: *C. intermedia* (pink bloodwood), *C. tessellaris* (Moreton Bay ash) and/or *Eucalyptus* spp. such as *E. tereticornis* (blue gum), frequently with *Banksia* spp., *Acacia* spp. and *Callitris columellaris* (Bribie Island pine) on coastal dunes and beach ridges. (land zone 2) (SEQ)	95.04
9g	Moist to dry woodlands to open forest dominated by stringybarks or mahoganies such as *Eucalyptus tindaliae* (Queensland white stringybark), *E. latisinensis* (white mahogany), *E. acmenoides* (narrow-leaved white stringybark); or *E. racemosa* (scribbly gum) or *E. seeana* or *E. tereticornis* (blue gum) and *Corymbia intermedia* (pink bloodwood). (land zone 5, 12, 9-10, 2, 11, [8, 3]) (SEQ)	377.44
9h	Dry woodlands dominated by species such as *Eucalyptus acmenoides* (narrow-leaved white stringybark) (*or E. portuensis*), *E. tereticornis* (blue gum), *Angophora leiocarpa* (rusty gum), *Corymbia trachyphloia* (yellow bloodwood) or *C. intermedia* (pink bloodwood), and often ironbarks including *E. crebra* (narrow-leaved red ironbark) or *E. fibrosa* (dusky-leaved ironbark). A heathy shrub layer is frequently present. On undulating to hilly terrain. (land zones 12, 9-10, 11, [8, 5]) (SEQ, BRB)	5.2
10b	Moist open forests to woodlands dominated by *Corymbia citriodora* (spotted gum). (land zones 12, 11, 9, 5, 8) (SEQ, CQC, EIU, WET)	10.3
12a	Dry woodlands to open woodlands dominated by ironbarks such as *Eucalyptus decorticans* (gum-topped ironbark), *E. fibrosa subsp. nubila* (blue-leaved ironbark), or *E. crebra* (narrow-leaved red ironbark) and/or bloodwoods such as *Corymbia trachyphloia* (yellow bloodwood), *C. leichhardtii* (rustyjacket), *C. watsoniana* (Watson's yellow bloodwood), *C. lamprophylla*, *C. peltata* (yellowjacket). Occasionally *E. thozetiana* (mountain yapunyah), *E. cloeziana* (Gympie messmate) or *E. mediocris* are dominant. Mostly on sub-coastal/inland hills with shallow soils. (land zones 10, 7, 9 [11]) (BRB, DEU, SEQ, GUP)	1.73
16c	Woodlands and open woodlands dominated by *Eucalyptus coolabah* (coolabah) or *E. microtheca* (coolabah) or *E. largiflorens* (black box) or E. tereticornis (blue gum) or E. chlorophylla on floodplains. Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded. (land zone 3) (All bioregions except WET, principally GUP, BRB, MUL, SEQ)	12.24
22a	Open forests and woodlands dominated by *Melaleuca quinquenervia* (swamp paperbark) in seasonally inundated lowland coastal areas and swamps. (land zones 3, 2, 1, [11]) (SEQ, WET, CQC, CYP, [BRB])	822.99
28a	Complex of open shrubland to closed shrubland, grassland, low woodland and open forest, on strand and foredunes. Includes pure stands of *Casuarina equisetifolia* (coastal sheoak). (land zones 2, 1) (GUP, SEQ, BRB, CYP, [WET, CQC])	127.97
29a	Open heaths and dwarf open heaths on coastal dunefields, sandplains and headlands. (land zones 5, 2, 3, 7, 10, [12, 11]) (CYP, SEQ, [WET])	328.65
34c	Palustrine wetlands. Freshwater swamps on coastal floodplains dominated by sedges and grasses such as *Oryza* spp., *Eleocharis* spp. (spikerush) or *Baloskion* spp. (cord rush) / *Leptocarpus tenax* / *Gahnia sieberiana* (sword grass) / *Lepironia* spp. (land zones 3, 2, 1) (CYP, GUP, BRB, SEQ, WET, [CQC])	36.15
35a	Closed forests and low closed forests dominated by mangroves. (land zone 1) (CYP, GUP, BRB, SEQ, WET, CQC)	153.11
35b	Bare saltpans ± areas of *Tecticornia* spp. (samphire) sparse forbland and/or *Xerochloa imberbis* or *Sporobolus virginicus* (sand couch) tussock grassland. (land zone 1, [3]) (GUP, BRB, CYP, SEQ, CQC, [WET])	28.08
TOTAL		2541.64

4.2 Ecosystem Services Values

Ecosystem Services are the goods and services freely delivered by ecosystems that contribute to the environmental, social and economic well-being of the Noosa community, and to the well-being of the national and global community. These services are classified in accordance with *Classification of Ecosystem Services by the Millennium Ecosystem Assessment* (MEA. 2005), and are as follows:

1. *Regulating services: benefits obtained from the regulation of ecosystem processes such as water regulation, erosion regulation, waste regulation, climate regulation and natural hazard regulation (e.g. droughts, floods, and storms).*

2. *Supporting services: those that are necessary for the production of all other ecosystem services. They differ from provisioning, regulating, and cultural services in that their impacts on people are often indirect or occur over a very long time, whereas changes in the other categories have relatively direct and short-term impacts on people. Some services, like erosion regulation, can be categorised as both a supporting and a regulating service, depending on the time- scale and immediacy of their impact on people. Supporting services include primary production, nutrient cycling and water cycling.*

3. *Provisioning services: products obtained from ecosystems, e.g. fresh water, food, fibre, fuel, genetic resources, biochemical, natural medicines and pharmaceuticals.*

4. *Cultural services: non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences, e.g. cultural diversity, knowledge systems, educational values, social relations, sense of place, cultural heritage and ecotourism.*

The values these ecosystems provide are a key reason for creating a network of environmental reserves throughout the Noosa Shire. Without our reserve network, and those of other agencies such as national parks, some of these ecosystem services would be lost to the Noosa community. This includes the role or riparian vegetation in reducing erosion and keeping our rivers clean, or the role of coastal foredunes is providing a green buffer to the impacts of climate change.

While the provision of these services is greatly enhanced by having retained habitat in a bushland reserve network, the relative values of these services provided are not always the first consideration when allocating resources in the management of the reserve network that is already in place. This is because some these values can contradict each other. For example, weed encroachment into environments can reduce biodiversity values significantly, but at the same time they can provide similar services in areas like water filtration or dune stabilisation. As result, for prioritisation of day-to-day management, ecosystem services are considered as a subset of the biodiversity outcomes sought by this plan.

A focus on “likelihood of success” within this plan is intended to provide a long-term improvement in ecosystem condition and, by extension, the quality of ecosystem services. While priority reserves are worked though, a triage approach is taken to the remaining network with annual inspections and management of emerging issues, such as new weed species with a high probability of impact.

Some specific examples of Ecosystem Services that Council’s bushland reserve network contribute to include but are not limited to catchment values, recreational values, landscape and scenic amenity values and climate change amelioration.

4.2.1 Catchment Values

The Noosa River system has the highest water quality rating of all SEQ waterways. Together with the extensive Cooloola National Park, Council’s bushland reserve network contributes to this high

water quality by protecting riparian vegetation along waterways, maintaining bank stability, and contributing to reduced sediment load entering the Noosa River.

The Noosa River catchment comprises approximately 63% of the shire while approximately 36% of the Shire is within the Mary River catchment. Waterways such as Six Mile Creek have intact riparian vegetation and contribute to reduced sediment flows into the Mary River system. A number of bushland reserves also protect coastal waterways such as on Noosa North Shore and the coastal strip south of Noosa Heads to the shire boundary.

Council has a number of reserves within each broad catchment area as outlined in Figure 8.

Figure 8 - Reserve representation within Catchments

Noosa Shire Catchments	Number of Reserves	Total Area (m^2)	% of Total Area
Noosa River	117	29699224.23	84.21%
Maroochy River	5	453888.20	1.43%
Mary River Sub-catchments	56	4539617.97	14.36%
TOTAL	178	34692730.42	100%

Bushland Reserve Biodiversity Profile:
Six Mile Creek Bushland Reserves.

Six Mile Creek is a tributary of the Mary River System. The headwaters commence in the vicinity of Mt Cooroy, Black Mountain, and Mt Pinbarren. The Mt Cooroy tributary feeds into Lake Macdonald, a potable water supply for Noosa Shire and SEQ. Although subject to large scale clearing for agriculture in the early 1900's, riparian vegetation along Six Mile Creek and its tributaries is today largely intact throughout much of the catchment and is mostly mapped as remnant Regional ecosystems 12.3.1 and 12.3.2. Six Mile Creek is a significant stronghold for the endangered Mary River Cod (*Maccullochella mariensis*) due to the presence of intact riparian vegetation, deep pools containing large woody debris, and good water quality. The system is also habitat for listed frog species such as the endangered Giant Barred Frog (*Mixophyes iterates).* Council manages a network of reserves along the Six Mile Creek System, including the Yellow Belly Hole at Cooran. This reserve has been actively managed for invasive weeds (mainly Small leaved Privet, Camphor Laurel, and Cats Claw Vine) since 1998 in partnership with Noosa Landcare, and in 2017 exhibits resilience and represents a good example of intact riparian rainforest and adjoining wet sclerophyll tall open forest.

Photo Credit – Giant Barred Frog (Eva Ford)

4.2.2 Recreational Values

A diversity of recreational opportunities exist within the bushland reserve network. These include bushwalking, horse riding, mountain biking, birdwatching and botany walks. These activities are well utilised by the community. The bushland reserves network contains a number of urban reserves that contain mown parks and pathways and are valued by local residents for recreation.

Numerous bushland reserves also include sections of the Noosa Trail Network. This provides further nature based low impact recreation activities for the Noosa hinterland.

4.2.3 Landscape and Scenic Amenity Values

The Noosa community values the natural look and feel of the shire. This is a result of Council planning for its built environment, and the large amount (relative to SEQ) of vegetated land remaining within the shire. This is 55% compared to 35.5% for the remainder of the South East Queensland local government areas (SEQC 2016). Council's bushland reserve network contributes to this sense of natural space by protecting scenic vistas such as vegetated fore dunes, waterways and ridgelines.

4.2.4 Climate Change Amelioration

Being a coastal shire, Noosa is particularly exposed to the predicted impacts of climate change. These impacts are summarised as:

- Increased coastal erosion, coastal hazards, and extensive inundation from sea level rise;
- More frequent mass die off of vegetation and vulnerable flora and fauna;
- Loss of rainforest and expansion of eucalypt forests resulting in greater intensity, spread and frequency of bushfires;
- Loss of saltmarshes and swamps from sea level rise;
- Reduction or loss of native folivores from increased CO2 levels in foliage;
- Increased frequency and intensity of flood events;
- More disturbance to native ecosystems leading to an increase in weed incursions.

Bushland reserves will play an important role in buffering the effects of climate change both physically (temperature regulation, stability for 'at-risk' landscapes) and through carbon storage and capture. They can provide refugia during adverse climatic events (such as riparian areas during a prolonged drought), and as potential dispersal corridors for fauna (and flora propagules) as species retreat or retract to less impacted areas.

In Coastal areas this will be particularly important, where vegetation coverage will support frontal dune stabilisation. The draft Coastal Hazards Adaptation Plan and (not yet developed) Coastal Foreshore Management Plan will assist in guiding management actions in the future. This will provide further direction in management of the foreshore coastal zone for the purposes of maintaining the environmental values of the dunes. While this will provide some asset protection to properties, there are other actions that may be required, beyond the scope of a bushland management plan, to ensure resilience against climate change impacts where the placement of assets make retreat a difficult option.

4.3 Cultural & Historical Values

Both European and Aboriginal cultural values are present within the bushland reserve network. European cultural and historical values include historical relicts such as early European built structures, tree stumps with springboard scars, and commemorative (early 19th century) trees such as pine and camphor laurel trees. Evidence of Aboriginal occupation of the reserve network includes scar trees, artefacts, bora rings and shell middens.

Aboriginal peoples have been environmental stewards of the Noosa region and still maintain a deep relationship today with the biodiversity, waterways and wetlands of the area. Noosa's natural environment has been integral to the Kabi Kabi (Gubbi Gubbi) people's cultural values, customs and spiritual beliefs.

In relation to the identification of sites of significance, Council refers in the first instance to the 'Indigenous Cultural Heritage Study of Noosa Shire 2004 and Sunshine Coast Council 2009, Sunshine Coast Cultural Heritage Background Study.

As identified in The Noosa Cultural Plan, Indigenous Cultural Heritage is a priority focus area stating that Council will work with Kabi Kabi/Gubbi Gubbi first nation's people to increase the awareness and understanding of our local indigenous cultural heritage.

Bushland Reserve Biodiversity Profile:
Cooroibah Conservation Park

This 162 hectare reserve comprises a number of freehold properties purchased under Council's Environment Levy land acquisition program since 2006 and is located between Lake Cooroibah, Cooroibah Creek, and Lake Cooroibah Road. There is a remarkable diversity of vegetation communities present within this reserve, from scribbly gum woodland, blue gum woodland, mixed eucalypt woodland, melaleuca wetland, mangroves, saltmarsh, one of the best examples of cabbage palm/flooded gum tall open forest in Noosa Shire, and a rare form of rainforest growing on weathered sandstone. The reserve has very high floral diversity, with the vulnerable species Hairy Hazelwood (*Symplocos harroldii*) present in good numbers. The woodland areas contain many eucalypt species exhibiting hollow formation critical for hollow dependant fauna species.

5. Pressures on the Bushland Reserve Network

5.1 Invasive Species

The *Noosa Biosecurity Plan 2019* has identified invasive species, a large number of which have their origin as garden escapees, and management actions across the Shire. Similar to other areas of SEQ, a large number of invasive plants are threatening biodiversity values and the bushland reserve network, with those reserves in peri-urban/urban areas generally more impacted from escaped garden plants.

This plan has prioritised a number of key invasive plant species that are considered to be "transformer weeds". These species have the capacity to alter and dominate native vegetation strata, whether it be Cats Claw Creeper (*Dolichandra unguis–cati*) destroying the canopy of mature rainforest or Singapore Daisy (S*phagneticola trilobata)* dominating the ground strata and preventing recruitment and establishment of native plants.

Figure 11 lists transformer weeds and their impact potential. This list was developed by an Internal Stakeholder Group based on their long-term local operational experience in the Noosa area.

Figure 10 - Singapore Daisy is existent in a large percentage of Noosa's bushland reserves and has its local origin as a garden escapee.

Figure 9- Cats Claw Creeper Vine is a high impact 'transformer weed' present on several Council Reserves

Less visually obvious but equally as damaging is the impact of pest animals on native fauna populations, with listed species such as Ground Parrots (*Pezoporus wallicus*) being impacted by foxes and feral cats. Similarly wild dog predation on Koalas (*Phascolarctos cinereus)* is considered a key threat to Koala populations in SE Qld.

Figure 11 - Priority Invasive Pest Species (transformer weeds) that impact upon Biodiversity Values

Species	Common name	Comments
	PEST PLANTS	
Anredera cordifolia	Madeira Vine	Invasive vine, smothers canopy, easily spread
Aristolochia elegans	Dutchman's Pipe	Smothers canopy, impacts on Richmond Birdwing butterfly
Asparagus aethiopicus	Basket Asparagus	Dominates ground strata in dunal areas, prevents native plant recruitment
Cinnamomum camphora	Camphor Laurel	Can dominate tree canopy, forming a monoculture. Evidence of rapid spread in Eucalypt forests in the area.
Gloriosa superba	Glory Lily	Dominates ground cover in dunal areas
Hygrophila costata	Glush Weed	Dominates ground strata in riparian areas.
Ipomoea cairica	Coastal Mile-a-minute (Coastal Morning Glory)	Invasive vine, smothers ground and shrub strata and limits native species recruitment
Ipomoea indica	Morning Glory	Invasive vine, smothers canopy
Ligustrum sinense	Small Leaved Privet	Can dominate mid strata in riparian areas.
Macfadyena unguis -cati	Cats Claw Creeper	Invasive vine, smothers canopy, easily spread
Passiflora suberosa	Corky Passionfruit	Invasive vine, smothers ground and shrub strata and limits native species recruitment
Salvinia molesta	Salvinia	Dominates non flowing water bodies
Schinus terebinthifolius	Broad Leaf Pepper	Can dominate in rear dunal areas
Sphagneticola trilobata	Singapore Daisy	Dominates ground strata, prevents native plant recruitment
Thunbergia spp.	Thunbergia	Invasive vine, smothers canopy
	PEST ANIMALS	
Acridotheras tristis	Common Myna	Impacts on native birds
Canis familiaris	Dogs (both wild and domestic)	High impact on native animals, ie Koalas
Felis catus	Cat	High impact on small native animals
Sus scrofula	Feral Pig	Disturbance to wetland areas, spread plant disease and weeds
Vulpes vulpes	European Fox	High impact on small native animals

5.2 Fire

Many native ecosystems within Noosa are fire adapted, which in the absence of a suitable fire regime may reduce species (both floral and faunal) diversity. Council's bushland reserves contain 88.5% of fire adapted vegetation communities, with rainforest, saltmarsh and mangrove communities being the only native vegetation communities that haven't evolved to tolerate fire.

All other vegetation communities require fire of a certain frequency, intensity and time of year to maintain the assemblage of flora and fauna species typical of that community. For example, in the absence of fire heathland can become dominated by tall shrubs such as *Hakea actites* and trees such as *Melaleuca quinquenervia* with resultant loss of habitat for threatened species such as Ground Parrots (*Pezoporus wallicus*) and Christmas Bells *(Blandfordia grandiflora*).

In the absence of fire and in Noosa's wet climate, dry sclerophyll eucalypt forests can become dominated by rainforest species. The resultant increased shade and moist microclimate under the rainforest canopy limits recruitment of eucalypt species. In the longer term this leads to a loss of eucalypt trees and associated habitat for the range of fauna species dependant on it.

In contrast, some reserves adjacent to urban areas, such as Girraween Nature Refuge, have experienced arson incidents on a too frequent basis and at the wrong time of the year (usually October to December). This fire regime has had impacts on native plant diversity as obligate seeding plants are unable to flower and set seed before the next fire.

Fire risk in Council's bushland reserve network is managed through the *Noosa Bushland Reserve Strategic Fire Management Plan 2021-2026*, that has are two main objectives;

- Mitigate risks to life and property
- Maintain the ecology of fire dependant ecosystems

It is not possible to initiate fire management actions for all bushland reserves at once. A prioritisation methodology will be developed for each objective. In some cases management actions will be complimentary for both community risk management and ecological outcomes. In other cases the actions will be quite distinct.

The State Planning Policy (SPP) Bushfire Prone mapping identifies priority areas at a state wide level. The CSIRO developed the methodology based on vegetation type fuel load, slope and fire weather severity. The mapping identifies areas of medium, high and very fire hazard. The State mapping provides the strategic direction for prioritising fire management across the bushland reserve network.

The *Noosa Bushland Reserve Strategic Fire Management Plan 2021-2026* also reviews the condition of existing fire trails and propose new fire trails where required, as an effective fire trail network is a key action in the plan.
The development of fire trail and fuel reduction zone standards will guide Natural Areas staff and improve emergency response.

5.3 Nutrient Pollution

Reserves within the coastal area have sandy soils of low fertility. In these environments native plants have evolved to cope with low nutrient levels, particularly phosphorous. Impacts from human activities such as sewerage treatment outflow and stormwater runoff from urban areas within the coastal catchments, has led to nutrient enrichment (eutrophication) within many coastal waterways and adjacent riparian areas. This has favoured the growth of invasive non-native species at the expense of native species in areas such as Burgess Creek. Native species not known to occur in the referenced regional ecosystem can also outcompete endemic species.

Eutrophication has potential impacts on low nutrient adapted species such as acid frogs as the pH of the water body becomes less acidic.

Numerous bioretention basins, many originally installed as part of development applications, exist within the bushland reserves network. Bioretention assets are managed and maintained by Council's Natural Area's Team.

5.4 Human Impacts on Open Space and Urban Interface

Some reserves have been impacted by vegetation clearing by local residents lopping, pruning or poisoning vegetation. Generally such actions are undertaken by adjacent residents wishing to create improved view lines, encroaching into reserve land to increase their living area, or constructing pathways. This is particularly evident along the coastal strip, where the linear dunal reserve network has been significantly impacted.

Other impacts include unauthorised use of recreational vehicles such as 4WDs and trail bikes within the bushland reserve network with resultant erosion and increased sedimentation of waterways, as well as damage to Council infrastructure such as gates and signs.

In some reserves mountain and dirt biking activities have led to tracks and speed jumps being constructed by excavation and movement of soil.

Illegal dumping of green waste and household and construction waste has reduced in recent years through Council's proactive approach to dumping, but still remains an issue within parts of the bushland reserve network. On areas where dumping has previously occurred, significant garden weed infestations often now exist, that threaten biodiversity values within the reserve and require resourcing to eradicate.

Figure 12 - Dumping of garden waste within reserves remains a threat to bushland values

5.5 Human/Wildlife Conflict

A number of native fauna species have caused a level of angst amongst impacted residents, with flying fox camps in urban areas being the main concern.

Council also receives occasional customer requests to deal with magpie attacks, the noise from roosting rainbow lorikeets at night, and perceived threats from snakes.

Further, a number of non-native species also cause angst amongst impacted residents, including wild dogs, foxes, cane toads and cats.

6. Current Management Planning & Resourcing

6.1 Reserve Planning History

Managing Councils' bushland reserves for their biodiversity values actively commenced in the mid 1990's when Council's Weeds Inspector recognised that a range of invasive weed species were overtaking many reserves. Although the focus was on declared species under the then *Land Protection Act*, management also extended to some non-declared species in certain areas.

From 2000 onwards, additional Council staff were progressively employed to manage the bushland reserve network through both planning activities, and a range of operational activities addressing the pressures described in section 6. From 2007 to 2011, additional resourcing was directed into managing the bushland reserve network through developing reserve classification protocols, additional management plans, flora surveys, bushland operational assessments (BOAs) and on-ground management.

Since deamalgamation Council has undertaken additional BOAs on some of its reserves and has continued operational management of the bushland reserve network via Council staff and contractors. Noosa Council also has a fire management plan for its bushland reserves, to specifically deal with this aspect of reserve management.

Management resources have been prioritised over the last 2-5 years (2014-19) through a detailed prioritisation matrix where individual reserve values and threats were evaluated. Management Plans and BOAs have been the principle planning tools used to guide resource investment at the reserve level.

Numerous Ecological Restoration Plans have been developed and these plans contain BOAs as a primary guide to prioritising on-ground actions, however Council has identified the need to develop an overarching and consistent approach to planning and operational activities across our whole reserve system.

6.2 Reserve Tenure

The bushland reserve network comprises land parcels owned by Council as freehold land either purchased under the environment levy or longer term properties acquired for other purposes (such as landfill, sewerage treatment and compulsory acquisition following rate arrears). There are also many land parcels owned by the State Government with Council as trustee. State lands with Council as trustee includes developer contributions as part of a development assessment process and are generally gazetted as 'Reserves for Conservation'.

There are several State-owned reserves gazetted under the *Nature Conservation Act 1992* that have joint State/Council management arrangements in place. These are currently called Conservation Parks or Regional Parks

Some of the Council-owned freehold parcels have a Nature Refuge under the Queensland Government *Nature Conservation Act 1992* registered on title. Freehold lands with a Nature Refuge have a conservation agreement in place which stipulates that the owner must manage the land for conservation values.

Figure 13 - Tenure of Council-managed Bushland Reserves

Land Tenure	Area (ha)
Reserve (Council as Trustee)	1459.7
Free Hold	1203.15
Land Lease	0.77
State Land / USL (Council as Trustee)	16.33
National Park (Joint Management)	13.2
Road Reserve / Esplanade (Council as trustee)	775.85

Reserve tenure does have some influence over the management and rehabilitation actions that are permitted to occur within bushland reserves. In particular, freehold parcels allow for greater scope of protection mechanisms such as Nature Refuge declarations and they also provide greater scope of additional value-adding, such as facilitation of formal legislative biodiversity and carbon offsets.

Reserves that originate as part of a Development Assessment process may have 'on-maintenance' periods for ecological restoration actions covering several years as guided by formal flora and fauna surveys and management plans. Great potential exists for closer alignment to the development assessment process with regard to species data collection, and the formalisation of standardised management plans. This will avoid duplication and reduce the planning burden as new bushland reserves come on line.

6.3 Current Management Resourcing

6.3.1 Internal Council Investment

In 2020, Noosa Shire Council employs 6 staff to manage its bushland reserve network including managerial, technical and on-ground staff. The Natural Areas team works very closely with:

- Council Pest Management Officers - There is an active fauna (native and pest animal) monitoring program in place in a number of key reserves utilising sand plots and fauna cameras. Outcomes of this monitoring determine pest animal management activities.
- Community Bushland Care Officer - Manages the Bushland Care Program, funded through Council's Environmental Partnerships program. Approximately 60% of the sites included in the Bushland Care program occur on bushland reserves.
- Council's Parks & Gardens branch - Many Bushland Reserves abut Open Space recreational parks requiring interface management between teams. These can sometimes include mowing, tree and invasive species management.
- Council's Civil Operations team - A significant amount of drainage, pathway, beach access and bridge infrastructure occur within or adjacent to Bushland Reserves at times resulting in hydrological changes and debris accumulation.

NSC engages both internal staff and external contractors to undertake on-ground works in designated reserves.

Bushland reserves are generally inspected annually by staff.

6.3.2 Community Involvement

Noosa's community are passionate about the natural landscape they live in, and there are active community groups and a volunteer network working within Council's bushland reserves on a

variety of on ground projects. This effort adds value to that invested by Council, with significant biodiversity outcomes achieved on the ground to date.

There are currently 19 Bushland Care groups operating on 39 sites in Noosa Shire, with over 210 active volunteers. Of the 39 sites, approximately 60% occur within Council's bushland reserves. The other sites are generally within recreational parks, road reserves and National Parks. Bushland Care volunteers undertake activities such as removing invasive species and rubbish, revegetation and community education.

Figure 14 – Bushland Care group activities contribute significantly to the management of many bushland reserves.

Several community groups also seek external funding to undertake works within the bushland reserve network which can often yield large gains. An example is Noosa & District Landcare's Application during the 2014/15 financial year to undertake weed control works and infill native species planting at Yellow Belly Reserve in Cooran.

These have the potential to constitute a 1:5 value-adding result to Bushland Reserve Management. Similar examples can be shown with other groups and sites throughout the Shire.

From time to time, employment programs offering teams of workers are available for Noosa Council or local community groups to utilise. This can include Green Army teams (Commonwealth-funded) and Skilling Queenslanders for Work crews (State-funded). Numerous teams have been active within the Bushland Reserve Program over the last decade.

Provided efforts are strategic and well consulted, the work undertaken by community groups, volunteers and employment teams can achieve great results and can complement and greatly value-add the Council's efforts to manage a variety of reserve issues.

Figure 15 - Community Tree Planting Day at Kin Kin Entrance Bushland Reserve 2017, a component of a larger external grant acquired by Noosa Landcare for reserves in the Kin Kin area.

7. Noosa Reserve Management Framework 2021-2026

Council will follow best practice management principles throughout its Natural Areas Program.

Best practice bushland management principles are detailed in the *SE Qld Ecological Restoration Framework Guideline and Manual* (Chenoweth 2012) and are focused on developing ecosystem resilience. This is defined as the ability of an ecosystem to recover its structure and function following a disturbance event.

The five key principles are:

- Restored ecosystems incorporate assemblages of species reflecting those in reference ecosystems and have the potential to recruit further species by natural means;
- Restored ecosystems support the same structure and function as reference ecosystems;
- Restored ecosystems consist of indigenous species of local provenance to the greatest extent practicable;
- Restored ecosystems are self-sustaining to the same degree as a reference ecosystem, such that they are resilient to normal periodic stress; and,
- Restored ecosystems interact with the surrounding landscape and contribute to ecosystem services.

Of the four approaches to ecosystem restoration outlined in the manual, Council has adopted natural regeneration and assisted natural regeneration as priority approaches. This works best where evidence of ecosystem resilience is apparent within the reserve as determined by a Bushland Operational Assessment.

Where evidence indicates that ecosystem resilience is absent from a reserve or sections of a reserve, ecosystem reconstruction (revegetation/ direct seeding) may be necessary. However it can be an expensive option in relation to establishment and ongoing maintenance costs.

In most cases, assisted natural regeneration through targeted actions, such as controlling invasive species, is appropriate for Council's bushland reserve network. The intent within a reserve is to improve the resilience rating of all sites within the reserve over time, with a priority on working on

the best most resilient areas first. The exception to this is where outlier transformer weeds are present in a reserve and require control to prevent further spread.

Best Practice Guidelines and triage (looking after the best areas first) approaches to developing strategic works programs have guided the following Management Framework, Reserve Prioritisation and Management Program Category approaches.

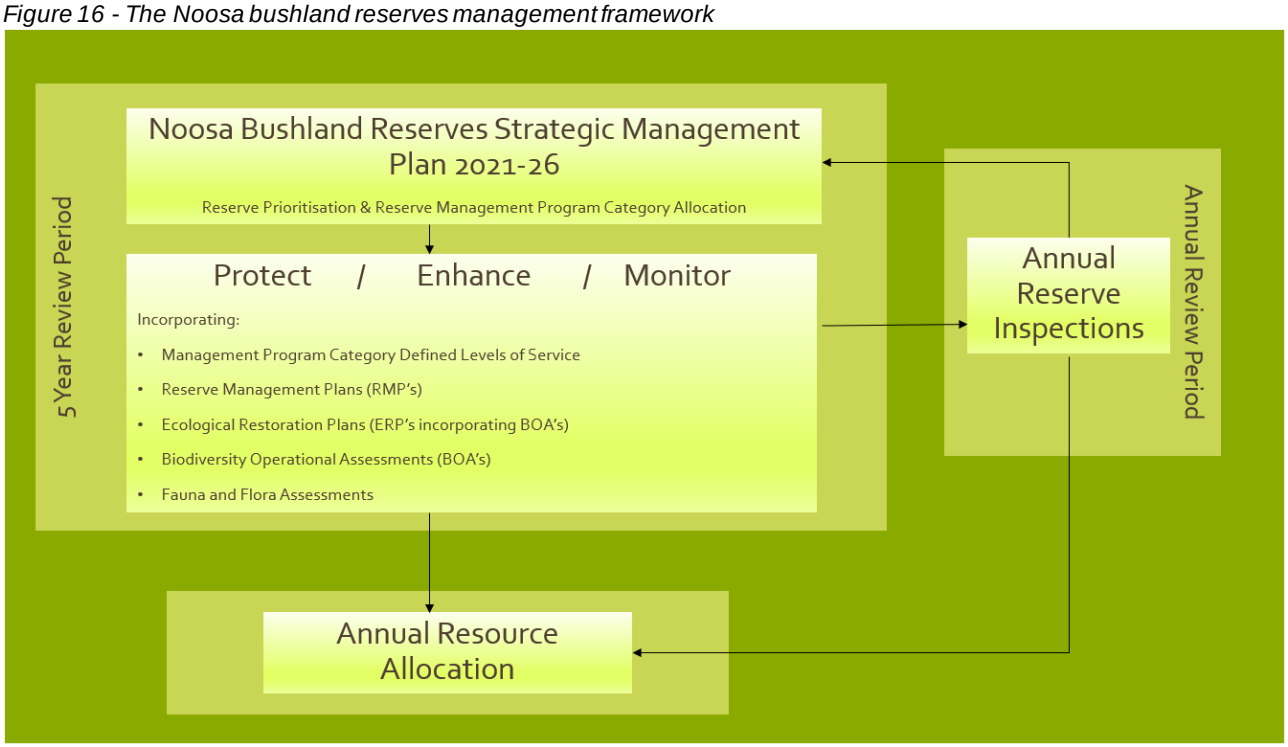
7.1 Formal Management Framework

A clear and transparent framework for planning is necessary to guide on ground works that achieve Council's objectives within the limited funding resources that exist.

A clear and transparent adaptive planning process also allows Council to track the progress of works against targets and change actions if necessary. Typical adaptive planning processes follow a *Plan – Do – Review* process, but most importantly, they need to include sound monitoring and evaluation components.

Figure 16 outlines the management framework that will be adopted for the Natural Areas program.

Figure 16 - The Noosa bushland reserves management framework



The Strategic level components of the Management Framework are:

1) **The Noosa Bushland Reserves Strategic Management Plan** (this document).

2) **Reserve Prioritisation**
A detailed analysis of the 178 reserves has been undertaken to identify where resources should be allocated. The process is informed by GIS analysis and Expert Panel review and data is housed in a formatted excel spreadsheet. Five tiers of reserve prioritization scoring within the prioritisation process are identified.

3) **Reserve Management Program Category Allocation**
The Reserve Management Program categories outline the management intent, planning response and on-ground effort allocated and planned for each reserve. They include the

categories of 'Protect', 'Enhance' or 'Monitor'. The Management Program Category identifies the anticipated and planned type, frequency and extent of management resources allocated to each reserve.

The intent of each Management Program category is as follows:

- *Protect Program*
  Aims to preserve the current vegetation condition of a reserve through the undertaking of minor restoration works (<5 years in duration) where necessary as a result of annual inspections and / or in accordance with a Bushland Reserve Management Plan if one is necessary for the site due to conflicting management issues.

- *Enhance Program*
  Aims to intensify, increase, or further improve the condition, value, and/or extent of vegetation within a reserve. Works undertaken in accordance with a current Bushland Reserve Management Plan (where one is necessary for the site due to conflicting management issues), and subordinate Ecological Restoration Plan and/or BOA.

- *Monitor Program*
  Aims to observe and check the trajectory and quality of vegetation condition of a reserve over a period of time. Annual Reserve Inspections occur, in accordance with a Bushland Reserve Management Plan if one is necessary for the site due to conflicting management issues.

  Reserves within each category may be allocated one or more of the following reserve planning mechanisms based on the reserve issues and restoration requirements are:

  a) *Reserve Management Plans (RMP)*
  Reserve Management Plans documents the values within the reserve, statement of management intent, threats (mapped condition assessment via a BOA), recovery potential, community uses, built assets construction and maintenance, and prescribes a broad five year schedule of on-ground works to address management issues. Further, the plans incorporate a Fire Management Plan.

  b) *Ecological Restoration Plans (ERP)*
  Ecological restoration plans guide the rehabilitation effort for subject reserves. The plans will provide a clear ecological restoration approach and targets through a Bushland Operational Assessment (BOA) process. Ecological Restoration Plans require review at 5 year intervals and provide discrete targets for monitoring overall achievement of the key objectives of the Reserve Management Plan.

  c) *Bushland Operational Assessments (BOA's)*
  BOA's provide detailed data on both the discrete landscape management units at the reserve level in addition to assigned condition/resilience scores and specific management actions for each management unit. BOA's follow a ridged structure allowing for the process to be repeated at 5 yearly intervals and provide comparable data on reserve condition improvement or decline over time.

4) Annual Reserve Inspection Reports
Reserve Inspections will be undertaken yearly for all reserves to inform Council of both proactive and reactive actions necessary for annual resource allocation and Work Orders.

7.2 Reserve Prioritisation Method

For its small size and ratepayer base, Noosa Council has a large area of reserve land to manage. This area is being constantly increased from Environment levy land acquisitions and developer contributions. The level of resourcing required to manage this land to the highest ecological standard is very high, and it is necessary to prioritise where the resources are best allocated to achieve the objectives indicated in Section 2.

The philosophy behind prioritising reserves to achieve the best biodiversity outcomes recognises that the best shire-wide biodiversity outcomes can be achieved by allocating resources to manage the more ecologically resilient reserves first. Implicit in this philosophy is the reality that some of the smaller, highly-degraded reserves, while still possessing biodiversity, waterway and social values, may never be able to be restored to an ecologically resilient condition without significant further resources.

Much study has occurred regarding the best method of prioritisation of individual assets for natural resources management purposes. Prior reserve prioritisation methods undertaken by Council have primarily utilised criterion focussed on value and threats. This approach however does not evaluate the technical feasibility of addressing known threats and nor does it attempt to understand the amount of resources required to effectively manage them.

A new Prioritisation Matrix and Decision Support Tool has been developed for this Plan. The tool contains elements of a method initially developed by Marsh *et al (*2007) that has been used recently in threatened species management optimisation in applications in Queensland and New Zealand. An outline and explanation of the justification and source of the assessment criterion of the Bushland Rating Matrix and Decision Support Tool is contained within Appendix 3.

The prioritisation system needs to be as simple and repeatable as possible and only include criterion which helps differentiate one reserve from another in regards to resource allocation. It principally utilises GIS data, including data layers recently produced for the *Noosa Biodiversity Plan Background Report*. Where existing data or GIS data was unavailable, data was determined by seeking the views of the Council officers who manage the entire bushland reserve network and have in-depth knowledge of the majority of reserves.

A variety of criterion were developed to provide scores for the following values:

- Biodiversity Value
- Waterway Value
- Carbon Sink Value
- Social Value
- Cultural Value

Data was collated to assist in the scoring of the potential for successful management outcomes, namely:

- Ecological Potential for Recovery
- Ongoing Management – Financial and other Costs of Management.

Weightings for each category of values was determined through a survey of an internal stakeholder group consisting of 16 people from Environmental Services, Strategic Planning, Development Assessment, Park & Gardens and Civil Operations staff for the Plan development within Council.

Figure 17 - Prioritisation Weighting

Reserve Values	Weight	Total Score
Biodiversity Value	47%	100
Waterway Value	24%	
Carbon Sink Value	7 %	
Social Value	12 %	
Cultural Value	10 %	
Potential for Successful Outcome	**Weight**	**Total Score**
Ecological potential for recovery	50 %	100
Ongoing Management – financial and other costs of management	50 %	

7.3 Reserve Prioritisation Results

The results of the prioritisation are captured within Appendix 4, and thus indicate the highest priority reserves for management consideration and resource allocation. The reserves are allocated a tier level with an allocation of '1' to identify the highest value scores, recognising reserve values and feasibility of ecological restoration, and a Tier allocation of '5' being lower scoring reserves. Figure 18 provides a visual summary of the prioritisation results across the entire Bushland Reserve Network.

Figure 18 – Map showing prioritisation results

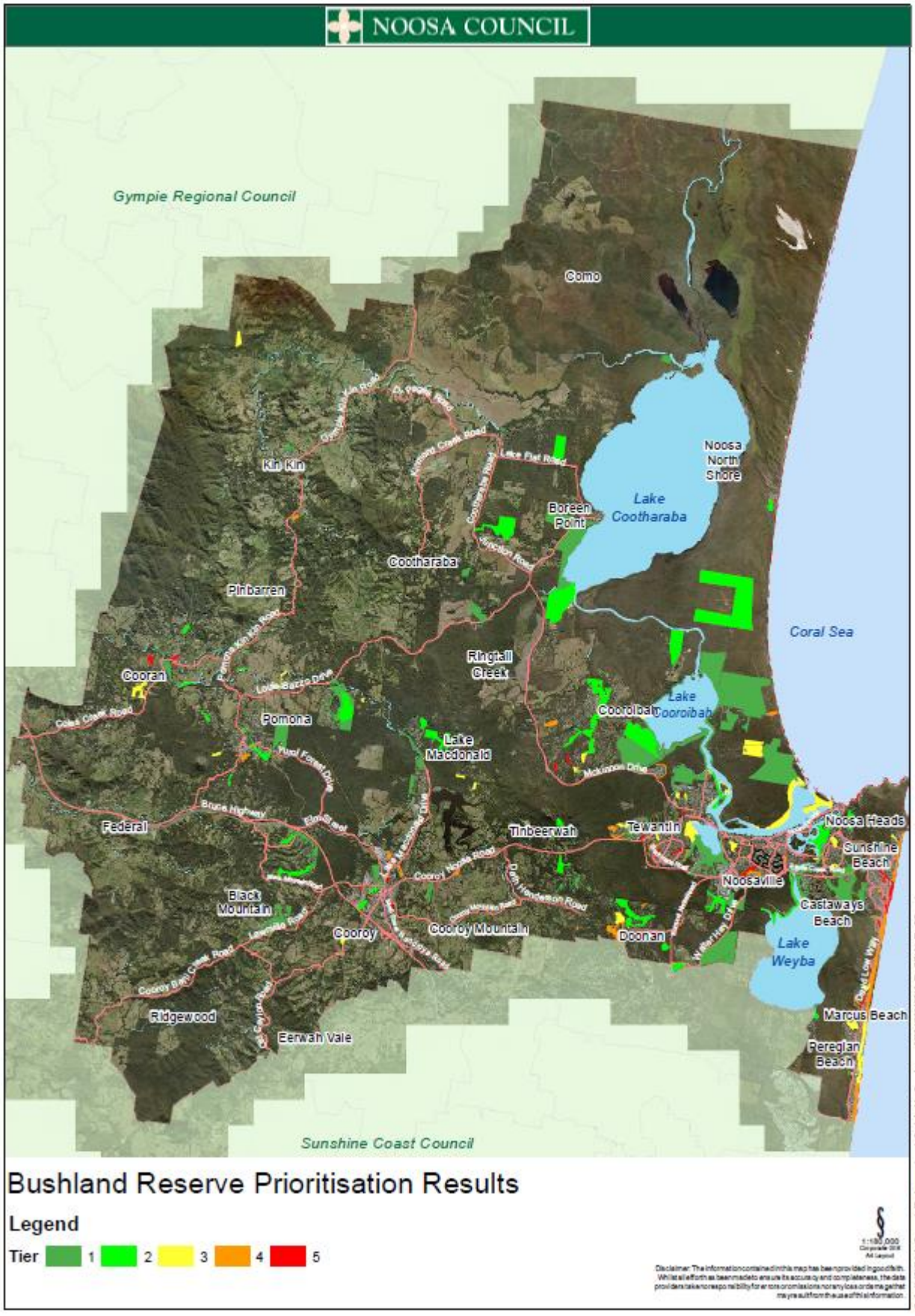
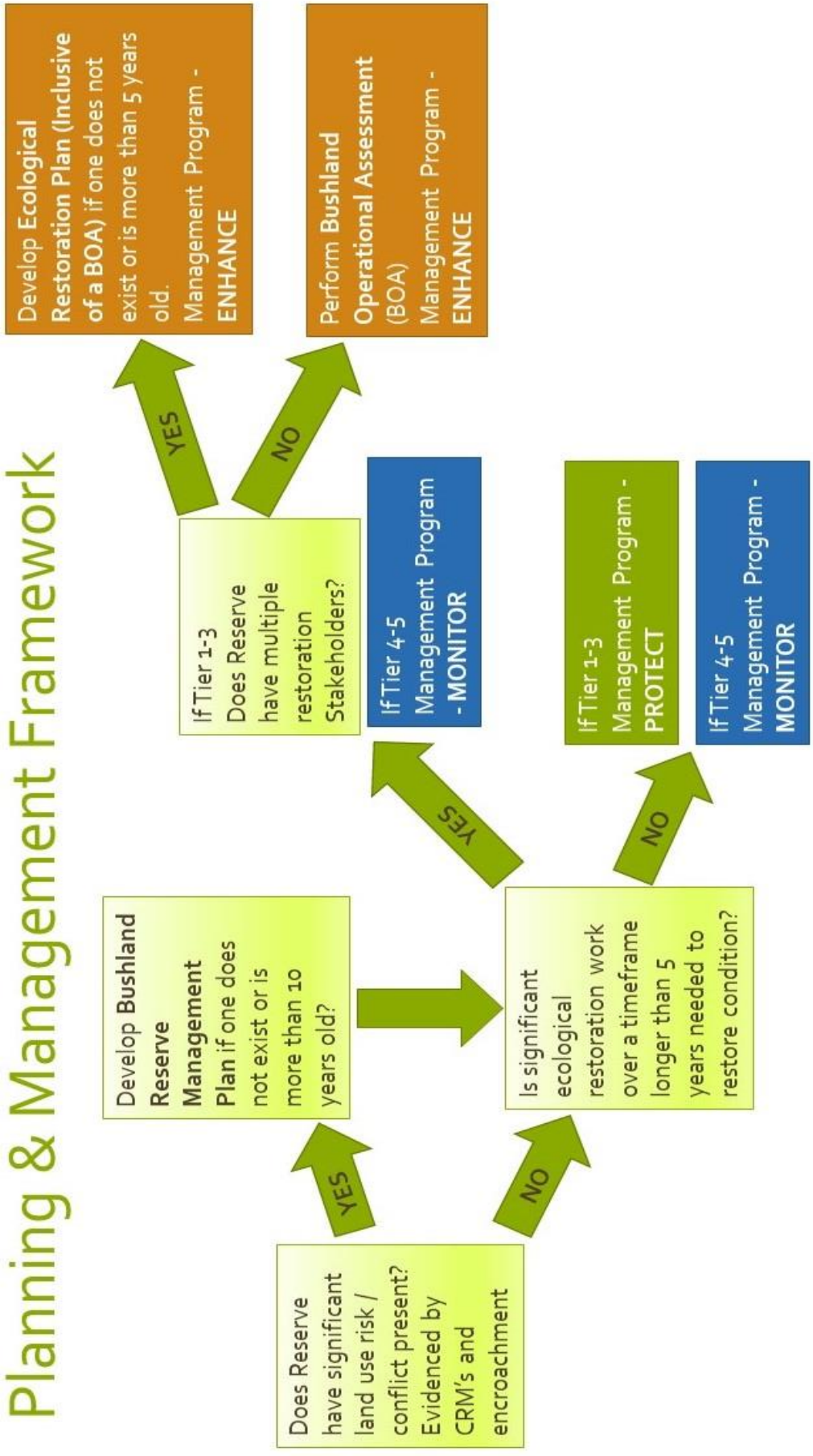


Figure 19 - Decision Framework for Management Program Category and Planning Mechanism allocation



7.4 Reserve Management Planning Mechanisms

Reserves within each Management Program category may be allocated one or more of the following reserve planning mechanisms based on the reserve issues and restoration requirements. The allocated reserve management categories and Planning Mechanisms for each reserve within the Noosa Bushland Reserve Network is identified in Appendix 5. Planning Mechanisms showing as red font have already been done and are current. Figure 20 provides a summary indicating number of reserves per tier, management program and planning mechanism.

Figure 20 – Reserve Management Program Category and Planning Mechanism summary

Prioritised Tier	Management Program Category			Planning Mechanisms			
	Enhance	Protect	Monitor	RMP	ERP	BOA	Nil
Tier 1	20	15	0	2	1	17	14
Tier 2	20	17	0	0	2	18	17
Tier 3	17	18	0	3	2	12	18
Tier 4	0	0	35	4	0	0	31
Tier 5	0	0	35	1	0	0	34

7.4.1 Reserve Management Plans

Reserve Management Plans should follow a standard template with the following:

- **Management Context**. Provides links to higher level Council plans and strategies, planning scheme designation, reserve tenure, legislative drivers, vision, objectives, allowable uses.
- **Values.** Describes the range of biodiversity, waterway, cultural and heritage values within the reserve.
- **Management Considerations**. Describes threatening processes within the reserve, Condition assessment (via a BOA), feasibility of achieving ecosystem resilience, Natural Hazards (i.e. fire risk, flooding, hazardous trees), Community engagement and education, building knowledge.
- **Management Actions.** Prescribed management actions linked to objectives and key performance indicators.

In reserves where fire management actions are required, the reserve management plans should include the following:

- Maps depicting fire hazard ratings within the reserve, sensitive ecosystems/features within the reserve (i.e. habitat trees, rainforest), zonation (i.e. zones to be fire managed for biodiversity and those zones to be managed as reduced fuel areas adjacent to built infrastructure) locations of fire trails and control lines, water points, escape routes, gates, turnaround areas.
- Text describing fire hazard ratings, fuel loads, built assets at risk such as adjoining housing, mitigating actions (creation of fire control lines, reduced fuel zones), recommended fire frequency, intensity and timing for maintenance of reserve biodiversity and community safety (including not using fire at all and provide alternative recommendations for reducing fire hazard), roles of external agencies such as QPWS, QFRS, and the rural fire brigades, community education.
- Action plan. Map showing staged fire management areas and timing over 10 years. Details of pre-fire preparation (fire trail construction and maintenance, rake fuel away from habitat

trees, seek permit, advise neighbours, ensure favourable climatic conditions i.e. ground moisture, wind speed, direction, humidity)
- Response to unplanned fire. Text describing actions to take in the event of unplanned fire from arson, lightning strike, etc.
- Maintain records of fire events within the reserve.
- Monitor and record response of vegetation/ fauna within the reserve from fire events.

7.4.2 Ecological Restoration Plans

Reserve-specific ecological restoration plans should contain the following:

- **Site description** - including location, size, tenure, geology and soils, aspect, topography, vegetation description, endangered, vulnerable and near threatened species and locations, landscape context, threats.
- **Bushland Operational Assessment** (BOA) - BOA with map that depicts the condition ratings (resilience) of specific zones within the reserve.
- **Restoration approach** - Recommendations for the appropriate restoration approach to follow (i.e. Natural regeneration, assisted natural regeneration, reconstruction, fabrication) noting one reserve may require a number of restoration approaches. A management zone map will indicate these restoration approaches.
- **Implementation schedule** – Prioritisation of management actions and timing over 5 years.
- **Monitoring and evaluation guidelines** - including undertaking BOAs at 5 yearly intervals to evaluate management actions. The change in condition rating (both overall and within specific management zones) should demonstrate the effectiveness of management activities. If not management action should be adapted accordingly.

7.4.3 Bushland Operational Assessments

The Bushland Operational Assessment (BOA) methodology for mapping resilience-based native vegetation condition within a patch of bushland was initially developed by the National Trust in Sydney in the 1980's. (McDonald 2000).

The intent of the mapping is to guide on-ground restoration works to improve ecosystem resilience. Assessing ecosystem resilience using this method requires the following:

- Knowledge of the resilience of the site's in-situ endemic flora species given natural disturbance regimes, e.g. how individual species react to fire.
- Knowledge of the impacts on the site (e.g. invasive species, nutrient pollution)
- Knowledge of how the site will respond to specific restoration treatments.

The mapping uses a set of 6 condition or resilience classes assigned to various portions of the site.

Figure 21 - BOA Condition Classes

Condition Class	Definition	Restoration approach
0 – Excellent resilience	All strata and species (for the reference ecosystem) are intact with evidence of recruitment. No invasive species or other threats evident. Will rapidly and fully recover from natural disturbance	Natural regeneration.
1 – Very Good resilience	All strata and species (for the reference ecosystem) are intact with evidence of recruitment. Signs of degradation becoming apparent, such as slight weed infestations. Will fully recover from disturbance but invasive species may increase.	Assisted natural regeneration
2 – Good resilience	All strata and species (for the reference ecosystem) are intact with evidence of recruitment. Invasive species or other disturbance starting to impact on native vegetation.	Assisted natural regeneration
3 – Moderate resilience	Although all native vegetation strata may be present invasive species are equally dominant.	Assisted natural regeneration
4 – Poor resilience	Invasive species dominate the site, although some native species are evident.	Assisted natural regeneration
5 – Very poor resilience	Large areas of the site do not contain any native species, site either cleared or dominated by invasive species.	Assisted natural regeneration and/or reconstruction
6.Nil resilience	No evidence of native plants or recruitment, soil substrate may be totally disturbed.	Reconstruction

Repeating the BOA at regular 5 year intervals allows Council to monitor how the reserve is responding to management actions and informs adaptive management. The below image demonstrates the visual and obvious changes that have occurred on the site between the two BOA's.

This process requires consistency in undertaking the condition assessments, as a change in resilience condition could be due to the assessor interpreting the site differently to how it was done previously.

Figure 22 - Change in resilience condition at Heritage Park from 2010 to 2018

7.5 Annual Reserve Inspection Reports

Reserve inspections will be conducted on a yearly basis and will capture:

- Vegetation condition and how it is responding to on ground works;
- Condition of any built assets (trails, paths, signage, bridges, tables, seats);
- Fire fuel loads if relevant;
- Any notable species observations; and,
- Encroachments via urban impacts and other pressures outlined above in section 6.

This information will be collected electronically and uploaded into a data system that generates work orders for action.

7.6 Service Levels

A level of service is the amount of resourcing Council will put towards managing a reserve to address its legal obligations, community expectations, level of threat, and the potential for biodiversity values to be maintained or improved. Levels of service capture both proactive and reactive actions.

Each service item within the Level of Service table has an estimated costing identified including plans, staff time, expenses and contracting costs.

Figure 23 - Annual Allocations - Levels of Service Table

Management Programs	Monitoring	Invasive species management
Protect	Annual inspection	As guided by management Plan and Annual inspection. Target all invasive species in reserve with <6 Labour days per annum
Enhance	Where ERP's or Boa's exist or are required – reviewed every 5 years. Annual inspection	Target priority biodiversity pest species only. Guided by ERP or BOA with <36 Labour days per annum.
Monitor	Annual inspection.	Target priority biodiversity pest species only

8. Operational Management Review

8.1 Management Planning Activities

8.1.1 Reserve Naming Convention Introduced

Within the Bushland Reserves database there are currently 16 different reserve naming conventions, however from the commencement of this plan the reserve names will be rationalised to 7 categories that clearly indicate the reserve tenure and purpose:

- Reserves with a Nature Refuge on title are [name] Nature Refuge
- Tier 1 to tier 4 reserves are called [name] Bushland Reserves
- Tier 5 reserves are called [name] Natural Amenity Reserves
- Reserves with a park (mown grass) component are named as [name] Park.
- Reserves designated for drainage purposes only are called [name] Drainage Reserves
- Reserves owned by Qld Parks and Wildlife Service with joint management with Council require clarification with the State regarding the naming protocols.
- Reserves designated exclusively as fire breaks are called [name] Fire Management Reserves.

8.1.2 Reserve Signage

Council will conduct a signage audit (via the annual reserve inspection) to identify the current status of reserve signage to inform replacement of signage that reflect the reserve naming protocols and Noosa Council's signage style and policy. In high priority reserves (tier 1) with high individual Social Values scores, Council will consider reserve naming and interpretive signage.

8.1.3 Reserve Protective Mechanisms

Council has previously nominated a number of freehold land parcels for gazettal as Nature Refuges under the Queensland *Nature Conservation Act*. Inclusion of reserves under this protective mechanism permanently protects the environmental values on the land from any future impacts that would compromise the biodiversity values and ecosystem services the reserve provides.

8.2 Management Resourcing Activities

8.2.1 External Investment Opportunities

Opportunities exist for Council to source external funding under State and Commonwealth programs to assist with managing reserves for threatened species recovery, and managing certain invasive species.

Within Noosa, many community groups have successfully obtained external funds to undertake on-ground activities within Council's bushland reserve network. Council will continue to work in partnership with the community to apply for external funding, with the understanding that when the funding for a particular project finishes, Council then has responsibility for managing that area into the future.

The attainment of external funding and the responsibility of protecting that investment may have consequences for future budget allocations so needs to be carefully considered before applying.

8.2.2 Offset Area Designation & Management Funding

Under Council's *Tree Management on Public Land Policy*, any trees removed during Council works operations are required to be offset at a local suitable receiving site. Ideally these offset receiving sites should be contained within Council-managed bushland reserves.

A large number of reserves have small areas of cleared land that may be suitable as receiving sites for a range of scales of offsets. These sites should be identified and earmarked as future offset receiving sites.

Bushland reserves with potential for medium to larger-sized offsets (> 1ha) include:

- Girraween Nature Refuge
- Kings St Bushland Reserve
- Edington Drive Environmental Reserve
- Black Mountain Bushland Reserve
- Boronia Bushland Reserve
- Bagnall's Bushland Reserve
- Ashgrove Bushland Reserve

Small offset receiving sites are best examined on a case by case basis and aligned with highest priority actions of local reserves where possible.

8.2.3 Regrowth Carbon Offset Investigation

A number of Council bushland reserves contain sizable stands of regrowth vegetation in various conditions, including Girraween Nature Refuge, Cooloothin Creek Nature Refuge and the Cooroibah Environmental Reserve and Conservation Park.

Council will investigate a formal Carbon Offset for a grouped multi-reserve consortium application for managed regrowth under the Commonwealth Department of the Environment and Energy's Emissions Reduction Fund or other possible voluntary carbon arrangements.

Investigations will need to consider costs for the Offset management, in particular auditing costs, however the funds received through the arrangement may increase financial resources available within the program.

8.3 Community Education and Engagement Activities

8.3.1 Community Education & Awareness

Council will proactively undertake community awareness raising via developing an informative website, brochures, factsheets, guided walks, landholder engagement programs such as Land for Wildlife, urban biodiversity programs, and interpretive and regulatory signage.

The intent is to raise the community's awareness and appreciation about the area they live in to facilitate behavioural change. This can encourage residents to grow local native species, not feeding wildlife, contain domestic animals and, reduce instances of illegal dumping, encroachment, vegetation removal, and vandalism.

8.3.2 Bushland Care Program

The Bushland Care groups have a long history of successfully obtaining external funding and committing to follow-up maintenance to a number of sites. Council will continue to support the community groups preferably guided by, but sitting independently of, the prioritisation and management recommendations within this Plan.

Resources will be allocated to improving the capacity of the Bushland Care Groups to undertake works to best practice standards in consultation with the local community and to aid in the attraction of external funding. This may include training workshops, grant writing support and assistance, and on-ground materials such as signage and flyers to local residents.

Figure 24 - Bushland Care Groups can be supported in a variety of ways and can enable valuable local community engagement

8.4 Operational Activities

8.4.1 Reactionary Issues – Customer Requests

The role of local government is to deliver services to its community. One of these services is to respond to requests from residents. In the context of managing bushland reserves these requests may relate to concerns over fire risk, trees dropping limbs, vegetation reducing amenity, and wildlife including pest animal species. Council manages many of these requests independently of the specified management programs, which focus on ecological restoration.

8.4.2 Invasive species management.

For reserves allocated the 'Protect' and 'Enhance' Management Category, the desired medium-term objective is to eradicate all invasive weed species from the reserves.

Weed control activities should be undertaken at the most effective times based on the target weed species life cycle with the intent to reduce weed seed production and exhaust the reserves of weed seeds in the soil.

Weed such as lantana that have some habitat values for native animals should be removed gradually (for example lantana thickets can provide suitable habitat for Black-breasted Buttonquail (*Turnix melanogaster*). The aim is to remove weeds at the rate of recovery of native species to avoid disruption to faunal habitat. Areas of exotic grasses such as setaria (*Setaria sphacelata*) may provide habitat for granivorous bird species such as finches so should not necessarily be slashed to "tidy up" the site.

For reserves within the 'Monitor' category, the intent is to monitor priority invasive species identified by the *Noosa Biosecurity Plan* or the 'transformer' weeds list and target if significant impacts are occurring.

Council Staff will be trained and accredited in bushland regeneration techniques, assessing bushland for resilience (BOA), best practice weed species management that minimises herbicide usage (particularly in urban areas or adjacent to waterways), fauna monitoring techniques, and data collection using electronic devices.

Contractors need to demonstrate that all staff are proficient in bushland regeneration and invasive species management and are operating using the same best practices as outlined within the *SE Qld Ecological Restoration Framework Guideline and Manual.*

Figure 25 - Council staff and contractors need to become proficient at field-based electronic recording of pest species and use of Council's Pest Management Database

8.4.3 Fire Management.

Noosa's bushland reserves contain many native vegetation communities that are fire adapted and in the absence of fire, may lose species diversity. Management of these reserves for fire is dealt with separately in the Noosa *Bushland Reserve Strategic Fire Management Plan*.

Extended periods without a fire in these native vegetation communities can lead to a large build-up of fuels (leaf litter and woody material) that create suitable conditions for intense fire with adverse impacts on biodiversity values, human safety, and the built environment.

The Queensland Herbarium's *Regional Ecosystem Fire Guidelines* 2016 are the recommended fire regimes for regional ecosystems and broad vegetation groups within South East Queensland.

In urban areas some smaller reserves have a medium to high fire hazard and present a potential risk to adjoining residents. Some reserves in these areas may not be able to be burnt at all due to health risks to adjacent residents from smoke, and the potential for a prescribed burn to escape containment lines with a change in wind direction. In these instances it is important to plan for a potential wildfire by ensuring fire trails are of adequate width for response crews to access the reserve to conduct firefighting activities.

In the absence of fire in many reserves containing fire adapted native vegetation there will be a change in plant species composition, e.g. reduced recruitment of eucalypts, an increase in rainforest species with an associated change in faunal species, and the dunal systems reverting to more mesic communities with a loss of *Banksia integrifolia*.

8.4.4 Recreational Trails

Council has an extensive network of trails within the hinterland (Noosa Trail network). This trail network is mainly within unmade road reserve so is outside the scope of this plan. However, a *Noosa Trail Masterplan* has been developed and is guiding future development and maintenance of the trail network.

Where the trail network passes through bushland reserves it should be inspected every 6 months at least and maintained regularly to prevent erosion, weed incursions, illegal campfires and damage to vegetation. Within the bushland reserve network there also exists a number of

recreational trails, for example the Cooloola Great walk commences within Arthur Harrold Nature Refuge.

8.4.5 Habitat enhancement

As indicated in Section 6, loss of tree hollows is a significant contributor to the ongoing population decline of many hollow dependant fauna species in SE Qld. Council will seek over time within suitable reserves (i.e. those not containing many arboreal and ground hollows) for nest boxes to be installed, and have a regular monitoring and maintenance program in place to ensure native fauna is utilising the hollows.

Additionally any woody material containing hollows that is removed from Council construction/ tree maintenance/ removal operations anywhere in the Shire, Council will endeavour to be relocated to suitable receiving sites within the bushland reserve network as ground habitat.

8.4.6 Collection activities

Collection of firewood, rocks, seed and plant parts from local government controlled areas or roads is a Prohibited activity under Subordinate Local Law No.4

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992*. The *Nature Conservation (Wildlife Management) Regulation 2006* regulates the taking (collection), propagation and trade of protected plants through a licensing system, administered by the Department of Environment and Heritage Protection. The Department of Environment and Heritage Protection's *Code of Practice* for the taking and use of protected plants sets out the standards and requirements for collecting protected plant material.

8.4.7 Addressing impacts from unauthorised use

Reserves that attract unauthorised recreational use from vehicles, trail bikes, and horse riders will be audited to ascertain the level of damage, frequency and type of use. In the first instance, attempts to engage with the people undertaking the activity will be made either via signage, media articles, direct communication if possible, or a letter box drop. If the impacts continue, signage, fencing, rock placement and locked gates may be required. An increased level of reserve inspections from annually to monthly may also be necessary.

Under Council's Local Law 4, compliance actions may be required if the impacts continue.

8.5 Building Reserve Knowledge Activities

Noosa Council's bushland reserve network encompasses a large diversity of ecosystems and associated flora and fauna species. The full diversity of ecosystem types and species assemblages within this bushland reserve network is unknown. It is recommended that Council build this knowledge so that the reserves can be managed to maintain populations of threatened species.

The following activities will be implemented:

- Council Natural Areas staff will be trained and accredited in bushland regeneration techniques, assessing bushlands for resilience (BOA), and electronic data collection of fauna and flora species, particularly EVNT species, occurring within the bushland reserve network.

- This includes opportunistic observations as well as targeted surveys via fauna cameras and acoustic monitoring. These records should be uploaded into a formal database such as

Wildnet.

- Contractors working within the bushland reserve network will be encouraged to record and provide Council with opportunistic EVNT species observations.

- Refining of the current vegetation (Regional Ecosystem) mapping within the bushland reserve network and forwarding this information to Qld Herbarium, as the current State Government mapping is inaccurate in some areas.

- Natural Areas staff will formally map invasive weed species on reserves via Council's internal Pest Mapping program within Arc Esri Collector App.

- Encouraging the community to participate in citizen science activities such as the Glossy Black-Cockatoo birding day.

9. Action Plan

The Action Plan reflects management actions across the breadth of the Natural Areas Program and incorporates desired outcomes of the various Commonwealth, State, Regional and Local planning and legislative requirements and the *Noosa Environment Strategy*.

The Action plan relates directly to the *Noosa Council Environment Strategy*, the *Noosa Local Government Area Biosecurity Plan 2020-25*, and the *Noosa Koala Conservation Plan 2016*.

The Action Plan is categorised as follows:

- **Management Planning Activities** - The Bushland Reserve Management Framework is Strategic and Efficient.
- **Education & Engagement Activities** – Management threats and impacts to reserve values are reduced through effective engagement with the local community through education and awareness.
- **Operational Activities** - Bushland reserve values are protected, maintained or improved through best practice management.
- **Building Reserve Knowledge Activities** - Enhancing knowledge and data of bushland reserves and improving data collection and maintenance.

Ref#	Plan Actions	Strategic Link	Responsibilities	Additional resources required	Status
1.1	Develop comprehensive digital templates for: • Reserve Management Plans, incorporating full Fire Management Plans. • Ecological Restoration Plans • Bushland Operational Assessment's (BOA's) • Annual Inspection Reports	FMP* ES BP	Council	Ongoing	Underway
1.2	Develop new and keep up-to-date Reserve Management Plans for reserves specified in Reserve Management Program Category and Planning Mechanism allocation 2021-2026	FMP* ES BP	Council	$15,000 per reserve (or reserve aggregation) Aggregate Dunal Foreshore Reserves into Coastal Management Plan (An action item from ES)	Not Commenced
1.3	Undertake and keep up-to-date Bushland Operational Assessments for reserves mentioned (Figure 19) and use this information to develop Ecological Restoration Plans.	ES BP	Council	BOA -$1000 per reserve (27 reserves) ERP -$2,500 per reserve (2 reserves) $35,000	Not Commenced
1.4	New reserves acquired by Environment Levy Program have Management Plans and Ecological Restoration Plans (if identified through Decision Framework) developed as part of the site acquisition expenses prior to transference to the Bushland Reserve portfolio.	FMP* ES BP PLCG	Council	As per rates specified REF# 1.2 & 1.3	Underway
1.5	New reserves emanating from the Development Assessment process within Council have Management Plans and Ecological Restoration Plans (if identified through Decision Framework) developed according to standard Council templates and funded by developers prior to transference of the property to the Bushland Reserves portfolio.	FMP* ES BP NP	Council	As per rates specified REF# 1.2 & 1.3	Underway
1.6	Develop a bushland reserve recreation guide (printed or digital / online) for reserves that are suitable for nature-based tourism activities	Noosa Sport and Active Recreation Plan 2017 ES, Noosa Trail Master Plan	Council, Tourism Noosa	TBC	Not Commenced
1.7	Permit and data storage process developed for native seed collection and other activities within Council Reserves.	NSC Local Law 4	Council	As part of staff duties	Not Commenced
1.8	Council directly seeks external grant funding, employment teams	ES	Council	As part of staff duties	Underway

	and informal offsetting investment to enhance program investment.	KCP			
1.9	Investigate and identify reserves to be used as receiving sites to offset Council tree removal and habitat breeding area disturbance.	NBCP KCP	Council	As part of staff duties	Not Commenced
2.0	Current reserve signage is audited. Interpretive, educational and advisory sign project developed. A signage theme is developed that reflects Noosa Council's brand and ethos.	Signage Policy	Council	As part of a New Initiative	Not Commenced
2.1	NSC proactively undertakes community awareness raising via developing an informative website, brochures, factsheets and guided walks. In particular regarding: • Invasive weeds and appropriate removal techniques; • Flora and fauna values of the reserve network; • Specific reserve asset information.	ES	Council, Community Groups	Grant funding to community groups to deliver an extension service. As per staff duties and volunteer contributions,	Not Commenced
2.2	Conduct regular arborist inspections as part of a Hazardous Tree Management program at key sites where property or life risk exists. Maintain a register that records location, species, and tree condition at each inspection.	NC Tree Management on Public Land Policy 2018	Council	As part of staff duties	Underway
2.3	Protect Non-Aboriginal and Aboriginal heritage objects and places from activities within bushland reserves, including assessing in association with Historians (Non-Aboriginal Heritage) and Traditional Custodians (Kabi Kabi Traditional owners)	Cultural Heritage Duty of Care. ES	Council	ongoing	Not Commenced
2.4	Refine the current vegetation (Regional Ecosystem) mapping within the reserve network and forward this information to Qld Herbarium	ES	Council	As part of staff duties	Not Commenced

ES – Noosa Shire Council Environment Strategy
KCP – Koala Conservation Plan 2016
BP – Noosa Local Government Area Biosecurity Plan 2019
FMP – Noosa Shire Fire Management Plan 2014/15
CCAP – Climate Change Adaptation Plan
BLCG - Bushland Care Group Guidelines

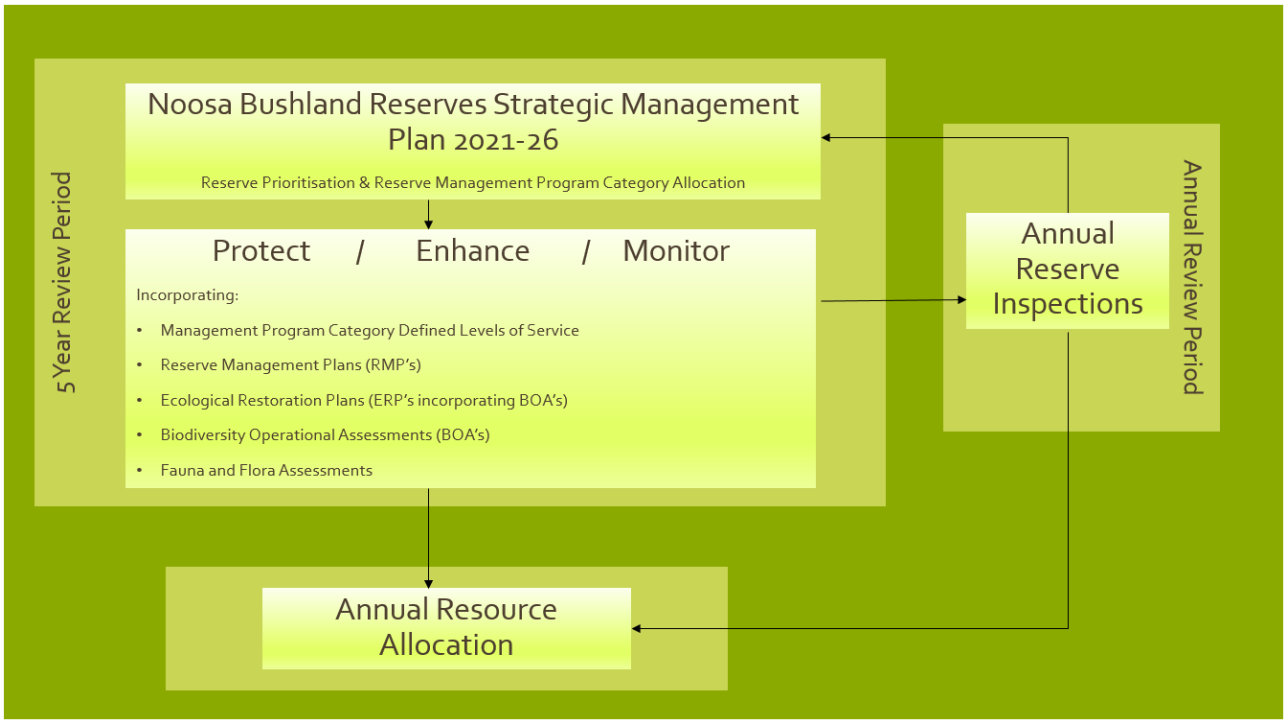
10. Monitoring & Evaluation Strategy

The monitoring and evaluation Strategy for the plan aligns with the Management Framework and is illustrated on in Figure 26.

It comprises:

1) The Reserves Strategic Plan review and evaluation at a 5 year interval
2) An Annual Reserve Assessment and Budget Review

Figure 26 - Noosa Bushland Reserves Planning Framework



10.1 Noosa Bushland Strategic Plan Review

The Noosa Bushland Reserves Strategic Plan will be formally reviewed in 5 years' time to ensure that new information and changing priorities can be incorporated into its programs for action. The Action Plan will be reviewed annually during the development of the budget, to ensure the priority actions are still current, and to consider any emerging issues.

Ref#	Objective	Key Performance Indicator	Measure
1	Protect and improve biodiversity values within the bushland reserve network using best practice management.	Ecological Condition of reserves & EVNT monitoring shows no net decline.	Condition change within BOA's and Expert Panel Scores
2	Contribute towards improvement of water quality within the Noosa River, Mary River and coastal creek catchments.	Active erosion areas and ground cover issues identified in any Ecological Restoration Plan or Annual inspection are fully addressed.	Annual Inspection work orders related to water quality maintenance are prioritised and fulfilled.
3	Identify and protect Indigenous and European cultural heritage sites within the reserve network.	No net loss of identified Indigenous or European sites.	Cultural heritage site mapping remains unchanged.
4	Develop and foster partnerships with the community.	Bushcare Groups and Community Group involvement in on-ground reserve management activities is increased in number and scale.	Number of volunteers, groups, resource value adding ($'s) and number of sites.
5	Manage hazardous vegetation, bushfire, flooding and pest species within the reserve network according to Council's policies, plans, risk management procedures and legislative requirements.	Threats to Council's reserves are managed and reduced.	Number of threat based reactive work orders and BOA change.
6	Provide opportunities for outdoor recreational activities that are compatible and complementary with natural and cultural heritage values within the reserve network.	Improvements in the Noosa Trail network with Bushland Reserves, local pedestrian access and open space areas are made without loss of biodiversity or other reserve values.	Recreational Use and Condition change.
7	Work with bushland reserve neighbours to achieve mutually beneficial biodiversity and community safety outcomes.	Inclusion of adjoining landholder consultation for Reserve Management and Ecological Restoration Plans and the reduction in reactionary customer requests / complaints.	Consultation actions and customer requests. Conditions change (BOA)
8	Identify and implement carbon sequestration and preservation activities within the reserve network.	Non-vegetated and non-recreation areas of the Bushland Reserves Program are utilised for Carbon Sequestration.	Area planted for carbon sequestration

Figure 27 - Noosa Bushland Reserves Strategic Plan objectives, KPI's and measure.

10.2 Operational Works Review

10.2.1 Annual Reserve Assessment and Budget Review

All reserves within the bushland reserves network will have an annual inspection whereby progress against the Reserve Management Program Classification and Ecological Restoration Plan (where relevant) can be gauged and any proactive or reactive actions can be identified.

Reserve inspections will be conducted on a yearly basis and will capture:

- Vegetation condition and how it is responding to on ground works;
- Condition of any built assets (trails, paths, signage, bridges, tables, seats);
- Fire fuel loads if relevant; and,
- Any notable species observations.

This information is collected electronically and uploaded into a data system that generates work orders for action. Annual Inspections will directly feed any necessary work actions into the Annual Budget allocation process where such actions are warranted.

10.2.2 Expert Panel Condition Assessment Reviews

As part of the Reserve Prioritisation Process for this Plan, Noosa Council Natural Areas staff assessed all reserves within the program against criteria for Condition, Invasive Species presence and feasibility for rehabilitation.

For reserves that have had a Bushland Operational Assessment, will more accurately be able to measure condition change, the Expert Panel process is recommended to repeat at the 5 year mark to gauge the condition of the remainder of the bushland reserve network.

Comparison between the 2019 and 2024 scores will identify if any change in resilience condition, weed infestation and consequential rehabilitation resource feasibility exists.

10.2.3 BOA / Ecological Restoration Plans

Biodiversity Operational Assessments (BOA's) are the predominant ecological monitoring tool for measuring change at the Reserve level where they are required according to the Reserve Management Program category.

Repeating the BOA at regular 5 year intervals allows Council to monitor how the reserve is responding to management actions and inform adaptive management processes.

11. References

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12. Appendices

Appendix 1 – Noosa Bushland Reserves (Full List)

NAME	AreaSqM	LOTPLAN
Active Riders Ground Reserve	19694.788	117MCH5050
Alec Loveday Bushland Reserve	12614.55078	603SP120122
Alex Dan Bushland Reserve	29884.68348	1RP216837
Alyxia Nature Refuge	229060.73	10RP865221
Arthur Harold Nature Refuge	3261837.153	6RP135678
		34SP215025
		3RP135678
		7RP135678
		5RP135678
Bagnalls Bushland Reserve (changed from Acacia Lane)	30016.33	100SP233492
Beach Park Noosa North Shore	41438.04517	27T16312
		47SP215028
Beach Road Nature Refuge	284030.693	900SP186169
Bill Huxley Nature Refuge	1762772.23	52SP215037
		26RP25570
		27RP25570
Binalong Bushland Reserve	12825.93628	20RP817358
		218MCH748
		19RP817358
Black Mountain Bushland Reserve	34329.10278	110RP896928
		6SP223694
Black Mountain School Park	1021.345703	6RP227335
Booyong Drive Bushland Reserve	351110.364	107SP248179
		103SP199350
		101SP177950
		102SP177950
		106SP248179
		105SP248179
		104SP241367
		100SP177950
Boronia Bushland Reserve	562539.375	36SP103599
		39SP152355
Brushtail Bushland Reserve	5312.430176	1021CG4155
Buffalo Bushland Reserve	1727.349854	48RP908665
		44RP59216
Bursaria Bushland Reserve	3676.883301	578MCH5292
		10MCH5425
Calanthe Bushland Reserve	54724.54	15SP223007
Cambridge Bushland Reserve	1866.91333	50RP863250
Caribbean Bushland Reserve	8070.213135	263CP897237
Carriage Way Bushland Reserve East	26146.1084	102SP178333
		101SP178333
Carriage Way Bushland Reserve West	19750.61304	200RP862543
		36RP894921
Carruthers Natural Amenity Reserve	8383.695313	99RP881300
Castaways Beach Foreshore Reserve	316617.512	159CP839188
		100SP111721

Cedar Gully Bushland Park	58553.7229	995RP906094
Chestnut Court Natural Amenity Reserve	5366.834473	1M11115
Clearview Drive Bushland Reserve	26362.42188	15RP852017
Coconut Grove Natural Amenity Resereve	894.9365234	132CP852091
Collwood Bushland Reserve	25165.23535	100SP158846
Cooloothin Creek Bushland Reserve	37916.93701	210CP840281
Cooloothin Creek Bushland Reserve East (franz land)	1061303.79	25SP104706
Cooroibah Creek Natural Amenity Reserve	23320.97729	704SP129573
Cooroibah Creek Park	36246.69035	703SP129573
Cooroibah Environmental Reserve	331848.2063	2RP136234
Cooroibah Regional Park	1629609.52	2RP165434
		4RP136234
		121RP100974
		2RP111976
Cooroora Creek Bushland Reserve - Songbird	109627.1648	101SP177645
Cooroora Creek Park	86781.4	37RP63022
		2RP122335
		14RP35080
Cooroora Creek Park riparian area	13941.74	37RP63022
		2RP122335
		14RP35080
Cooroora Mountain Bushland Reserve	31508.54224	65SP213106
Cooroy Creek Bushland Reserve	32776.42	1RP153299
		234MCH4082
		157MCH4833
		2RP153299
		5SP213104
		2RP47020
		7SP173771
		206MCH2365
		214MCH2386
Cooroy Creek Bushland Reserve - Marara Street	175529.56	4RP32778
		1SP242414
Crank Crt Bushland Reserve	5814.88	503RP869156
Cranks Creek Park	46098.045	6RP807208
		504RP869156
		503RP869156
Creek St Bushland Reserve	47064	10RP35098
		11RP35098
		12RP35098
		13RP35098
		14RP35098
		1RP35098
		20RP800332
		24RP35098
		26RP35098
		27RP35098
		28RP35098
		29RP35098
		30RP35098
		31RP35098
		3RP35098
		4RP35098
		5RP35098

Croziers Bushland Reserve	38712.32349	4RP902775
Cudgerie Common Bushland Reserve	235703.2886	986SP101378
		985SP111723
		994SP237588
		981SP125257
		989RP907721
		978SP157049
		979SP157049
		990RP907721
Dame Patti Bushland Reserve	10512.01416	28MCH4716
David Street Bushland Reserve	7198.228516	19RP901982
		45SP107909
Dianella Court Drainage Reserve	37815.03711	900SP176968
Dolphin Bay Drainage Reserve	16446.28589	225RP848432
		400RP810724
Doonella Wetlands Nature Refuge	229834.4033	299MCH1042
		6RP202272
		1RP96489
Douglas Bushland Reserve	13709.59644	6SP215228
		33SP100812
		16MCH4768
Dr Pages Natural Amenity Reserve	4456.268555	3RP885196
Driftwood Bushland Reserve	15689.854	503CP888721
		261CP897237
		504CP888721
Edington Drive Environmental Reserve	382218.3213	100SP159617
		102SP208642
		103SP208642
Eenie Creek Bushland Reserve	204679.1799	500RP224720
		901RP861527
		902SP163309
		203RP903971
		900RP861527
		501RP224720
		904SP163309
		204RP903971
	26801.52372	903SP163309
Eenie Creek Bushland Reserve - Walter Hay Drive	113504.5693	3SP182845
	115697.4071	5SP222982
Factory Street Bushland Reserve	11487.75635	3RP35077
Falls Creek Bushland Reserve	41919.15601	100SP129562
		101SP129562
Fellowship Drive Bushland Reserve	91757.02905	77SP177938
Ferry Park Natural Amenity Reserve	5567.108643	371MCH4432
Figtree Natural Amenity Reserve	22544.70361	18SP221473
Flagship Natural Amenity Reserve	11008.87	17CP907131
		501CP882292
		263CP897237
		502CP888722
Flooded Gum Bushland Reserve	176657.6233	977SP157049
		983SP110906
Forest Acres Bushland Network	401154.3877	19RP224529
		100SP230065
		56SP103503

		55SP103503
		57SP129565
		58SP129565
		76RP840204
		53RP908175
		13SP110381
		26RP885219
		54RP908174
		12SP110381
		52RP905955
Fourways - Noosa Banks Riparian Reserve	115491.54	376MCH4559
		706SP129573
		702SP129573
		703SP129573
Frogmouth Bushland Reserve	95323.53564	100SP167229
		1RP171784
		2RP168290
		1RP168291
Frogmouth Bushland Reserve East	3508.484863	9SP221477
Galloways Bushland Reserve	14227.04932	300RP858522
Girraween Nature Refuge	1245342.771	1RP146310
		1SP239726
		9SP252905
		800SP252905
Gleneagles Bushland Reserve	19907.61963	900SP171711
		0SP176866
		900SP171711
		244MCH4350
Glenridge Bushland Reserve	72575.27686	99RP860577
George Street Bushland reserve	27279.83	900SP284471
Gympie Street Esplanade	9944.24	
Harlow Bushland Reserve	41165.0813	247MCH4387
Heathland Bushland Reserve	39498.479	991RP903853
		51RP903853
		502RP905749
		501RP868302
		992RP903853
Heritage Park Bushland Reserve	179987.0554	986RP897884
		985RP903403
		271MCH4647
		237MCH4283
		994RP860583
		991RP886723
		989RP897864
		993RP885233
		101RP855995
Homebase Bushland Reserve		AAP20973
Illoura Bushland Reserve East	107463.6594	31SP110325
Illoura Bushland Reserve West	88736.27393	33SP115870
		31RP908172
		32RP908172
Kauri Bushland Reserve	11813.3606	5CP889589
Kin Kin Arboretum Park	26922.46265	240MCH802648
		401MCH1048

Kin Kin Creek Bushland Reserve	85742.66748	296MCH987
		296MCH987
Kin Kin Creek Environmental Reserve	49765.26733	102SP148789
		101SP148789
Kin Kin Entrance Bushland Reserve		14SP253952
Kin Kin Old Landfill Site	92014	
Kings St Bushland Reserve	56303.96	100SP241388
Kingsgate Bushland Reserve Network	121945.2253	92RP891146
		95RP891143
		75RP200340
		94RP891143
		96RP858042
		95RP886676
		97RP858042
		93RP891146
Lake Cooroibah Esplanade	42016.09849	50SP110391
Lake Cootharaba Bushland Reserve	1115438.604	277MCH2958
		276SP140491
		300SP140491
Lake Doonella Bushland Reserve	759693.1772	5USL30950
		1RP802360
		504SP108677
		900SP190381
		71RP41223
		500RP867858
		2RP129288
		2SP104709
		22RP228935
		0SP142399
		502RP867858
		505SP108677
		503SP108685
		900SP221501
		1SP190381
		900SP190381
		503RP869156
		901SP221501
		901SP274003
		902SP274018
		903SP221501
		903SP274003
Lake Flat Rd Bushland Reserve	364292.99	4RP803972
Lake Weyba Drive Riparian Area	228454.2024	16SP100715
		51CP913574
Lakeside Bushland Reserve	57858.70679	51SP110391
		50SP110391
Liane Bushland Reserve	93582.51904	50RP899381
		279MCH3986
Livistona Bushland Reserve	370415.4575	885CG4618
		409RP887985
		401RP836908
		400RP836908
		412SP103439
		407RP856752

		406RP856752
		411SP103439
		410SP103439
Lomandra Place Bushland Reserve	22308.54	270MCH4647
		997RP860582
Lowry Bushland Reserve	93529.12012	1P93153
		4MCH842781
		4MCH842781
		141P93141
		2MCH4837
		142P93146
		357P93145
Lyndhurst Natural Amenity Reserve	10865.08887	50RP883855
		17RP225101
Mackerel Street Foreshore Reserve	6752.502197	25T9242
Mahogany Bushland Reserve	20136.73022	3M11114
		9M111111
Marcus Beach Foreshore Reserve	128437.1284	159CP839188
Marcus Creek Bushland Reserve	31533.89233	6M111116
		7M111117
		7MCH842016
Mary River Rd Bushland Reserve	8012.36	11SP246688
Mary Street Natural Amenity Reserve	6528.476563	82RP36937
		94RP36937
		84RP36937
		86RP36937
		85RP36937
		93RP36937
		83RP36937
Moonare Bushland Reserve	10719.67212	308RP182275
Moonbeam Bushland Reserve	4287.710205	950CP900487
Murdering Creek Bushland Reserve	30215.42773	14MCH5262
		4MCH5262
Noosa Northshore Esplanade	18172	
Noosa Northrise Future Bushland	49540.198	901SP221502
		900SP221502
Noosa River Esplanade	5199.145634	371MCH4432
	1602.490243	50RP863250
	652.007511	22MCH4733
Noosa Woods Foreshore Reserve	310179.0662	114MCH839107
		115MCH839107
North Shore Environmental Reserve	4279828.998	7MCH4562
Nylana Bushland Reserve	199075.4478	102SP114688
		103SP119126
		104SP138534
		101SP139161
		13SP236303
		14SP110329
		100SP139161
Oak Bushland Reserve	6064.184814	101SP185671
Orient Bushland Reserve North	10115.32299	217RP135364
Orient Bushland Reserve South	10538.71191	211RP135363
		6N21840
Osprey Park	29648.58447	159CP839188

Pacific View Bushland Reserve	103018.76	102SP281455
Palm Grove Bushland Reserve	26820.00781	246MCH4385
Park Road Foreshore Reserve	13750.29	
Pearsons Drainage Reserve	29009.8042	51SP230052
		100SP170292
		100SP112631
		101SP208264
		52SP218735
		50SP230052
Penda Scrub Nature Refuge	81273.6438	12RP908915
Peregian Beach Foreshore Reserve North	296514.4729	159CP839188
Peregian Beach Foreshore Reserve South	197866.3921	4CP864962
		5CP864962
		7CP864962
		6CP864962
		159CP839188
Peregian Creek Reserve	21989.40698	26SP104277
Pig Island Esplanade	31440.22852	386MCH1667
Pinaroo Park Bushland Reserve	62528.1167	84SP248300
		15RP129286
		14RP129286
Pioneer Road Bushland Reserve	19228.86816	4SP129576
Quarry Track Bushland Reserve	370114.679	49SP215032
Rainforest Court Bushland Reserve	3839.842529	999RP810610
Read Park Bushland Reserve	11894.15796	85T1632
		14SP295888
Redwood Avenue Natural Amenity Reserve	9882.293457	5M11117
		4M11114
Reef Street Bushland Reserve	9016.652588	961RP888261
Renshaw Bushland Reserve	2761.050293	130RP894894
Rifle Street Natural Amenity Reserve	2887.328857	13P5015
Ringtail Bushland Reserve East	10610.75537	1RP35103
Sandalwood Close Natural Amenity Reserve	1872.37085	2M11116
Satinay Bushland Reserve	37489.95996	269MCH4563
Senegal Rise Natural Amenity Reserve	11783.30664	403RP836922
		402RP836922
Sheep Island esplanade		
Shorehaven Bushland Reserve	67201.13477	930RP880347
		909SP236313
Silverwood Bushland Reserve	23950.87842	105RP888476
		107RP893431
Six Mile Creek Bushland Reserve - Cooran Section	34979.65112	346MCH3970
Six Mile Creek Bushland Reserve - Forest Acres	163503.1914	62RP809837
		73RP813404
		30RP224527
		990RP899401
		58RP800432
		99RP883871
		2RP191238
Six Mile Creek Bushland Reserve - Lillywhites	8099.098877	20SP149229
		8RP805128
Six Mile Creek Bushland Reserve - Plantation Lane	16122.72485	11RP913570
		10RP913596
Six Mile Creek Conservation Park	134133.6504	348MCH974

Smedley Drive Bushland Reserve	37495.36157	3RP900971
		100SP137437
		4RP900971
Songbird Drive Bushland Reserve	1309.48	102SP177645
		103SP187321
Southern Cross Bushland Reserve	3979.52	669RP227918
Stormbird Bushland Reserve	3261.096436	47SP107909
		44SP107911
Straker Drive Natural Amenity Reserve	6955.003662	102SP213111
Sundial Bushland Reserve	57138.8	900RP869127
		275MCH3932
Sunrise Beach Foreshore Reserve	107110.2593	149RP130983
		159CP839188
		159CP839188
Sunshine Beach Foreshore Reserve	144112.157	159CP839188
		9RP862531
		717RP48111
		51RP81810
		7MCH5211
		149RP130983
Symplocos Environmental Reserve	653695.4004	307SP137425
		365MCH4233
		500SP151417
		304SP133495
		2SP120982
		305SP133495
		306SP152282
		301SP129047
Symplocos Nature Refuge	378812.6821	4SP151417
Tanderra Drive Natural Amenity Reserve	26838.78247	100SP161951
Tecoma Close Natural Amenity Reserve	2464.449219	579P93148
Teewah Bushland Reserve	64105.41357	76SP215047
		78SP215048
		75SP215047
Tinbeerwah Bushland Reserve	128198.3855	98RP845990
		108MCH4731
Tinbeerwah Road Bushland Reserve	53568.87451	60MCH1547
		278MCH3949
Topaz Street Bushland Reserve	6195.51	27C56014
		28C56014
		29C56014
		30C56014
		31C56014
Wahpunga School Park	16522.37378	249MCH618
Wallace Bushland Reserve	69670.55054	100SP169390
		3RP839623
		2RP839623
Waratah Close Natural Amenity Reserve	17938.74365	104SP113205
		601SP120122
		1RP889434
Weyba Bridge Bushland Reserve	7071.056885	166MCH5254
Weyba Creek Bushland Reserve North	354303.6494	605SP195871
		606SP195871
		604SP188270

		600SP188270
		601SP188268
		1SP110327
		602SP188268
Weyba Creek Bushland Reserve South	293443.5745	900SP170964
		901SP170964
		30RP894005
		113MCH4128
Weyba Nature Refuge	1097761.528	77SP177938
Wirruna Drive Bushland Reserve	147911.1758	101SP173767
		102SP173767
		100SP173767
Woodhaven Bushland Reserve	278168.5537	1SP149475
		101SP179878
		100SP156380
		101SP191688
		200RP886248
Wooroi Creek Bushland Reserve	533654.834	410SP104286
		101SP145596
		102SP145596
Yatama Bushland Reserve	41483.27	9SP253957
Yellow Belly Hole Bushland Resreve	93711.26318	103MCH3039
		117MCH5050
		91MCH1707
Yunaman Bushland Reserve	119007.6079	104SP151405
		901SP207311
		114SP188650
		105SP151410
		901SP207311
Yurol Nature Refuge	523738.5706	1RP35069

12.1 Appendix 2 – Noosa Environment Strategy – Relevant Themes & Outcomes

Noosa Environment Strategy 2019 Themes	Noosa Environment Strategy 2019 Outcomes
Biodiversity	B. Priority ecosystem areas in Council's bushland reserves are enhanced and managed to be responsive to changing environmental conditions.
	D. Ecological linkages and connecting habitat areas are improved and rehabilitated to increase landscape connectivity and species resilience.
	E. Community conservation partnerships on public and private land are developed to deliver successful biodiversity conservation outcomes.
	F. Terrestrial and aquatic ecosystems, as well as fauna and flora species, are protected from significant human impacts.
Waterways, wetlands and coasts	B. Aquatic biodiversity is improved through the preservation and enhancement of diverse instream, riparian and wetland habitats.
	D. Waterways, wetlands and coastal environments are protected, managed and maintained in their natural state, and are enhanced to support healthy and diverse ecosystems.
	H. The impacts of human use are carefully managed to protect ecosystem health and visual amenity, as well as to ensure the sustainable use of waterways and foreshores for residents, visitors and commercial operators.
Sustainable Living	A. Council and community greenhouse gas emissions are avoided, reduced and offset through strong Council leadership, pursuit of multiple benefits and effective actions that are prioritised by impact.
Climate change adaptation and resilience	A. The Noosa Council and Noosa community are better prepared for natural hazards and climate change through identification and mapping of natural hazards, proactive planning, risk reduction and information sharing.
	B. Noosa's natural environment is prepared for climate change through the maintenance, restoration and increase of healthy, well-functioning ecosystems that facilitate diversity and movement of species both within and beyond Noosa Shire.
	D. Risk assessments, climate adaptation and disaster management are well integrated and use best available information to inform decision-making, systems and processes.
	F. Understanding of likely responses of biodiversity and ecosystems to climate change is improved over time and management programs are adjusted where necessary.

12.2 Appendix 3 – Reserve Prioritisation Methodology

Reserve Values				
Criterion	**Criterion Justification**	**Scoring System**	**Data Source**	**Strategic Alignment**
Biodiversity Values				
Reserve Size	Larger sizes generally have higher biodiversity value	0 = <1 ha 1 = 1 – 5 ha 2 = 5 -10 ha 3 = 10-50 ha 4 = 50 -100 5 = >100 ha Largest reserve is 324ha	NC Draft Prioritisation Matrix – provided to NDLG	Link to the Noosa Biodiversity Conservation Plan 2017
Connectivity	Reserves with greater connectivity generally have higher biodiversity value	0 = urban, roads, waterbodies. 1 = cleared, scattered trees, sparse regrowth, patch with no or lower order connection to node. 2 =patch with indirect (2nd/3rd level) connection to node (core/edge). 3 = patch with direct connection to node. 4 = small node - unsupported (not connected to another node). 5 = small node, medium and large nodes – supported.	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_ph2_Patch_Connectivity_v2* The adjacency scoring of the *Patch Connectivity* layer was used. Adjacency scoring assesses the proximity between habitat nodes (i.e. supported nodes) or the degree of connection of patches to nodes. The *Patch Connectivity* layer was developed based on Queensland Offsets Policy – Landscape Fragmentation Tool.	Link to the Noosa Biodiversity Conservation Plan 2017
% Of Remnant Vegetation, % of regrowth, % of cleared land	Reserves with higher percentage of remnant generally have higher biodiversity value	0= ≥50% Urban, roads, water bodies and cleared. 3= ≥50% scattered regrowth and scattered trees. 5 = ≥ 50% Disturbed/continuous regrowth/ plantation and Disturbed continuous/ remnant.	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_ph2_EcoCondition_v3* The urban overlay was created by selecting applicable residential, industrial, commercial and community services zones from the IPZ zones layer. These were buffered out, then in by 100m to remove gaps for roads. Reserves under 0.3ha and	Link to the Noosa Biodiversity Conservation Plan 2017

			surrounded by urban areas were captured under this urban classification. RE code: RE v9.0 and field validation.	
RE Conservation Status	Reserves with 'Endangered' or 'Of Concern' vegetation have higher conservation significance than those without.	0 = urban area* 1 = plantation 2 = Least concern / sub-dominant regionally significant 3 = Regionally significant / sub- dominant of concern 4 = Of concern / sub-dominant endangered 5 = Endangered	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_ph2_cons_status_v2* Attribution: • Selected based on REs assigned as per base layer methods in the biodiversity plan assessment • First RE in multi RE polys is dominant, RE 2-5 = sub dominant • Applied only to remnant, contiguous remnant and dense regrowth areas in the ecological condition layer • Applied to sparse regrowth and scattered trees if status was identified as Endangered RE code: RE v9.0 and field validation.	Link to the Noosa Biodiversity Conservation Plan 2017
EPBC Threatened Ecological Communities	Reserves with EPBC listed Ecological Communities have higher conservation significance than those without.	0 = Not a TEC 2 = Potential to be TEC sub- dominant 3 = Potential to be TEC 4 = TEC sub-dominant 5 = TEC	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_ph2_TECs_v2* RE code: RE v9.0 and field validation.	Links to Recovery Plans & Conservation Advice Statements under Commonwealth Legislation Noosa Biodiversity Conservation Plan 2017
Habitat for species of Conservation Value	Reserves with known habitat or mapped essential habitat for species of conservation value have higher conservation significance	0 = no record and not mapped essential habitat 1= record in marginal habitat (sparse regrowth, scattered trees, cleared) and not mapped essential habitat 2 = confirmed record for locally significant 3 = confirmed record for regional significant 4 = confirmed record or mapped essential habitat for NT	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_ph2_Species_presence_v2* This data source incorporates: • Atlas of Living Australia (2016) • Wildlife Online (2016) • Significant species list (Appendix A & B of biodiversity assessment report) • Base layer	Links to Recovery Plans & Conservation Advice Statements under State and Commonwealth Legislation Noosa Biodiversity Conservation Plan 2017 Noosa Shire Koala Conservation Plan 2015-19

		5 = confirmed habitat or mapped essential habitat for V/E/M	• HL&W – Essential Habitat Maps, EHP Essential Habitat Maps Reserves that hold species that are NT/V/E/M and were not identified in the Noosa Biodiversity Plan Dataset were given confirmed status and a scoring of 4 or 5. The presence of Acid frogs in reserves were given a score of 5. Under the EPBC Act only the Wallum Sedge frog is listed as vulnerable, though a national recovery plan has been devised for Wallum dependent frog species including the Cooloola sedgefrog, wallum rocketfrog and wallum froglet. All species are listed as vulnerable or endangered by the by the World Conservation Union (IUCN).	
Under represented RE's / CARR	Reserves with under-represented vegetation communities in the protected area estate have higher conservation value.	0 = medium to high preservation in Noosa & medium to high preservation in SEQ 1 = low preservation in Noosa & medium to high preservation in SEQ 2 = medium to high preservation in Noosa & low preservation in SEQ 3 = low preservation in Noosa and low preservation in SEQ	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_ph2_UnderRepREs_v2* Based on the representation of RE's in protected areas across the whole shire, including nature refuges and National Park. RE code: RE v9.0 and field validation.	Link to the Noosa Biodiversity Conservation Plan 2017
For comparison / reference purposes – Additional criterion are included in the above process				
Noosa Biodiversity Plan Assessment Report Overall Value Ranking	High Biodiversity Score rank in Assessment Report equates to high biodiversity value.	0 to 20th percentile (biodiversity significance score of 0-3) 21st to 40th percentile (biodiversity significance score of 4-6) 41st to 60th percentile (biodiversity significance score of 7-14) 61st to 80th percentile (biodiversity significance score of 15-19) 81st to 100th percentile (biodiversity significance score of 20-38)	Noosa Biodiversity Plan Dataset 2017 *comb_values_241016_withRE_topo*	Link to the Noosa Biodiversity Conservation Plan 2017
Water Quality Values				

Waterways or Wetland Presence or value	Existence of waterway or wetland within reserve identifies the value of the reserve for water quality contribution.	**Waterway** 0 = not present 1 = present **Wetland** 0 = not a wetland 1 = artificial wetland, highly modified wetlands & community containing small areas of wetlands (0-51%) 2 = community containing wetlands (51%-80%) 3 = VMA wetlands 4 = Wetlands of High Ecological Significance 5 = National Important Wetlands	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_wetlands* Noosa Council dataset *MajorWatercourses_polyline*	Link to Mary and Noosa River Plans Noosa Biodiversity Conservation Plan 2017
Groundwater / Aquifer Values – recharge or discharge areas	Existence of groundwater recharge or discharge area identifies the value of the reserve for aquifer water quality and quantity	0 = not present 3 = discharge area 5 = recharge area	Healthy Land and Water data set *Water Source Clip* *Identifies ground water recharge areas Queensland Government Data *Groundwater Dependent Ecosystems (GDE) surface expression area and lines* *Identifies areas of groundwater discharge Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_wetlands* *Identifies areas of groundwater discharge	Link to Mary and Noosa River Plans
Carbon Sink Values				
Existing carbon storage value – remnant vegetation area and type	Existing Carbon storage within each reserve varies with regards to different vegetation types.	0 - non remnant or largely cleared 1 - <1000 CO2t 2 - 1001-5000 CO2t 3 - 5001 - 20,000 CO2t 4 - 20,001 - 60,000 CO2t 5 - 60,000 + CO2t	Qld Herbarium (Don Butler) developed specifically for project. Average Carbon storage per hectare for each Broad Vegetation Group. Each reserve total storage calculated based on BVG group present and extent of remnant vegetation present.	Link to NC Climate Change Adaptation Plan & NC Emissions Reduction Policy /Plan
Social Values				
Recreational Value	Reserves with higher usage have higher recreational value.	0 = No use 1 = Low Use 3 = Medium Use	Noosa Council Staff score allocation	Link to Open Space Plan

		5 = High Use		
Landscape Amenity Value – proximity to urban areas	Reserves within or close to urban areas hold higher landscape value.	0 = >500m from Urban Area 1 = <500m from Urban Area	Noosa Biodiversity Plan Dataset 2017 *Noosa_bio_plan_ph2_EcoCondition_v3* The urban overlay was created by selecting applicable residential, industrial, commercial and community services zones from the IPZ zones layer. These were buffered out, then in by 100m to remove gaps for roads.	Link to Open Space Plan
Cultural Value				
Indigenous Cultural Heritage Values	n/a	0 = unknown 1 = potential recorded data within a 500m buffer from a particular Lot/Plan (reserve). 2 = known within reserve	Data has been sourced from the following: • Indigenous Cultural Heritage Study of Noosa Shire April 2004 • Sunshine Coast Aboriginal Cultural Heritage Report: An analysis and collaboration of available data June 2009 • Queensland Government's Department of Aboriginal and Torres Strait Islander Partnerships (cultural heritage database and register)	Link to Cultural Heritage Act 1993 NC Arts Culture & Heritage Plan
Non-Indigenous Cultural Heritage Values	n/a	0 = unknown 1 = potential recorded data within a 500m buffer from a particular Lot/Plan (reserve). 2 = known within reserve	Data has been sourced from the following: • Cultural Heritage Overlay from the Noosa Plan 2006	Link to Cultural Heritage Act 1993 NC Arts Culture & Heritage Plan

Potential for Successful Outcomes

Criterion	Criterion Contribution	Scoring System	Data Source	Strategic Alignment
Potential for biological recovery (technical feasibility of fixing problems)				

Ecological Condition and trajectory	Reserves with poorer condition have less potential for biological recovery.	0 = poor condition (contains a large number of invasive species that are increasing in area and native vegetation lacks structural and species complexity) Requires a large amount of resourcing over an extended time (greater than 5 years) to improve condition to fair however has a high risk of failure. 1= fair, contains some invasive species but native vegetation exhibits a good range of species diversity and structural diversity. Requires regular and targeted intervention to manage invasive species to improve reserve to moderate condition. 2= moderate. Contains low populations of invasive species covering a small area of the reserve such as the edge and native vegetation is structurally and species diverse. Targeted management over 3 to 5 years will convert the reserve to pristine condition. 3= pristine condition. No invasive species present, Native vegetation has intact structural and species diversity with no disturbance. Requires regular monitoring and early intervention activities to manage any invasive species recruitment.	Expert Panel Contributions	Noosa Local Government Area Pest Management Plan 2015-19 Noosa Biodiversity Conservation Plan 2017
Biodiversity Invasive species existence	Reserves with existence of certain weeds and feral animals that have high impact to biodiversity value, have less potential for biological recovery.	0- Contains high populations of invasive species 1- Contains scattered populations of invasive species 2- Contains no invasive species	1) Pest Info / Collector App data 2) Expert Panel Contribution	Noosa Local Government Area Pest Management Plan 2015-19 Noosa Biodiversity Conservation Plan 2017
Climate change resilience rating (temperature, sea level rise)	Broad vegetation groups that are less vulnerable to climate change exhibit higher viability for	0= temp sensitive/exposed and sensitive SLR 1= temp sensitive/not exposed to SLR 2= Not exposed/not sensitive	Noosa Biodiversity Plan 2017. *Noosa_SL_temp_sensitivity_exposure*	Link to NC Climate Change Adaptation Plan, NC Emissions Reduction Policy /Plan & Coastal Management Plan

	biodiversity value retention.			
Ongoing Management Requirements (costs and resource required)				
Resourcing Effort	Higher costs to enhance biodiversity value equates to greater resource allocation required.	0 = Requires a large amount of resourcing over an extended time (greater than 5 years) to improve condition to pristine however has a high risk of failure. 1 = Requires significant ongoing and targeted intervention to manage invasive species to improve reserve to pristine condition. 2 = Targeted moderate resource management over 3 to 5 years will convert the reserve to pristine condition. 3 = Requires regular monitoring and early intervention activities to manage any invasive species recruitment.	Expert Panel contributions informed by historical resourcing levels and site knowledge.	Noosa Local Government Area Pest Management Plan 2015-19 Noosa Biodiversity Conservation Plan 2017
Active Volunteer Group present	Active Volunteer Groups provide volunteer labour to assist with the management of reserve.	0 - No volunteer group present 1 - low level active volunteer group present 2 - medium level active volunteer group present 3 - High level active group present	NSC Staff allocation	Noosa Biodiversity Conservation Plan 2017
Nature Refuge Status	Nature Refuge status enables additional funding opportunities for management resources.	1 - Not a Nature Refuge 2 - Is a nature Refuge	NSC Staff allocation Queensland Government dataset *Nature refuges – Queensland*	Noosa Biodiversity Conservation Plan 2017

Future vegetation offsets and carbon sequestering offsets value – regrowth or cleared vegetation type	Carbon storage potential provides opportunity for additional investment through Carbon Offsets (cleared and regrowth areas available and scales again by vegetation type)* tree carbon only calculated.	0 = Reserve contains all remnant veg 1 = Reserve contains regrowth or cleared land with a pre clear Of concern RE 2 = Reserve contains regrowth or cleared land with a pre clear endangered RE	Noosa Biodiversity Plan Dataset 2017 *comb_values_241016_withRE_topo* *Noosa_bio_plan_ph2_cons_status_v2* RE code: RE v9.0 and field validation.	Link to NC Climate Change Adaptation Plan & NC Emissions Reduction Policy /Plan

12.3 Appendix 4 – Reserve Prioritisation Results & Tier Level

RESERVE TIER	RESERVE NAME	PRIORITY SCORE
1	Yurol Nature Refuge	157.6934343
1	Weyba Nature Refuge	150.5159452
1	Symplocos Environmental Reserve	145.9459596
1	Lake Cootharaba Bushland Reserve	142.6580808
1	Arthur Harold Nature Refuge	141.4736652
1	Cooroibah Conservation Park	140.5699856
1	Alyxia Nature Refuge	138.5661616
1	Cudgerie Common Bushland Reserve	137.5733766
1	Weyba Creek Bushland Reserve South	135.6444444
1	Galloways Bushland Reserve	135.3545455
1	Bill Huxley Nature Refuge	135.1056999
1	Six Mile Creek Bushland Reserve - Forest Acres	134.0717172
1	Kingsgate Bushland Reserve Network	133.9647908
1	Lake Doonella Bushland Reserve	132.9445166
1	Cooroora Creek Park	132.0691919
1	Yellow Belly Hole Bushland Resreve	130.8472583
1	Six Mile Creek Bushland Reserve - Lillywhites	130.5287879
1	Beach Road Nature Refuge	129.5145743
1	Heritage Park Bushland Reserve	128.8136364
1	Liane Bushland Reserve	128.3505051
1	Active Riders Ground Reserve	126.07886
1	Eenie Creek Bushland Reserve - Walter Hay Drive (add futures environmental reserve)	125.8163059
1	Wahpunga School Park	125.2632756
1	Fourways - Noosa Banks Riparian Reserve	124.4500722
1	Booyong Drive Bushland Reserve	122.3663059
1	Cooroy Creek Bushland Reserve - Marara Street	122.0663059
1	Kin Kin Creek Bushland Reserve	120.7617605
1	Cooloothin Creek Bushland Reserve	120.6120491
1	Lake Cooroibah Esplanade	120.2371573
1	Peregian Creek Reserve	119.8274892
1	Girraween Nature Refuge	119.5444444
1	Wooroi Creek Bushland Reserve	119.4486291
1	Frogmouth Bushland Reserve	119.2520202
1	Penda Scrub Nature Refuge	118.4954545
1	Dr Pages Natural Amenity Reserve	118.1348485
2	Livistona Bushland Reserve	118.0585859
2	Binalong Bushland Reserve	117.8520202
2	North Shore Environmental Reserve	117.4570707
2	Cooroora Creek Park riparian area	117.148557
2	Cooroora Creek Bushland Reserve - Songbird	116.7765512
2	Lake Weyba Drive Riparian Area	116.3183261

2	Murdering Creek Bushland Reserve	115.4630592
2	Flooded Gum Bushland Reserve	115.2693362
2	Eenie Creek Bushland Reserve	114.9821068
2	Edington Drive Environmental Reserve	114.977417
2	Sheep Island esplanade	114.8577201
2	Tinbeerwah Bushland Reserve	114.6308081
2	Cooroy Creek Bushland Reserve	113.0265512
2	Lake Flat Rd Bushland Reserve	111.9525253
2	Forest Acres Bushland Network	110.727417
2	Six Mile Creek Bushland Reserve - Cooran Section	110.0868687
2	Cooloothin Creek Bushland Reserve East (franz land)	109.8698413
2	Cedar Gully Bushland Park	109.5723665
2	Illoura Bushland Reserve East	108.5767677
2	Woodhaven Bushland Reserve	108.4373737
2	Cooroibah Environmental Reserve	108.1718615
2	Pioneer Road Bushland Reserve	108.05
2	Smedley Drive Bushland Reserve	107.8823232
2	Kin Kin Creek Environmental Reserve	107.4465368
2	Fellowship Drive Bushland Reserve	106.4158009
2	Noosa River Esplanade	106.3663781
2	Symplocos Nature Refuge	105.0873737
2	Weyba Creek Bushland Reserve North	105.058658
2	Yunaman Bushland Reserve	104.8700577
2	Teewah Bushland Reserve	104.5925685
2	Falls Creek Bushland Reserve	104.5905483
2	Boronia Bushland Reserve	103.6656566
2	Six Mile Creek Bushland Reserve - Plantation Lane	103.1979798
2	Calanthe Bushland Reserve	102.9006494
2	Tinbeerwah Road Bushland Reserve	102.7469697
2	Factory Street Bushland Reserve	102.4097403
2	Illoura Bushland Reserve West	102.3025253
3	Noosa Northshore Esplanade	102.237518
3	Lakeside Bushland Reserve	102.0092352
3	Bagnalls Bushland Reserve (changed from Acacia Lane)	101.6080808
3	Yatama Bushland Reserve	101.3888889
3	Moonbeam Bushland Reserve	100.9602453
3	Quarry Track Bushland Reserve	100.9287879
3	Gleneagles Bushland Reserve	100.8945887
3	Noosa Woods Foreshore Reserve	100.7720058
3	Gympie Street Esplanade	100.4036075
3	Pig Island Esplanade	99.88196248
3	Weyba Bridge Bushland Reserve	99.09372294
3	Silverwood Bushland Reserve	98.72070707
3	Peregian Beach Foreshore Reserve North	98.46334776
3	Osprey Park	98.4523088
3	Cooroora Mountain Bushland Reserve	98.38766234

3	Lowry Bushland Reserve	98.37034632
3	Ringtail Bushland Reserve East	98.16767677
3	Doonella Wetlands Nature Refuge	97.58492063
3	Wirruna Drive Bushland Reserve	97.06327561
3	Satinay Bushland Reserve	96.58968254
3	Kin Kin Old Landfill Site	96.56010101
3	Douglas Bushland Reserve	95.48333333
3	Marcus Creek Bushland Reserve	95.25887446
3	George Street Bushland reserve	94.03455988
3	Alex Dan Bushland Reserve	93.71284271
3	Clearview Drive Bushland Reserve	93.12575758
3	Pacific View Bushland Reserve	92.87171717
3	Ferry Park Natural Amenity Reserve	92.49206349
3	Croziers Bushland Reserve	92.35555556
3	Wallace Bushland Reserve	91.26969697
3	Cooroibah Creek Park	89.66522367
3	Pinaroo Park Bushland Reserve	89.23037518
3	Collwood Bushland Reserve	89.05757576
3	Dolphin Bay Drainage Reserve	89.03203463
3	Kin Kin Entrance Bushland Reserve	88.13953824
4	Kin Kin Arboretum Park	84.86760462
4	Senegal Rise Natural Amenity Reserve	84.26868687
4	Buffalo Bushland Reserve	83.71168831
4	Mahogany Bushland Reserve	83.33614719
4	Nylana Bushland Reserve	83.27070707
4	Bursaria Bushland Reserve	82.90468975
4	Marcus Beach Foreshore Reserve	82.87142857
4	Caribbean Bushland Reserve	82.83614719
4	Pearsons Drainage Reserve	82.78852814
4	Creek St Bushland Reserve	82.40721501
4	Reef Street Bushland Reserve	81.97034632
4	Brushtail Bushland Reserve	81.93282828
4	Sunshine Beach Foreshore Reserve	81.37799423
4	Peregian Beach Foreshore Reserve South	81.18556999
4	Figtree Natural Amenity Reserve	80.45959596
4	Harlow Bushland Reserve	79.92301587
4	Glenridge Bushland Reserve	79.85707071
4	Rainforest Court Bushland Reserve	79.2517316
4	Cooroibah Creek Natural Amenity Reserve	78.71493506
4	Beach Park Noosa North Shore	78.60050505
4	Crank Crk Bushland Reserve	78.32748918
4	Palm Grove Bushland Reserve	77.48867244
4	Stormbird Bushland Reserve	77.28059163
4	Renshaw Bushland Reserve	77.26363636
4	Noosa Northrise Future Bushland	77.05721501
4	Rifle Street Natural Amenity Reserve	76.78347763

4	Alec Loveday Bushland Reserve	76.67344877
4	Moonare Bushland Reserve	76.37907648
4	Castaways Beach Foreshore Reserve	76.13145743
4	Cranks Creek Park	76.05909091
4	Dame Patti Bushland Reserve	74.57070707
4	Coconut Grove Natural Amenity Resereve	74.17741703
4	Sandalwood Close Natural Amenity Reserve	72.66479076
4	Lyndhurst Natural Amenity Reserve	70.3001443
4	Dianella Court Drainage Reserve	69.31529582
5	Carriage Way Bushland Reserve East	68.88737374
5	Park Road Foreshore Reserve	68.06883117
5	Homebase Bushland Reserve	66.34343434
5	Tecoma Close Natural Amenity Reserve	66.23802309
5	Driftwood Bushland Reserve	65.70923521
5	Kings St Bushland Reserve	64.61291486
5	Frogmouth Bushland Reserve East	64.58585859
5	Straker Drive Natural Amenity Reserve	64.10569986
5	David Street Bushland Reserve	63.58867244
5	Oak Bushland Reserve	62.65873016
5	Sunrise Beach Foreshore Reserve	62.10887446
5	Waratah Close Natural Amenity Reserve	61.81385281
5	Mary Street Natural Amenity Reserve	61.73297258
5	Orient Bushland Reserve South	60.88347763
5	Carriage Way Bushland Reserve West	60.5969697
5	Shorehaven Bushland Reserve	58.79458874
5	Mackerel Street Foreshore Reserve	57.62337662
5	Flagship Natural Amenity Reserve	56.81630592
5	Songbird Drive Bushland Reserve	54.37049062
5	Kauri Bushland Reserve	51.60569986
5	Heathland Bushland Reserve	50.67135642
5	Tanderra Drive Natural Amenity Reserve	50.56529582
5	Lomandra Place Bushland Reserve	49.97691198
5	Carruthers Natural Amenity Reserve	48.59054834
5	Black Mountain Bushland Reserve	48.46919192
5	Topaz Street Bushland Reserve	48.32135642
5	Sundial Bushland Reserve	46.80663781
5	Redwood Avenue Natural Amenity Reserve	44.39249639
5	Read Park Bushland Reserve	43.81883117
5	Mary River Rd Bushland Reserve	38.37590188
5	Cambridge Bushland Reserve	35.43650794
5	Southern Cross Bushland Reserve	35.40836941
5	Orient Bushland Reserve North	33.69408369
5	Black Mountain School Park	32.8510101
5	Chestnut Court Natural Amenity Reserve	21.88852814

12.4 Appendix 5 – Allocated Reserve Management Category & Planning Mechanism

Reserve	Prioritisation Tier	Management Program Category	Planning Mechanisms Required
Active Riders Ground Reserve	1	Enhance	BOA
Alec Loveday Bushland Reserve	4	Monitor	Nil
Alex Dan Bushland Reserve	3	Enhance	BOA
Alyxia Nature Refuge	1	Protect	Nil
Arthur Harold Nature Refuge	1	Enhance	BOA
Bagnalls Bushland Reserve (changed from Acacia Lane)	3	Enhance	BOA
Beach Park Noosa North Shore	4	Monitor	Nil
Beach Road Nature Refuge	1	Protect	Nil
Bill Huxley Nature Refuge	1	Protect	Nil
Binalong Bushland Reserve	2	Enhance	BOA
Black Mountain Bushland Reserve	5	Monitor	Nil
Black Mountain School Park	5	Monitor	Nil
Booyong Drive Bushland Reserve	1	Enhance	BOA
Boronia Bushland Reserve	2	Protect	Nil
Brushtail Bushland Reserve	4	Monitor	Nil
Buffalo Bushland Reserve	4	Monitor	Nil
Bursaria Bushland Reserve	4	Monitor	Nil
Calanthe Bushland Reserve	2	Protect	Nil
Cambridge Bushland Reserve	5	Monitor	Nil
Caribbean Bushland Reserve	4	Monitor	Nil
Carriage Way Bushland Reserve East	5	Monitor	Nil
Carriage Way Bushland Reserve West	5	Monitor	Nil
Carruthers Natural Amenity Reserve	5	Monitor	Nil
Castaways Beach Foreshore Reserve	4	Monitor	Management Plan
Cedar Gully Bushland Park	2	Enhance	BOA
Chestnut Court Natural Amenity Reserve	5	Monitor	Nil
Clearview Drive Bushland Reserve	3	Protect	Nil
Coconut Grove Natural Amenity Resereve	4	Monitor	Nil
Collwood Bushland Reserve	3	Protect	Nil
Cooloothin Creek Bushland Reserve	1	Protect	Nil
Cooloothin Creek Bushland Reserve East (franz land)	2	Protect	Nil
Cooroibah Creek Natural Amenity Reserve	4	Monitor	Nil
Cooroibah Creek Park	3	Protect	Nil
Cooroibah Environmental Reserve	2	Protect	Nil
Cooroibah Regional Park	1	Protect	Nil
Cooroora Creek Bushland Reserve - Songbird	2	Enhance	BOA
Cooroora Creek Park	1	Enhance	ERP

Cooroora Creek Park riparian area	2	Enhance	ERP
Cooroora Mountain Bushland Reserve	3	Protect	Nil
Cooroy Creek Bushland Reserve	2	Enhance	BOA
Cooroy Creek Bushland Reserve - Marara Street	1	Enhance	BOA
Crank Crt Bushland Reserve	4	Monitor	Nil
Cranks Creek Park	4	Monitor	Nil
Creek St Bushland Reserve	4	Monitor	Nil
Croziers Bushland Reserve	3	Enhance	BOA
Cudgerie Common Bushland Reserve	1	Enhance	BOA
Dame Patti Bushland Reserve	4	Monitor	Nil
David Street Bushland Reserve	5	Monitor	Nil
Dianella Court Drainage Reserve	4	Monitor	Nil
Dolphin Bay Drainage Reserve	3	Protect	Nil
Doonella Wetlands Nature Refuge	3	Enhance	BOA
Douglas Bushland Reserve	3	Protect	Nil
Dr Pages Natural Amenity Reserve	1	Protect	Nil
Driftwood Bushland Reserve	5	Monitor	Nil
Edington Drive Environmental Reserve	2	Protect	Nil
Eenie Creek Bushland Reserve	2	Protect	Nil
Eenie Creek Bushland Reserve - Walter Hay Drive	1	Protect	Nil
Factory Street Bushland Reserve	2	Enhance	BOA
Falls Creek Bushland Reserve	2	Enhance	BOA
Fellowship Drive Bushland Reserve	2	Protect	Nil
Ferry Park Natural Amenity Reserve	3	Protect	Nil
Figtree Natural Amenity Reserve	4	Monitor	Nil
Flagship Natural Amenity Reserve	5	Monitor	Nil
Flooded Gum Bushland Reserve	2	Enhance	BOA
Forest Acres Bushland Network	2	Enhance	BOA
Fourways - Noosa Banks Riparian Reserve	1	Protect	Management Plan
Frogmouth Bushland Reserve	1	Enhance	BOA
Frogmouth Bushland Reserve East	5	Monitor	Nil
Galloways Bushland Reserve	1	Protect	Nil
Girraween Nature Refuge	1	Enhance	BOA
Gleneagles Bushland Reserve	3	Enhance	BOA
Glenridge Bushland Reserve	4	Monitor	Nil
George Street Bushland reserve	3	Enhance	BOA
Gympie Street Esplanade	3	Enhance	ERP
Harlow Bushland Reserve	4	Monitor	Nil
Heathland Bushland Reserve	5	Monitor	Nil
Heritage Park Bushland Reserve	1	Enhance	BOA/ Management Plan
Homebase Bushland Reserve	5	Monitor	Nil

Illoura Bushland Reserve East	2	Enhance	BOA
Illoura Bushland Reserve West	2	Enhance	BOA
Kauri Bushland Reserve	5	Monitor	Nil
Kin Kin Arboretum Park	4	Monitor	Nil
Kin Kin Creek Bushland Reserve	1	Enhance	BOA
Kin Kin Creek Environmental Reserve	2	Enhance	ERP
Kin Kin Entrance Bushland Reserve	3	Enhance	BOA
Kin Kin Old Landfill Site	3	Enhance	BOA
Kings St Bushland Reserve	5	Monitor	Nil
Kingsgate Bushland Reserve Network	1	Enhance	BOA
Lake Cooroibah Esplanade	1	Enhance	BOA
Lake Cootharaba Bushland Reserve	1	Protect	Nil
Lake Doonella Bushland Reserve	1	Enhance	BOA
Lake Flat Rd Bushland Reserve	2	Enhance	BOA
Lake Weyba Drive Riparian Area	2	Enhance	BOA
Lakeside Bushland Reserve	3	Protect	Nil
Liane Bushland Reserve	1	Protect	Nil
Livistona Bushland Reserve	2	Enhance	BOA
Lomandra Place Bushland Reserve	5	Monitor	Nil
Lowry Bushland Reserve	3	Protect	Nil
Lyndhurst Natural Amenity Reserve	4	Monitor	Nil
Mackerel Street Foreshore Reserve	5	Monitor	Nil
Mahogany Bushland Reserve	4	Monitor	Nil
Marcus Beach Foreshore Reserve	4	Monitor	Management Plan
Marcus Creek Bushland Reserve	3	Monitor	Nil
Mary River Rd Bushland Reserve	5	Monitor	Nil
Mary Street Natural Amenity Reserve	5	Monitor	Nil
Moonare Bushland Reserve	4	Monitor	Nil
Moonbeam Bushland Reserve	3	Protect	Nil
Murdering Creek Bushland Reserve	2	Protect	Nil
Noosa Northshore Esplanade	3	Enhance	BOA
Noosa Northrise Future Bushland	4	Monitor	Nil
Noosa River Esplanade	2	Enhance	BOA
Noosa Woods Foreshore Reserve	3	Enhance	Management Plan
North Shore Environmental Reserve	2	Protect	Nil
Nylana Bushland Reserve	4	Monitor	Nil
Oak Bushland Reserve	5	Monitor	Nil
Orient Bushland Reserve North	5	Monitor	Nil
Orient Bushland Reserve South	5	Monitor	Nil
Osprey Park	3	Enhance	ERP
Pacific View Bushland Reserve	3	Protect	Nil
Palm Grove Bushland Reserve	4	Monitor	Nil

Park Road Foreshore Reserve	5	Monitor	Nil
Pearsons Drainage Reserve	4	Monitor	Nil
Penda Scrub Nature Refuge	1	Protect	Nil
Peregian Beach Foreshore Reserve North	3	Enhance	Management Plan
Peregian Beach Foreshore Reserve South	4	Monitor	Management Plan
Peregian Creek Reserve	1	Enhance	Management Plan
Pig Island Esplanade	3	Protect	Nil
Pinaroo Park Bushland Reserve	3	Enhance	Management Plan
Pioneer Road Bushland Reserve	2	Protect	Nil
Quarry Track Bushland Reserve	3	Protect	Nil
Rainforest Court Bushland Reserve	4	Monitor	Nil
Read Park Bushland Reserve	5	Monitor	Nil
Redwood Avenue Natural Amenity Reserve	5	Monitor	Nil
Reef Street Bushland Reserve	4	Monitor	Nil
Renshaw Bushland Reserve	4	Monitor	Nil
Rifle Street Natural Amenity Reserve	4	Monitor	Nil
Ringtail Bushland Reserve East	3	Protect	Nil
Sandalwood Close Natural Amenity Reserve	4	Monitor	Nil
Satinay Bushland Reserve	3	Enhance	BOA
Senegal Rise Natural Amenity Reserve	4	Monitor	Nil
Sheep Island esplanade	2	Protect	Nil
Shorehaven Bushland Reserve	5	Monitor	Nil
Silverwood Bushland Reserve	3	Protect	Nil
Six Mile Creek Bushland Reserve - Cooran Section	2	Enhance	BOA
Six Mile Creek Bushland Reserve - Forest Acres	1	Enhance	BOA
Six Mile Creek Bushland Reserve - Lillywhites	1	Protect	Nil
Six Mile Creek Bushland Reserve - Plantation Lane	2	Enhance	BOA
Smedley Drive Bushland Reserve	2	Protect	Nil
Songbird Drive Bushland Reserve	5	Monitor	Nil
Southern Cross Bushland Reserve	5	Monitor	Nil
Stormbird Bushland Reserve	4	Monitor	Nil
Straker Drive Natural Amenity Reserve	5	Monitor	Nil
Sundial Bushland Reserve	5	Monitor	Nil
Sunrise Beach Foreshore Reserve	5	Monitor	Management Plan
Sunshine Beach Foreshore Reserve	4	Monitor	Management Plan
Symplocos Environmental Reserve	1	Protect	Nil
Symplocos Nature Refuge	2	Protect	Nil
Tanderra Drive Natural Amenity Reserve	5	Monitor	Nil
Tecoma Close Natural Amenity Reserve	5	Monitor	Nil
Teewah Bushland Reserve	2	Protect	Nil

Tinbeerwah Bushland Reserve	2	Protect	Nil
Tinbeerwah Road Bushland Reserve	2	Protect	Nil
Topaz Street Bushland Reserve	5	Monitor	Nil
Wahpunga School Park	1	Enhance	BOA
Wallace Bushland Reserve	3	Enhance	BOA
Waratah Close Natural Amenity Reserve	5	Monitor	Nil
Weyba Bridge Bushland Reserve	3	Protect	Nil
Weyba Creek Bushland Reserve North	2	Enhance	BOA
Weyba Creek Bushland Reserve South	1	Enhance	BOA
Weyba Nature Refuge	1	Protect	Nil
Wirruna Drive Bushland Reserve	3	Enhance	BOA
Woodhaven Bushland Reserve	2	Protect	Nil
Wooroi Creek Bushland Reserve	1	Enhance	BOA
Yatama Bushland Reserve	3	Protect	Nil
Yellow Belly Hole Bushland Resreve	1	Enhance	BOA
Yunaman Bushland Reserve	2	Enhance	BOA
Yurol Nature Refuge	1	Enhance	BOA