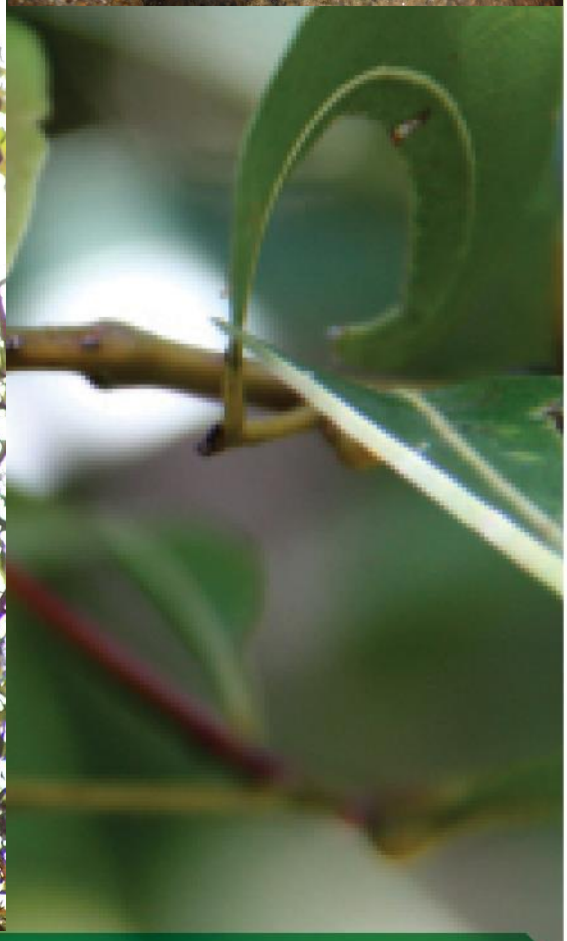
Sunshine Coast COUNCIL

# Kirbys Road Environmental Reserve
# Management Plan



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# Contents

# Executive Summary

Kirbys Road Environmental Reserve was purchased by Sunshine Coast Council in 2011 under the Environment Levy Land Acquisition Program. The reserve adds 213.36 hectares of land to the region's conservation estate, protecting a key link between the core areas of Kondalilla National Park and Maleny National Park.

The management intent for this reserve is to:

- protect and restore the site's intrinsic biodiversity values;
- create, consolidate and protect connectivity values to link the surrounding conservation estate;
- facilitate nature-based recreation and education.

The reserve is located in the upper Mary River catchment with permanent and seasonal creeks flowing into the lowland reaches of Obi Obi Creek. The site encompasses diverse landscape features including river flats, hill slopes, several rock outcrops and a large rocky escarpment.

The acquisition of this property protects a range of significant biodiversity values. There are five Regional Ecosystems (RE's) within this reserve, listed under the *Vegetation Management Act 1999*—one Endangered; two Of Concern; and two Least Concern.

The three rainforest RE's found here are also listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act,* (EPBC), as Critically Endangered Lowland Rainforest of subtropical Australia.

Vegetation now protected on this site is classed as poorly conserved in the National Reserve System in the South East Queensland bioregion. RE 12.3.1 (observed on site) is among the most poorly conserved RE found on the Sunshine Coast, (SCC Biodiversity report card, 2013).

Flora assessments have identified four EPBC listed vulnerable and near threatened species—slender milk vine *(Marsdenia coronata*); Queensland nut *(Macadamia integrifolia);* Maroochy nut *(M. ternifolia)* and giant ironwood *(Choricarpia subargentia*).

Fauna surveys have found 14 terrestrial mammal species: 9 bats, 13 reptiles, 84 birds and 9 frog species. This includes listed endangered, vulnerable, or near threatened species (EVNT)—koala, grey headed flying fox, sooty owl and the elf skink (*Queensland Nature Conservation Act, 1992*) and four nationally listed migratory bird species.

A range of establishment works have been completed:

- signs and gates installed to secure and identify the site;
- access roads and fire trails upgraded, maintained and mapped;
- rubbish, farm sheds, a cattle dip and old fencing have been removed;
- creek crossings restored to minimise bed damage and facilitate fauna movement;
- weed control and restoration works have commenced; open grassy areas mowed pending staged restoration.

Riparian revegetation has commenced with 1800 trees planted in partnership with the local community.

This will improve habitat connectivity between the lower and upper reaches of the Mary River catchment; improve water quality and provide opportunities to extend the breeding range of the endangered Mary River cod *(Maccullochella peelii mariensis)* and the endangered Mary River turtle (*Elusor macrurus).* Future revegetation will expand from these areas into the alluvial flats to build east-west landscape connectivity.

Future management of the Kirbys Road Environmental Reserve will be guided by this management plan, supporting technical documents and the Natural Areas Environmental Reserves Network Management Plan. The Kirbys Road Environmental Reserve management plan will be reviewed in 5 years and management actions adapted where changes are required. The Plan will be re-written after 10 years.

# 1 Introduction

This management plan supports the delivery of council's corporate vision "to be Australia's most sustainable region—healthy, smart, and creative."

In order to achieve this vision, council's Sunshine Coast Environment and Liveability Strategy focuses on the preservation and enhancement of the natural environment and the liveability of the region—ensuring native plants, animals and habitats are healthy, resilient and valued by the community. A key policy position to delivering on this outcome is that priority habitat areas are protected, enhanced, connected and responsive to changing environmental conditions. This is supported through the implementation of the Environment Levy Land Acquisition Program.

Under the Environment Levy Land Acquisition Program, Kirbys Road Environmental Reserve was purchased as two lots in 2011, comprosing a total area of 213.36ha. The reserve is managed by Council's Natural Areas Operations Team to protect and restore the sites ecological values of the reseve for conservation purposes.

The reserve is located within the SEQ bioregion in the south-east area which is the most densely populated part of Queensland, experiencing rapid population growth over the previous two decades (Ambrey and Fleming, 2011). The resident population of the region is projected to increase by 44 per cent to 4.4 million, by 2031 (Office of Economic and Statistical Research, 2010). The SEQ bioregion has therefore been identified as an area which is at a critical threshold, where increased development throughout the urban footprint is likely to lead to increasing loss and degradation of remaining ecosystems and their fauna (Peterson et al., 2007).

The issue of biodiversity loss is a pertinent one for this region, and the restoration and recovery of significant habitat corridors, catchments, and remnant vegetation such as occurs at Kirbys Road Environmental Reserve will play an important role in protecting ecological function and associated biodiversity for all of south east Queensland.

## Purpose of the Management Plan

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

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

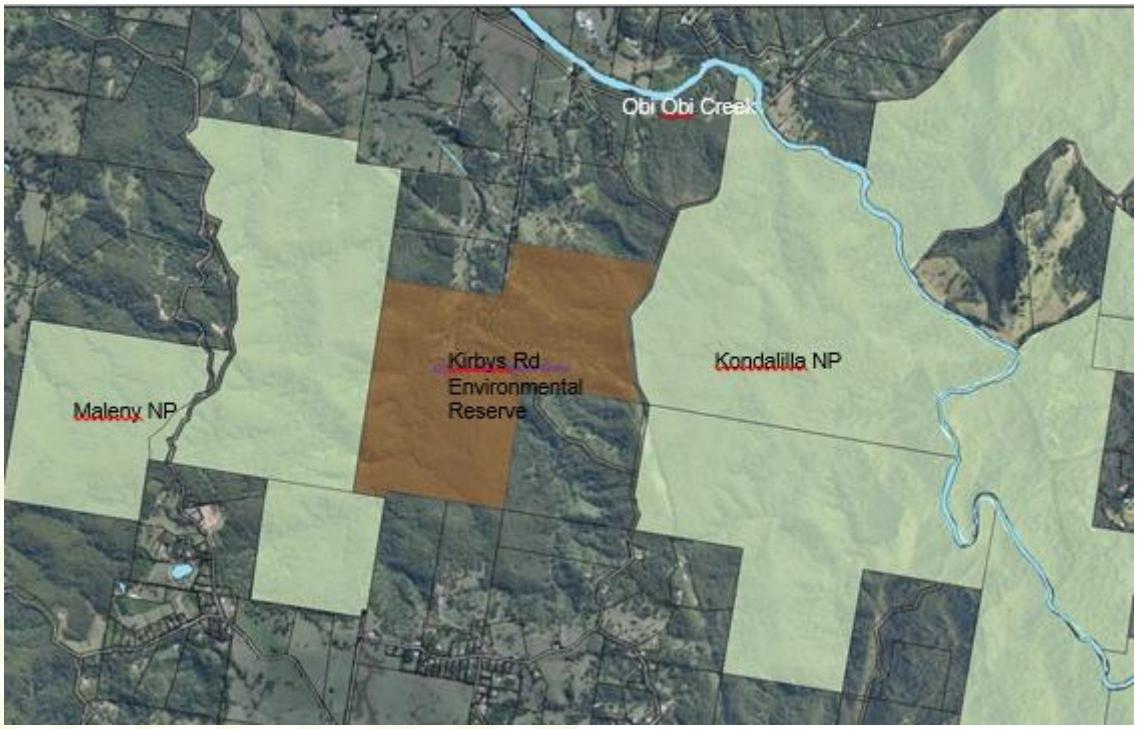
The Management Plan is subject to a 10 year review schedule underpinned by the framework of actions, relevant monitoring and evaluation strategies, and performance indicators described in this plan.

# 2 Description of the Area

Kirbys Road Environmental Reserve is located at 139-249 Kirbys Rd, Obi Obi. The site provides a link between two national parks, Maleny and Kondalilla, (see figure 1). This also forms part of a regional corridor running north-south as identified in the Queensland Government Biodiversity Planning and Assessment Mapping (BPA) for south-east Queensland1

[1] https://www.qld.gov.au/environment/plants-animals/biodiversity/planning/Qld

**Figure 1: Landscape Features of Kirbys Road Environmental Reserve**




Kirbys Road Environmental Reserve is mapped as land zone 12 described as;

*Old igneous rocks forming hills and lowlands on granite rocks with low to moderate fertility (e.g. Rhyolites, granites, gabbro and dolerites)*

The subject land is typically undulating with several first and second order streams defining steep slopes and dissecting ridgelines. There are also alluvial/colluvial fans and rocky escarpments. The site is located within the headwaters of Obi Obi Creek which flows north into the Mary River.

## 2.1 Recent history and land use

According to the previous property owner the land has been managed for dairy production. Production ceased circa 1980 when the recent owners purchased the land. Since this time grazing pressure has been restricted to infrequent encroachment from neighbouring stock.

Reports of historical timber harvesting on this land is confirmed by evidence of many large tree stumps with springboard scars. This is further supported by observations of fewer large trees (i.e. dbh > 1m) than would otherwise be expected for the subject Regional Ecosystems. There are three areas on the northern portion of the property which have been maintained as open space and regularly slashed.

In 1998 the previous property owner entered into a Private Forestry Plantation Joint Venture Agreement with Forestry Plantation Queensland for a 35 year term. This agreement comprised of approximately 13.5 hectares of a Gympie messmate (Eucalyptus cloeziana) monoculture. At the time of purchase, 2011, this plantation was approximately 13 years old (established 1999). All equity, rights and responsibilities associated with the agreement are transfered to Council from the time of purchase. Manangment outcomes undertaken to date include pruning and thinning. It is important to note that E. cloeziana is not recognised as a floristic component of any of the three mapped regional ecosystems on this site.

There appears to be no documented fire history, however the previous property owner provided anecdotal accounts of fire history since circa 1980, suggesting a history of infrequent wildfire and no prescribed or planned burns. This is supported by evidence of fire scars in sclerophyll areas however the general condition of vegetation suggests

occasional wildfires rather than frequent planned burning. This observation is consistent with changes in land use since circa 1980.

There is an unconfirmed bore located on site and a large dam at the north end of the property. There was also an old cattle dip on the property which was removed shortly after Council purchased the land. All potentially contaminated soil was also removed from the site and soil tests confirmed no further contamination of surrounding soil.

The site was not previously registered in the contaminated lands register. The location of the old dip site is identified on themanagement considerations mapping layer on Council's database.

Aerial images of the site from 1976 show the extent of land clearing which has occurred here in the past. Comparative aerial images in figure 2 to 4 below also show the extensive regrowth that has occurred here since 1967.

**Figure 2: Aerial image showing land use history 1967**

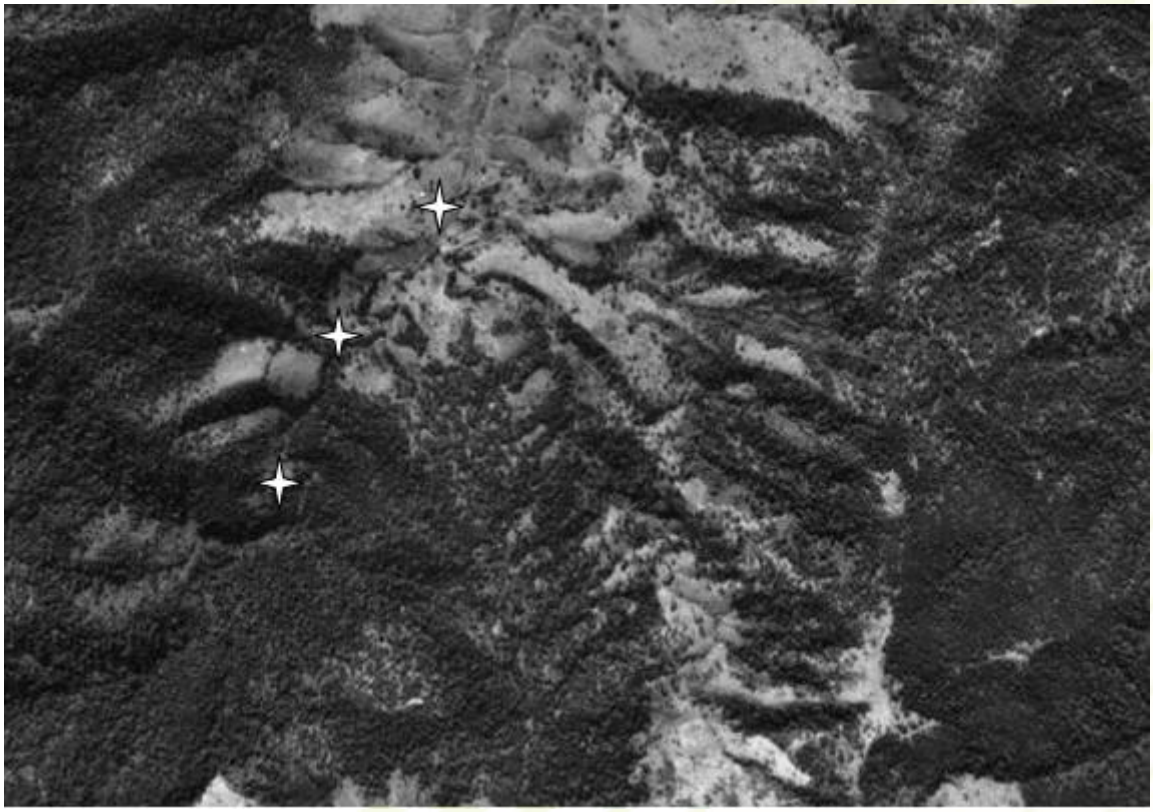


**Figure 3: Aerial image showing land use history 2008**

**Figure 4: Aerial image showing land use history 2011**

# 3 Establishment works

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

Establishment works completed for Kirbys Road Environmental Reserve to date are described in table 1.

Future managed of the reserve will be guided by this Management Plan and supporting technical documents which are also summarised in this plan:

- Kirbys Road Environmental Reserve (Lot 176 &178) Restoration Works Plan (Stephen, 2012);
- Bushland Operational Assessment, (BOA);
- Fire Management Plan;
- Flora Assessment;
- Fauna Assessment.

Kirbys Road Environmental Reserve will also be assessed for potential cultural values and further assessment undertaken if required. In addition to this, the Natural Areas Environmental Reserves Network Management Plan provides an overarching management framework to guide priorities and review schedules for management and operational activities.

## 3.1 Planning and Maintenance

The on-going planning and maintenance requirements of Kirbys Road Environmental Reserve are guided by Council's Service Level Reserve Score, (rank 1-3 for each biodiversity and recreation score).

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

The biodiversity and recreation score for Kirbys Road Environmental Reserve is B2/R3. table 2-3 lists service level requirements under this service classification.

Designed cobble style crossing at Kirbys Road Environmental Reserve prevents stream erosion.

**Table 1: Status of establishment works at Kirbys Road Environmental Reserve**

| Establishment Activity | Description | Status |
|---|---|---|
| Condition Assessment | Commission the preparation of a resilience based condition assessment to guide management planning | BOA completed 2012 |
| Restoration Works Plan | Commission the preparation of a bush Restoration works plan | RWP completed 2013 |
| Weed Management | According to the works plan all high priority areas are targeted for weed removal<br>Maintain slashing in open areas to prevent weed growth, pending revegetation in selected areas | Annual works plan implemented in line with service level for this reserve |
| Trail Maintenance | Maintenance of access and fire trails | Trails upgraded, and mapped on Council open space layer for management and maintenance scheduling.<br>Completed 2014 |
| Sediment and Erosion Control | Monitor and mitigate bed and bank erosion<br>Restore creek crossings to minimise bed damage and facilitate fauna movement<br>Install bridge upstream on branch to main channel as an alternative route to second crossing at confluence | Causeway stabilised with bedrock, completed 2012;<br>Plans finalised 2014. |
| Access Gate and fencing | Install access gates and fencing at entrance. | Access gate and fence installed 2011 |
| Revegetation | Revegetate open areas which have not been designated open space | Riparian revegetation underway with annual community planting days. Commenced 2012. 1800 trees planted in partnership with the local community |
| Signage | Install reserve signage at access points | Signage installed 2011 |
| Tenure Protection | Progress perpetual protection | Underway |
| Values assessment | Commission a flora and a fauna assessment; Undertake Cultural heritage protected matters search and follow up as required with cultural; heritage assessment | Flora survey completed, 2012; fauna survey<br>completed, 2012; cultural heritage protected matters search completed 2013; |
| Hazards removed | Address following potential hazards and waste;<br>• Remnant of farm shed;<br>• Cattle dip;<br>• Broken fences and barbed wire | Rubbish, farm sheds, a cattle dip and old fencing have been removed. Some areas of barbed wire remain insitu.<br>Soil and water tests completed following removal of cattle dip. |

**Table 2: Kirbys Road Environmental ReserveService Level category B1/R3 – District Reserve**

| Category | MP | SMI | BOA | Flora assess | Fauna assess | FMP | Work Plan |
|---|---|---|---|---|---|---|---|
| *B1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Frequency | *Frequency will be determined as an outcome of the Natural Areas Master Annual Management Plan 2014* | | | | | | |
| Current status | *Draft* | *NA* | *Complete 2012* | *Complete 2012* | *Complete 2012* | *Scheduled 2014/15* | *Complete* |

*B# = Biodiversity Class

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

**Table 3: Maintenance Service Levels**

| Category | B1 |
|---|---|
| Inspections | Monthly |
| Weed Management | Monthly |
| Revegetation | Annual |
| Prescribed burning – if required | As per FMP |
| Fire trail management drainage/surface maintenance | Annual |
| Fire trail slashing | 1-6 year/s |
| Fuel reduced zones management | 1-6 year/s |
| Tree management | Annual |
| Urgent & hazardous matter arising | 24-48 hours |

# 4 Reserve values

## 4.1 Ecological values

In addition to facilitating movement across the landscape for a wide variety of species, Kirbys Road Environmental Reserve provides valuable habitat in its own right. The following natural values have been compiled from a flora assessment report (Steven, Shaw and Oliver, 2012), fauna assessment report (O2Ecology, 2012), and Sunshine Coast Biodiversity Strategy 2010-2020. Lists of flora and fauna species from these reports are provided as appendices at the end of this report.

### Flora

The area supports five Regional Ecosystems including one Endangered; two Of Concern; and two Least Concern. These are described in table 5. The three rainforest communities identified at this site have significant conservation status.

The Sunshine Coast Council Biodiversity Report Card (2013) provides an assessment of the current status of regional ecosystems found within the region which shows that RE12.3.1 is among the most poorly conserved regional ecosystems found on the Sunshine Coast, see appendix table 2b and map 3c.

The three rainforest RE's found here are also listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act,* (EPBC, 1999), as Critically Endangered Lowland Rainforest of subtropical Australia.

### 298 native plant species have been identified at Kirbys Road Environmental Reserve.

A total of 357 plant species were identified in the flora assessment, (Stephens, Shaw and Oliver, 2012)—comprising 298 native and 59 exotic. Appendix 5 lists all flora species found at this site.

The area supports four observed Endangered, Vulnerable, or Near Threatened (EVNT) plant species, (see table 4) listed under the Commonwealth Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999), and the *Queensland Government's Nature Conservation Act 1992* (NCA 1992). Other significant species recorded are Bunya pine (*Araucaria bidwilii*); brown bollygum (*Litsea leefeana*), brush muttonwood (*Myrsine howittiana*); and maidens blush (*Sloanea australis subsp. australis*).

**Table 4: EVNT Plant species found at Kirbys Road Environmental Reserve**

| Common Name | Scientific Name | Status |
|---|---|---|
| Qld nut | Macadamia integrifolia | Vulnerable (NCA, 1992) |
| Maroochy nut | Macadamia ternifolia | Vulnerable (NCA, 1992) |
| slender milk vine | Marsdenia coronata | Vulnerable (NCA, 1992) |
| giant ironwood | Choricarpia subargentia | Near threatened (EPBC Act, 1999) |

**Table 5: Regional Ecosystems of Kirbys Road Creek Environmental Reserve**

| Vegetation Community | RE | VMA status | Description | Distribution in the reserve* |
|---|---|---|---|---|
| Rainforest | 12.3.1 | Endangered | Gallery rainforest (notophyll vine forest) on alluvial plains | Several small patches of remnant in the north central zone adjacent to streams<br>Scattered contiguous stands of regrowth along creek lines |
| | 12.12.1 | Of concern | Simple notophyll vine forest usually with abundant Archontophoenix cunninghamiana (gully vine forest) on Mesozoic to Proterozoic igneous rocks | No remnant stands<br>Regrowth along creek lines away from alluvial areas |
| | 12.12.16 | Least concern | Notophyll vine forest on Mesozoic to Proterozoic igneous rocks | Contiguous patch of remnant in upper slopes along central eastern boundary following ridgelines down<br>Relatively wide isolated patches of regrowth along upper slope drainage lines in western zone |
| Eucalypt | 12.12.14 | Of concern | Eucalyptus racemosa subsp. racemosa +/- Lophostemon confertus,Syncarpia glomulifera, Eucalyptus acmenoides woodland usually on rocky near coastal areas on Mesozoic to Proterozoic igneous rocks | The entire stand is remnant, located on the ridgelines of the north eastern boundary<br>No regrowth |
| | 12.12.15a | Least concern | Eucalyptus grandis and/or E. saligna tall open forest +/- vine forest understorey. Other canopy species include E. microcorys, E. acmenoides, Lophostemon confertus, E. siderophloia, E. propinqua, Corymbia intermedia. Occurs in wet gullies on Mesozoic to Proterozoic igneous rocks. (BVG1M: 8a) | Large patches of remnant on the mid to upper slopes in southern and eastern ends<br>Regrowth in isolated gullies protected from fire |
| | 12.12.15b | Least concern | Lophostemon confertus open forest +/- Eucalyptus microcorys,<br>E. siderophloia, E. carnea and E. propinqua. Vine forest species are often present in understorey. Occurs in gullies and exposed ridges on Mesozoic to Proterozoic igneous rocks often amongst vine forest. (BVG1M: 8a) | Contiguous patch of remnant in southern zone and upper slopes<br>Scattered patches of regrowth across whole site |

*Site specific RE distribution map provided in the Kirbys Road Environmental Reserve Flora Assessment Report, 2012.

## Fauna

Fauna surveys have found a high diversity of fauna at Kirbys Road Environmental Reserve, (O2 Ecology, 2012). Field surveys conducted over spring and summer 2012 identified 133 native vertebrate fauna species, comprising the following numbers of species in each of the major terrestrial vertebrate fauna groups:

- 84 bird species
- 13 ground dwelling and arboreal mammal species
- 8 micro bat species
- 13 reptile species

Appendix 6 lists all current fauna records for the site.

Eight EVNT fauna species are known to occur at this site, including two mammals, one reptile and five birds. This includes records of one koala (*Phascolarctos cinereus*) seen in 2012 and evidence of koalas using trees in 2010.

Four EPBC Act (1999) listed terrestrial migratory birds were recorded in the fauna survey, and calls heard of NC Act (1992) listed near threatened sooty owl.

Details of the status of EVNT species recorded at Kirbys Road Environmental Reserve are shown in Table 6 below.

Kirbys Road Environmental Reserve also contains suitable habitat and previous nearby records of other endangered or vulnerable species including the glossy black-cockatoo (*Calyptorhynchus lathami lathami*), the plumed frogmouth (*podargus ocellatus plumiferus*), tusked frog (*Adelotus brevis*), and cascade tree frog (*Litoria pearsoniana*).

There is suitable habitat although no nearby records for the endangered coxen fig parrot (*Cyclopsitta coxeni*), eastern bristelbird *(Dasyornis brachypterus*), giant barred frog (*Mixophyes iterates*) and the spotted tail quoll (Dasyurus maculatus maculatus).

**Table 6: Significant fauna species known to occur at Kirbys Road Environmental Reserve**

| Common Name | Scientific Name | Status |
|---|---|---|
| elf skink | Eroticoscincus graciloides | Near Threatened (NCA, 1992) |
| grey headed flying fox | Pteropus poliocephalus | Least concern (NCA, 1992)<br>Vulnerable (EPBC, 1999) |
| koala | Phascolarctos cinereus | Vulnerable (NCA, 1992) |
| Vulnerable (EPBC, 1999) | | |
| sooty owl | Tyto tenebricosa tenebricosa | Near Threatened (NCA, 1992) |
| spectacled monarch | Symposiarchus trivirgatus | Migratory (EPBC, 1999) |
| rufous fantail | Rhpidura rufifrons | Migratory (EPBC, 1999) |
| rainbow bee-eater | Merops ornatus | Migratory (EPBC, 1999) |

Five Regional Ecosystems are found in this reserve providing a wide range of habitat for fauna and flora species. The area is approximately 5% vegetated with Endangered and 25% vegetated with Of Concern Regional Ecosystems pursuant to the Qld VM Act (1999). This vegetation is poorly conserved in the National Reserve System in the South East Queensland bioregion.

A range of rare and endangered species found within this site are dependent on the areas preserved habitat characteristics. This includes suitable koala food trees (e.g. Eucalyptus resinifera, E. robusta, and Corymbia intermedia); and rainforest and ecotonal habitats required for the elf skink.

The diverse topography and vegetation supports a wide range of potential habitats for fauna and flora. These habitat features include creeks with defined riffles and pools; riparian vine forest; wet sclerophyll forested hill slopes; rocky outcrops and escarpments; and grassy open areas.

Kirbys Road Environmental Reserve provides opportunities to connect across two important landscape features—the east-west corridor between core habitat areas of Kondalilla National Park and the Conondale Ranges; and the riparian corridor linking the lower areas of the Mary River catchment to the headwaters in the Maleny Plateau.

Habitat links protect biodiversity by providing opportunities for range extension; genetic mixing and migratory movements essential to the survival of many fauna and flora species.

Revegetation of the previously cleared creek flats will extend riparian connectivity between the lowlands of Obi Obi Creek and the Maleny Plateau. This will also improve water quality and protect other instream habitat values for the catchment, including opportunities to extend the breeding range for the endangered Mary River cod, (Maccullochella peelii mariensis) and the endangered Mary River turtle (Elusor macrurus).

This reserve is identified under the Sunshine Coast Biodiversity Strategy 2010-2020 as core habitat; connecting habitat and inter linkage area.

## 4.2 Cultural and social values

### Indigenous

Kirbys Road Environmental Reserve is located within the native title determined boundary of the Jinibara People. The reserve is private land tenure and therefore subject to the non-exclusive native title rights of the Jinibara People, including the right to hunt, fish, participate in ceremonies and be buried on the land.

A search of the Cultural Heritage Database and Register for lot on plan 176MCH798, and 178MCH865 advised that at the time of purchase there was no Aboriginal cultural heritage recorded for this site. However, it is noted that the absence of recorded Aboriginal cultural heritage places reflects a lack of previous cultural heritage surveys of the area. Therefore, current records are not likely to reflect a true picture of the Aboriginal cultural heritage values of the area.

All significant Aboriginal cultural heritage in Queensland is protected under the *Aboriginal Cultural Heritage Act 2003*, and penalty provisions apply for any unauthorised harm. Under the legislation a person carrying out an activity must take all reasonable and practical measures to ensure the activity does not harm Aboriginal cultural heritage (for details refer to the *Aboriginal Cultural Heritage Act 2003, Duty of Care Guidelines, 2004*).

### Recreation

The site contains a network of historic tracks and trails. Some of these have been maintained for effective management of the reserve to provide access to practitioners for the restoration program; to allow further assessment work to be carried out; to access and maintain plantations and to implement the future recommended fire regime.

Existing trail networks provide opportunities for Council to investigate future recreational uses for this reserve. This is also supported in Council's strategic planning policy where Kirbys Road Environmental Reserve is identified within a future recreation park district as shown in Figure 5. However capital

planning for infrastructure investment in this area is not scheduled to occur before 2031.

All Environmental Reserves within Council are divided into five broad access categories. Kirbys Road Environmental Reserve is categorised as a “bushland reserve” where access is unsupervised and facilitated and managed through signage, reserve landscape design and plans and purpose-built infrastructure

**Management action**

Kirby Road Environmental Reserve – category bushland reserve. Develop a detailed landscape plan showing the locations and design for potential eco-recreational opportiunities.

### Restoration/eco-recreation

An annual field day involving tree planting and nature based interpretive activities have been well attended at Kirbys Road Environmental Reserve. These events have attracted 30-80 members of the local and wider community with 1800 trees planted on the riparian restoration zone between 2013 and 2014.

Key partners for public restoration projects held at this site include local residents; Hinterland Bushlinks—a local community restoration group; and the Mary River Catchment Coordinating Committee.

Birdlife Sunshine Coast members have also visited the site annually to conduct bird surveys. Bird lists have been provided to Council for future management resources and these are included here in appendix 5.b

## 4.3 Economic values

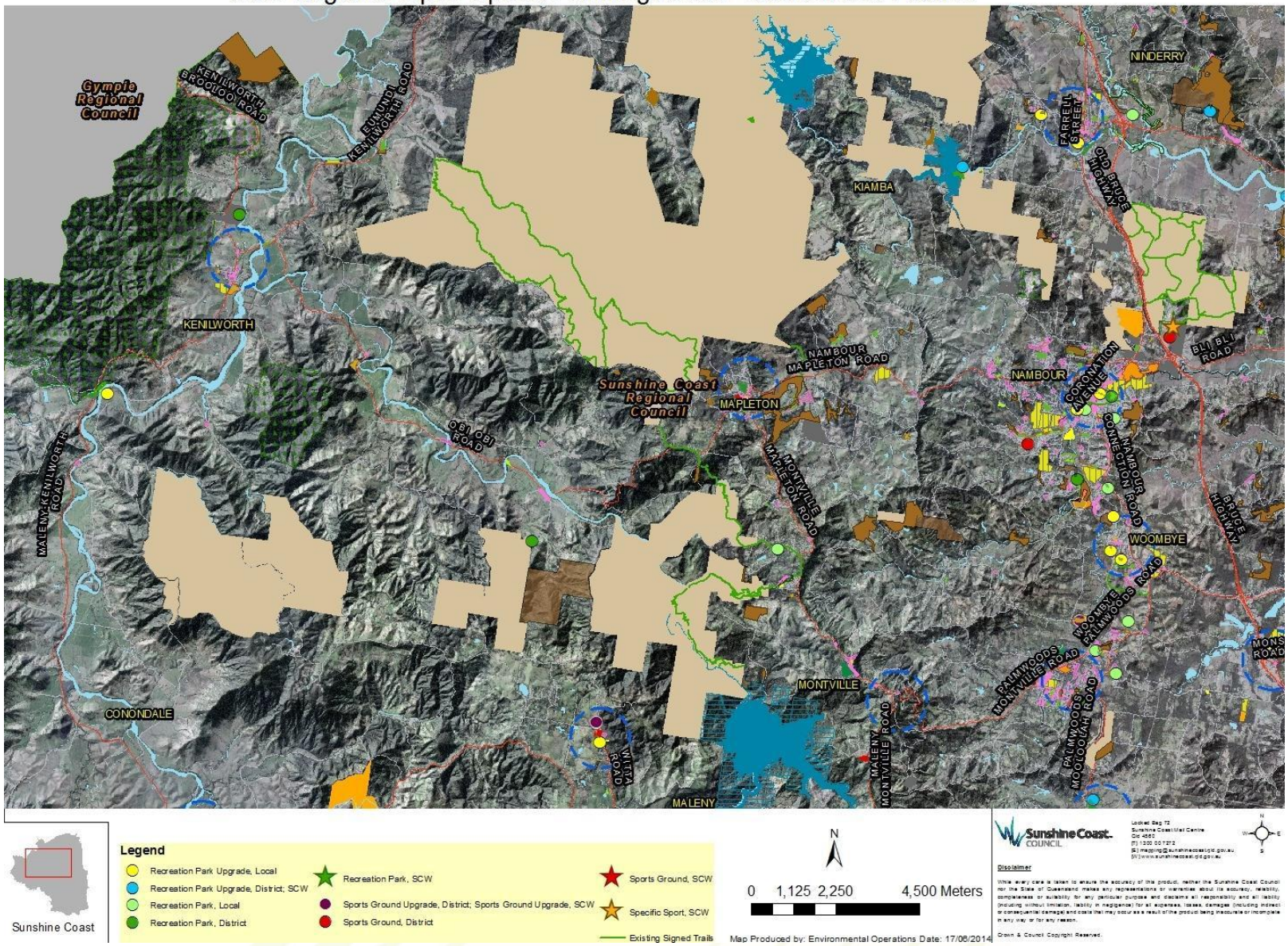
In 1998, a Private Forestry Joint Venture deed of agreement with HQ Plantations Pty Ltd (formerly Forestry Plantation Queesland) was established. There are three forestry plots within the reserve comprising a total area of approximately 13.5ha of Gympie messmate (*Eucalyptus cloeziana*).

As at 2014, this plantation is approximately 15 years old. Council’s key ongoing responsibilities will be the protection of the plantation through to harvesting. The plantation maintainence costs at Council’s own expense will be offset by the equity added to Council’s share of the investment as agreed in the Joint Venture deed of agreement with HQP (Queensland Department of Primary Industries, Private Forestry Plantation Joint Venture Deed 1999).

Community bush care events are popular at Kirbys Road Environmental Reserve.

**Figure 5:**

SCC Regional Open Space Planning Areas - Current and Future.



## 4.4 Condition of values

Kirbys Road Environmental Reserve has been subject to historic land use practices of widespread and successive native vegetation clearing resulting in changes to the vegetation age, composition and habitat structure. This has impacted the ecological function of remnant and regrowth stands, including impeding the opportunities for genetic exchange and dispersal of both fauna and flora species.

The low recorded diversity and abundance of arboreal mammals is evidence of lost habitat function caused by vegetation fragmentation in the landscape and loss of mature habitat structures such as hollow bearing trees and fallen logs.

Despite a history of disturbance the site shows signs of healthy resilience and existing vegetation recovery with widespread multi-age recruitment of native species.

State vegetation mapping for the site shows the extent of remnant vegetation is largely confined to the ridges and steep slopes covering approximately 50% of the reserve, as shown in Appendix 1b.

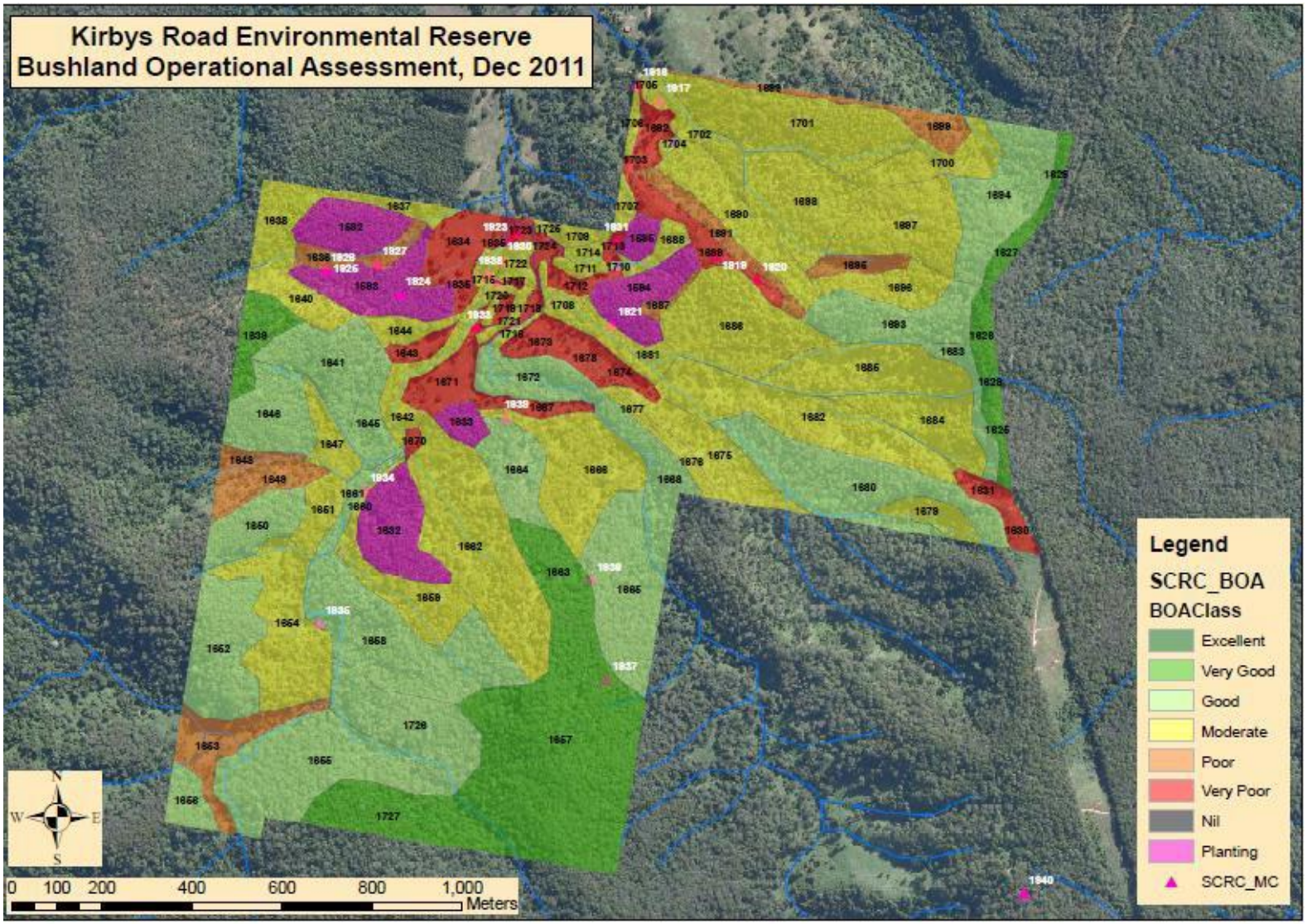
Seasonal drainage lines show signs of historic disturbance causing changes to bed formation associated with sedimentation caused by past land clearing.

This habitat also appears to be in recovery with restored pool, riffle, and run sequences. There is evidence of stream bed erosion caused by disturbance downstream leading to upward migration of an erosion front toward the first crossing of the main channel located within 50m of the property boundary. This impact is being addressed in current management actions, (see section 6.)

Large rocky outcrops and boulders are scattered throughout areas of the sclerophyll and vine forests located on the slopes and gullies which are supporting a diverse range of epiphytes, cryptogams and lianas extending into the nearby forest habitat. This provides further evidence of high resilience and protection of some of the older habitat structure within the reserve.

A Bushland Operational Assessment (BOA) has been completed for this site, as shown in Figure 6 below. The BOA is useful as a vegetation condition assessment tool which guides bush restoration activities. As shown in figure 6 the condition of the whole reserve area is mapped with areas ranging from excellent, moderate and poor condition to less resilient areas which require active tree planting.

**Figure 6: Vegetation Condition Assessmemt at time of purchase (BOA Map, Brush Turkey Enterprises, 2011)**



# 5 Bioregional and Landscape Context

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

## IBRA

Interim Biogeographic Regionalisation for Australia (IBRA) is endorsed by all levels of government as a key tool for identifying land for conservation. Australia's landscapes have been classified into 89 large geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. Under the latest IBRA (7), Kirbys Road Environmental Reserve is located the SEQ bioregion (no.74) which has a total area of 59,403 square kilometres.

## Catchment

The reserve is located within the Obi Obi River catchment which occurs in the upper reaches of the iconic Mary River catchment

## Local Planning Context

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

## CAR Contribution

***Comprehensive****:* There are five regional ecosystems occurring within the Kirbys Road Environmental Reserve which are included in the SEQ bioregion and SEQ03-Burringbar Conondale Ranges sub-region province. These are identified on the RE map in Appendix 1 b.

***Adequate****:* With an area of 213.36 ha of protected area comprising the river valley and surrounding slopes this site gives adequate protection to the remnant vegetation. There are also a number of state protected areas adjoining Kirbys Road Environmental Reserve which further adds to ecological viability and maintains the integrity of populations, species and communities in this area. The reserve contains large areas which are mapped as part of an SEQ regional corridor and mapped biodiversity significance, (see maps in Appendix 1—enhancing regional habitat connectivity; maintaining ecosystem processes and building climate change resilience).

***Representative****:* At a finer scale the five RE's found within the Kirbys Road Environmental Reserve provides representation of the pre-clearing landscape that once existed across the Conondale Ranges. The site preserves a typical mosaic of habitat ranging from riverine to hill slopes and escarpment, including lowland rainforest, grasslands, open eucalypt woodlands and sclerophyll forest.

# 6 Management issues

## Regional Background

The SEQ region is the most densely populated part of Queensland, experiencing rapid growth over the previous two decades, (Ambrey and Fleming, 2011). In 2007 Brisbane city was the second fastest growing urban centre in the developed world (Newman, 2007) and the resident population of the region is projected to increase by 44 per cent, to 4.4 million, by 2031 (Office of Economic and Statistical Research, 2010).

Accompanying this significant population growth has been continued biodiversity loss as a result of native habitat degradation and fragmentation, competition from introduced plant and animal species, and climate change.

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

The issue of biodiversity loss is a pertinent one for this region, and the restoration and recovery of significant habitat corridors, catchments, and remnant vegetation such as occurs at Kirbys Road Environmental Reserve will play an important role in protecting ecological function and associated biodiversity for SEQ.

## Preliminary Risk Analysis

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

- maintenance cost of open areas;
- pest animals;
- environmental weeds;
- tenure security;
- cost of farm forestry maintenance.

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

**Table 7: Summary of reserve management risks and opportunities**

| Risks | Opportunities |
|---|---|
| Costs: High costs associated with maintaining or restoring large areas of open space. | Vegetation Offset Projects<br>Community Conservation Partnerships – bush Restoration and revegetation Recreational partnerships<br>Partnerships with QPWS – neighbours<br>Environment Levy provides opportunity for adequate establishment investment to build long term resilience and reduce future maintenance costs. |
| Declared animals | Currently managed |
| Declared plants | Class 2 plants are currently managed |
| Large areas of environmental weeds | The site provides opportunity to test innovative methods such as use of goats for woody weeds |
| Tenure does not guarantee long term environmental protection | Progress legal mechanism to protect conservation values in perpetuity (e.g. nature refuge)<br>Compatible recreational use Educational use |
| Cost to maintain forestry coup | Partnership with HQ Plantations Carbon offsets<br>Harvesting profits |
| Fire | Develop a Fire management Plan in partnership with QPWS |
| Bell Miner Associated Dieback (BMAD) | Trilas of integrated management will incude restoring native midstorey vegetation; Monitor progress |

## Environmental Weeds and Declared Animals and Plants

Six class 3; two class 2 declared plant species and 44 invasive weed species identified at this site, (Stephen et al, 2012).

At least one fox and one cat were recorded in the fauna surveys. Although there were no dogs recorded, the adjoining protected areas are known to have wild dogs and foxes present. It would be expected that both species may traverse or periodically occupy the Environmental Reserve.

Roaming domestic animals associated with the surrounding farmland located on the boundary may also pose risks to native fauna and flora. For example Cows have been found to wander into the reserve where fence lines have broken down.

Council manages wild dog and fox populations through its pest management unit and has an endorsed pest management plan.

**Management action**

Implement pest management activities in line with Sunshine Coast Local Government Area Pest Management Plan 2012-2016.

## Dieback/Tree Stress

Bell Miner Associated Dieback (BMAD) has been identified in the tall stand of flooded gum (*Eucalyptus grandis)* located at the entrance to the reserve. This form of forest dieback is a significant threat to the sustainability of the moist eucalypt forests of south-eastern Qld, and to biodiversity conservation at a national scale, (Wardell et al, 2006). At Kirbys Road Environmental Reserve, BMAD is therefore a threat to the remnant and regrowth eucalypt forests and the forestry coups.

BMAD is directly caused by the elevated numbers of the herbivorous insects known as psyllids, which feed in the canopy of the eucalypts. Psyllids do not always cause dieback, however the bell miner and psyllid inter-relationship leads to critical increases in psyllid numbers causing dieback.

There is some evidence that bell miners nest in dense understory—habitat that can be rendered more favorable by the opening of the overstorey canopy. An open midstorey may also favor bell miners, (Wardell et al, 2011.). This supports the suggested link between lantana and BMAD where the presence of lantana reflects ideal habitat structure for bell miners and increased canopy opening, creating a more favorable dense understory for bell miners.

Forest fragmentation, including internal fragmentation (e.g. roads and power lines); changed disturbance regimes (particularly fire and logging), and pathogens are also implicated in the susceptibility of an area to BMAD.

Psyllids feed on nitrogen rich young foliage—tree crowns and epicormic growth in eucalypts. Therefore changes in soil nutrients, light penetration, climatic regimes and hydrological factors have also been suggested to cause BMAD.

BMAD is associated with interacting disturbances; therefore concentration on particular management regimes in isolation is unlikely to resolve the BMAD problem. Rather, an integrated management program will be necessary.

## Fire

Kirbys Road Environmental Reserve shows signs of limited previous fire management which may have impacted negatively on this vegetation community. The development of a detailed fire management plan will provide guidance for asset protection and for maintaining ecological processes.

**Management action**

Implement weed management activities to control lantana and restore native vegetation in the in the mid-storey, particularly where there is occurrence of bell miners.

Continue monitoring extent of BMAD

Future fire management undertaken at this site will also have to be carried out in partnership with QPWS due to the connectivity with the adjacent national park.

The area has an existing maintained trail which provides access for management purposes and emergencies. Access will be limited to authorised vehicles only through a series of locked gates.

**Management action**

Maintain recently upgraded fire access trail. Fire management plan scheduled for 2014-15.

Fire management plan will give due consideration to the requirements of listed fauna and flora and associated habitat

Identify and protect remaining habitat trees and large hollow logs from fire damage

## Erosion

Stream bed and bank erosion is occurring in the valley floor of the reserve where tree clearing has historically been most extensive. This has also been affected by extensive clearing in downstream reaches beyond the property boundary, causing upstream migration of bed erosion.

Stream bed erosion impacts have been mitigated by installing large bedrock style boulders into the stream bed at the old causeway crossing, overlayed by large cobble. In addition, the once cleared stream bank in this section is part of the immediate restoration tree planting project.

The crossing located at the confluence of the main channel and the first tributary is poorly located. Best practice advises against locating crossings at stream confluences as these are geomorphologically dynamic areas, susceptible to further erosion if disturbed.

**Management action**

Close the stream crossing at the confluence of the tributary and the main channel.

Upgrade and install a bridge at the alternative crossing upstream on the tributary

Continue riparian revegetation of exposed banks.

## Salinity/Acidity

The terrestrial areas of the site do not exhibit impacts relating to salinity or acidity. However preliminary water quality analysis has recorded unexplained high acidity. It is not known whether this is a natural water quality feature—an unusual result for this area—or is an indication of disturbance or pollutants entering the site.

**Management action**

Undertake freshwater ecology assessment including targeted water quality and macroinvertebrate analysis aimed at explaining high pH records found at this site.

## Historical Land Use

### *Vegetation Clearing*

The site has been impacted by a history of vegetation clearing with few old growth habitat trees remaining. Some cleared paddocks still remain open.

**Management action**

Prioritise and implement riparian revegetation.

Investigate opportunities for offsets or community planting to revegetate some of the existing open areas as per future land use plan (Figure 7)

### *Stock Grazing*

There is evidence of old fencing in the area however there is negligible impact. Where old fencing is still in place a program of removal will ensure a reduced potential for wildlife injuries.

**Management action**

Remove fences if not required or present a risk to staff or fauna

### *Timber Extraction*

There is evidence that the area has been selectively logged. The extent of mapped vegetation, diversity of life forms and multi aged recruitment of native species demonstrate that the area continues to recover from previous timber extraction.

**Management action**

Continue to manage reserve to allow for ongoing natural recruitment of native species.

### *Visitor Use and Impact*

Road access is not currently available to the public without prior consent from Council.

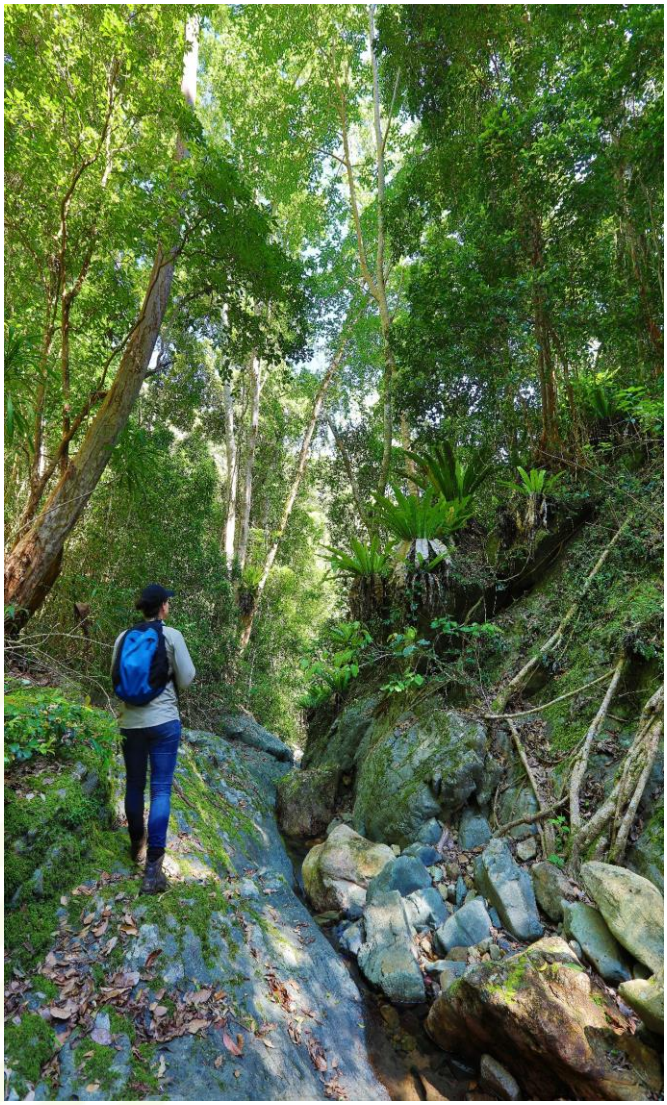
The adjoining State Forest areas provide for a variety of public access and use. This includes walking, cycling and horse riding.

**Management action**

Retain designated open areas for potential future use by visitors (see figure 5)

Maintain designated trail network for future use

Scope ideas through consultation for a potential mountain bike and/or walking trail network.



Hiking one of many creek gorges at Kirbys Road Environmental Reserve

## Climate Change

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

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

Actions to build resilience of the biodiversity on the Sunshine Coast are a major focus of the *Sunshine Coast Biodiversity Strategy 2010-2020.*

**Management action**

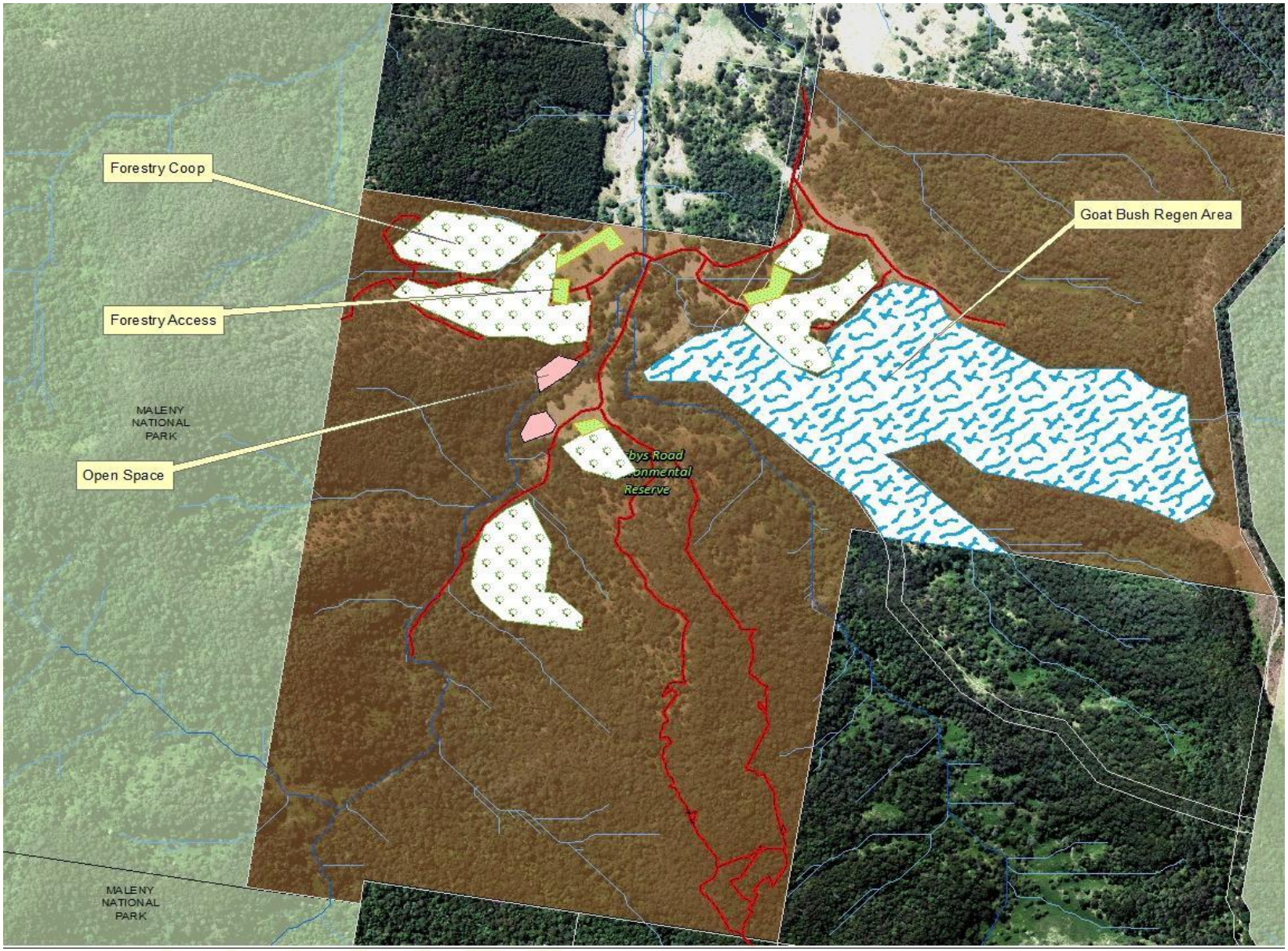
Build resilience in stream ecosystems by restoring riparian vegetation and controlling bank and bed erosion.

Build resilience to change through habitat connectivity.

Build resilience to hydrological changes through protecting natural surface and groundwater flows.

Integrate recommendations of Council's Climate Change and Peak Oil Strategy, 2010 - 2020.

**Figure 7: Future land use at Kirbys Road Environmental Reserve**



# 7 Implementation plan

## 7.1 Purpose of the protected area

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

## 7.2 Management objectives

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

## 7.3 Protection mechanism

The Kirbys Road Environmental Reserve is being investigated for perpetual protection through legally binding mechanisms such as a Nature Refuge Agreement with the Queensland Government.

Therefore the intent of reserve management is established through this management plan to ensure future protection mechanisms are not compromised.

With this approach the Kirbys Road Environmental Reserve could be successfully added to the Commonwealth Governments National Reserve System and would be managed in accordance with IUCN Management Category II.

> Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provides a foundation for environmentally and culturally compatible spiritual, scientific, educational, and visitor opportunities.

**Management action**

Pursue perpetual protection of values through a legally binding mechanism such as a Nature Refuge under the Nature Conservation Act 1992.

## 7.4 Restoration goals

The restoration of the Kirbys Road Environmental Reserve cleared areas aims to significantly increase ecological connectivity within the landscape. The outcomes of the project are conservation-focused, in particular the expansion of habitat access opportunities for the known and expected fauna and flora of the region.

**Management action**

Facilitate natural bush regeneration by following the current and revised Restoration Works Plan for this site

Monitor weed growth and prioritise control as required in line with established service level.

Areas of open grassland provide unique habitat and food resources for many small mammals, macropods and birds. Therefore it is recommended to maintain some patches of open grassy areas in the reserve planning. These have been identified in figure 7.

**Management action**

Protect and restore habitat for grazing macropods and other native grass dependent species through retention of understory grassland and some open areas.

The Kirbys Road Environmental Reserve Restoration Works Plan (2012) describes priorities for restoration activity based on the BOA mapping. All vegetation management activities undertaken on this site are guided by this works plan. The works plan will be reviewed every five years.

**Management action**

Review restoration works plan in 5 yrs.

## Significant Fauna and Flora

Twelve EVNT fauna and flora species have been found at Kirbys Road Environmental Reserve. A range of management responses are included here based on survey recommendations, and commonwealth and state guidelines.

Recovery plans for listed threatened species and ecological communities have been made or adopted under the *EPBC Act 1999*. Once a recovery plan is in place, Australian Government agencies must act in accordance with that plan.

The following plans are available for EVNT species relevant to Kirbys Road Environmental Reserve: 1. the Mary River Cod Research and Recovery Plan - Simpson and Jackson, Queensland Department of Primary Industries, Fisheries Group; 2. Southern Macadamia Species Recovery Plan – Costello, Gregory and Donatiu, for Horticulture Australia Limited and the Australian Macadamia Society.

**Management action**

Ensure management actions are in accordance with recovery plans available for EVNT species.

Under the DEHP Back on Track Species Prioritisation Framework, the management of the grey headed flying fox (*Pteropis poliocephalus*) is ranked as a critical priority. This species roosts intermittently at Kirbys Road Environmental Reserve.

Requirements for other significant fauna include maintaining or revegetating with suitable koala food trees (e.g. *Eucalyptus microcorys, E. teriticornis, and Corymbia intermedia*); protecting habitat for the elf skink which prefers moist conditions under leaf litter in rainforest and low lying pockets within drier forest, (Queensland Museum, 2007). Threats to this species include habitat alterations which may open the canopy cover, lower moisture levels and reduce litter accumulation, (DNR, DoE and EA, 1988).

Fire management of this reserve will also consider the ecological requirements of significant fauna and flora species.

**Management action**

Maintain records of numbers of flying fox known to roost at this site.

Include locally occurring koala food trees (e.g. Eucalyptus microcorys; E. teriticornis, E. propinqua and Corymbia intermedia) in tree planting

Protect and restore rainforest and ecotonal habitats required for EVNT listed Elf skink.

## Management Actions

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

Key technical reports and plans which guide these management outcomes are the Kirbys Road Environmental Reserve Restoration Works Plan, 2012; BOA; and proposed future use map shown in figure 5.

**Table 8: Management Implementation Plan for Kirbys Road Environmental Reserve**

| MANAGEMENT ACTIONS | | |
|---|---|---|
| Native Flora and Fauna | | |
| • Implement prioritised actions of Restoration Works Plan | Annual maintenance | Underway |
| • Ensure management actions are in accordance with recovery plans available for EVNT species. | Commonwealth recovery plans are available for macadamia sp and the Mary River cod. | Underway |
| • Remove fences if not required or present a risk to staff or fauna | | Not assessed |
| • Add to maintenance schedule records of numbers of flying fox known to roost at this site | MP | Scheduled |
| • Include locally occurring koala food trees (e.g. Eucalyptus microcorys, E. teriticornis, E.propinqua and Corymbia intermedia) in tree planting | MP | Noted |
| • Protect and restore rainforest and ecotonal habitats required for the elf skink. | MP | Noted |
| Environmental weeds, declared plants and pest animals | | |
| • Monitor natural Restoration | BOA 5 year review 2017 | Scheduled |
| • Implement weed management activities to control lantana and restore native vegetation in the mid- story to prevent BMAD, particulary in intact areas where there is occurence of bell miners. | Annual maintenance | Scheduled |
| • Continue monitoring extent of BMAD | Annual maintenance | |
| • Implement pest management activities in line with Sunshine Coast Local Government Area Pest Management Plan 2012-2016 | | |
| • Trial assisted Restoration with goats | See proposed future land use map fig 5 | Scheduled 2014/15 |
| Fire | | |
| • Maintain recently upgraded fire access trail | Annual maintenance | Underway |
| • Fire management plan scheduled for 2014-15 | FMP | Scheduled 2014/15 |
| • Fire management plan will give due consideration to the requirements of listed fauna and flora and associated habitat | | |
| • Identify and protect remaining habitat trees and large hollow logs from fire damage | | |

| | | |
|---|---|---|
| Erosion | | |
| • Close the stream crossing at the confluence of the tributary and main channel and upgrade the alternative crossing located upstream on the tributary<br>• Investigate and if feasible install available steel span bridge at upstream crossing of tributary. | | Scheduled<br>Underway |
| Salinity/acidity | | |
| • Undertake freshwater ecology assessment including targeted water quality and macroinvertebrate analysis aimed at explaining high pH records found at this site | | Not assessed |
| Historical Land Use | | |
| <u>Land Clearing</u><br>• Facilitate natural bush regeneration by following the current and revised RWP for this site<br>• Continue to manage the reserve to allow for ongoing natural recruitment of native species.<br>• Prioritise and implement riparian revegetation<br>• Investigate opportunities for offsets or community planting to revegetate some of the existing open areas as per future land use plan (figure 5.)<br><u>Stock Grazing</u><br>• Where fences are still in place these will be investigated for removal if not required or present a risk to staff or fauna | RWP<br>RWP<br>RWP | Underway<br><br>Underway<br>Not assessed<br><br>Not assessed |
| Visitor Use and Impact | | |
| • Visitor access will be reviewed within the broader context of the Recreational Trails Strategy and the Natural Areas Environmental Reserves Network Management Plan<br>• Signs and gates installed which identify the area as part of Council's Environmental Reserve network.<br>• Retain designated open areas for potential future use by visitors<br>• Maintain designated trail network for future use | ERNMP<br>Establishment<br>See proposed future land use map (fig 5) | Underway<br>Completed 2011<br>Scheduled |

| | | |
|---|---|---|
| • Scope ideas through consultation for passive open space areas for nature based play space, picnic facilities, kick and throw, mountain bike and/or walking trail head network (District recreation park – natural setting) | SCC Open Space and Rec trails strategy – capital works funding post 2031 | To be assessed |
| • Kirby Road Environmental Reserve – category bushland reserve. Develop a detailed landscape plan showing the locations and design for potential eco-recreational opportiunities. | ERNMP | Underway |
| Climate Change | | |
| • Integrated planning with Sunshine Coast Climate Change and Peak Oil Strategy, 2010-2020. | ERNMP | Underway |
| • Build resilience in stream ecosystems by restoring riparian vegetation and controlling bank and bed erosion | MP | Underway |
| • Build resilience to change through habitat connectivity | Biodiversity Strategy; Planning scheme | Underway |
| • Build resilience to hydrological changes through protecting natural surface and groundwater flows. | | To be assessed |
| Tenure Security/Protection Mechanism | | |
| • Persue perpetual protection of values through a legally binding mechanism such as a Nature Refuge under the *Nature Conservation Act 1992.* | ERNMP; SCC Biodiversity Strategy 2010-2020 | Underway |
| Restoration Goals (NB: also includes actions related to the implementation of the Bush Restoration Works Plan) | | |
| • Facilitate natural bush regenaration by following the current and revised Restoration Works Plan for this site | RWP | Underway |
| • Prioritise and implement riparian revegetation | RWP | Underway |
| • Monitor weed growth and prioritise control as required in line with established service level. | Annual Maintenance | |
| • Review restoration works plan in 5 years | MP | Scheduled |
| • Protect and restore habitat for grazing macropods and other native grass dependent species through retention of understory grassland and some open areas | MP | Plan Figure 5. |

*ERNMP: Environmental Reserves Network Management Plan; SMI: Statement of Management Intent; BOA: Bushland Operational Assessment; FMP: Fire Management Plan; NRS: National Reserve System; MP: this Management Plan; RWP: Restoration Works Plan.

## Finance and resourcing

The Natural Area management program delivers the restoration, maintenance and development of Council's 4352ha natural area open space, three (3) environmental visitor and education centres and a 90km multiuse recreational trail network. The primary intent of the program is to manage and enhance the environmental values and support sustainable public access opportunities of the Natural Areas open space estate and recreational track and trail network under Council's control.

### *Establishment*

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

### *Operational*

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

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

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

### *Community Conservation Partnerships Unit*

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

The Community Conservation Partnership Program enhances ecological assets within both the private and public estate. The metrics that characterise the service level are based around officer time and service outcomes with the measures of effectiveness being the area of land actively under protection along with a measure of the community in-kind and financial contribution.

### *Pest Management Unit*

Pest management fulfils and delivers Council's statutory responsibility to manage impacts of declared and environmental pest plant and animals on Council owned lands. This includes the road reserve system, environmental reserves and open space network.

Pest management sits within the two defined programs of pest plant and pest animal (both declared species and problematic wildlife).

## 7.5 Monitoring

The SEQ NRM Plan uses the Monitoring, Evaluation, Reporting and Improvement (MERI) plan. Figure 7 shows the MERI program logic which provides time-frames and outcomes linked to the management plan objectives which can be assessed during monitoring and evaluation.

The MERI plan provides a framework to:

a) evaluate the contribution of the reserve to the overall Sunshine Coast reserve network,

b) evaluate the effectiveness of the methodology and approach used,

c) incorporate lessons learned into future work in the area of land purchased for inclusion in Council's reserve estate.

Figure 8: MERI

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

## 7.6 Communications Plan

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

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

### Publicity about the Values and Achievements

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

## 7.7 Management Plan review schedule

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

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

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# Appendices

## Appendix 1: National Reserve System Principles of Protected Area Management

### *Interconnectedness of values and places*

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

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

### *Good neighbor*

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

### *Community participation and collaboration*

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

### *Environmental stewardship*

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

### *Transparent decision making*

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

### *Effective and adaptive management*

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

### *Appropriate use*

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

### *Indigenous people's knowledge and role*

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

The role of Indigenous organisations in the protection and management of country is acknowledged.

### *Applying the "precautionary principle"*

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

### *Inter-generational and intra-generational equity*

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

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