



# DOONAN CREEK ENVIRONMENTAL RESERVE LANDSCAPE PLAN



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*Eucalyptus spp.* (Paul Barden 2016).



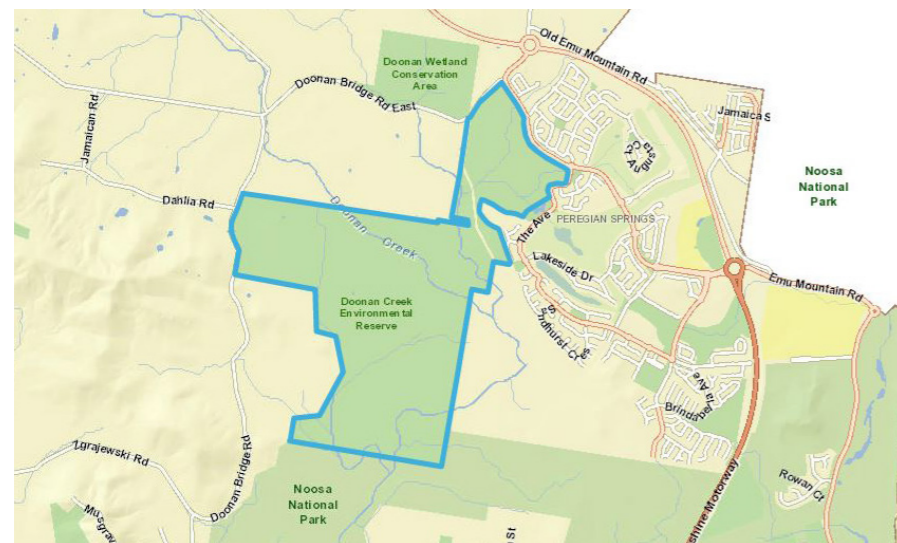
# 1.0 INTRODUCTION

Doonan Creek Environmental Reserve was purchased by Sunshine Coast Council in August 2013 under the Environment Levy Land Acquisition Program to protect the site's biodiversity and support a critical link in Commonwealth mapped Maroochy - Noosa Wallum Corridor. With the adjoining environmental reserve properties, the area comprises 334 hectares of diverse coastal floodplain habitat including seven different vegetation communities.<sup>1</sup>

## Culture and Environment

The name 'Doonan' is thought to be named from the Aboriginal word meaning "leaf of a tree".<sup>2</sup> There is evidence of past activities by the Kabi Kabi peoples and their reliance on the abundant food sources of the natural area, as well as land management practices making this area culturally and historically significant. In 1872 the Qld Government set aside approximately 4000 hectares, which encompassed Doonan, as a reserve for "aboriginal mission purposes". In 1878 the aboriginal reserve was cancelled and the land opened for selection and settlement.<sup>3</sup> Today remnant wetlands and vegetated areas cover most of the site which includes endangered lowland subtropical gallery rainforest, koala habitat, scribbly gum forest, areas of coastal heath, melaleuca forest, and wetlands. Approximately 29ha remain as cleared open space.

<sup>1</sup> Reid, H., & Munro, J. (2017). Wetland Restoration Plan - Stage One: Assessment of Existing Conditions. Byron Bay.  
<sup>2</sup> Sunshine Coast Council. (2017, August 08). Doonan, Lake Weyba. Retrieved from Sunshine Coast Library: <https://library.sunshinecoast.qld.gov.au/Heritage/History-by-Locality/Town-Histories/Doonan>  
<sup>3</sup> Noosa Council. (2017). Indigenous History. Retrieved from Noosa Library Service: <https://www.libraries.noosa.qld.gov.au/indigenous-history>



Location map

## Environment reserve category

Within the conservation estate council manages five categories of environment reserves based on the site's environment values and suitable public access. These include:

- conservation reserves
- nature reserves
- bushland reserves
- natural amenity reserves
- coastal reserves.

Doonan Creek Environmental Reserve is in the open space management category "Bushland"<sup>4</sup>. Under this category the primary purpose of reserve management is to protect and enhance the sites terrestrial, riparian, and aquatic habitats. Bushland Environmental Reserves have areas of degraded habitat (cleared areas and non-remnant vegetation) that requires rehabilitation to consolidate the reserve and build landscape connectivity and also contain large areas of remnant vegetation and may contain rare and threatened species.

This reserve category may support sustainable nature based activities and allow for unsupervised access which is facilitated and managed through the development of a reserve landscape design and purpose built signage and infrastructure.

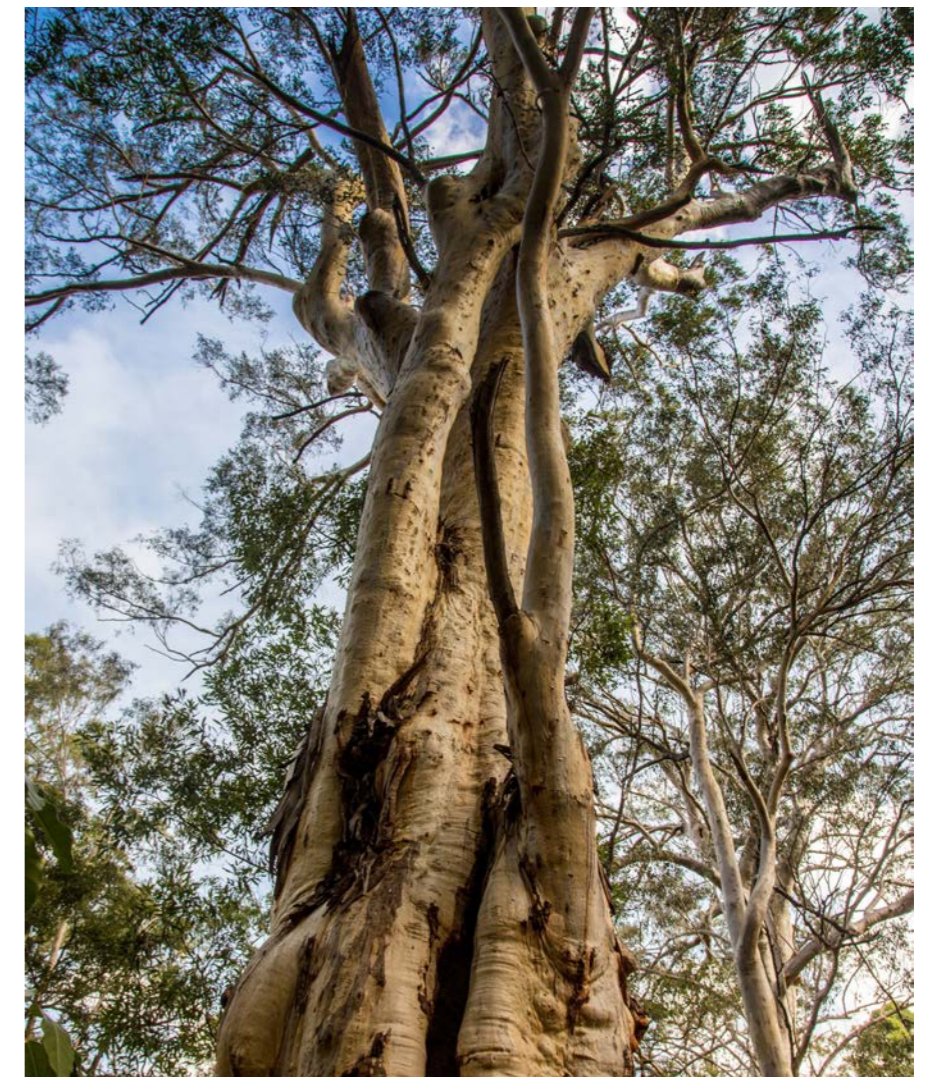
## Purpose of this Plan

To guide the future planning of the reserve for public access and education and ensure environmental values are protected. It is noted that this plan and all proposed components are indicative only. The purpose of this plan is to guide future restoration works on this site and ensure that revegetation activities can occur immediately but are not in locations that may in future contradict the best outcome for cultural, educational or ecologically sustainable public access.

<sup>4</sup> Sunshine Coast Council. (2017). Environmental Reserves Network Management Plan 2017-2027.

## Scope

In addition to lot plan 400SP293836, it covers lot plan 996CG2907 (Heron Rd Park) and 15SP154207 as shown in figure 1. Council is not offering through this plan a commitment to the implementation of any capital works. Any future costs and development of infrastructure which is described in this plan is subject to a more comprehensive feasibility assessment and endorsement by Council.



*Eucalyptus racemosa*. (Paul Barden 2016).



## 2.0 VISION AND VALUES<sup>1</sup>

<sup>1</sup> Sunshine Coast Council. (2014). Doonan Creek Environmental Reserve Public Involvement Plan.

### Vision:

To restore an ecologically diverse environment to protect biodiversity and also facilitate tranquil recreation and user appreciation of this ecologically and culturally important environment.

### Values:

The following values, identified in previous community workshops are to guide decision making for Doonan Creek Environmental Reserve into the future.

1. A place of tranquillity
2. A place of observation and education
3. A place that provides a deepened connection with nature
4. An ecologically restored, resilient and connected landscape
5. The preservation of diverse ecology
6. A place of passive recreation

### Aims & Objectives:

Each of the values is supported by a set of aims & objectives:

1. Manage the reserve in order to perpetuate, in as natural a state as possible, representative examples of regional ecosystems, biotic communities, genetic resources and unimpaired natural processes
2. Maintain viable and ecologically functional populations and assemblages of native species at densities sufficient to conserve ecosystem integrity and resilience in the long term
3. Contribute in particular to conservation of wide-ranging species, regional ecological processes and migration routes
4. 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
5. Contribute to local economies through ecological knowledge, habitat restoration and tourism.



*Eucalyptus racemosa* (scribbly gum) containing native bee hives are culturally significant to the Kabi Kabi people<sup>1</sup> (Paul Barden 2016).

<sup>1</sup> Kerry Jones, Kabi Kabi spokesperson pers comm 2016



### 3.0 SITE ANALYSIS

#### Location and Topographic Features

The Doonan creek environmental reserve is recognised by the Commonwealth Government's National Estate for its environmental significance within the 'Maroochy - Noosa Wallum' corridor.

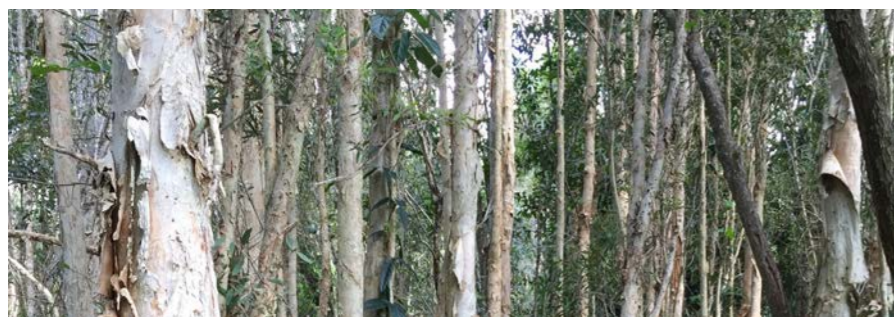
The reserve is situated to the west of Peregian Springs, 4km from Peregian Beach. The 54 km<sup>2</sup> Doonan Creek drainage basin from Noosa Shire to Coolum Creek encompasses the reserve.

The site consists of simple landform patterns; a low ridge line in the western part of the site that gradually slopes down from Doonan Bridge Road to the east, south-east onto a floodplain interspersed with drainage lines that lead into a main creek. A gently inclined rise in the northeast, slopes down to the west from Thomson Place Peregian Springs into the main creek. Doonan Creek, a stream order 4 water course, eventually directs the water flow south to Coolum Creek and finally into the Maroochy River<sup>1</sup>. There are also several constructed drainage lines channelling water into Doonan Creek.

Within the Doonan Creek Environment Reserve the land rises from <5m above sea level (ASL) along the main creek in the more eastern parts, to a high point of around 15m ASL in the north east corner; the western ridge is approximately 10m ASL.

The majority of the study area, which is covered in remnant vegetation is low lying; prone to flooding, experiences seasonal inundation and is lined with melon holes. The vegetation communities in this area reflect these hydrological gradients.

<sup>1</sup> Thomas, G. (2013). Flora Assessment: Doonan Creek Environmental Reserve. Marcus Beach: ECO 9 Pty Ltd.



Melaleuca quinquenervia open forest

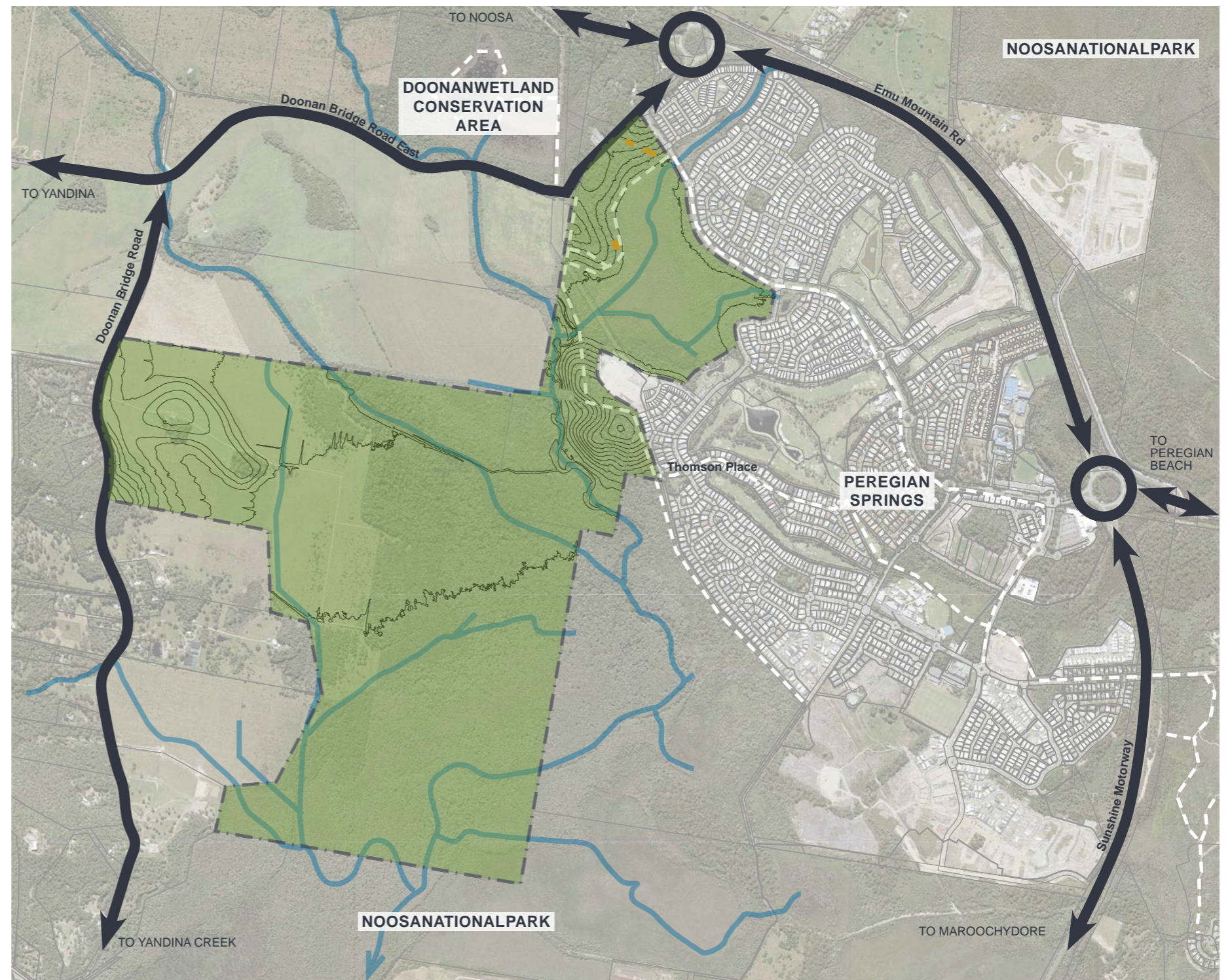


Figure 1. Site context





## Reference Documents

This landscape concept plan should be read in conjunction with the following background reports:

02 Ecology Pty. Ltd. (2014). Preliminary Assessment of Mammal & Reptile Fauna on Doonan Creek Environmental Reserve. Brisbane.

Barden, Paul; Ecological Management Services Pty. Ltd. (2014). Birds of Doonan Creek Environmental Reserve. Avian Fauna Assessment December 2013 - July 2014. Coolum Beach.

Meyer, E. (2015). An assessment of frog and fish habitat values at Doonan Creek Environmental Reserve. Brisbane.

Reid, H., & Munro, J. (2017). Wetland Restoration Plan - Stage One: Assessment of Existing Conditions. Byron Bay.

Shaw, Spencer; Brush Turkey Enterprises. (2014). Doonan Creek Environmental Reserve Regeneration Works Plan. Maleny.

Thomas, G. (2013). Flora Assessment: Doonan Creek Environmental Reserve. Marcus Beach: ECO 9 Pty Ltd.

Thomas, G. (2014). Doonan Creek Environmental Reserve Aquatic Flora Survey. Coolum Beach.



A refuge for Sunshine Coast iconic kangaroos



Open areas historically cleared and drained for agriculture - remnant habitat trees *Eucalyptus tereticornis* (Qld Blue Gum) provide building blocks for ecological restoration of the site.



## Flora

Vegetation community types and mapping boundaries observed on site differ to the DEHP mapping (2012a) .

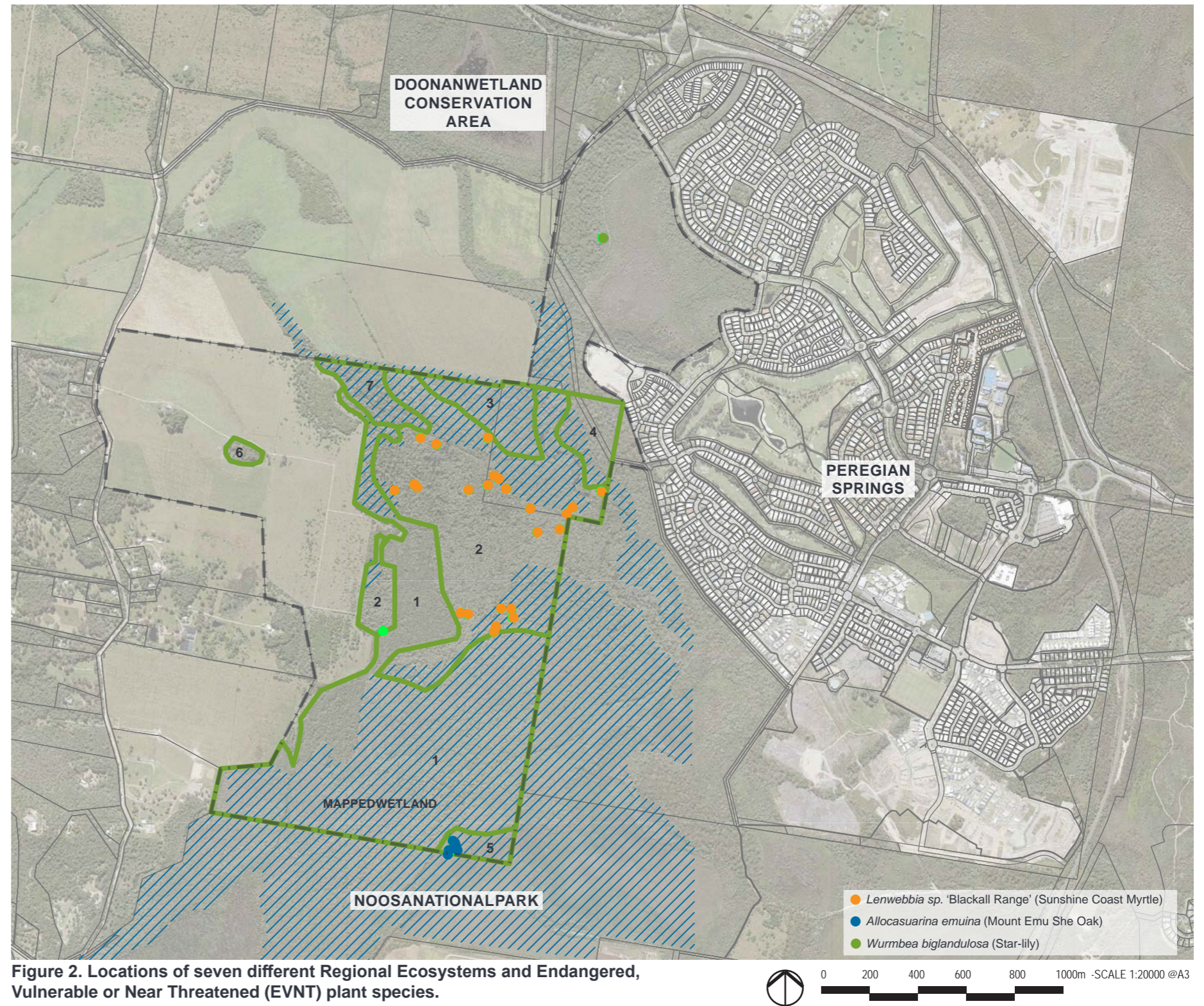
Seven (7) vegetation communities were identified in the reserve.

The vegetation communities can be described as follows, refer to figure 1<sup>1</sup>:

Type	Regional Ecosystem (DEHP)	Description	Biodiversity Status
1	12.3.5	Tall to very tall open forest with <i>Melaleuca quinquenervia</i> , <i>Lophostemon suaveolens</i> , ferns and sedges on alluvial substrates	Of concern
2	12.3.5 / 12.3.1	12.3.5 <i>Melaleuca quinquenervia</i> open forest 12.3.1 Gallery rainforest (notophyll vine forest)	Of concern Endangered
3	12.3.6	<i>Melaleuca quinquenervia</i> , <i>Eucalyptus tereticornis</i> , <i>Lophostemon suaveolens</i> woodland	No concern at present
4	12.9- 10.4	<i>Eucalyptus racemosa</i> woodland	No concern at present
5	12.2.12	Closed heath	No concern at present
6	12.9-10.17 / 12.9-10.4	12.9-10.17 Open forest complex often with <i>Eucalyptus acmenoides</i> , <i>E. major</i> , <i>E. siderophloia</i> +/- <i>Corymbia citriodora</i> 12.9-10.4 <i>Eucalyptus racemosa</i> woodland	No concern at present
7	2.3.1	12.3.1 Gallery rainforest (notophyll vine forest)	Endangered

A number of general weed species were recorded in the study area; Common wax weed (*Cuphea carthagenensis*), Blue Top (*Ageratum houstonianum*), Slash pine (*Pinus elliotii*) and Umbrella tree (*Schefflera actinophylla*) were occasional to common. While Low shoe-button (*Ardisia elliptica*), Indian hawthorn (*Rhaphiolepis indica*), Devil's fig (*Solanum torvum*) and Wild tobacco (*Solanum mauritanum*) were also observed.<sup>2</sup>

<sup>1</sup> Thomas, G. (2013). Flora Assessment: Doonan Creek Environmental Reserve. Marcus Beach: ECO 9 Pty Ltd.  
<sup>2</sup> Thomas, G. (2013). Flora Assessment: Doonan Creek Environmental Reserve. Marcus Beach: ECO 9 Pty Ltd.





Within a 25km radius of Doonan Creek Environmental reserve 68 endangered, vulnerable and near threatened species of flora have been listed<sup>1</sup>. Out of these species, 17 are supported in similar ecosystems that are found on site and it is possible for them to occur.

Two of these threatened species were recorded in the study area, Sunshine Coast myrtle (*Lenwebbia species 'Blackall Range'*) and Mount Emu she-oak (*Allocasuarina emuina*). These two species are listed in both the Queensland Government's NCA 1992 and the Commonwealth Government's EPBC Act 1999 as 'Endangered' species. Sunshine Coast myrtle was particularly common in the widespread Melaleuca and rainforest sections; while the Mount Emu she-oak was scattered, occasional and restricted to the smaller area of wet heath on the far south-eastern boundary. Refer to Figure 1 for locations.<sup>2</sup>

<sup>1</sup> Australian Government. (1999). Environmental Protection and Biodiversity Conservation Act.  
<sup>2</sup> Thomas, G. (2013). Flora Assessment: Doonan Creek Environmental Reserve. Marcus Beach: ECO 9 Pty Ltd.



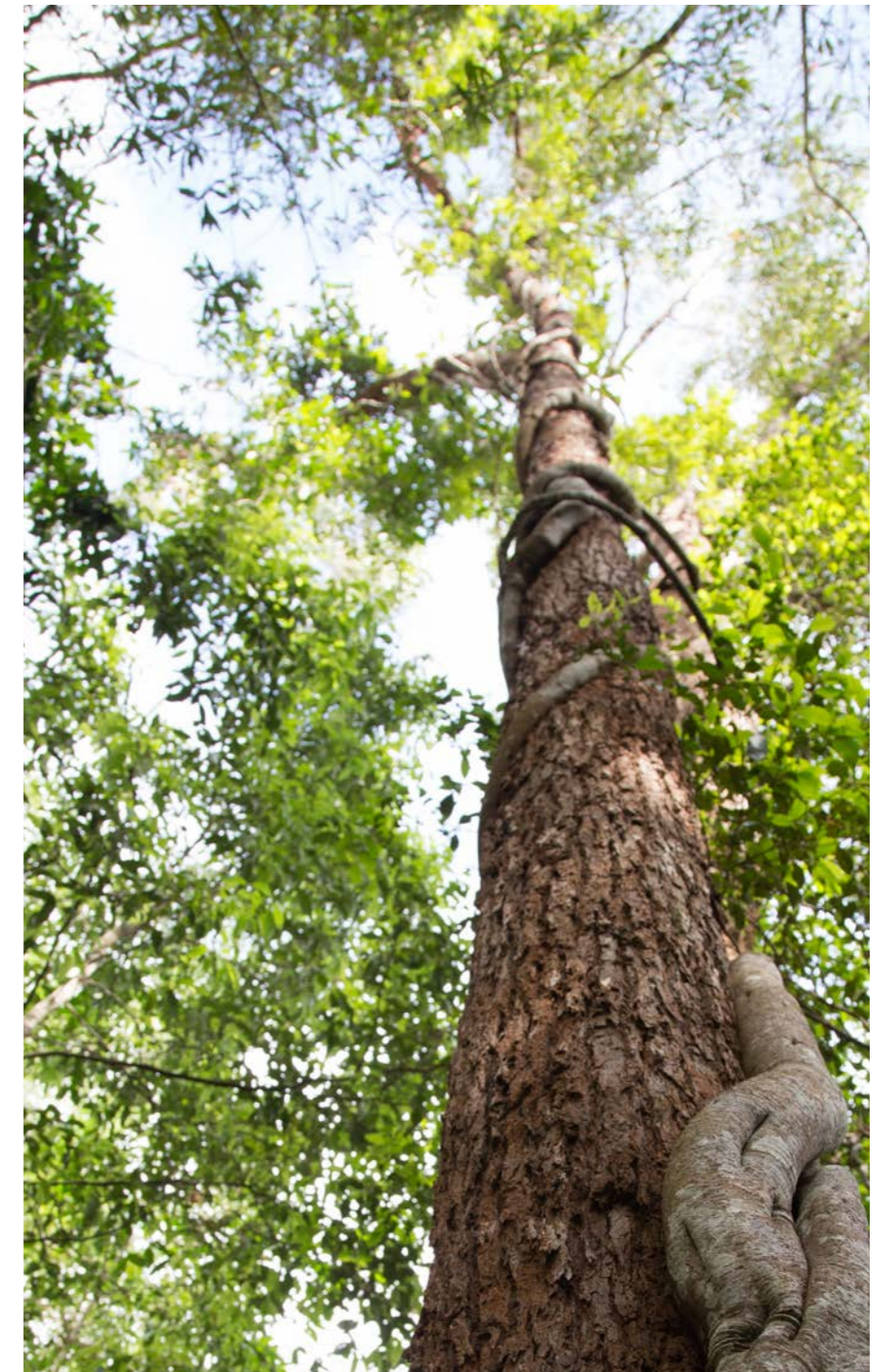
*Lenwebbia sp.* (Lui Weber, 2013)



*Allocasuarina emuina* (Noosa Native Plants, 2017)

The endangered, vulnerable and near threatened species of flora present in Doonan Creek Environmental Reserve provide a valuable education aspect for the community that will visit and learn about the reserve.

**The landscape concept plan will guide the development of the site with consideration to vulnerability of the flora ensuring its protection.**



Vegetation type 2 - a mosaic of 12.3.5 *Melaleuca quinquenervia* open forest and 12.3.1 Gallery rainforest (notophyll vine forest) considered endangered. (Thomas, 2013)



## Frog and Fish

A total of nine frog species were recorded during surveys within the study area. One of these species, the vulnerable wallum froglet (*Crinia tinnula*).

With the exception of the cane toad (*Rhinella marina*) most frog species were recorded at low or very low abundances. The following vulnerable species were not recorded during surveys despite the presence of potentially suitable habitat scattered over the site; tusked frog (*Adelotus brevis*), Giant Barred Frog (*Mixophyes iteratus*) or Wallum Sedgefrog (*Litoria olongbuernsis*).<sup>1</sup>

A total of nine fish species were recorded on site during trapping and dip-net surveys. These species include two exotic pest fish: Platy (*Xiphophorus maculatus*) and mosquitofish (*Gambusia holbrooki*). The mosquito fish was recorded at very high abundances, in both disturbed and undisturbed habitat. Other fish species recorded on site were much less common and less widespread. Despite the presence of potentially suitable habitat along Doonan Creek, neither the honey blue-eye nor oxleyan pygmy perch were recorded on site during surveys. With the exception of the cane toad, frog numbers were lower than expected. This could be due to; altered site drainage (west of Doonan Creek ER) and high densities of predatory fish following flooding.

Mosquitofish occur in high numbers within artificial drainage lines and as such as it is believed that predation by fish appears a significant threat to frogs in the west of Doonan Creek ER.<sup>2</sup>

Habitat values for native fish and frog species could be improved by<sup>3</sup>:

- Filling in drainage ditches;
- Excluding cattle from seasonally-inundated areas, so as to increase ground cover; and
- Planting out areas of surface water with native sedges to provide frog embryos and larvae with more cover from predatory fish.

<sup>1</sup> Thomas, G. (2014). Doonan Creek Environmental Reserve Aquatic Flora Survey. Coolum Beach.

<sup>2</sup> Thomas, G. (2014). Doonan Creek Environmental Reserve Aquatic Flora Survey. Coolum Beach.

<sup>3</sup> Thomas, G. (2014). Doonan Creek Environmental Reserve Aquatic Flora Survey. Coolum Beach.



Figure 3. Locations of endangered frog species found at Doonan Creek Environmental Reserve



## Birds

A total of 107 bird species were identified during surveys conducted Dec 2013 - July 2014

None of the identified species are listed as threatened species, however several threatened species are known to occur in the local area based on existing data. There are a number of bird species involved in east coast migration from southern to northern Australia or New Guinea / Wallacea during the SEQ winter and are listed in international treaties for migratory birds.<sup>1</sup>

Current bird habitat values within priority rehabilitation areas:

- Acacia Regrowth: Support a suite of bird species, most likely facilitated by its close proximity to intact forest vegetation. Dominated by foliage gleaning insectivores and nectarivores. Common species include grey fantail, silvereye, golden whistler, brown honeyeater and willie wagtail. The rose robin, a winter migrant was identified in this vegetation type during the cool season survey.
- Pasture: Areas of pasture were observed to support a few additional bird species. Species that were present were dominated by grass and ground foraging insectivorous birds. Common species include the Australasian pipit, masked lapwing, cattle egret, straw-necked ibis, wood duck and Australian magpie. During the cool season, flooded areas were observed to be utilised by species such as white-necked herons and white-faced herons. Grasslands are also important hunting areas for raptors.

Doonan Ck Environmental Reserve has been assessed for its birdwatching potential and the recommendations of the Avian fauna assessment is supportive of the sites potential as a birdwatching hub on the Sunshine Coast.

1 Barden, Paul; Ecological Management Services Pty. Ltd. (2014). Birds of Doonan Creek Environmental Reserve. Avian Fauna Assessment December 2013 - July 2014. Coolum Beach.

## Mammals and Reptiles

A total of 23 mammal species and 13 reptile species were recorded during surveys carried out at the Doonan Creek Environmental Reserve from December 2013 to March 2014.

The Koala (*Phascolarctos cinereus*), which is listed as vulnerable was recorded during surveys. Additionally, three of the recorded mammal species, koala, squirrel glider (*Petaurus norfolkensis*) and Gould's wattled bat (*Chalinolobus gouldii*), are listed in the Sunshine Coast Biodiversity Strategy 2010-2020.<sup>2</sup>

2 O2 Ecology Pty. Ltd. (2014). Preliminary Assessment of Mammal & Reptile Fauna on Doonan Creek Environmental Reserve. Brisbane.



Rainbow bee-eater (*Merops ornatus*) (EMS, 2014)



Golden whistler (*Pachycephala pectoralis*) (EMS, 2014)



Squirrel glider (*Petaurus norfolkensis*) (O2, 2014)



Koala (*Phascolarctos cinereus*) (O2, 2014)



## Public Involvement Plan

The Doonan Creek Environmental Reserve is a significant public asset. A Public Involvement Plan (PIP) has been developed to facilitate effective public engagement in the development of the Management Plan, Future Directions Report, Landscape Masterplan and other documents relating to the reserve. The PIP has two objectives:

- To guide project staff in their communication with both specific stakeholders and the general public about the Doonan Creek Environmental Reserve and the project's planning documents; and
- To identify specific stakeholders and the targeted communication methods designed to facilitate their engagement in the project.

### External Stakeholders:

- The priority external stakeholders are the traditional owners, local residents, The Yandina Creek Progress Association and environment interest groups. These groups will be represented accordingly on any future advisory committee.
- As an environmental reserve, community groups working in the realms of environmental, scientific or conservation should be targeted, including environmental NGOs, volunteer interest groups and small businesses.
- Some active groups informally visit the site on a regular basis. The interest groups known to use the reserve include (non-motorized) trail cycle groups who ride through a section of the reserve, walkers and local children entering the reserve from Thomson Place, Peregrin Springs estate. These groups should also be considered as stakeholders and a general invitation should be issued to participate.
- As Doonan Creek Environmental Reserve has been identified and secured as an environmental asset it is logical to engage the local primary and secondary schools.

Internal council stakeholders e.g. Environmental Operations; Environmental Strategic management; Open Space Planning; Parks; and Councillors will be targeted as primary internal stakeholders. It is important to have relevant officers and councillors, attend the public workshops and meetings to gauge the community's concerns and discuss their issues.



Community partners on site to plant trees and learn about bush regeneration and cultural heritage of the site



## Land use History of current cleared pasture areas

Extract from the Doonan Creek Reserve wetland restoration plan (Australian Wetlands Consulting Pty Ltd ,2017).

Sections of the Doonan Creek Environmental Reserve have been subject to an extensive history of disturbance via clearing and establishment of drainage lines for cane farming. Wetland and ecological health varies over the site, with some areas severely degraded; however the overall ecological condition of the site is considered to be good with high resilience evident in the regrowth.<sup>1</sup>

Historically the majority of the site was comprised of Palustrine wetland (e.g. vegetated swamp) - *Melaleuca quinquenervia* open forest on coastal alluvium. Similar to the remaining section of this regional ecosystem, the understorey would have varied over the site, depending upon duration of water logging; sedges and ferns, especially *Blechnum indicum*, in wetter microhabitats and grasses and shrubs in drier microhabitats. It is likely that ground layer species included grasses such as *Leersia hexandra* and *Imperata cylindrica*, the sedges/rushes, *Baumea rubiginosa*, *Gahnia sieberiana*, *Lepironia articulata*, *Schoenus brevifolius* and *Schoenus scabripes* and the fern *Lygodium microphyllum*.

Other tree species that may be present as scattered individuals or clumps include *Lophostemon suaveolens*, *Eucalyptus robusta*, *E. tereticornis*, *E. bancroftii*, *E. latisinensis*, *Corymbia intermedia*, *Melaleuca salicina*, *Livistona australis*, *Casuarina glauca* and *Endiandra sieberi*.

Vegetation along the watercourse in the north-eastern corner would have consisted of Riverine wetland or fringing riverine wetland - Gallery rainforest (notophyll vine forest) on alluvial plains. A large extent of this vegetation community has not been cleared over the years and remains in good condition.<sup>2</sup>

The entire extent of the site remained relatively uncleared up until 1967. Between 1967-1974 a large extent of western portion of the site area was cleared for agricultural purposes, predominately cane farming.

<sup>1</sup> Reid, H., & Munro, J. (2017). Wetland Restoration Plan - Stage One: Assessment of Existing Conditions. Byron Bay.  
<sup>2</sup> Reid, H., & Munro, J. (2017). Wetland Restoration Plan - Stage One: Assessment of Existing Conditions. Byron Bay.

The construction of drainage lines along the western and northern boundary began around early 1970's, significantly altering the sites hydrology.<sup>3</sup>

Sections once subjected to periodic or permanent flooding became drier, allowing for increased agricultural yield. This resulted in additional land to be cleared for agricultural purposes, and allowed for the invasion of flora species adapted to drier conditions. There is evidence that the very southern section, remained relatively wet, even after drain establishment. The development of a levee wall along the southern perimeter of the cleared

<sup>3</sup> Reid, H., & Munro, J. (2017). Wetland Restoration Plan - Stage One: Assessment of Existing Conditions. Byron Bay.

area was constructed around the 1970's, greatly reducing inundation levels within this section. Clearing continued, and farming practices became more established until 1997. Establishment of dwellings and agricultural dams occurred on land immediately adjacent to the west in the 80's, resulting in the clearing of more vegetation. In 1988, a large strip of vegetation along the western boundary had been cleared, however only a small section was utilised for crops. By 1997 the entire western perimeter was converted to cane fields. From 1997 onwards some areas, including the most eastern cleared section were left to naturally regenerate. Altered hydrology caused by drainage lines has resulted in the regeneration of a drier vegetation community, dominated by *Acacia* and pastoral grasses.

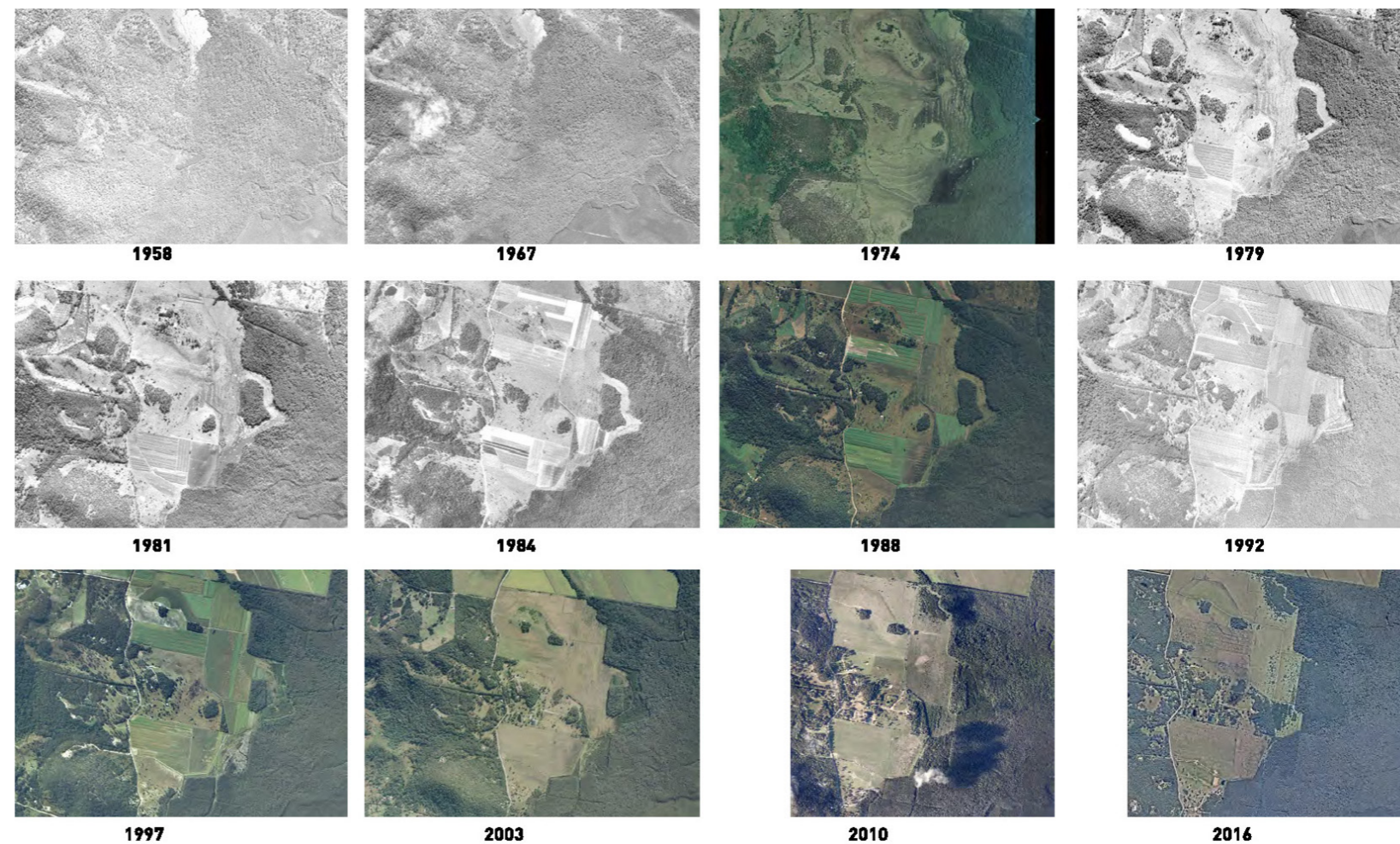


Figure 4. Historic site aerial imagery of the current cleared pasture areas (AWC, 2017).



## 5.0 CONCEPT

### Landscape Concept

The concept diagram illustrates opportunities for site planning to strengthen the vision and values into the future.

### Opportunities

1. Improved access and sense of arrival  
Welcome the community by establishing a new 'front door' to the reserve, able to accommodate requirements for parking and allowing passive surveillance from Doonan Bridge Road.
2. Ecological restoration of degraded areas  
Improve the ecological connectivity of the area by connecting the habitat patches while providing a mosaic of vegetation types and strengthening habitat value for fauna.
3. Wetland restoration  
Enhance the conservation value of the area through the restoration of natural wetlands to create a place of ecological biodiversity and community amenity.
4. Connections  
Deliver a connected network of mixed use trails that promote passive recreation, connecting Peregian Springs to the reserve. Controlled access protects vulnerable areas.
5. Enhanced community value  
Increase opportunities to support diversified nature-based education activities contributing to the local community. Involving traditional owners, local residents, local schools, local environmental interest groups, local eco businesses and potentially an advisory group.
6. Interpretation  
Allow low-key high-tech interpretation for the reserve. Minimise built infrastructure including signage by facilitating a high-tech solution e.g. geographical web based education app.
7. Yarning circle  
Establish a yarning circle in an appropriate location with views to Mt Coolum and Cooroy Mountain to facilitate a cultural connection to land.
8. Bird Watching  
Identify bird hide locations to facilitate bird watching, contributing to the educational value of the reserve while encouraging eco-tourism.

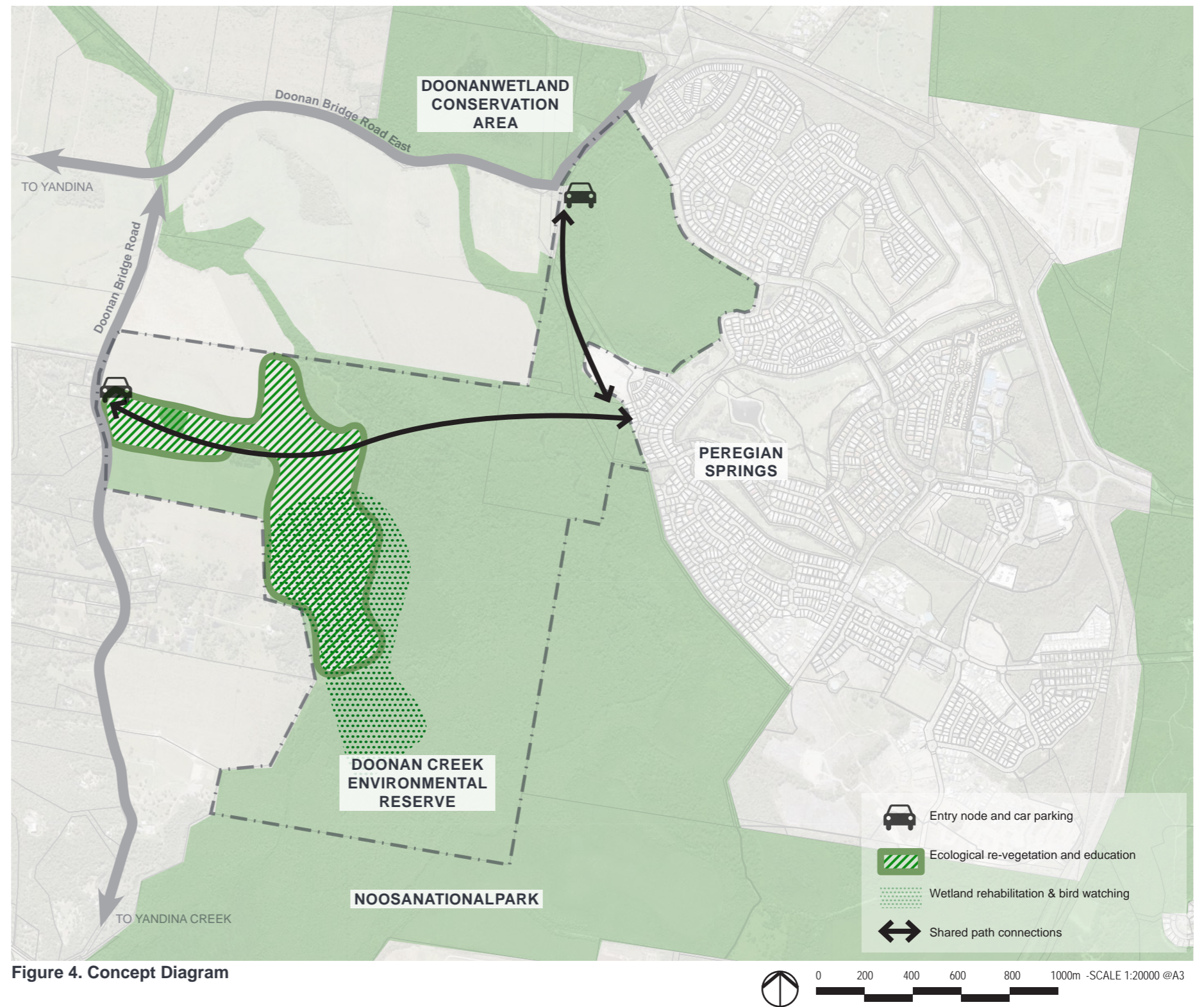


Figure 4. Concept Diagram





Figure 5. Concept Plan

## Landscape Concept Plan - A place of stories.

The concept plan was presented a world café style community involvement workshop where stakeholders reviewed and discussed the draft concept plan. The feedback was captured & reviewed. The concept plan was updated accordingly. Refer to appendix A for consultation summary.

### LEGEND:

- 01 Main entry**  
Long term main entry, a welcoming experience for visitors. Design to allow for expansion of the car park to accommodate future increased capacity requirements.
- 02 Secondary entry**  
Create a small entry and car park at Doonan Bridge Road as an immediate solution for vehicle access into the site. Utilise the existing site car park/storage area.
- 03 Revegetation type A**  
Revegetation type A - Closed Forest. Extend the existing vegetation with a revegetation program to restore the pre-clearing RE type.
- 04 Revegetation type B**  
Revegetation - Open Woodland with grassy understorey. Restore site hydrology of the site and re-vegetate to the relevant RE type.
- 05 Revegetation type C**  
Revegetation - Forest. Connect the existing vegetation patches with a revegetation program to restore the pre-clearing RE type.
- 06 Revegetation type D Wetland Restoration**  
Implement hydrology restoration program and wetland rehabilitation enhancing ecological health and providing public amenity.
- 07 Bird watching**  
Provide a boardwalk with two bird hides to facilitate bird watching.
- 08 Peregian Springs connection**  
Indicative proposed multi-user\* path with separated pedestrian sections of path linking to Peregian Springs. Meanders lead to digital interpretation and citizen science hot spots.
- 09 Yarning circle**  
Provide a yarning circle at this site with views to Mt Coolum and Cooroy Mountain to facilitate a cultural connection to land, view lines kept open with open woodland vegetation
- 10 Destination point for horse riders - hitching post/yard\***  
A shaded hitching post / horse yard as a step off point of eco walk along the boardwalk and bird hide loop walk.
- 11 Educational Zone**  
The education zone has been identified as a provision for any future buildings. This location also could be shared with the north west section of the Reserve - future use area
- 12 Sand pathways**  
Existing pathways maintained in situ to preserve the character of the site.

### Interpretation (site wide)

Implement interpretation site wide using digital technology to facilitate story telling and citizen science.

\*future opportunities to add separated horse trail to multi-user trails pending east-west connection in the broader landscape



## Concept components

Refer to the concept plan for location and spatial layout.

### 01 Main entry

Create an entry statement at Doonan Bridge Road East as welcoming experience for visitors. This location would accommodate a higher volume of visitors to the reserve without disturbing the local residents, as per community feedback received in the first Public Involvement Planning workshop held on site with local residents in 2015. The location also allows for passive surveillance of car park. This formalised car park would facilitate 20-30 vehicles. Design to incorporate tree planting and potential extension of horse riding trail to this point. Detailed plans will determine extent and capacity of car parking requirements at this location.

### 02 Secondary entry

Create the initial entry and carpark at Doonan Bridge Road utilising the existing site car park/storage area. This location allows for passive surveillance of car park from Doonan Bridge Road and reduces the cost of providing a public vehicle access track to a central location in the reserve. Situating the carpark here also allows the opportunity to extend the natural area of the reserve through to the car park utilising the whole site. Carpark could be constructed in stages. Design to incorporate tree planting.



Example of a gravel carpark surrounded by trees



Existing site storage area at Doonan Bridge Road.



## Revegetation

### 03 Re-vegetation type A

Re-vegetation type A - Closed Forest. Extend the existing vegetation with a re-vegetation program to restore the pre-clearing RE type.



Example of Closed forest vegetation

### 04 Re-vegetation type B

Re-vegetation - Open Woodland with grassy understorey. After hydrology of the site is restored and naturally functioning, this area could be naturally regenerated with assisted re-vegetation to the relevant RE type. A maintenance and establishment program could assist in the ecological succession of this area. Areas of grassland would provide habitat for a range of significant environmental species to maintain the site's biodiversity.



Example of Open Woodland with grassy understorey

### 05 Re-vegetation type C

Re-vegetation - Forest. Connect the existing vegetation patches with a re-vegetation program to restore the pre-clearing RE type.



Example of Forest vegetation



## Revegetation

### 06 Re-vegetation type D wetland restoration

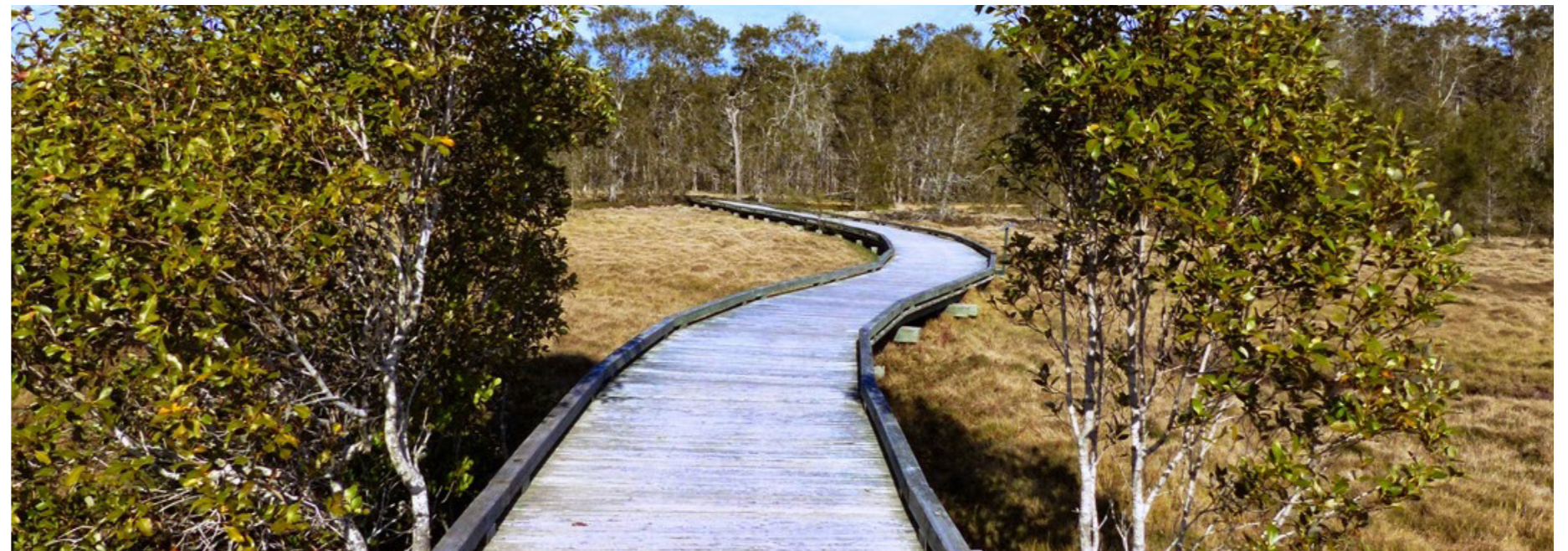
Re-vegetation type D - Wetland Restoration. Implement the hydrology restoration program to re-establish a wetland. Rehabilitating the site to its former vegetation type pre-agricultural use will enhance the ecological health of Doonan Creek and provide public amenity. Boardwalk grades to be accessible for wheelchairs (AS1428).



Previous irrigation levy banks can be re-purposed for all-weather access to the site and the wetland areas



Example of wetland Lagoon (Reid & Munro 2017)



Example of a boardwalk over wetland



## Wetland restoration and bird watching

### 07 Bird watching

Two bird hides along the boardwalk would facilitate this site becoming a renowned destination for bird watching. As the birds traverse between the wetland and forest vegetation and could be viewed from bird hides. The layout / design of the boardwalk can facilitate circulation whilst considering and minimizing disturbance to birdwatchers. Birdwatching hides will contribute to the educational value of the reserve while encouraging eco-tourism.



Example of a bird hide



Example of a bird hide



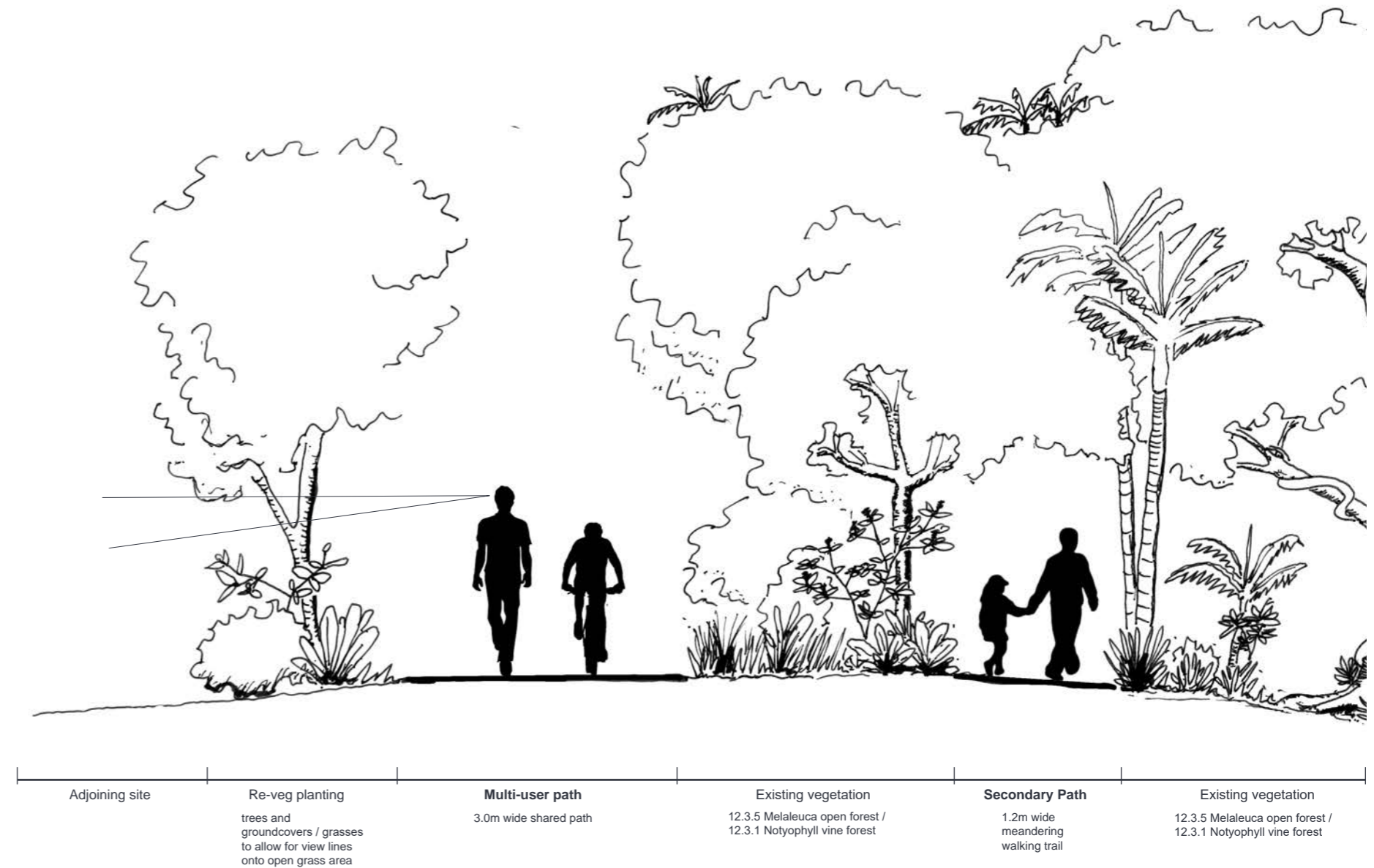
## Connection to broader network of tracks and trails

### 08 Peregian Springs connection\*

Proposed future multi-user connection to Peregian Springs to be investigated with citizen science and interpretative path developed. Two paths consist of the following;

1. Main path - a shared path for pedestrians and bike riders min 3.0m wide;
2. Secondary path - a walking trail 1.2m wide that meanders through existing remnant vegetation, providing a more tranquil slower more engaging natural experience. A Naturalistic sand pathway preserving the character of the site.

\*Future opportunities to add separated horse trail to multi-user trails pending east-west connection in the broader landscape.



Section: Peregian Springs Link



## Cultural connection to site

### 09 Yarning circle

One objective of the Doonan Creek Environmental Reserve is to provide the community a low-key natural experience. Built infrastructure is to be kept to a minimum with the focus on the natural surrounding. The concept plan suggests the inclusion of a yarning circle in a chosen location that has direct views to Mt Coolum and Cooroy Mountain. The yarning circle can be shared by the community to facilitate storytelling, and a cultural connection to land.



Example of a yarning circle at Sunshine Coast University Sippy Downs



## Future planning

Any horse trails will have to be separated from other recreational trail users for safety reasons. Future opportunities to add separated horse trail to multi-user trails pending east-west connection in the broader landscape.

### 10 Destination point for horse riders - hitching post/yard

A shaded hitching post / horse yard as a step off point of eco walk along the boardwalk and bird hide loop walk. Step off point nearby reserve feature where horses remain within sight. Potential horse tour groups may have horses watched over at this location while riders take a walk.



Horse riding trail



Horse hitching post example



## Future planning

### 11 Future buildings

The restoration of Doonan Creek environmental reserve is a valuable educational experience that can be witnessed over time. The education zone has been identified as a provision for any future buildings. This location also could be shared with the north west section of the Reserve - future use area.



Exemplar subtropic architecture G. Poole Lake Weyba house 1996 (GEPDC, 2017).

### 12 Sand pathways

Existing pathways maintained in situ to preserve the character of the site.



Existing sand paths to be restored



## Education and learning

### Interpretation and storytelling (site wide)

Doonan Creek Environmental Reserve is an ecologically rich place. An interpretation strategy would plan for future interpretation to facilitate education with a focus on technology based solutions instead of built infrastructure.

Culturally appropriate artwork wayfinding totems could be used as trail wayfinding in conjunction with SCC tracks and trails app.



Aboriginal artwork totems (Australian Museum 2016) - examples only, not indicative of site installations



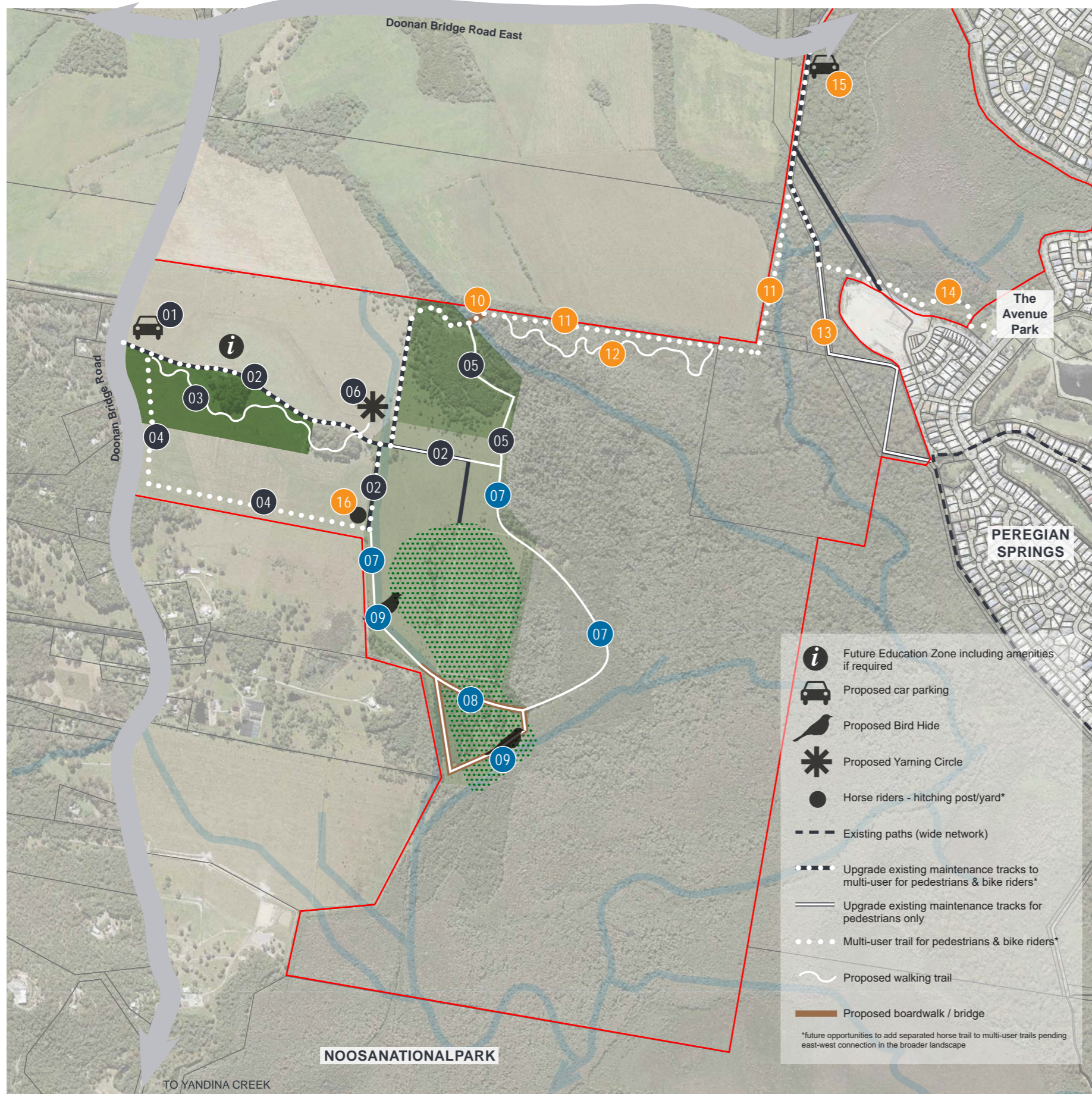


Figure 5. Concept Plan

## 6.0 STAGING PLAN

### STAGES:

#### Stage 1

Facilities that can be installed low cost high value to facilitate recreation and preservation as per the PIP. This early works would open the reserve to the public.

- 01 Establish gravel car park utilising existing site car park.
- 02 Improve the existing vehicle maintenance track to facilitate pedestrians and bike riders while still allowing maintenance vehicles to use it. Gravel or similar.
- 03 Install pedestrian path meandering path in future revegetation forest. To be gravel or similar.
- 04 Investigate alternate pedestrian & bike rider access from Doonan Bridge Rd. To be gravel or similar. Allow sufficient distance between trail and neighbouring property.
- 05 Install walking trail.
- 06 Install yarning circle / picnic area.

#### Stage 2

Implementation of bird watching facilities, pedestrian paths and boardwalks to bring visitors to the reestablishing wetland for bird watching.

- 07 Install pedestrian path to bring visitors to the wetland with a link to the northern path established in stage 1.
- 08 Install pedestrian boardwalk over the wetland to facilitate access to this area at times when the wetland is inundated.
- 09 Install bird hides at the wetland and the edge between the forest and wetland. Bird hide orientation for morning & afternoon viewing. Allow sufficient distance from neighbouring property.

#### Stage 3

Longer term stage establishing a main entry point to the reserve for vehicles from Doonan Bridge Road East and access from the reserve to Peregian Springs Estate.

- 10 Install a low-key multi-use\* bridge for pedestrian and bike riders over Doonan Creek.
- 11 Install multi-use\* path for pedestrian and bike riders with revegetation buffering any future development
- 12 Install narrow pedestrian path that meanders through existing vegetation. Path design to protect vegetation and limit visitor interaction.
- 13 Improve existing vehicle maintenance track for pedestrian access.
- 14 Install shared path to The Avenue Park at Peregian Springs
- 15 Establish main car park and entry. Requires land acquisition to ensure safe access and consideration of existing corner road alignment.
- 16 Install horse track\* and horse yard / hitching post pending feasibility of connection in the broader landscape.

\*future opportunities to add separated horse trail to multi-user trails pending east-west connection in the broader landscape



# APPENDIX A - COMMUNITY CONSULTATION SUMMARY

## LANDSCAPE PLAN – COMMUNITY DESIGN SESSION

Initial community input was developed very early prior to the design phase through a public involvement plan where stakeholders helped formulate the vision, values and future opportunities of the site. A draft landscape design plan was developed following this process.

The world café style community involvement workshop invited stakeholders to participate in an open dialogue with each other to review the design plans and facilitate opportunities for different views to be heard and discussed among stakeholders/community.

### Part A: DESIGN REVIEW

Each group was given the draft landscape plan and an A1 copy of the landscape design map. In their deliberations each group was asked to respond to three questions:

1. What's good and should be retained?
2. What is problematic?
3. Is there anything missing?

Questions were repeated for three key design features of the design map,

- (a) Access;
- (b) Tracks and Trails; and
- (c) Infrastructure.

Groups were asked to consider the questions and ensure any decisions would not undermine the ecological values (core values) of the site (information provided).

Participants were sent the reserve management plan prior to this activity. Presentations at the start of the workshop described the context and background to the site and a step through the draft landscape plan.

COMMUNITY DESIGN SESSION REVIEW COMMENTS & RESPONSES		
(a) Access Entry Points	(b) Tracks and Trails	(c) Infrastructure
<b>GROUP 1</b>		
<ul style="list-style-type: none"> <li>• Carpark: #01 – OK, logical; #16 – blind corner</li> <li>• Access: #15 – linkage supported compatible with demand and opportunity but manage levels of visitor use in keeping with amenity and environment. <i>Yes, access will be managed through demand management of car parks</i></li> <li>• Additional access from Doonan Bridge Rd suggested SW corner – pedestrian only and bike only. <i>Under investigation.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity to Peregrin Springs – potential for over-use to the point of unacceptable impact on values e.g. from Peregrin Springs and Breeze <i>Noted – also managed through not expanding car parks on this side.</i></li> <li>• Extend horse trail to point #16 by utilising trail #12 <i>Currently constrained by property boundary but is noted for future consideration.</i></li> <li>• Sufficient opportunities for cyclists and walkers but not horse riders <i>Property size and ecological factors constrain area available for horse trails.</i></li> <li>• #04 to #10 – too close to private property <i>Moved</i></li> </ul>	<ul style="list-style-type: none"> <li>• #01 – Potentially not as need to consider school excursions and increased visitation (education value); e.g low key composting toilet? <i>Noted</i></li> <li>• #11 – accommodate horses – refer to multi-use 12 <i>Currently constrained by property boundary but is noted for future consideration</i></li> <li>• Waste collection facilities at car parks needed <i>Noted</i></li> <li>• Picnic tables desirable within proximity to yarning circle /interp area <i>Noted however this also conflicts the design vision for limited embellishments – may be something to investigate as usage patterns become clearer.</i></li> </ul>
<b>GROUP 2</b>		
<ul style="list-style-type: none"> <li>• Good- #16 and #1 in time</li> <li>• Only one access point in stage 1</li> <li>• Easy access #1 for vehicles</li> <li>• Stage #1 car park too small – more carparks initially in stage 1 (25 x cars; 4 x float) and room to turn around</li> <li>• #15 needs more parking by 15 spaces . <i>Not for consideration as this location has no more capacity for car parks or traffic on residential streets. The concept plan seeks to encourage fewer cars on roads and supports greater local pedestrian and bike access from this high density urban boundary.</i> <i>Access trail through Bek and Alex property for all users and car parking (not on plan)</i> <i>This location is a wetland therefore conflicts with core values.</i></li> <li>• Speed on roads to accommodate entry, exit and safety to 60km/h <i>Supported</i></li> <li>• #14, parking available? Street only? <i>As above car parking not supported at this location.</i> <i>NEG access with private owners from southern end noted</i></li> </ul>	<ul style="list-style-type: none"> <li>• Included key stakeholders (walk, bike, horses)</li> <li>• Shared tracks/paths – are they? – with horses and cyclists? <i>Yes – width and separation corridor to ensure safety is included in the design.</i></li> <li>• Access trail through Bek and Alex Watson property all users; addresses safety concerns around road <i>Developed access through private property not supported</i></li> <li>• No horse or cyclist trails in reserves – compaction, weed spreading, maintenance required, conflict with walker and cyclists; spoil enjoying natural environment; poo etc. <i>Horse trails have only been included in areas where these risks can be managed and core values not impacted.</i></li> <li>• Proposed road trail unsuitable for horses, walkers and bikes <i>Noted,</i></li> <li>• No need to have any others than walkers (walkers only) <i>A horse trail has been retained due to community request and only in areas where there is no impact on core values.</i></li> <li>• Lack of horse tracks <i>A horse trail is already included in the design.</i></li> <li>• Walkers and cyclists covered well in trails, except southern access <i>Southern access would be through private property therefore not included</i></li> <li>• Horse loop is too small (only 3km) – not worth floating to unless southern end opened up <i>Different views on whether to keep or remove this loop as it is the only option for a horse trail therefore changed proposed to potential.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Toilet and water access, at junction of #6 and #2</li> <li>• Bio/eco toilet at #16 car park <i>Noted however this also conflicts the design vision for limited embellishments – may be something to investigate as usage patterns become clearer</i></li> <li>• No need for horse yards <i>Plan amended</i></li> <li>• Only need hitching rail near toilet <i>Noted. If there is a toilet it would be located in the area of the education zone to serve all users however potential to also add a hitching rail at this point.</i></li> <li>• Keep 'normal' signs as well as technology <i>Noted however these will be at a minimum to reduce embellishments and in keeping with vision and values.</i></li> <li>• Non potable tank off toilets for washing etc. <i>Noted</i></li> <li>• Tech good school groups and education</li> <li>• Move info centre to junction between #6 and #2 <i>Noted however not moved as this proposed location is not suitable due to security and safety issues – there is no surveillance from the road.</i></li> </ul>
<b>GROUP 3</b>		
<ul style="list-style-type: none"> <li>• Bring in people from different areas – good</li> <li>• Adequate traffic signage needed <i>Noted</i></li> <li>• Need good sight lines <i>Noted</i></li> <li>• Reduce speed limit at entry points <i>Noted</i></li> <li>• Where does overflow parking go? <i>#01 and #16</i></li> <li>• Need horse vehicle parking and manoeuvrability <i>Noted</i></li> <li>• What are access times restrictions e.g. night? <i>Noted</i></li> <li>• Not in favour of night access <i>Noted</i></li> </ul>	<ul style="list-style-type: none"> <li>• Better access to multi-use trail along doonan Bridge Rd <i>Noted</i></li> <li>• Good that trails for passive recreation – no motorbike etc. <i>Noted</i></li> <li>• Not happy about horses on road – not safe <i>Noted</i></li> <li>• Not enough horse trail access <i>Noted</i></li> <li>• Linkage along road too dangerous and need to work with landholders for off road to reserve access <i>Noted</i></li> <li>• More trails for shared use – cycles, walking/running, horse riding <i>Noted</i></li> </ul>	<ul style="list-style-type: none"> <li>• Bird watching access is good <i>Noted</i></li> <li>• Like to see education and information centre <i>Noted</i></li> <li>• Like to see good interpretive signage and info on flora, fauna and indigenous cultural values/history.</li> <li>• Adequate natural rest spots/seating <i>Noted. Bird hides will include these</i></li> <li>• Infrastructure in keeping with natural values <i>Noted - included in plan wording</i></li> <li>• adequate identification of plants/trees <i>Noted</i></li> <li>• like concept of boardwalk in wetland areas</li> <li>• rubbish collection? <i>Noted</i></li> <li>• Dogs allowed on leash only – doggie bags? <i>Noted- pending strategic review</i></li> <li>• More bird hides <i>Noted</i></li> </ul>



## APPENDIX A - COMMUNITY CONSULTATION SUMMARY

### Part B: ISSUES

All participants had received copies of the reserve management plan prior to the workshop. This provided a background to the reserves management intent based on its known ecological, social/cultural and economic values.

At the commencement of the workshop participants were asked to record any burning questions and post these on the “clothes line”. These would be reviewed at the end of the group design work and if any questions were not answered through the workshop presentation and design work they would be addressed at this point. The aim of this exercise was 1. To ensure front of mind, burning issues were captured in the first instance and 2. Ensuring constructive dialogue with an equitably informed group of participants. Except for no 8. all of the following posted issues were acknowledged unanimously as having been addressed by the end of the workshop.

1. (a) What exactly are the suitable bat habitats on a map?  
(b) How far are they from accepted buildings?  
(c) How do council propose to prevent bats from camping close to occupied buildings?  
(d) What planting has been done already to encourage bats and where?
2. Accelerate Corridor Connectivity and habitat restoration
3. Wetland Restoration Plan – further discussion please
4. Flying Fox habitat
5. Landscape plan should only be for public interest and use. No business/tourism should benefit financially from the reserve
6. Access to horse riders (bikes (cycle) (mountain bikes) and hikers
7. Please put all reports about the reserve flora and fauna species on line (i.e. internet) so public can access them via internet – thanks
8. Minimal/no lighting to keep it dark for native fauna
9. No dogs (even on leash) or domestic animals
10. Location of flying fox roosting locations
11. Community contribution to planting etc and maintenance to enhance buy in and feeling of protectiveness and ownership



Consultation Day February 2018



# APPENDIX A - COMMUNITY CONSULTATION SUMMARY

## Part C: POP UP INFORMATION STALLS AT PEREGIAN SPRINGS SHOPPING CENTRE & GOLF CLUB

21 participants – written comments and/or request for information.

Sticky notes on maps (11 contributors)

### SIGNAGE:

- Use of digital media to provide information is a great idea – reduce signage and visual clutter.

### INFRASTRUCTURE:

- If there has to be a car park on Doonan Bridge Rd can it please be situated to the North.
- No car park at entrance to DCER off Doonan Bridge Rd due to noise affect on local residents nearby.
- Concerned about putting track through to Peregian Springs – the narrowest part of the Wallum corridor.
- Limit access of use for sandtrails – reduce access to foot traffic only.

### DOMESTIC ANIMALS

- No dogs.
- Dogs and endangered species not compatible.
- Is there a precedent being set if commercial activities allowed e.g. horse riding (permit or no permit).
- Why do horses need to have any access to the reserve loop When there is designated riding areas already available in the area.
- No horse trails in an environmental reserve - there are many in the area already.
- Good to see horse trails are not going through the reserve.
- If weeds are introduced due to horse activity volunteer workers have indicated they will not continue with helpful maintenance.

### GENERAL

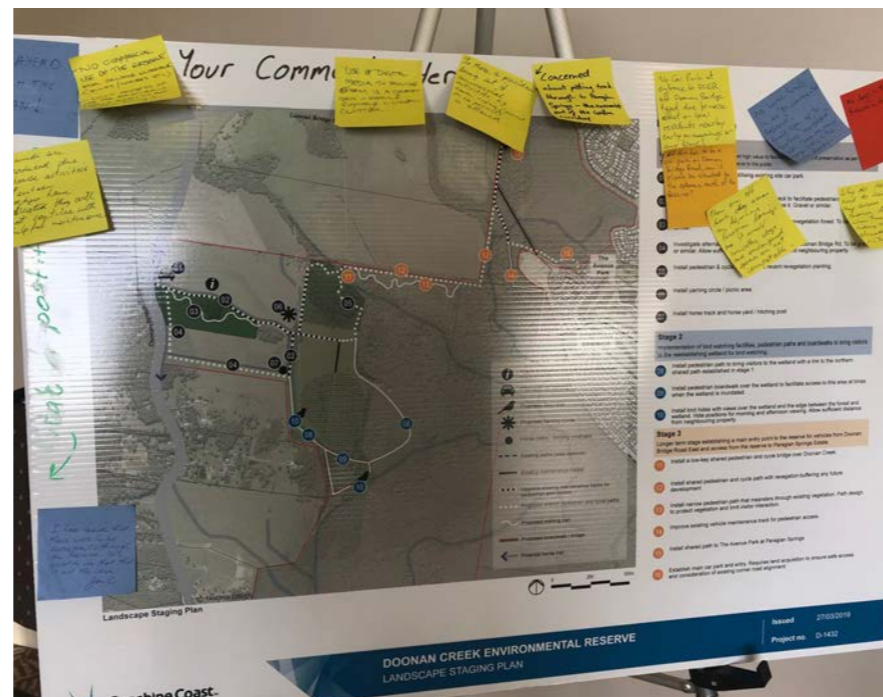
- Go ahead with the plan.
- No commercial use of the reserve.



Peregian Springs Golf Club pop up information stall April 2019



Community feedback April 2019



Recorded community feedback April 2019



Peregian Springs Shopping Centre Pop Up Information stall March 2019