Vegetation Communities of the Richmond Vale Rail Trail

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A Report for the Donaldson Conservation Trust

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Executive Summary

The proposed route for the Richmond Vale Rail Trail runs from Kurri Kurri to Hexham. The route follows the disused Richmond Vale Railway. The trail falls within the Central Coast floristic zone (Harden, 1993). While vegetation mapping of the area is available the resolution is not likely to be high enough to accurately represent the vegetation communities adjacent to the rail line. For this reason "ground-truthing" of these maps and vegetation mapping of the communities and plant species along the rail line was conducted. The 27km length of the rail line was walked and vegetation to an extent of 20m either side of the rail line was surveyed.

In total the Rail Trail passes through 16 (Sixteen) distinct vegetation communities the majority of which are dominated by intact native vegetation. Of these 10 (Ten) communities are Extant or remnant examples of Endangered Ecological Communities (EEC's).

It was concluded that the use of this disused rail line as a rail trail is likely to have minimal impact on the native vegetation communities of the area. The vegetation on the rail easement is mostly herbaceous and weedy. However, where ever possible during the construction phase the rail line should be used for access to minimise impacts on native vegetation. While the native vegetation adjacent to the rail trail is mostly in good condition high number of weedy grasses are present in most areas along the rail line. These grasses are likely to be spread by bicycles, foot traffic and vehicles. Effort should be taken to manage these weeds in order to prevent infestation of native vegetation.

Revegetation of native shrubs along the edges of the rail trail should be encouraged to reduce the weediness of this area and create buffer zone to prevent weed dispersal from the Trail and disturbance in native vegetation.

Only two sightings of snakes were made during vegetation surveys (both in the section of the rail trail passing through Hexham Swamp) however it is likely that more snakes will be active around the trail in the warmer months. The use of a light coloured pavement should be considered, particularly in the areas around swamps to minimise use of the rail trail by snakes and in so the likely hood of snake–cyclist encounters.

The area around Blue Gum Creek has high scenic value due to the exceptionally tall Blue Gums and rainforest vegetation. This area could be improved by planting and weed control to reduce light penetrating canopy and the number of exotic species in this community.

The diversity of vegetation communities and quality of native vegetation adds significant value to the Richmond Vale Rail Trail through its scenic beauty, biodiversity values and provision of opportunities for conservation related recreational activities including bird watching and photography. The integrity of these vegetation communities should be preserved and enhanced to improve their value to both the Rail Trail and conservation more broadly.

1. Introduction

The proposed route for the Richmond Vale Rail Trail runs from Kurri Kurri to Hexham (Figure 1). The route follows the disused Richmond Vale Railway to Minmi Junction, then the Minmi to Hexham Railway into Hexham. Vegetation mapping for this rail line exists (Sivertsen et al, 2011) however the resolution of this data is not sufficient to relate directly to the vegetation communities immediately adjacent to the rail line. To address this, a ground survey of the rail line was conducted to accurately map the ecological communities adjacent to the proposed rail trail.

1.1 Background

The Minmi to Hexham and Richmond Vale Railways form parts of the South Maitland Railway system and were constructed to service the Collieries of J & A Brown. The Richmond Vale line was closed in 1987 (Andrews, 2007). The land around the rail line has historically been used in the mining agriculture and forestry industries.

1.2 Geology

Figure 2 adapted from Galloway *et al.* (2010) shows the "land systems" characterised by underlying geology, soil type and topographic features. According to this the rail trail passes through undulating lowlands with mostly podzolic and solonetzic soils, between Kurri Kurri and Wallis Creek. From Wallis Creek to Minmi Junction the Rail Trail passes through areas of hilly or undulating shale, sandstone & conglomerate geologies with mostly podzolic and some skeletal soils on stepper country. From Minmi Junction to Hexham the Trail passes through fluvial soils from a variety of soil types including acid swamp soils.

1.3 Climate

Average annual rainfall along the trail generally increases with proximity to the coast with a distinct increase of approximately 200mm on the eastern side of the sugarloaf range. Annual average rainfall records obtained from several Australian Bureau of Meteorology (BOM, 2014) stations within 25 km from the Rail Trail ranged from approximately 764 mm (Nulkaba) to 1135 mm (University of Newcastle).

1.4 Vegetation of the Richmond Vale Rail Trail

The track falls within the Central Coast floristic zone (Harden, 1993). Existing vegetation mapping (Sivertsen et al, 2011) shows a progression through remnant patches of open forests and woodland with a grassy or shrubby understory, and patches of cleared agricultural land on the western side of the sugarloaf range (see Figure 3). The trail then progresses through open coastal forest with a heath understory and tall mosaic wet Sclerophyll forest on the Western and Eastern slopes of the sugarloaf range respectively before traversing, costal forest with a heath understory once again east of the range.

The final ~10 km of the track travels through patches of *Typha orientalis* bush land and exotic pastures with a small patch of swamp forest. Vegetation mapping of the area is available (see Figure 4) however the resolution is not likely to be high enough to accurately represent the vegetation communities adjacent to the rail line. For this reason "ground-truthing" of these maps and vegetation mapping of the communities and plant species along the rail line was conducted.

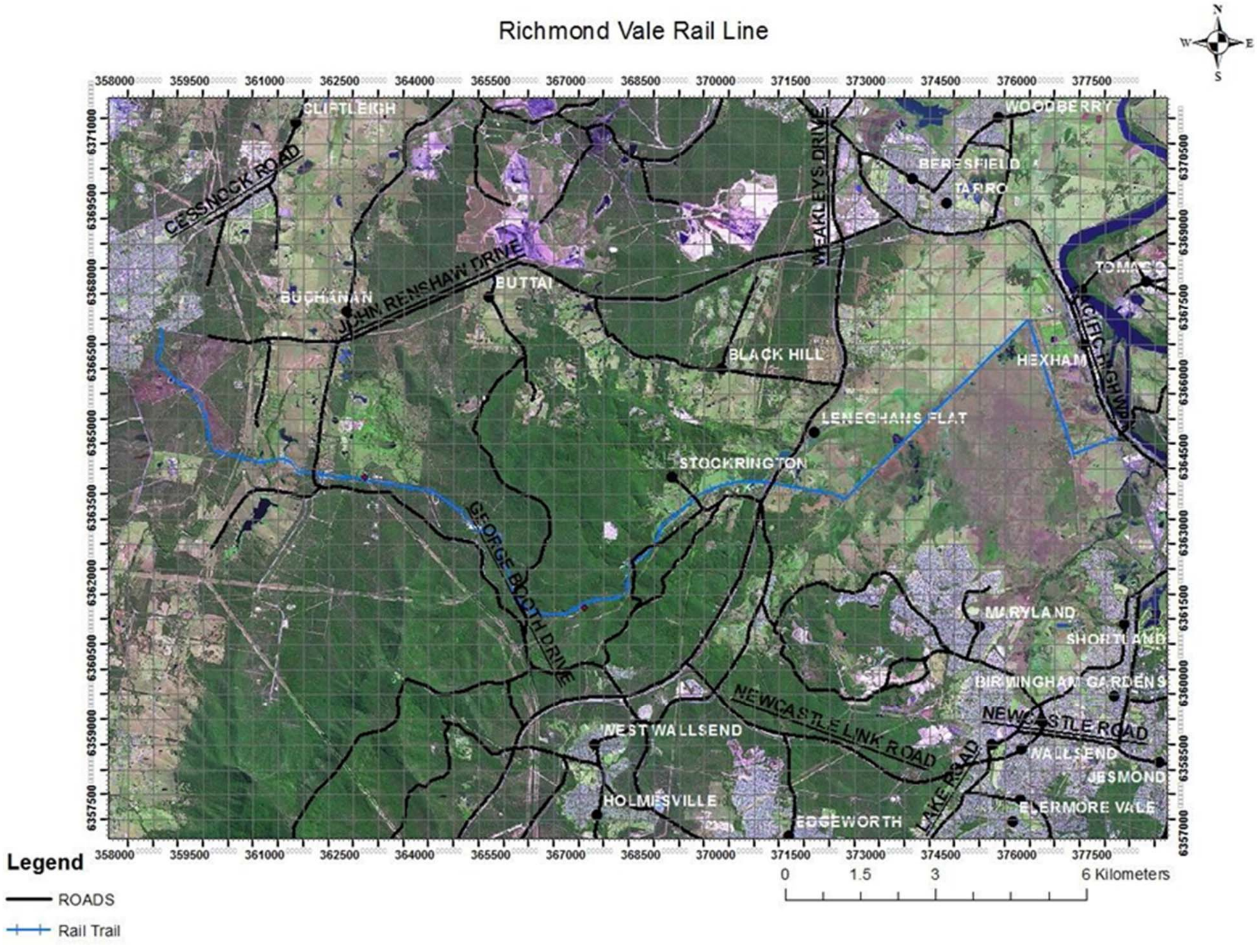

Figure 1: Location of the proposed Rail Trail

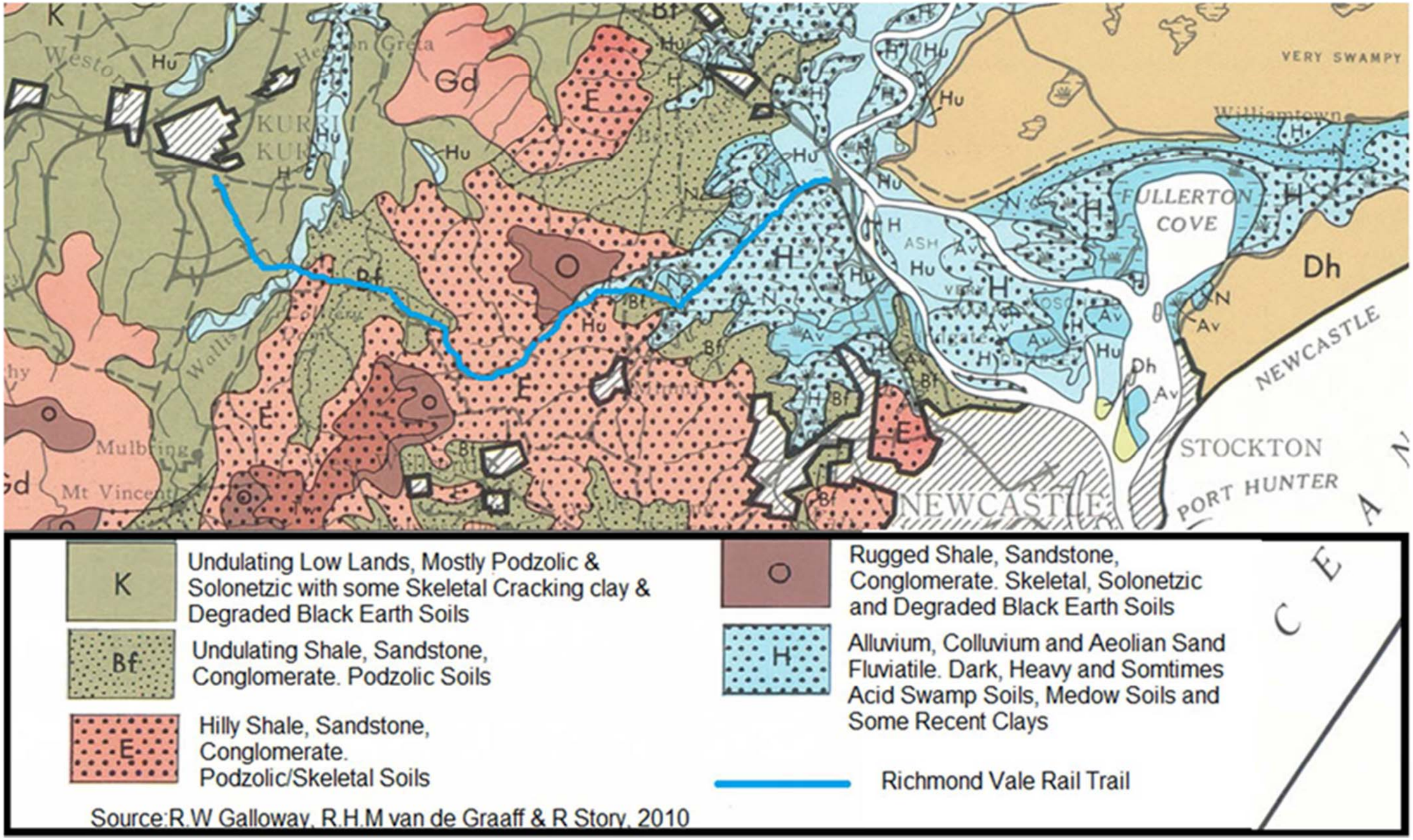

Figure 2: Land systems of the Richmond Vale Rail Trail: (Galloway *et al* 2010)

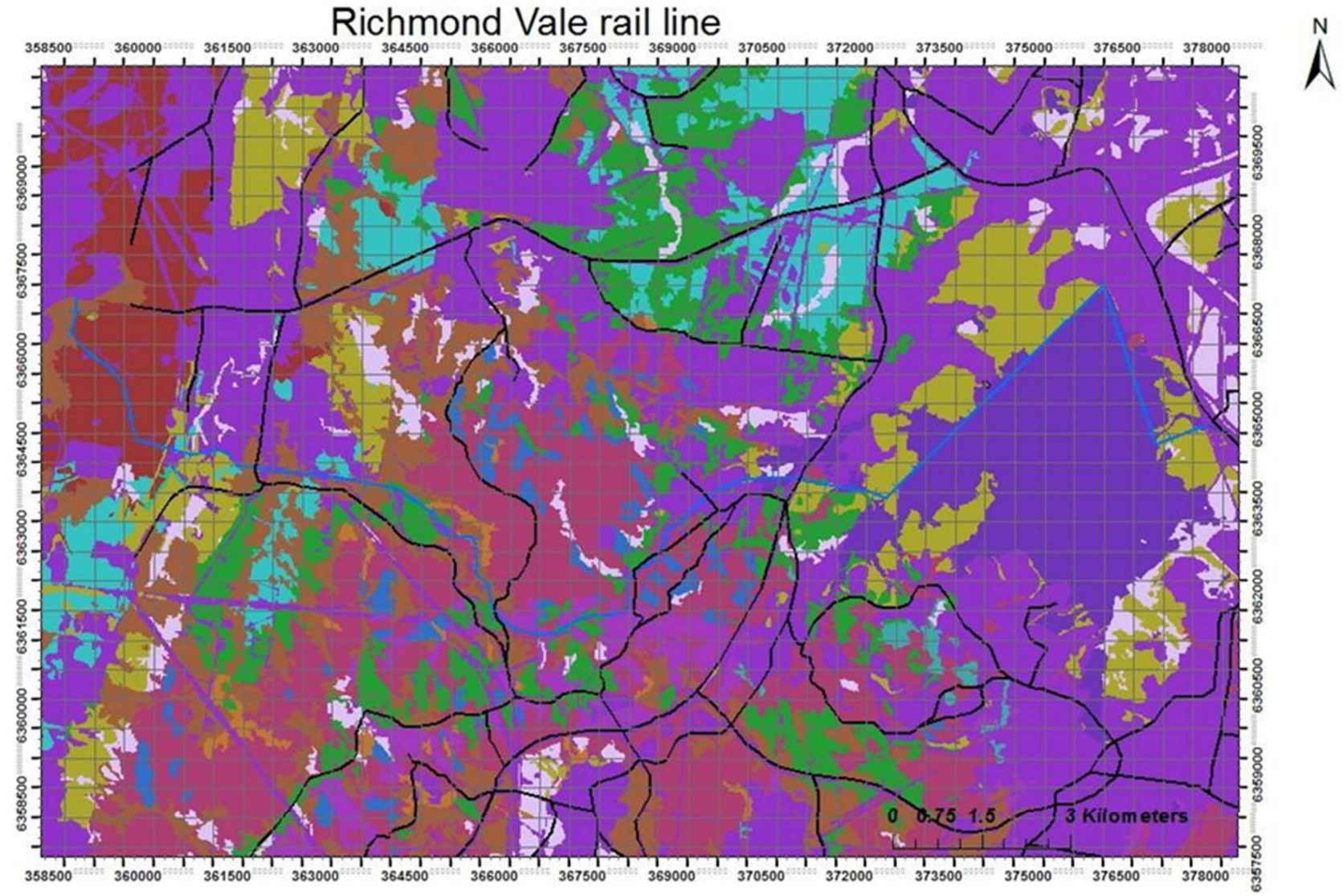

Figure 3: Vegetation communities of the Richmond Vale Rail Trail as Mapped by Sivertsen et al (2011)

2. Methods

The 27 km length of the rail line was walked and vegetation to an extent of 20 m either side of the rail line was surveyed. Species were identified, Species relative abundance was assessed and ranked as either dominant or not dominant and this information was used to categorise the vegetation into communities. The extent of each community was mapped using a hand held GPS (GARMIN Etreck 10) with a minimum accuracy of 3 m. A species list for each vegetation community was generated by opportunistically surveying the area. Where a community appeared more than once, in separate locations, a separate species list was generated for each population of that community. Plants were identified by an experienced ecologist and horticulturalist and identities were confirmed using keys from Harden (1993) and subsequent modifications as published on Plantnet (2013).

3. Results

Table 1 shows the existing Keith classes as provided in Keith (2004). Figure 4 shows the vegetation communities mapped along the rail line during this survey. In total the Rail Trail passes through 16 (Sixteen) distinct vegetation communities the majority of which are dominated by intact native vegetation. 4 (Four) communities including the area between communities 3-4 are impacted by grazing activities, the remaining communities are currently subjected to a lesser disturbance. Trail bike activity is evident along the length of the track which has resulted in ground disturbance and erosion. Access by four wheel drive vehicles is also evident particularly in areas close to George Booth Drive. Overall the rail easement itself shows higher levels of disturbance than adjacent vegetation and is generally dominated by exotic grasses.

Table1. Communities Identified on the Richmond Vale Rail Trail with Their Keith Form, Keith Class and relationship to Endangered Ecological Communities

Vegetation Community	Keith form	Keith class	Relationship to EEC
1. Spotted Gum Iron Bark	Dry Sclerophyll Forest (Shrubby sub-formation)	Hunter - Macleay Dry Sclerophyll Forests	Lower Hunter Spotted Gum-Ironbark Forest in the Sydney Basin Bioregion
2. Kurri Sands Swamp Woodland	Dry Sclerophyll Forest (Shrubby sub-formation)	Sydney Sand Flats Dry Sclerophyll Forests	Kurri Sand Swamp Woodland in the Sydney Basin Bioregion
3. Red Gum Forest	Dry Sclerophyll Forest (Shrubby sub-formation)	Hunter – Macleay Dry Sclerophyll Forests	Hunter Lowland Red Gum Forest in the Sydney Basin and New South Wales North Coast Bioregions
4. Spotted Gum Iron Bark	Dry Sclerophyll Forest (Shrubby sub-formation)	Hunter – Macleay Dry Sclerophyll Forests	Lower Hunter Spotted Gum-Ironbark Forest in the Sydney Basin Bioregion
5. Spotted Gum Stringy Bark	Dry Sclerophyll Forest (Shrubby sub-formation)	Hunter – Macleay Dry Sclerophyll Forests	
6. Red Gum Forest	Dry Sclerophyll Forest (Shrubby sub-formation)	Hunter – Macleay Dry Sclerophyll Forests	Hunter Lowland Red Gum Forest in the Sydney Basin and New South Wales North Coast Bioregions
7. Smooth Barked Apple, Red Bloodwood Open Forest	Dry Sclerophyll Forest (Shrubby sub-formation)	Sydney Coastal Dry Sclerophyll Forests	NIL
8. Blue Gum Tall Riparian Forest	Wet Sclerophyll Forest (Shrubby Sub Formation)	North Coast Wet Sclerophyll Forest	NIL
9. Spotted Gum, Iron Bark, Grey Gum Forest	Dry Sclerophyll Forest (Shrubby sub-formation)	Hunter – Macleay Dry Sclerophyll Forests	NIL
10. Pasture with some native regeneration in patches	NIL	NIL	NIL
11. Bull Rush Dominated Coastal Swamp (Pambalong Swamp)	Coastal Freshwater Wetlands	Coastal Freshwater Lagoons	Consistent with the EEC "Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions"
12. Broad Leaved Paperbark/ Swamp Mahogany Swamp Forest	Forested Wetlands	Coastal Floodplain Wetlands	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions
13. Patches of Regenerating Red Gum Forrest	Dry Sclerophyll Forest (Shrubby sub-formation)	Hunter – Macleay Dry Sclerophyll Forests	Potentially disturbed River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions
14. Swamp Oak, Red Gum Swamp Forest	Forested Wetlands	Coastal Floodplain Wetlands	Potentially disturbed River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions
15. Common Reed Dominated Wetland	Coastal Freshwater Wetlands	Coastal Freshwater Lagoons	Consistent with the EEC "Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions"

A full species list generated from field surveys for each community can be found in Appendix 1.

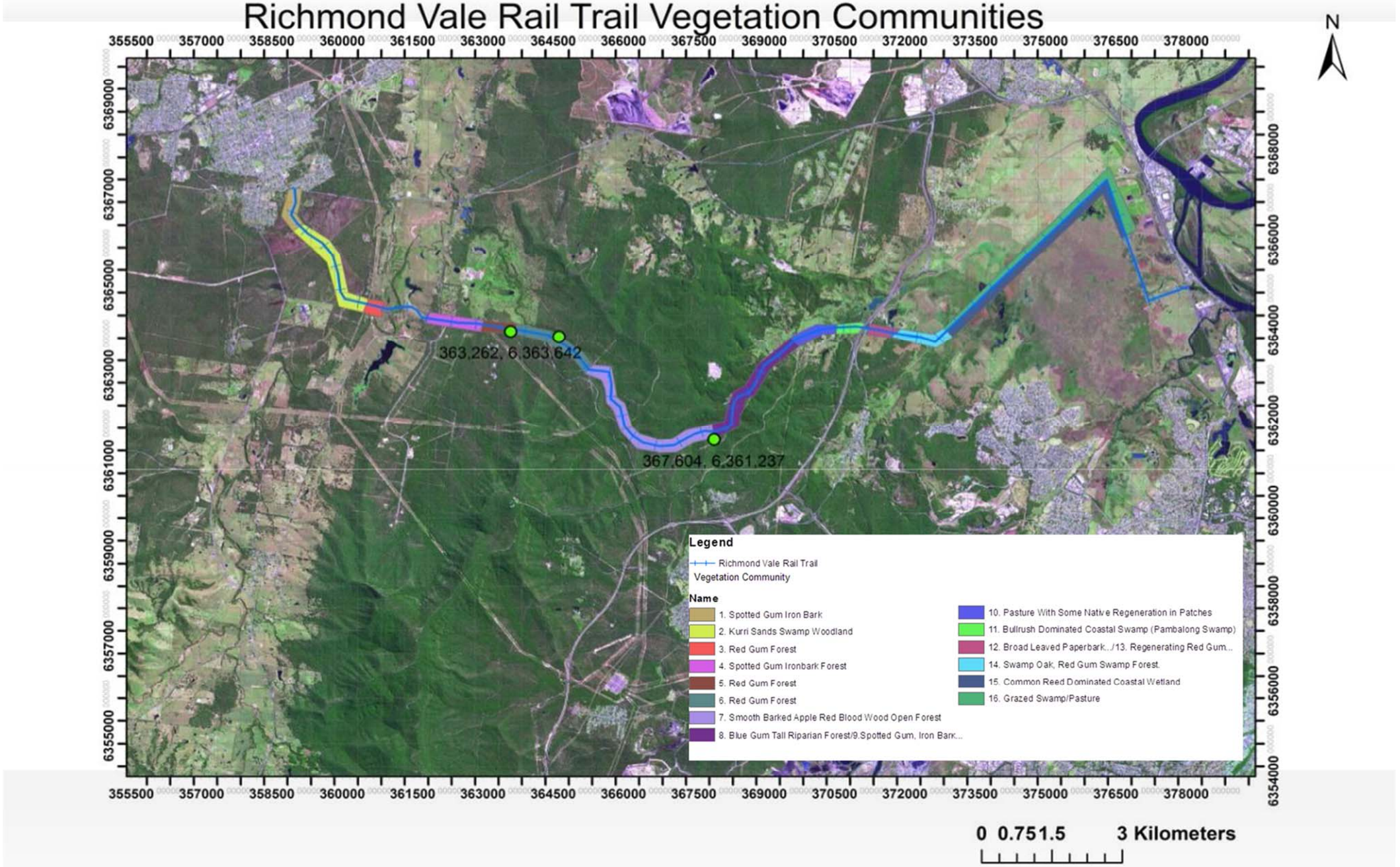

Figure 4: Mapped Vegetation Communities of the Richmond Vale Rail Trail

Community 1: Spotted Gum Iron Bark Forest

Figure 5: Spotted Gum Iron Bark Forest

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Hunter – Macleay Dry Sclerophyll Forests

Relationship to EEC: This community is consistent with the EEC "Lower Hunter Spotted Gum-Ironbark Forest in the Sydney Basin Bioregion".

Dominant species:

Overstory: *Eucalyptus crebra, E. fibrosa, Corymbia maculata*

Shrub layer: *Bursaria spinosa, Davisia uliifolia,*

Ground layer:

Significant species: *Grevillea Parviflora* (Threatened, TSC 1995)*, Macrozamia flexulosa* (Rare, ROTAP)

General description: This community is a relatively open dry Sclerophyll forest with a canopy dominated by Eucalypts 15 to 20 m in height. The vegetation is in a healthy condition with high native diversity and few introduced species away from the rail line. Some areas close to and along the rail line show signs of loss of ground cover and erosion as a result of trail bike use. Large numbers of weeds have become established likely due to the dumping of garden waste in patches along the rail line. This community includes a multitude of wildflowers that will be particularly notable in the spring months, additionally in provides high quality habitat for native fauna and a variety of birds which were identified during surveys (Appendix 1).

Community 2: Kurri Sands Swamp Woodland

Figure 6: Kurri Sands Swamp Woodland

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Sydney Sand Flats Dry Sclerophyll Forests

Relationship to EEC: This community is consistent with the EEC "Kurri Sand Swamp Woodland in the Sydney Basin Bioregion"

Dominant species:

Overstory: *Angophora bakeri, Eucalyptus parramattensis subsp. Decadens, Eucalyptus agglomerata*

Shrub layer: *Melaleuca nodosa, Hakea sericia, Banksia spinulosa*

Ground layer: *Lomandra filiformis, Imperata cylindrical, Themeda australis*

Significant species*: Eucalyptus parramattensis subsp. Decadens* (Threatened, TSC 1995), *Grevillea Parviflora* (Threatened, TSC 1995), *Acacia bynoeana* (Threatened, TSC 1995, EPBC, 1999)(within 200m of trail), *Grevillea montana* (Rare ROTAP)

General description: This community is an open woodland up to 15 m in height with a shrubby understory dominated by heath species. The vegetation is healthy with high native diversity and there are few introduced species other than some introduced grasses largely restricted to the trail itself. Evidence of trail bike use exists along the rail line however there is minimal disturbance away from the line other than an unpaved road running along the trail for approximately 200 m. This woodland community provides a change in structure from the forest communities it adjoins. Due to this the community is likely to support different fauna and as such contributes to the overall diversity of the trail. The heath component of this community will be rich in wildflowers, particularly in the spring time.

Community 3: Red Gum Forest

Figure 7: Red Gum Forest

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Hunter – Macleay Dry Sclerophyll Forests

Relationship to EEC: This community shows characteristics of "Hunter Lowland Red gum Forest in the Sydney Basin and New South Wales North Coast Bioregions".

Dominant species:

Overstory: *Eucalyptus tereticornis, E. amplifolia, Angophora floribunda*

Shrub layer: *Exocarpus stricta, Indigofera australis, Pittosporum undulatum*

Ground layer: *Pteridium esculentum, Imperata cylindrica, Dichondra repens*

Significant species: Nil

General description: This community is a small remnant of a red gum forest that likely covered the floodplain of nearby Wallace Creek. The majority of the floodplain land has been cleared for agricultural use, however some large remnant *Eucalyptus tereticornis* Individuals remain on nearby paddocks. This remnant forest shows signs of disturbance through the prevalence of the weed *Lantana camara* and native disturbance related species *Pittosporum undulatum,* this is likely associated with the small patch size and large edge of this forest type and highlights the vulnerability of this and other small fragments of native vegetation. None the less, this community contains a variety of species not found in adjacent communities and ads to the overall diversity of the trail. The openness of this community and nearby farmland provides a change in scenery that will add value to the Rail Trail and provides habitat for a different range of fauna species.

Community 4: Spotted Gum Iron Bark

Figure 8: Spotted Gum Iron Bark Forest

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Hunter – Macleay Dry Sclerophyll Forests

Relationship to EEC: This community is consistent with the EEC "Lower Hunter Spotted Gum-Ironbark Forest in the Sydney Basin Bioregion".

Dominant species:

Overstory: *Eucalyptus fibrosa, E. molucana, Corymbia maculata*

Shrub layer: *Acacia elongate, Bursaria spinosa, Leucopogon juniperinus*

Ground layer: *Themeda australis, Lomandra longifolia, Entolasia stricta*

Significant species: *Macrozamia flexulosa* (Rare, ROTAP)

General description: This community is an open forest with a canopy around 20 m tall and it differs from Community 1 through the lack of *E. crebra* and the prevalence of *E. fibrosa*. It is separated from Community 3 by a long stretch of cleared land on the Wallace creek floodplain. Redgums (*E. amplifolia* and *E. tereticornis)* growing at the western end of this community (near flood the plain) likely indicate the former transition from Red gum forest to Spotted Gum - Iron Bark forest. Sections of this community, while not cleared, show signs of grazing by cattle. This section of the rail line runs close to George Booth drive and as a result some disturbance to the vegetation is evident including invasion of some weed species, particularly in moist areas. An additional stretch of Red gum forest is present along Surveyors Creek and accounts for around 30 m of the rail line in this area. This proximity to George Both drive may be of value as an additional access point to the Rail Trail, particularly as it would not require disturbance of a more intact section of Forest.

Community 5: Spotted Gum Stringy Bark

Figure 9: Spotted Gum Stringy Bark Forest

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Hunter – Macleay Dry Sclerophyll Forests

Relationship to EEC: Nil

Dominant species:

Overstory: *Corymbia maculata, Eucalyptus umbra, E. punctata, E. crebra*

Shrub layer: *Jacksonia scoparia, Bursaria spinosa, melaleuca thymifolia*

Ground layer: *Entolasia stricta, Chrysocephalum apiculatum, Rytidosperma pallidum*

Significant species: Nil

General description: This community is an open forest with a canopy height of 15-20 m and a largely grassy understory. It shares similarities with communities 1 and 4 however, it differs from these communities in the dominance of *E. umbra* and the relative dominance of grasses and graminoides compared to shrubs in the understory. This community is positioned on the western slopes of the sugarloaf range and is comprised of some species more commonly associated with coastal communities. The community has high native diversity and few weeds. Sections of the rail line in this area are cut into the hills. These "Cuttings" are in some areas quite deep and while they add significant scenic and heritage value to the Rail Trail they also present dangers in the form of unstable strata.

Community 6: Red Gum Forest

Figure 10: Red Gum Forest

Keith form Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Hunter – Macleay Dry Sclerophyll Forests

Relationship to EEC: This community shows characteristics of "Hunter Lowland Red gum Forest in the Sydney Basin and New South Wales North Coast Bioregions".

Dominant species:

Overstory: *Eucalyptus tereticornis, Melaleuca linarifolia, E. fibrosa*

Shrub layer: *Exocarpus stricta, Leptospermum polygalifolium, Melaleuca nodosa*

Ground layer: *Pteridium esculentum, Imperata cylindrical, Lomandra longifolia*

Significant species: Nil

General description: This community consists of an open forest with a canopy height of around 20 m with a dense shrubby understorey. It is positioned on a low lying flood plain. It differs from community 3 in its species assemblage, most notably the lack of *E. amplifolia* and the prevalence of myrtaceous shrubs of the genera *Melaleuca* and *Leptospermum* in the middle story. This community shows little sign of disturbance; it has healthy native vegetation and is surrounded by intact vegetation. Once again the uniqueness of this community adds to the overall diversity and value of the Rail Trail and as this section is built over a flood plain the Rail Line is raised above the general ground level which provides a good vantage point to observe the scenery.

Community 7: Smooth Barked Apple, Red Bloodwood Open Forest

Figure 11: Smooth Barked Apple, Red Bloodwood Open Forest

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Sydney Coastal Dry sclerophyll Forests

Relationship to EEC: Nil

Dominant species:

Overstory: *Angophora costata, Corymbia gummifera, Eucalyptus umbra*

Shrub layer: *Allocasuarina littoralis, Banksia spinulosa,*

Ground layer: *Lomandra oblique, Entolasia stricta, Themeda australis*

Significant species: *Tetratheca Juncea* (Vulnerable: TSC 1995, EPBC 1999, Rare: ROTAP)

General description: This community is an open forest of around 20 m in height with a grass and shrubby understory, positioned on the eastern slopes of the sugarloaf range it marks the transition into vegetation of coastal areas. This community contains patches of wetter forest where the canopy is more closed, *Eucalyptus paniculata* and *E. eugeniodies* are more prevalent in the overstory and *Melaleuca stypholoidies* and *Leptospermum polygalifolium* dominate the shrub layer. This community consists of healthy native vegetation with little signs of weeds or ground disturbance other than the area directly along the rail line. Once again the uniqueness of this vegetation type adds to the overall diversity and scenic value of the Rail Trail. Some deep cuttings and the presence of the spectacular Gymea Lily (*Doryanthes excelsa*) add additional value to this section of the Trail.

Community 8: Blue Gum Tall Riparian Forest

Figure 12: Blue Gum Tall Riparian Forest

Keith form: Wet Sclerophyll Forest (Shrubby Sub Formation)

Keith Class: North Coast Wet Sclerophyll Forest

Relationship to EEC: Nil

Dominant species:

Overstory: *Eucalyptus saligna, Toona ciliata, E. paniculata*

Shrub layer: *Acacia irrorata, Cissus antarctica, Glochidion ferdinandi*

Ground layer: *Dianella caerulea, Pteridium esculentum*

Significant species: Nil

General description: Characterised by a tall canopy dominated by Blue Gums (*E. saligna)* 30 – 40 m high and is restricted to the riparian zone of Blue Gum Creek. The community includes a variety of rainforest species, the abundance of which increases towards the lower reaches of the creek, before the creek line becomes cleared leading into Pambalong Swamp. The presence of Red Cedar (*Toona ciliate*) of up to 20 m in height in the lower reaches is of particular note as this species was heavily logged from as early as the late 1700's and specimens of this size, are some of the older regrowth from the post logging era. This community is effected by the rail line and road to a quarry resulting in increased light penetration to the lower understory, a dominance of native vines of the genus *Cissus* and the establishment of weeds such as Wild Tobacco Tree (*Solanum mauritianum*) and Lantana (*L. camara)*. This community along with Community 9 is present along the same stretch of the Rail Trail. "Blue Gum tall riparian forest" are restricted to the riparian zone of Blue Gum Creek and "Ironbark, Grey Gum" forest present in the higher areas away from the riparian zone. The spectacular height of this forest along with its uniqueness, being the only "Wet Sclerophyll forest" on the rail trail make it a valuable section of the Rail Trail.

Community 9: Spotted Gum, Iron Bark, Grey Gum Forest

Figure 13: Spotted Gum, Iron Bark, Grey Gum Forest

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Hunter – Macleay Dry Sclerophyll Forests

Relationship to EEC: Nil

Dominant species: *Corymbia maculata, Eucalyptus punctata, Eucalyptus paniculata*

Shrub layer: *Persoonia linearis*, *Daviesia ulicifolia, Pultenaea villosa*

Ground layer: *Lomandra longifoilia, Entolasia stricta, Imperata cylindrical*

Significant species: Nil

General description: This community is located beyond the riparian zone of Blue Gum Creek. It is a medium height forest (~ 20 m) with a grassy and shrubby understory. The rail trail clearing is particularly wide in this area and is used in part as a road for the quarry. The Rail easement is very weedy, dominated by exotic grasses Kikuyu (*Pennisetum clandestinum)* Red Natal Grass (*Melines repens*) and Rhodes Grass (*Chloris gayana).* The forest is in a healthy condition with good native diversity and few weeds. Some small patches of lantana (*Lantana camara*) are present in the lower lying areas. Some patches of the forest have been recently burned and the regenerating ground layer is dominated by native grasses. High numbers of seedlings from members of the *Fabaceae* family are also present and this is likely associated with recent fires (last 10 years). These members of the pea family will flower profusely in the spring time and this forest will provide a spectacular contrast to the "Blue Gum Forest" along this section of the Rail Trail.

Community 10: Pasture with some native regeneration in patches

Figure 14: Pasture with Some Native Regeneration in Patches

Keith form: N/A

Keith Class: N/A

Relationship to EEC: Nil

Dominant species:

Overstory: *E. tereticornis, E. saligna, E. punctata* (regrowth)

Shrub layer: *Indigofera australis, Acacia elongata,*

Ground layer: *Themeda australis, Pennisetum clandestinum*

Significant species: Nil

General description: This community is dominated by introduced pasture species Kikuyu grass (*Pennisetum clandestinum)* however the regeneration of native species is evident in adjacent paddocks, species regenerating include Forest red gum (*E. tereticornis*), Grey gum (*E. punctata*) and Blue gum (*E. saligna*). Under these patches of regenerating Eucalypts Kangaroo Grass (*Themeda australis*) is more prevalent in the ground layer. The rail line easement is dominated by exotic pasture and thick patches of lantana, (*Lantana camara*). This areas is used by local land owners for grazing. The presence of Blue Gum suggests this community is regeneration of riparian vegetation. The regeneration or Red Gum suggests this area is a flood plain. The regeneration of native Blue Gum and Red Gum forests in this area provides an opportunity for the habitat values of this section to increase. The change presence of the pasture landscape, however, provides a change of scenery that does not necessarily detract from the value of this area to the Rail Trail.

Community 11: Bullrush Dominated Coastal Swamp (Pambalong Swamp)

Figure 15: Bullrush Dominated Coastal Swamp (Pambalong Swamp)

Keith form: Coastal Freshwater Wetlands

Keith Class: Coastal Freshwater Lagoons

Relationship to EEC: This community is consistent with the EEC "Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions"

Dominant species:

Overstory: *Casuarina glauca, Leptospermum laevigatum* (edges of swamp only)

Shrub layer: *Typha orientalis*

Ground layer: *Persicaria sp., Cyperus sp.*

Significant species: Nil

General description: This vegetation community is freshwater wetland. Small trees and shrubs including Swamp Oak (*Casuarina glauca*) and Coastal Tea Tree (*Leptospermum laevigatum*) are present on the edges and in small stands in the swamp where they form a dense forest with little understory species. Bullrush (*Typha orientalis*) and to a lesser extent Common read (*Phragmities australis*) dominate the open areas of the swamp, patches of open water are also present. This community marks the start of a series of wetland communities leading into Hexham Swamp. Pambalong Swamp is managed by NSW National Parks and Wildlife Service as a "Nature Reserve" and is considered to be of high conservation value; offering a picturesque landscape with recreational value for low impact conservation related activities such bird watching and photography.

Community 12: Broad Leaved Paperbark/Swamp Mahogany Swamp Forest

Figure 16: Broad Leaved Paperbark/Swamp Mahogany Swamp Forest

Keith form: Forested Wetlands

Keith Class: Coastal Floodplain Wetlands

Relationship to EEC: This community is consistent with the EEC "Swamp Sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions"

Dominant species:

Overstory: *Melaleuca quinquenervia, Eucalyptus robusta*

Shrub layer: *Melaleuca nodosa, Leptospermum laevigatum, Typha orientalis*

Ground layer: *Pteridium esculentum, Commelina cyanea, Imperata cylindrical*

Significant species: Nil

General description: This community is a swamp forest dominated by Broad Leaved Paperbark (*Melaleuca quinquenervia*) and Swamp Mahogany (*Eucalyptus robusta*) to around 20 m in height. The understory includes patches of shrubby vegetation dominated by myrtaceous shrubs (*Melaleuca nodosa* and *Leptospermum laevigatum)* as well as open patches with a ground cover of Scurvy Weed (*Commelina cyanea*). The community is in a healthy condition despite its small size and the associated large edge effect. The rail line easement in this area is particularly weedy. This community contributes to the diversity of the Rail Trail.

Community 13: Patches of Regenerating Red Gum Forest

Figure 17: Patches of Regenerating Red Gum Forrest

Keith form: Dry Sclerophyll Forest (Shrubby sub-formation)

Keith Class: Hunter – Macleay Dry Sclerophyll Forests

Relationship to EEC: This community is consistent with regeneration of former "Hunter Lowland Red gum Forest in the Sydney Basin and New South Wales North Coast Bioregions".

Dominant species:

Over story, *Eucalyptus teriticornis, Eucalyptus amplifolia, E. fibrosa*

Shrub layer, *Ozothamnus diosmifolius, Allocasuarina torulosa*

Ground layer, *Themeda australis, Cymbopogon refractus, Cheilanthes austrotenuifolia*

Significant species: Nil

General description: This community is largely dominated by native pasture; however significant regeneration of Redgums (*Eucalyptus teriticornis* & *E. amplifolia*) has occurred. Because this pasture has been largely unimproved (i.e., contains mostly native species) the regeneration potential of this forest is likely to be high. As with the majority of the track the rail line easement in this area is very weedy. This area is in close proximity to two major roads (M1 Motorway and Lenaghans Drive) the latter of which offers an additional access point. Additionally, this section of the line is in close proximity to existing residential dwellings.

Community 14: Swamp Oak, Red Gum Swamp Forest

Figure 18: Swamp Oak, Red Gum Swamp Forest.

Keith form: Forested Wetlands

Keith Class: Coastal Floodplain Wetlands

Relationship to EEC: This community is consistent with the EEC "Swamp Sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions"

Dominant species:

Overstory: *Casuarina glacua, Eucalyptus teriticornis, Angophora floribunda*

Shrub layer: *Typha orientalis, Leptospermum laevigatum*

Ground layer: *Lomandra longifolia*, *Pteridium esculentum*

Significant species: Nil

General description: This community is a Swamp Forest and it differs from Community 12 in its species assemblage (particularly in the canopy layer) and in structure. This community consists of areas with relatively closed canopy and areas of open canopy where water of aquatic vegetation is evident at ground level. This community includes areas of relatively intact native vegetation as well as areas of high disturbance. The disturbed areas including the rail easement are dominated by introduced grasses including Red Natal Grass, (*Melinis repens*), Coolatai Grass (*Hyparrhenia hirta*), Rhodes Grass (*Chloris gyana*), as well as Lantana (*L. camara*) and a range of other exotic species.

Community 15: Common Reed Dominated Coastal Wetland

Figure 19: Common Reed Dominated Coastal Wetland

Keith form: Coastal Freshwater wetlands

Keith Class: Coastal Freshwater Lagoons

Relationship to EEC: This community is consistent with the EEC "Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions"

Dominant species:

Overstory: *Casuarina glauca* (stunted, few)

Shrub layer: *Pharagmities australis*

Ground layer: *Pennisetum clandestinum, Trifolium repens* (Rail Line only)

Significant species: Nil

General description: This community is a freshwater swamp dominated by Common reed (*Pharagmities australis*). There are a few emergent swamp oaks (*Casuariana glauca*) however these are stunted in their growth and spread far apart, as such no canopy is present. The rail line easement in this section is dominated by introduced pasture species Kikuyu (*Pennisetum clandestinum*) and White Clover (*Trifolium repens*) and continues to be grassed. Spiney Rush (*Juncus acutus*) is present in small stands of approximately 1-10 m^2 throughout the swamp area and in larger stands in areas further east of the rail line. This large stretch of the Rail Trail runs through Hexham Swamp Nature reserve and this community offers unique scenery with exceptionally high value for activities such as bird watching and photography.

Community 16: Grazed Swamp/Pasture

Figure 20: Grazed Swamp/Pasture

Keith form: Coastal Freshwater wetlands

Keith Class: Coastal freshwater lagoons

Relationship to EEC: This community is consistent with a highly disturbed remnant of the EEC "Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions"

Dominant species:

Overstory: Nil

Shrub layer: Nil

Ground layer:

Significant species:

General description: This area of swampland is kept far more open than the non-grazed area on the other side of the rail easement by grazing activities. An invasive, species Water Hyacinth (*Eichhornia crassipes*) dominates the areas with water cover while water couch (*Paspalum distichum)* and Kikuyu (*Pennisetum clandestinum*) dominate the dryer areas. The abundance of Water Hyacinth in this community is of concern as it is likely acting as a source of propagules that may act to colonise adjacent wetlands such as Pambalong Swamp. The openness of these areas however, adds value to the area in the form of habitat diversity and higher numbers of birds were observed on this side of the swamp. As such grazing of this area provides both benefits and obstacles for future management.

4. Discussion

All vegetation surveys were conducted in the June/July of 2014 and were designed to aid in the identification of community types not as complete species lists. It is likely due to the time of year and standard of the surveys that a significant number of the species present in all communities were not identified. As such vegetation lists should not be considered absolute for planning of other legislative purposes.

The vegetation communities identified in this document are in some areas similar in their geographical distribution to those in Sivertsen et al (2011), other areas however are different.

Communities 1, 2 and 4, that "Spotted Gum Ironbark Forest", "Kurri Sands Swamp Woodland" and "Spotted Gum Iron Bark Forest" respectively, are consistent with the maps produced in Sivertsen et al (2011). The small discrepancy (less than 100m) between what is recorded in this report and that of Sivertsen et al (2011) regarding the division between these communities is likely a result of the arbitrary nature of community boundaries that transition gradually from one community to another in a continuum rather than being discrete. The small area of "Red Gum Forest" after these communities is not mapped in Sivertsen et al (2011) and this could be due to the area being too small for the resolution of their mapping; or because the forest was considered too disturbed and was included as part of the nearby pasture area. While this forest is more disturbed than the other communities along the Rail Trail it has value as a small fragment of an EEC that has been mostly cleared in other areas along the trail.

The areas mapped in this report as Community 5 (Spotted Gum Stringy Bark Forest) and Community 6 (Red Gum Forest) are mapped as mostly Spotted Gum Ironbark Forest in Sivertsen et al (2011); and Community 7 (Smooth Barked Apple, Red Blood Wood Open Forest) is mapped mostly as Spotted Gum, Broad Leaved Mahogany, Grey Gum Forest. This was found to be inaccurate when ground-truthed. Similarly the communities along Blue Gum Creek (Community 8 - Blue Gum Tall Riparian Forest and 9 - Spotted Gum Iron Bark Grey Gum Forest) are also inconsistent.

Community 10 is mapped as non-native pasture in Sivertsen et al (2011) and is consistent with ground-truthing, however it fails to recognise the regrowth of some native vegetation in this area. Community 11 is correctly mapped as Bulrush dominated wetland. Community 12 is incorrectly mapped as Smooth Barked Apple, Red Blood Wood open forest.

Community 13 is recorded as a combination of unmapped or non-native vegetation. While parts of this community are disturbed and dominated by non-native vegetation higher resolution mapping (Sivertsen et al, 2011) fails to identify the important patches of Swamp Forest (EEC) in this area.

Community 15 is mapped as *Typha orientalis* dominated wetland, ground-truthing showed this area to be dominated by *Pharagmities australis,* a similar species rather than *T. orientalis.* Community 16 was mapped as non-native vegetation and is consistent with ground-truthing.

The mapping in Sivertsen et al (2011) used data from a range of sources and is likely to explain the inconsistencies in their mapping accuracy; as some sources would likely be more accurate than others. While an attempt to standardise vegetation communities was made, by including the classes and forms described in Keith (2004), vegetation community classification remains arbitrary and categorisation of vegetation into predefined community is ambiguous. For this reason the communities in this report have been named according to their dominant species and structure and pre-existing community names have not been adopted.

Of the 16 vegetation communities 11 are identified as existing or remnants of Endangered Ecological Communities (EEC's) with 5 (five) different EEC's identified. Four (4) threatened species listed under the NSW TSC Act 1995 or the Commonwealth EPBC Act 1999 were identified and 2 additional species that are not listed under legislation but considered rare by ROTAP were also recorded.

The diversity of communities and landscapes along the rail trail provides great value to the area both aesthetically and through increased biodiversity. Because the majority of the route passes through largely intact native vegetation the rail line is likely to have high ecotourism potential. Low impact uses such as nature watching (birds and other fauna) and photography would be highly suited to this trail. However, the addition of picnic areas and other similar facilities could improve the recreational potential of the area.

5. Conclusions and Recommendations

- The use of this disused rail line as a rail trail is likely to have minimal impact on the native vegetation communities of the area as rail easement is mostly unvegetated and weedy. Were ever possible during the construction phase the rail line should be used for access to minimise impacts on native vegetation. While the native vegetation adjacent to the rail trail is mostly in good condition high number of weedy grasses are present in most areas along the rail line. These grasses are likely to be spread by bicycles, foot traffic and vehicles in soil (DPI, 2013. Disturbance of native vegetation by movement of vehicles, foot traffic or cycles off the rail trail into native vegetation could result in infestation of these grasses within currently healthy native vegetation.

- Revegetation of natives along the edges of the rail trail should be encouraged to reduce the weediness of this area and create buffer zone to prevent weed dispersal from the Trail and disturbance in Native vegetation.

- Only two sightings of snakes were made during vegetation surveys (both in the section of the rail trail passing through Hexham Swamp) however it is likely that more snakes will be active around the trail in the warmer months. The use of a light coloured pavement should be considered, particularly in the areas around swamps to minimise use of the rail trail by snakes and in so the likely hood of snake–cyclist encounters.

- The area around Blue Gum Creek has high scenic value due to the exceptionally tall Blue Gums and rainforest vegetation. This area could be improved by planting and weed control to reduce light penetrating canopy and the number of exotic species in this community.

- The diversity of vegetation communities and quality of native vegetation adds significant value to the Richmond Vale Rail Trail through its scenic beauty, biodiversity values and provision of opportunities for conservation related recreational activities including bird watching and photography. The integrity of these vegetation communities should be preserved and enhanced to improve their value to both the Rail Trail and conservation more broadly.

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Appendix 1: Full species list from recent survey

Community 1: Spotted Gum Iron Bark

Species	Plantnet link	Family
Acacia elongata	Acacia elongata Sieber ex DC.	Fabaceae
Acacia falcata	Acacia falcata Willd.	Fabaceae
Acacia parvipinnula	Acacia parvipinnula Tindale	Fabaceae
Acacia suaveolens	Acacia suaveolens (Sm.) Willd.	Fabaceae
Acacia terminalis	Acacia terminalis (Salisb.) J.F.Macbr.	Fabaceae
Allocasuarina littoralis	Allocasuarina littoralis (Salisb.) L.A.S.Johnson	Casuarinaceae
Angophora bakeri	Angophora bakeri E.C.Hall	Myrtaceae
*Araujia sericifera**	Araujia sericifera Brot.	Apocynaceae
*Bidens pilosa**	Bidens pilosa L.	Asteraceae
Bossiaea obcordata	Bossiaea obcordata (Vent.) Druce	Fabaceae
*Bryophyllum delagoense**	Bryophyllum delagoense (Eckl. & Zeyh.) Schinz	Crassulaceae
Bursaria spinosa	Bursaria spinosa Cav.	Pittosporaceae
Callistemon rigidus	Callistemon rigidus R.Br.	Myrtaceae
Cheilanthes austrotenuifolia	Cheilanthes austrotenuifolia H.M.Quirk & T.C.Chambers	Pteridaceae
Chrysocephalum apiculatum	Chrysocephalum apiculatum (Labill.) Steetz	Asteraceae
*Cinnamomum camphora**	Cinnamomum camphora (L.) T.Nees & C.H.Eberm.	Lauraceae
Corymbia eximia	Corymbia eximia (Schauer) K.D.Hill & L.A.S.Johnson	Myrtaceae
Corymbia gummifera	Corymbia gummifera (Gaertn.) K.D.Hill & L.A.S.Johnson	Myrtaceae
Corymbia maculata	Corymbia maculata (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae
Cotoneaster sp.*	Genus Cotoneaster	Malaceae
Daviesia ulicifolia	Daviesia ulicifolia Andrews	Fabaceae
Dianella longifolia	Dianella longifolia R.Br.	Phormiaceae
Dillwynia retorta	Dillwynia retorta (J.C.Wendl.) Druce	Fabaceae
*Dimorphotheca ecklonis**	Dimorphotheca ecklonis DC.	Asteraceae
Dodonaea triquetra	Dodonaea triquetra J.C.Wendl.	Sapindaceae
*Dolichandra unguis-cati**	Dolichandra unguis-cati (L.) L.G.Lohmann	Bignoniaceae
Entolasia stricta	Entolasia stricta (R.Br.) Hughes	Poaceae
Eucalyptus crebra	Eucalyptus crebra F.Muell.	Myrtaceae
Eucalyptus eugeniodies	Eucalyptus eugenioides Sieber ex Spreng.	Myrtaceae
Eucalyptus fibrosa	Eucalyptus fibrosa F.Muell.	Myrtaceae
Eucalyptus punctata	Eucalyptus punctata DC.	Myrtaceae
Exocarpos stricta	Exocarpos strictus R.Br.	Santalaceae
Glycine sp	Genus Glycine	Fabaceae
Grevillia parviflora †	Grevillea parviflora R.Br. subsp. parviflora	Proteacea
Hakea sericea	Hakea sericea Schrad. & J.C.Wendl.	Proteacea
Hardenbergia violacea	Hardenbergia violacea (Schneev.) Stearn	Fabaceae
Hibbertia pedunculata	Hibbertia pedunculata DC.	Dilleniaceae
*Jacaranda mimosifolia**	Jacaranda mimosifolia D.Don	Bignoniaceae
Jacksonia scoparia	Jacksonia scoparia R.Br.	Fabaceae
*Lantana camara**	Lantana camara L.	Verbenaceae
*Ligustrum sinense**	Ligustrum sinense Lour.	Oleaceae
Lissanthe stigosa	Lissanthe strigosa (Sm.) R.Br.	Ericaceae
Lomandra longifolia	Lomandra longifolia Labill.	Lomandraceae
Macrozamia flexuosa	Macrozamia flexuosa C.Moore	Zamiaceae
Melichrus urceolatus	Melichrus urceolatus R.Br.	Ericaceae
*Melinis repens**	Melinis repens (Willd.) Zizka	Poaceae
Notelaea longifolia	Notelaea longifolia Vent.	Oleaceae
*Nothoscordum gracile**	Nothoscordum gracile (Aiton) Stearn	Alliaceae
Ozothamnus diosmifolius	Ozothamnus diosmifolius (Vent.) DC.	Asteraceae
Persoonia linearis	Persoonia linearis Andrews	Proteacea
Pimelea linifolia	Pimelea linifolia Sm.	Thymelaeaceae

Community 1: Spotted Gum Iron Bark (continued)

Species	Plantnet link	Family
Podolobium ilicifolium	Podolobium ilicifolium (Andrews) Crisp & P.H.Weston	Fabaceae
Pomax umbellata	Pomax umbellata (Gaertn.) Sol. ex A.Rich.	Rubiaceae
Pratia puipuraseens	Pratia purpurascens (R.Br.) E.Wimm.	Lobeliaceae
Rubus sp.*	Genus *Rubus*	Rosaceae
Rytidosperma pallidum	Rytidosperma pallidum (R.Br.) A.M. Humphreys & H.P.Linder	Poaceae
*Senna pendula**	Senna pendula	Fabaceae
*Solanum mauritianum**	Solanum mauritianum Scop.	Solanaceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
*Toxicodendron succedaneum (L.) Kuntze**	Toxicodendron succedaneum (L.) Kuntze	Anacardiaceae

** denotes exotic species*
† denotes a listed species

Community 2: Kurri Sands Swamp Woodland

Species	Plantnet link	Family
Acacia bynoeana †	Acacia bynoeana Benth.	Fabaceae
Acacia elongata	Acacia elongata Sieber ex DC.	Fabaceae
Acacia falcata	Acacia falcata Willd.	Fabaceae
Angophora bakeri	Angophora bakeri E.C.Hall	Myrtaceae
Austrostipa		Poaceae
Banksia oblongifolia	Banksia oblongifolia Cav.	Proteacea
Banksia spinulosa	Banksia spinulosa Sm.	Proteacea
Bossiaea obcordata	Bossiaea obcordata (Vent.) Druce	Fabaceae
Chrysocephalum apiculatum	Chrysocephalum apiculatum (Labill.) Steetz	Asteraceae
Daviesia ulicifolia	Daviesia ulicifolia Andrews	Fabaceae
Dillwynia retorta	Dillwynia retorta (J.C.Wendl.) Druce	Fabaceae
Eucalyptus agglomerata	Eucalyptus agglomerata Maiden	Myrtaceae
Eucalyptus fibrosa	Eucalyptus fibrosa F.Muell.	Myrtaceae
Eucalyptus parramattensis subsp. Decadens	Eucalyptus parramattensis subsp. decadens L.A.S.Johnson & Blaxell	Myrtaceae
Grevillea montana	Grevillea montana R.Br.	Proteacea
Grevillia parviflora †	Grevillea parviflora R.Br. subsp. parviflora	Proteacea
Hakea dactyloides	Hakea dactyloides (Gaertn.) Cav.	Proteacea
Hakea sericea	Hakea sericea Schrad. & J.C.Wendl.	Proteacea
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae
Isopogon anemonifolius	Isopogon anemonifolius (Salisb.) Knight	Proteacea
Lambertia formosa	Lambertia formosa Sm.	Proteacea
Leptospermum trinervium	Leptospermum trinervium (Sm.) Joy Thomps.	Myrtaceae
Lissanthe stigosa	Lissanthe strigosa (Sm.) R.Br.	Ericaceae
Lomandra filiformis	Lomandra filiformis (Thunb.) Britten	Lomandraceae
Lomandra glauca	Lomandra glauca (R.Br.) Ewart	Lomandraceae
Melaleuca nodosa	Melaleuca nodosa (Sol. ex Gaertn.) Sm.	Myrtaceae
Melaleuca sieberi	Melaleuca sieberi Schauer	Myrtaceae
Melaleuca thymifolia	Melaleuca thymifolia Sm.	Myrtaceae
Mirbelia rubiifolia	Mirbelia rubiifolia (Andr.) G.Don	Fabaceae
Persoonia linearis	Persoonia linearis Andrews	Proteacea
Pterostylis sp.		Orchidaceae
Pultenaea sp.		Fabaceae
Rytidosperma pallidum	Rytidosperma pallidum (R.Br.) A.M. Humphreys & H.P.Linder	Poaceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Xanthorrhoea sp.		Xanthorrhoea

Community 3: Red Gum Forest

Species	Plantnet link	Family
Eucalyptus tereticornis	Eucalyptus tereticornis Sm.	Myrtaceae
Eucalyptus amplifolia	Eucalyptus amplifolia Naudin	Myrtaceae
Angophora floribunda	Angophora floribunda (Sm.) Sweet	Myrtaceae
Eucalyptus punctata	Eucalyptus punctata DC.	Myrtaceae
Melaleuca linariifolia	Melaleuca linariifolia Sm.	Myrtaceae
Eucalyptus moluccana	Eucalyptus moluccana Roxb.	Myrtaceae
Indigofera australis	Indigofera australis Willd.	Fabaceae
Exocarpos stricta	Exocarpos strictus R.Br.	Santalaceae
Melaleuca nodosa	Melaleuca nodosa (Sol. ex Gaertn.) Sm.	Myrtaceae
Daviesia ulicifolia	Daviesia ulicifolia Andrews	Fabaceae
Pittosporum undulatum	Pittosporum undulatum Vent.	Pittosporaceae
*Cestrum parqui**	Cestrum parqui L'Hér.	Solanaceae
*Lantana camara**	Lantana camara L.	Verbenaceae
Carex appressa	Carex appressa R.Br.	Cyperaceae
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae
Kennedia rubicunda	Kennedia rubicunda Vent.	Fabaceae
Senecio linearifolius	Senecio linearifolius A.Rich.	Asteraceae
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae
Clematis glycinoides	Clematis glycinoides DC.	Ranunculaceae
Rubus parvifolius	Rubus parvifolius L.	Rosaceae
Dichondra repens	Dichondra repens J.R.Forst. & G.Forst.	Convolvulaceae
Hardenbergia violacea	Hardenbergia violacea (Schneev.) Stearn	Fabaceae
Commelina cyanea	Commelina cyanea R.Br.	Commelinaceae

Community 4: Spotted Gum Iron Bark

Species	Plantnet link	Family
Acacia elongata	Acacia elongata Sieber ex DC.	Fabaceae
Angophora floribunda	Angophora floribunda (Sm.) Sweet	Myrtaceae
Bursaria spinosa	Bursaria spinosa Cav.	Pittosporaceae
Callistemon rigidus	Callistemon rigidus R.Br.	Myrtaceae
Cheilanthes austrotenuifolia	Cheilanthes austrotenuifolia H.M.Quirk & T.C.Chambers	Pteridaceae
Chrysocephalum apiculatum	Chrysocephalum apiculatum (Labill.) Steetz	Asteraceae
Clematis glycinoides	Clematis glycinoides DC.	Ranunculaceae
Corymbia maculata	Corymbia maculata (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae
Daviesia ulicifolia	Daviesia ulicifolia Andrews	Fabaceae
Desmodium varians	Desmodium varians (Labill.) G.Don	Fabaceae
Dichondra repens	Dichondra repens J.R.Forst. & G.Forst.	Convolvulaceae
Elymus repens	Elymus repens (L.) Gould	Poaceae
Eucalyptus amplifolia	Eucalyptus amplifolia Naudin	Myrtaceae
Eucalyptus eugeniodies	Eucalyptus eugenioides Sieber ex Spreng.	Myrtaceae
Eucalyptus fibrosa	Eucalyptus fibrosa F.Muell.	Myrtaceae
Eucalyptus moluccana	Eucalyptus moluccana Roxb.	Myrtaceae
Eucalyptus tereticornis	Eucalyptus tereticornis Sm.	Myrtaceae
Exocarpos cupressiformis Labill.	Exocarpos cupressiformis Labill.	Santalaceae
Goodenia hederacea	Goodenia hederacea Sm.	Goodeniaceae
Hardenbergia violacea	Hardenbergia violacea (Schneev.) Stearn	Fabaceae
Hibbertia pedunculata	Hibbertia pedunculata DC.	Dilleniaceae
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae
Indigofera australis	Indigofera australis Willd.	Fabaceae
Kennedia rubicunda	Kennedia rubicunda Vent.	Fabaceae
Leucopogon juniperinus	Leucopogon juniperinus R.Br.	Ericaceae
Lomandra filiformis	Lomandra filiformis (Thunb.) Britten	Lomandraceae
Lomandra longifolia	Lomandra longifolia Labill.	Lomandraceae
Melaleuca nodosa	Melaleuca nodosa (Sol. ex Gaertn.) Sm.	Myrtaceae
*Opuntia aurantiaca**	Opuntia aurantiaca Lindl.	Cactaceae
*Opuntia stricta**	Opuntia stricta (Haw.) Haw.	Cactaceae
Ozothamnus diosmifolius	Ozothamnus diosmifolius (Vent.) DC.	Asteraceae
Pandorea pandorana	Pandorea pandorana (Andrews) Steenis	Bignoniaceae
Pratia puipuraseens	Pratia purpurascens (R.Br.) E.Wimm.	Lobeliaceae
Pultenaea flexilis	Pultenaea flexilis Sm.	Fabaceae
Pultenaea villosa	Pultenaea villosa Willd.	Fabaceae
Ranunculus sp.	Genus *Ranunculus*	Ranunculaceae
Rubus parvifolius	Rubus parvifolius L.	Rosaceae
Senecio linearifolius	Senecio linearifolius A.Rich.	Asteraceae
*Senecio madagascariensis**	Senecio madagascariensis Poir.	Asteraceae
*Solanum nigrum**	Solanum nigrum L.	Solanaceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Trema tomentosa	Trema tomentosa (Roxb.) H.Hara	Ulmaceae
Wahlenbergia sp.		Campanulaceae
Entolasia stricta	Entolasia stricta (R.Br.) Hughes	Poaceae

Community 5: Spotted Gum Stringy Bark

Species	Plantnet link	Family
Corymbia maculata	Corymbia maculata (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae
Eucalyptus punctata	Eucalyptus punctata DC.	Myrtaceae
Eucalyptus crebra	Eucalyptus crebra F.Muell.	Myrtaceae
Eucalyptus umbra	Eucalyptus umbra R.T.Baker	Myrtaceae
Melaleuca thymifolia	Melaleuca thymifolia Sm.	Myrtaceae
Hovea linearis	Hovea linearis (Sm.) R.Br.	Fabaceae
Leucopogon muticus	Leucopogon muticus R.Br.	Ericaceae
Dillwynia retorta	Dillwynia retorta (J.C.Wendl.) Druce	Fabaceae
Acacia elongata	Acacia elongata Sieber ex DC.	Fabaceae
Jacksonia scoparia	Jacksonia scoparia R.Br.	Fabaceae
Bursaria spinosa	Bursaria spinosa Cav.	Pittosporaceae
Leucopogon virgatus	Leucopogon virgatus (Labill.) R.Br.	Ericaceae
Hakea sericea	Hakea sericea Schrad. & J.C.Wendl.	Proteacea
Acacia falcata	Acacia falcata Willd.	Fabaceae
Daviesia ulicifolia	Daviesia ulicifolia Andrews	Fabaceae
Lissanthe stigosa	Lissanthe strigosa (Sm.) R.Br.	Ericaceae
Persoonia linearis	Persoonia linearis Andrews	Proteacea
Podolobium ilicifolium	Podolobium ilicifolium (Andrews) Crisp & P.H.Weston	Fabaceae
Ozothamnus diosmifolius	Ozothamnus diosmifolius (Vent.) DC.	Asteraceae
Rytidosperma pallidum	Rytidosperma pallidum (R.Br.) A.M. Humphreys & H.P.Linder	Poaceae
Pomax umbellata	Pomax umbellata (Gaertn.) Sol. ex A.Rich.	Rubiaceae
Chrysocephalum apiculatum	Chrysocephalum apiculatum (Labill.) Steetz	Asteraceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Goodenia hederacea	Goodenia hederacea Sm.	Goodeniaceae
Stylidium lineare	Stylidium lineare Sw. ex Willd.	Stylidiaceae
Parsonsia straminea	Parsonsia straminea (R.Br.) F.Muell.	Apocynaceae
Entolasia stricta	Entolasia stricta (R.Br.) Hughes	Poaceae
Billardiera scandens	Billardiera scandens Sm.	Pittosporaceae
Hibbertia pedunculata	Hibbertia pedunculata DC.	Dilleniaceae

Community 6: Red Gum Forest

Species	Plantnet link	Family
Eucalyptus tereticornis	Eucalyptus tereticornis Sm.	Myrtaceae
Exocarpos stricta	Exocarpos strictus R.Br.	Santalaceae
Melaleuca linariifolia	Melaleuca linariifolia Sm.	Myrtaceae
Eucalyptus fibrosa	Eucalyptus fibrosa F.Muell.	Myrtaceae
Angophora costata	Angophora costata (Gaertn.) Britten	Myrtaceae
Persoonia linearis	Persoonia linearis Andrews	Proteacea
Ozothamnus diosmifolius	Ozothamnus diosmifolius (Vent.) DC.	Asteraceae
Astrotricha obovata	Astrotricha obovata R.O.Makinson	Araliaceae
Acacia longifolia	Acacia longifolia (Andrews) Willd.	Fabaceae
Maytenus silvestris	Maytenus silvestris Lander & L.A.S.Johnson	Celastraceae
Leucopogon muticus	Leucopogon muticus R.Br.	Ericaceae
Trema tomentosa var. aspera	Trema tomentosa var. aspera (Brongn.) Hewson	Ulmaceae
Leptospermum polygalifolium	Leptospermum polygalifolium Salisb.	Myrtaceae
Breynia oblongifolia	Breynia oblongifolia Muell.Arg.	Phyllanthaceae
Melaleuca nodosa	Melaleuca nodosa (Sol. ex Gaertn.) Sm.	Myrtaceae
Acacia parvipinnula	Acacia parvipinnula Tindale	Fabaceae
Acacia elongata	Acacia elongata Sieber ex DC.	Fabaceae
Glochidion ferdinandi	Glochidion ferdinandi (Muell.Arg.) F.M.Bailey	Phyllanthaceae
Pultenaea flexilis	Pultenaea flexilis Sm.	Fabaceae
Notelaea longifolia Vent.	Notelaea longifolia Vent.	Oleaceae
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae
Lomandra longifolia	Lomandra longifolia Labill.	Lomandraceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Clematis glycinoides	Clematis glycinoides DC.	Ranunculaceae
Hardenbergia violacea	Hardenbergia violacea (Schneev.) Stearn	Fabaceae
Billardiera scandens	Billardiera scandens Sm.	Pittosporaceae
Cayratia clematidea	Cayratia clematidea (F.Muell.) Domin	Vitaceae
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae
Dianella caerulea	Dianella caerulea Sims	Phormiaceae

Community 7: Smooth Barked Apple, Red Bloodwood Open Forest

Species	Plantnet link	Family
Angophora costata	Angophora costata (Gaertn.) Britten	Myrtaceae
Allocasuarina littoralis	Allocasuarina littoralis (Salisb.) L.A.S.Johnson	Casuarinaceae
Corymbia gummifera	Corymbia gummifera (Gaertn.) K.D.Hill & L.A.S.Johnson	Myrtaceae
Eucalyptus umbra	Eucalyptus umbra R.T.Baker	Myrtaceae
Corymbia maculata	Corymbia maculata (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae
Eucalyptus punctata	Eucalyptus punctata DC.	Myrtaceae
Eucalyptus fibrosa	Eucalyptus fibrosa F.Muell.	Myrtaceae
Doryanthes excelsa	Doryanthes excelsa Corrêa	Doryanthaceae
Glochidion ferdinandi	Glochidion ferdinandi (Muell.Arg.) F.M.Bailey	Phyllanthaceae
Banksia spinulosa	Banksia spinulosa Sm.	Proteacea
Macrozamia communis	Macrozamia communis L.A.S.Johnson	Zamiaceae
Pultenaea villosa	Pultenaea villosa Willd.	Fabaceae
Acacia elongata	Acacia elongata Sieber ex DC.	Fabaceae
Pultenaea flexilis	Pultenaea flexilis Sm.	Fabaceae
Daviesia ulicifolia	Daviesia ulicifolia Andrews	Fabaceae
Acacia longifolia	Acacia longifolia (Andrews) Willd.	Fabaceae
Persoonia levis	Persoonia levis (Cav.) Domin	Proteacea
Dodonaea triquetra	Dodonaea triquetra J.C.Wendl.	Sapindaceae
Hibbertia aspera	Hibbertia aspera DC.	Dilleniaceae
Acacia implexa	Acacia implexa Benth.	Fabaceae
Hakea sericea	Hakea sericea Schrad. & J.C.Wendl.	Proteacea
Xanthorrhoea sp.		Xanthorrhoea
Bursaria spinosa	Bursaria spinosa Cav.	Pittosporaceae
Astrotricha obovata	Astrotricha obovata R.O.Makinson	Araliaceae
Epacris breviflora	Epacris breviflora Stapf	Ericaceae
Dillwynia retorta	Dillwynia retorta (J.C.Wendl.) Druce	Fabaceae
Pittosporum undulatum	Pittosporum undulatum Vent.	Pittosporaceae
Acacia falcata	Acacia falcata Willd.	Fabaceae
Persoonia linearis	Persoonia linearis Andrews	Proteacea
Ozothamnus diosmifolius	Ozothamnus diosmifolius (Vent.) DC.	Asteraceae
Acacia ulicifolia	Acacia ulicifolia (Salisb.) Court	Fabaceae
Mirbelia rubiifolia	Mirbelia rubiifolia (Andr.) G.Don	Fabaceae
Gahnia aspera	Gahnia aspera (R.Br.) Spreng.	Cyperaceae
Lepidosperma laterale	Lepidosperma laterale R.Br.	Cyperaceae
Rytidosperma pallidum	Rytidosperma pallidum (R.Br.) A.M. Humphreys & H.P.Linder	Poaceae
Glycine sp	*Glycine*	Fabaceae
Geitonoplesium cymosum	Geitonoplesium cymosum (R.Br.) A.Cunn. ex Hook.	Luzuriagaceae
Pandorea pandorana	Pandorea pandorana (Andrews) Steenis	Bignoniaceae
Cissus antarctica	Cissus antarctica Vent.	Vitaceae
Parsonsia straminea	Parsonsia straminea (R.Br.) F.Muell.	Apocynaceae
Hardenbergia violacea	Hardenbergia violacea (Schneev.) Stearn	Fabaceae
Lomandra obliqua	Lomandra obliqua (Thunb.) J.F.Macbr.	Lomandraceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Entolasia stricta	Entolasia stricta (R.Br.) Hughes	Poaceae
Stephania japonica	Stephania japonica (Thunb.) Miers	Menispermaceae
Pultenaea euchila	Pultenaea euchila DC.	Fabaceae
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae

Community 7 moist areas

Species	Plantnet link	Family
Melaleuca styphelioides	Melaleuca styphelioides Sm.	Myrtaceae
Angophora costata	Angophora costata (Gaertn.) Britten	Myrtaceae
Eucalyptus paniculata	Eucalyptus paniculata Sm.	Myrtaceae
Eucalyptus eugeniodies	Eucalyptus eugenioides Sieber ex Spreng.	Myrtaceae
Syncarpia glomulifera	Syncarpia glomulifera (Sm.) Nied.	Myrtaceae
Melaleuca nodosa	Melaleuca nodosa (Sol. ex Gaertn.) Sm.	Myrtaceae
Dodonaea triquetra	Dodonaea triquetra J.C.Wendl.	Sapindaceae
Hibbertia aspera	Hibbertia aspera DC.	Dilleniaceae
Exocarpos cupressiformis	Exocarpos cupressiformis Labill.	Santalaceae

Community 7: Smooth Barked Apple, Red Bloodwood Open Forest (continued)

Species	Plantnet link	Family
Callistemon salignus	Callistemon salignus (Sm.) Sweet	Myrtaceae
Epacris microphylla	Epacris microphylla R.Br.	Ericaceae
Leucopogon muticus	Leucopogon muticus R.Br.	Ericaceae
Glochidion ferdinandi	Glochidion ferdinandi (Muell.Arg.) F.M.Bailey	Phyllanthaceae
Leptospermum polygalifolium	Leptospermum polygalifolium Salisb.	Myrtaceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae
Lomandra longifolia	Lomandra longifolia Labill.	Lomandraceae
Gahnia melanocarpa	Gahnia melanocarpa R.Br.	Cyperaceae
Dianella caerulea	Dianella caerulea Sims	Phormiaceae

Community 8: Blue Gum Tall Riparian Forest

Species	Plantnet link	Family
Acacia irrorata	Acacia irrorata Sieber ex Spreng.	Fabaceae
Acacia linifolia	Acacia linifolia (Vent.) Willd.	Fabaceae
Acacia longifolia	Acacia longifolia (Andrews) Willd.	Fabaceae
Acacia maidenii	Acacia maidenii F.Muell.	Fabaceae
*Ageratina adenophora**	Ageratina adenophora (Spreng.) R.M.King & H.Rob.	Asteraceae
Angophora costata	Angophora costata (Gaertn.) Britten	Myrtaceae
*Bidens pilosa**	Bidens pilosa L.	Asteraceae
Breynia oblongifolia	Breynia oblongifolia Muell.Arg.	Phyllanthaceae
Cassytha pubescens	Cassytha pubescens R.Br.	Lauraceae
Cissus antarctica	Cissus antarctica Vent.	Vitaceae
Cissus hypoglauca	Cissus hypoglauca A.Gray	Vitaceae
Dianella caerulea	Dianella caerulea Sims	Phormiaceae
Eucalyptus acmenoides	Eucalyptus acmenoides Schauer	Myrtaceae
Eucalyptus punctata	Eucalyptus punctata DC.	Myrtaceae
Eucalyptus paniculata	Eucalyptus paniculata Sm.	Myrtaceae
Eucalyptus saligna	Eucalyptus saligna Sm.	Myrtaceae
Gahnia melanocarpa	Gahnia melanocarpa R.Br.	Cyperaceae
Glochidion ferdinandi	Glochidion ferdinandi (Muell.Arg.) F.M.Bailey	Phyllanthaceae
Glycine sp	Glycine	Fabaceae
Hakea salicifolia	Hakea salicifolia (Vent.) B.L.Burtt	Proteacea
Hibbertia aspera	Hibbertia aspera DC.	Dilleniaceae
Homalanthus populifolius	Homalanthus populifolius Graham	Euphorbiaceae
*Lantana camara**	Lantana camara L.	Verbenaceae
Leptospermum laevigatum	Leptospermum laevigatum (Gaertn.) F.Muell.	Myrtaceae
Leucopogon muticus	Leucopogon muticus R.Br.	Ericaceae
Lomandra longifolia	Lomandra longifolia Labill.	Lomandraceae
Parsonsia straminea	Parsonsia straminea (R.Br.) F.Muell.	Apocynaceae
*Paspalum dilatatum**	Paspalum dilatatum Poir.	Poaceae
Pittosporum revolutum	Pittosporum revolutum Dryand. ex W.T.Aiton	Pittosporaceae
Pittosporum undulatum	Pittosporum undulatum Vent.	Pittosporaceae
Polyscias sambucifolia	Polyscias sambucifolia (Sieber ex DC.) Harms	Araliaceae
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae
Syncarpia glomulifera	Syncarpia glomulifera (Sm.) Nied.	Myrtaceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
*Verbena incompt**	Verbena incompta P.W.Michael	Verbenaceae
Toona ciliata	Toona ciliata M.Roem.	Meliaceae
Dendrocnide excelsa	Dendrocnide excelsa (Wedd.) Chew	Urticaceae
Commelina cyanea	Commelina cyanea R.Br.	Commelinaceae
Corymbia maculata	Corymbia maculata (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae

Community 9: Spotted Gum, Iron Bark, Grey Gum Forest

Species	Plantnet link	Family
Eucalyptus eugeniodies	Eucalyptus eugenioides Sieber ex Spreng.	Myrtaceae
Angophora costata	Angophora costata (Gaertn.) Britten	Myrtaceae
Corymbia maculata	Corymbia maculata (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae
Eucalyptus paniculata	Eucalyptus paniculata Sm.	Myrtaceae
Acacia longifolia	Acacia longifolia (Andrews) Willd.	Fabaceae
Pultenaea villosa	Pultenaea villosa Willd.	Fabaceae
Glochidion ferdinandi	Glochidion ferdinandi (Muell.Arg.) F.M.Bailey	Phyllanthaceae
Leucopogon juniperinus	Leucopogon juniperinus R.Br.	Ericaceae
Leucopogon muticus	Leucopogon muticus R.Br.	Ericaceae
Polyscias sambucifolia	Polyscias sambucifolia (Sieber ex DC.) Harms	Araliaceae
Clerodendrum tomentosum	Clerodendrum tomentosum R.Br.	Lamiaceae
Indigofera australis	Indigofera australis Willd.	Fabaceae
Cassytha pubescens	Cassytha pubescens R.Br.	Lauraceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Kennedia rubicunda	Kennedia rubicunda Vent.	Fabaceae
Pterostylis sp.		
Entolasia stricta	Entolasia stricta (R.Br.) Hughes	Poaceae
Dianella caerulea	Dianella caerulea Sims	Phormiaceae
Rytidosperma pallidum	Rytidosperma pallidum (R.Br.) A.M. Humphreys & H.P.Linder	Poaceae
*Lantana camara**	Lantana camara L.	Verbenaceae
*Cortaderia jubata**	Cortaderia jubata (Lemoine) Stapf	Poaceae
Rubus sp.*	Genus *Rubus*	Rosaceae
Eucalyptus saligna	Eucalyptus saligna Sm.	Myrtaceae
Eucalyptus punctata	Eucalyptus punctata DC.	Myrtaceae
Pultenaea euchila	Pultenaea euchila DC.	Fabaceae

Community 10: Pasture with some native regeneration in patches

Species	Plantnet link	Family	
Eucalyptus amplifolia	Eucalyptus amplifolia Naudin	Myrtaceae	
Eucalyptus punctata	Eucalyptus punctata DC.	Myrtaceae	
Eucalyptus tereticornis	Eucalyptus tereticornis Sm.	Myrtaceae	
Acacia elongata	Acacia elongata Sieber ex DC.	Fabaceae	
Indigofera australis	Indigofera australis Willd.	Fabaceae	
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae	
Rubus sp.*	Genus *Rubus*	Rosaceae	
*Pennisetum clandestinum**	Pennisetum clandestinum Hochst. ex Chiov.	Poaceae	T
*Elymus repens**	Elymus repens (L.) Gould	Poaceae	T
*Sida rhombifolia**	Sida rhombifolia L.	Malvaceae	T
*Melinis repens**	Melinis repens (Willd.) Zizka	Poaceae	T
Capillipedium spicigerum	Capillipedium spicigerum S.T.Blake	Poaceae	T
*Bidens pilosa**	Bidens pilosa L.	Asteraceae	T
*Senecio madagascariensis**	Senecio madagascariensis Poir.	Asteraceae	T
*Lantana camara**	Lantana camara L.	Verbenaceae	T
Lomandra longifolia	Lomandra longifolia Labill.	Lomandraceae	T
Hibbertia scandens	Hibbertia scandens (Willd.) Gilg	Dilleniaceae	T
Acacia falcata	Acacia falcata Willd.	Fabaceae	T
Sporobolus africanus	Sporobolus africanus (Poir.) Robyns & Tournay	Poaceae	T
*Paspalum dilatatum**	Paspalum dilatatum Poir.	Poaceae	
Pandorea pandorana	Pandorea pandorana (Andrews) Steenis	Bignoniaceae	
Cheilanthes austrotenuifolia	Cheilanthes austrotenuifolia H.M.Quirk & T.C.Chambers	Pteridaceae	
*Hypochaeris radicata**	Hypochaeris radicata L.	Asteraceae	
Clematis glycinoides	Clematis glycinoides DC.	Ranunculaceae	
Jacksonia scoparia	Jacksonia scoparia R.Br.	Fabaceae	
Glochidion ferdinandi	Glochidion ferdinandi (Muell.Arg.) F.M.Bailey	Phyllanthaceae	
Eragrostis curvula	Eragrostis curvula (Schrad.) Nees	Poaceae	
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae	
Alphitonia excelsa	Alphitonia excelsa (A.Cunn. ex Fenzl) Benth.	Rhamnaceae	
Persoonia linearis	Persoonia linearis Andrews	Proteacea	
Daviesia ulicifolia	Daviesia ulicifolia Andrews	Fabaceae	
Pultenaea villosa	Pultenaea villosa Willd.	Fabaceae	
Entolasia stricta	Entolasia stricta (R.Br.) Hughes	Poaceae	
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae	

T - observed on Trail only

Community 11: Bullrush Dominated Coastal Swamp (Pambalong Swamp)

Species	Plantnet link	Family	
Casuarina glauca	Casuarina glauca Sieber ex Spreng.	Casuarinaceae	S
Leptospermum laevigatum	Leptospermum laevigatum (Gaertn.) F.Muell.	Myrtaceae	S
Typha orientalis	Typha orientalis C.Presl	typhaceae	S
Persicaria sp.	Genus Persicaria	Polygonaceae	S
Cyperus sp.	Genus Cyperus	Cyperaceae	S
*Trifolium repens**	Trifolium repens L.	Fabaceae	T
*Pennisetum clandestinum**	Pennisetum clandestinum Hochst. ex Chiov.	Poaceae	T
*Elymus repens**	Elymus repens (L.) Gould	Poaceae	T
*Sida rhombifolia**	Sida rhombifolia L.	Malvaceae	T
*Melinis repens**	Melinis repens (Willd.) Zizka	Poaceae	T
Capillipedium spicigerum	Capillipedium spicigerum S.T.Blake	Poaceae	T
*Bidens pilosa**	Bidens pilosa L.	Asteraceae	T
*Asparagus officinalis**	Asparagus officinalis L.	Asparagaceae	T
Foeniculum vulgare	Foeniculum vulgare Mill.	Apiaceae	T
*Hyparrhenia hirta**	Hyparrhenia hirta (L.) Stapf	Poaceae	T
*Senecio madagascariensis**	Senecio madagascariensis Poir.	Asteraceae	T
Acacia longifolia	Acacia longifolia (Andrews) Willd.	Fabaceae	T
*Conyza bonariensis**	Conyza bonariensis (L.) Cronquist	Asteraceae	T
Alphitonia excelsa	Alphitonia excelsa (A.Cunn. ex Fenzl) Benth.	Rhamnaceae	T
*Lantana camara**	Lantana camara L.	Verbenaceae	T
Cymbopogon refractus	Cymbopogon refractus (R.Br.) A.Camus	Poaceae	T
Rubus sp.*	Genus *Rubus*	Rosaceae	T
*Eichhornia crassipes**	Eichhornia crassipes (Mart.) Solms	Pontederiaceae	S
Pharagmities australis	Phragmites australis (Cav.) Trin. ex Steud.	Poaceae	S

T - observed on Trail only
S - observed in the Swamp

Community 12: Broad Leaved Paperbark/ Swamp Mahogany Swamp Forest

Species	Plantnet link	Family
Casuarina glauca	Casuarina glauca Sieber ex Spreng.	Casuarinaceae
Melaleuca nodosa	Melaleuca nodosa (Sol. ex Gaertn.) Sm.	Myrtaceae
Eucalyptus fibrosa	Eucalyptus fibrosa F.Muell.	Myrtaceae
Eucalyptus crebra	Eucalyptus crebra F.Muell.	Myrtaceae
Eucalyptus tereticornis	Eucalyptus tereticornis Sm.	Myrtaceae
Cordyline stricta	Cordyline stricta (Sims) Endl.	Asteliaceae
Hydrocotyle bonariensis	Hydrocotyle bonariensis Lam.	Apiaceae
Rubus sp.*	Genus *Rubus*	Rosaceae
Verbena officinalis	Verbena officinalis L.	Verbenaceae
Rumex obtusifolius L.	Rumex obtusifolius L.	Polygonaceae
*Elymus repens**	Elymus repens (L.) Gould	Poaceae
*Lantana camara**	Lantana camara L.	Verbenaceae
Phyllostachys sp.	Genus *Phyllostachys*	Poaceae
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae
Cinnamomum camphora	Cinnamomum camphora (L.) T.Nees & C.H.Eberm.	Lauraceae
*Paspalum dilatatum**	Paspalum dilatatum Poir.	Poaceae
Pittosporum undulatum	Pittosporum undulatum Vent.	Pittosporaceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
*Melinis repens**	Melinis repens (Willd.) Zizka	Poaceae
Melaleuca quinquenervia	Melaleuca quinquenervia (Cav.) S.T.Blake	Myrtaceae
Typha orientalis	Typha orientalis C.Presl	typhaceae
Leptospermum laevigatum	Leptospermum laevigatum (Gaertn.) F.Muell.	Myrtaceae
Eucalyptus robusta	Eucalyptus robusta Sm.	Myrtaceae
Commelina cyanea	Commelina cyanea R.Br.	Commelinaceae
*Conyza bonariensis**	Conyza bonariensis (L.) Cronquist	Asteraceae

Community 13: Patches of Regenerating Red Gum Forest

Species	Plantnet link	Family
Eucalyptus tereticornis	Eucalyptus tereticornis Sm.	Myrtaceae
Eucalyptus fibrosa	Eucalyptus fibrosa F.Muell.	Myrtaceae
Allocasuarina torulosa	Allocasuarina torulosa (Aiton) L.A.S.Johnson	Casuarinaceae
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae
Cymbopogon refractus	Cymbopogon refractus (R.Br.) A.Camus	Poaceae
Angophora floribunda	Angophora floribunda (Sm.) Sweet	Myrtaceae
*Elymus repens**	Elymus repens (L.) Gould	Poaceae
*Hypochaeris radicata**	Hypochaeris radicata L.	Asteraceae
*Senecio madagascariensis**	Senecio madagascariensis Poir.	Asteraceae
Pittosporum undulatum	Pittosporum undulatum Vent.	Pittosporaceae
*Melinis repens**	Melinis repens (Willd.) Zizka	Poaceae
*Paspalum dilatatum**	Paspalum dilatatum Poir.	Poaceae
Cheilanthes austrotenuifolia	Cheilanthes austrotenuifolia H.M.Quirk & T.C.Chambers	Pteridaceae
Ozothamnus diosmifolius	Ozothamnus diosmifolius (Vent.) DC.	Asteraceae

Community 14: Swamp Oak, Red Gum Swamp Forest

Species	Plantnet link	Family	T
Angophora floribunda	Angophora floribunda (Sm.) Sweet	Myrtaceae	T
*Melinis repens**	Melinis repens (Willd.) Zizka	Poaceae	T
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae	T/S
Eucalyptus robusta	Eucalyptus robusta Sm.	Myrtaceae	T
*Lantana camara**	Lantana camara L.	Verbenaceae	T
Rubus sp.*	Genus *Rubus*	Rosaceae	T
Acacia longifolia	Acacia longifolia (Andrews) Willd.	Fabaceae	T
Cymbopogon refractus	Cymbopogon refractus (R.Br.) A.Camus	Poaceae	T
*Hyparrhenia hirta**	Hyparrhenia hirta (L.) Stapf	Poaceae	T
Glochidion ferdinandi	Glochidion ferdinandi (Muell.Arg.) F.M.Bailey	Phyllanthaceae	S
Typha orientalis	Typha orientalis C.Presl	typhaceae	S
Casuarina glauca	Casuarina glauca Sieber ex Spreng.	Casuarinaceae	S
Leptospermum laevigatum	Leptospermum laevigatum (Gaertn.) F.Muell.	Myrtaceae	T
*Cortaderia jubata**	Cortaderia jubata (Lemoine) Stapf	Poaceae	S
Eucalyptus tereticornis	Eucalyptus tereticornis Sm.	Myrtaceae	S
Casuarina glauca	Casuarina glauca Sieber ex Spreng.	Casuarinaceae	T
*Lantana camara**	Lantana camara L.	Verbenaceae	T
Pittosporum undulatum	Pittosporum undulatum Vent.	Pittosporaceae	T
Hardenbergia violacea	Hardenbergia violacea (Schneev.) Stearn	Fabaceae	T
Imperata cylindrica	Imperata cylindrica (L.) P.Beauv.	Poaceae	T
Themeda australis	Themeda australis (R.Br.) Stapf	Poaceae	T
Bursaria spinosa	Bursaria spinosa Cav.	Pittosporaceae	T/S
Lomandra longifolia	Lomandra longifolia Labill.	Lomandraceae	T
Corymbia maculata	Corymbia maculata (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae	T
Alphitonia excelsa	Alphitonia excelsa (A.Cunn. ex Fenzl) Benth.	Rhamnaceae	T
Pteridium esculentum	Pteridium esculentum (G.Forst.) Cockayne	Dennstaedtiaceae	T
*Melinis repens**	Melinis repens (Willd.) Zizka	Poaceae	

T - observed on Trail
S - observed in the Swamp

Community 15: Common Reed Dominated Wetland

Species	Plantnet link	Family	
Pharagmities australis	Phragmites australis (Cav.) Trin. ex Steud.	Poaceae	S
*Lantana camara**	Lantana camara L.	Verbenaceae	T
Casuarina glauca	Casuarina glauca Sieber ex Spreng.	Casuarinaceae	S
Juncus acutus	Juncus acutus L.	Juncaceae	S
Persicaria sp.	Genus *Persicaria*	Polygonaceae	S
Cyperus sp.	Genus Cyperus	Cyperaceae	S
Paspalum distichum	Paspalum distichum L.	Poaceae	S
Typha orientalis	Typha orientalis C.Presl	typhaceae	S
*Cortaderia jubata**	Cortaderia jubata (Lemoine) Stapf	Poaceae	S
*Pennisetum clandestinum**	Pennisetum clandestinum Hochst. ex Chiov.	Poaceae	T
*Senecio madagascariensis**	Senecio madagascariensis Poir.	Asteraceae	T
Hydocotyle bonariensis		Apiaceae	S
*Trifolium repens**	Trifolium repens L.	Fabaceae	T

T - observed on Trail
S - observed in the Swamp

Community 16: Grazed Swamp/Pasture

Species	Plantnet link	Family	
*Pennisetum clandestinum**	Pennisetum clandestinum Hochst. ex Chiov.	Poaceae	T
Paspalum distichum	Paspalum distichum L.	Poaceae	S
*Pennisetum clandestinum**	Pennisetum clandestinum Hochst. ex Chiov.	Poaceae	T
*Eichhornia crassipes**	Eichhornia crassipes (Mart.) Solms	Pontederiaceae	S
Persicaria sp.	Genus *Persicaria*	Polygonaceae	S
Cyperus sp.	Genus Cyperus	Cyperaceae	S

Note: This Community could not be accessed for detailed surveys due to land tenure and lack of access.

T - observed on Trail
S - observed in the Swamp