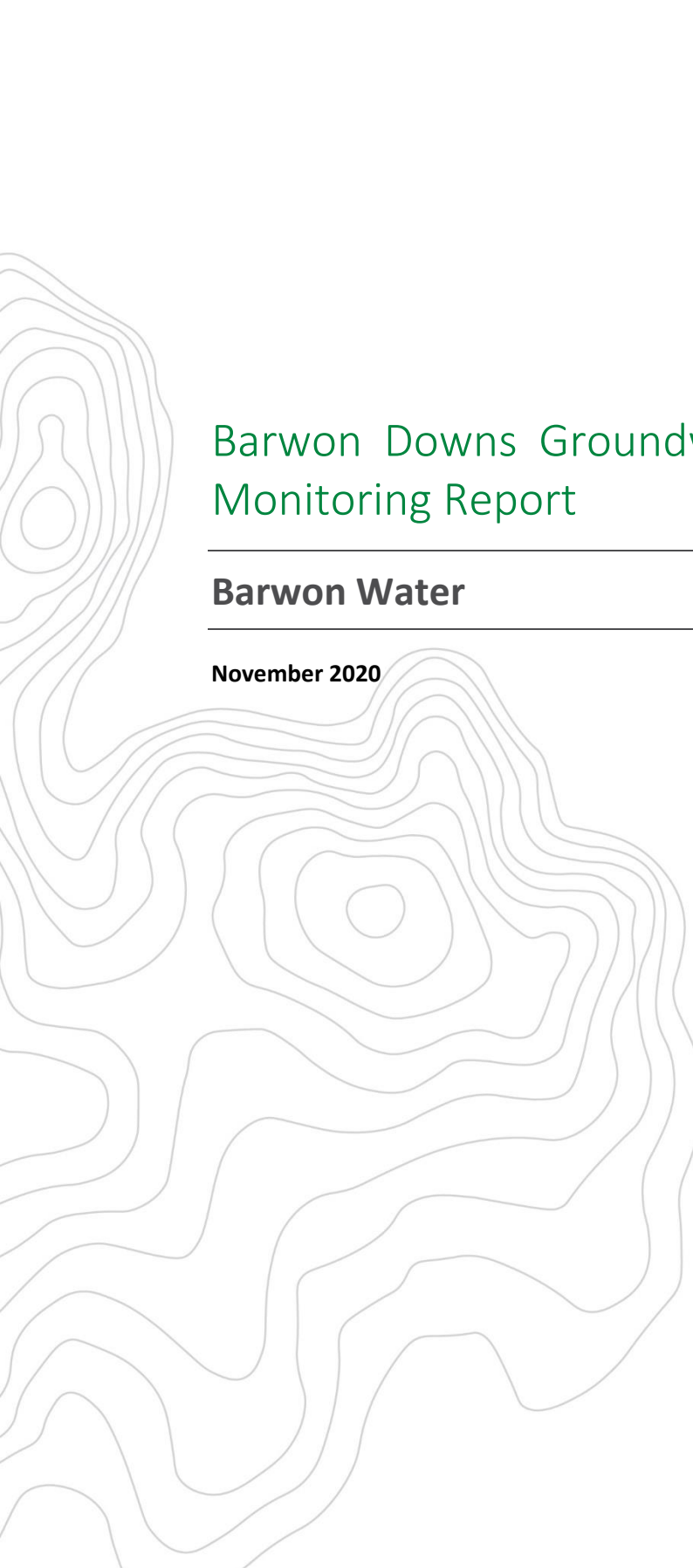


A stylized topographic map with green contour lines is positioned on the left side of the page, extending from the top left towards the bottom left.

Barwon Downs Groundwater-dependant Ecosystems Monitoring Report

Barwon Water

November 2020

DOCUMENT TRACKING

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Prepared by	James Garden, Rani Sherriff, Griffin Taylor-Dalton
Reviewed by	James Garden
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Template 2.8.1

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1. Introduction

1.1 Background

Recent technical work (Jacobs, 2018) confirmed that Barwon Water's pumping from the Barwon Downs borefield over the past 30 years is the main cause of a reduction in baseflow (groundwater contribution to streamflow) in the lower reach of Boundary Creek, increasing the frequency and duration of no flow periods. The dry climate experienced in the same period and ineffective management measures were also considered contributing factors.

Lack of flow, especially during summer months has caused:

- Big Swamp to dry out,
- The oxidation of naturally occurring acid sulfate soils in the swamp, and
- The release of acidic water (pH less than 4) downstream of the swamp.

In response to this, Barwon Water was issued with a section 78 Ministerial Notice in September 2018, to legally enforce the development and implementation of a remediation plan for Boundary Creek, Big Swamp and surrounding environments impacted by past groundwater extraction. The Big Swamp and Surrounding Environment Remediation and Environmental Protection Plan (REPP) has been developed to address this requirement.

In addition to the Big Swamp environs, groundwater dependent ecosystems (GDEs) associated with the Barwon Downs borefield were also identified as at risk.

Eco Logical Australia (ELA) has been engaged by Barwon Water to identify six sites supporting high-risk GDEs within the landscape surrounding the Barwon Downs borefield and establish a monitoring program for an initial period of four years.

1.2 Study area

The study area for the potential GDE monitoring sites is the landscape surrounding the Barwon Downs Borefield, including the localities of Yeodene, Barwon Downs, Gerangamete, Murroon and Pennyroyal (Figure 1).

Within the study area, locations of high-risk of ground-water impacts were investigated for monitoring sites. This included vegetation association boundaries which aligned with environmental gradients or features (e.g.: inundation, soils, etc.).

1.3 Aim and objectives

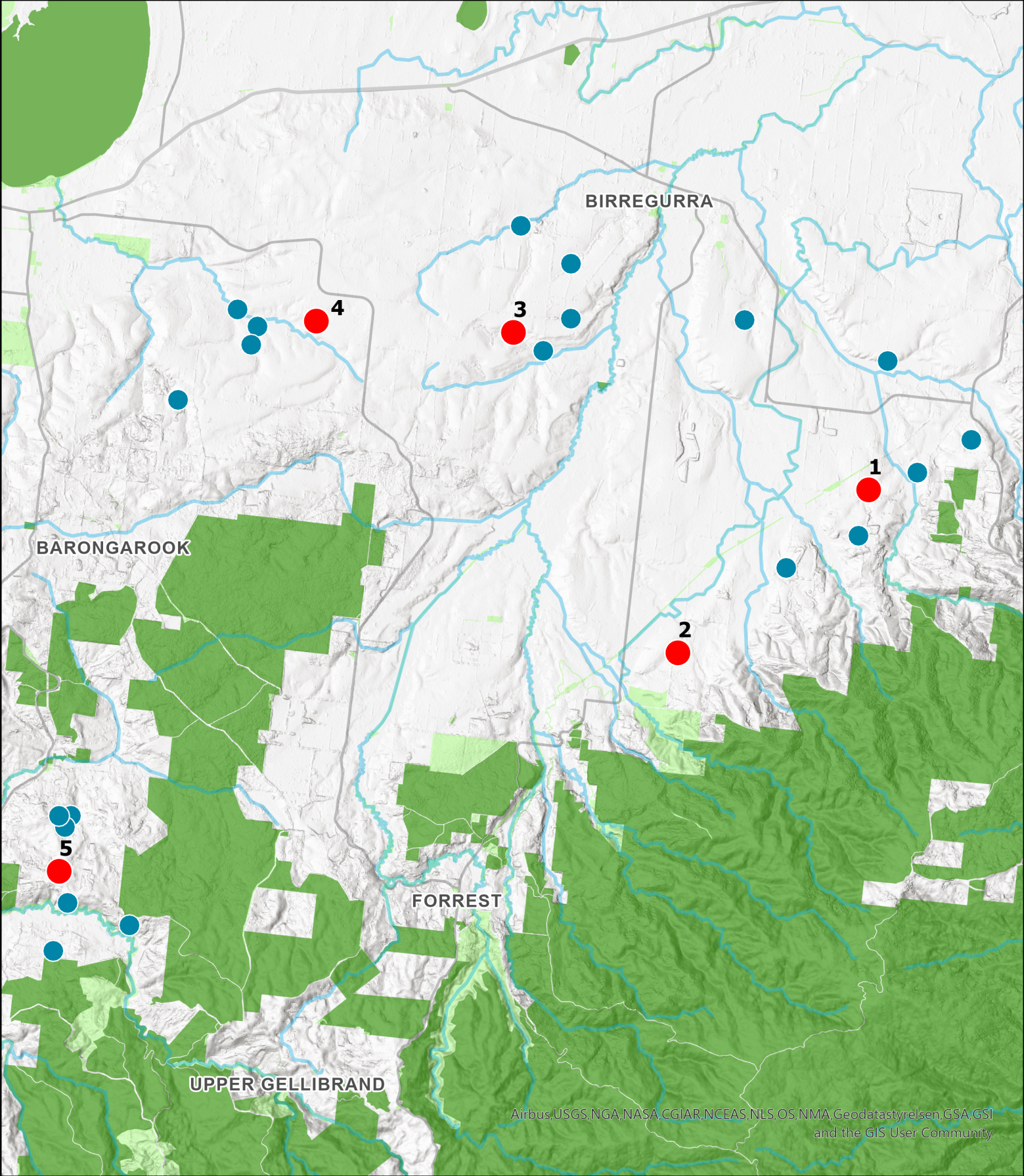
The aim of the project is to determine if there is a correlation between groundwater extraction and the extent and quality of vegetation associated with potential GDEs.

The objectives of this study are:

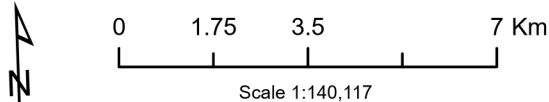
- Assess the proposed monitoring locations for the presence of GDEs, based on visual assessment of the floristic and structural characteristics of the vegetation
- Install vegetation monitoring point transects at appropriate GDE sites identified (where possible)

- Complete monitoring at GDE sites every two years for an initial period of four years.

Figure 1. Overview of areas of investigation



- Selected potential GDE sites
- Potential GDE sites
- Major roads
- Major watercourse
- Parks and Reserves
- Public Land



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Spatial Reference: GDA 1994 MGA Zone 55

2. Methods

2.1 Site location

A site reconnaissance survey was conducted by ELA ecologists James Garden and Rani Sherriff on 25th November 2020, with Zac Elsworthy (Barwon Water) and Nicolaas Unland (Jacobs). The survey involved visual assessment of vegetation for the presence of potential GDEs within locations identified by Jacobs as having a high or moderate risk of impact from aquifer draw-down. Potential GDEs were identified by comparing the floristic and structural characteristics of the vegetation with communities identified by Carr and Muir (1994) as being reliant on permanent or seasonal waterlogging and/or inundation, or require moist conditions for survival, and may therefore be partially or completely dependent on the ground-water (Table 1).

Table 1. Hydrologically sensitive ecological vegetation classes

Ecological Vegetation Classes	Hydrologically sensitive vegetation communities (Carr and Muir 1994)
Swamp Scrub (EVC 53)	Community 5.0 Scented Paperbark (<i>Melaleuca squarrosa</i>) – Woolly Tea-tree (<i>Leptospermum lanigerum</i>) swamp forest or scrub
Swampy Riparian Woodland (EVC 83) Sedgy Riparian Woodland (EVC 198)	Community 4.0 Swamp Gum (<i>Eucalyptus ovata</i>) Forest
Plains Sedgy Wetland (EVC 647)	Sub-community 6 .2 Pithy Saw-sedge (<i>Lepidosperma longitudinale</i>) Sedgeland Sub-community 6 .3 Fine Twig-sedge (<i>Baumea arthropophylla</i>) Sedgeland
Sweet Grass Wetland (EVC 920)	Subcommunity 6.1 Swamp Gum (<i>E. ovata</i>) grassy wetland
Herb-rich Foothill Forest (EVC 23)	Community 3.0 Manna Gum (<i>Eucalyptus viminalis</i> ssp. <i>viminalis</i>) Riparian Forest

Five sites were identified as supporting vegetation which may be partially or wholly dependent on groundwater within moderate or high-risk areas (Figure 1). In addition, a number of potential alternative sites were also identified within the landscape during the assessment (this does not represent a comprehensive survey of the region).

Two of the sites (1 and 2) were on public land and accessible during the current field assessment. The remaining three sites (3, 4 and 5) require access to private land and therefore were only viewed at a distance.

2.2 Vegetation transections

Where access was available (Sites 1 and 2), the vegetation was sampled using a single 50m long vegetation transects at each site. The start of each transect was permanently marked with a 1500mm high, yellow-capped star picket so that the transects can be used for ongoing monitoring. A photopoint was established at the star picket of each transect (Appendix A).

The location of transects were chosen so as to fall within the boundaries of the potential GDE vegetation.

All flora species at each 25 cm interval along the transect were recorded. In addition, the ground attribute occurring at each 25 cm point was recorded, including one of either bare ground, bryophytes, litter, water and log. The data provides an overall frequency of each plant species and ground attribute

occurring across the transect as well as a snapshot of the distribution of functional plant groups and species across wetland gradients. Transect data has been used to inform the dominant species associated with each vegetation association.

2.3 Climate data

The long-term average annual rainfall for Colac is 727 mm. The 2020 survey was conducted following the wet winter months with a large proportion of the annual rainfall (>45%) occurring, but within a year of below average rainfall. Climate statistics are given in Table 2 and Table 3 below.

Table 2. Monthly rainfall prior to the 2019 and 2020 surveys (BOM 2021)

Month	Rainfall (mm)
	2020
Rainfall total for 3 months prior to survey (mm)	277
Rainfall total for 12 months prior to survey (mm)	650

Table 3. Weather during the 2020 survey (BOM 2020)

Date	Temperature (°C)	Rainfall (mm)
25 November 2020	28	0.2
27 November 2020	32.3	0

3. Results

3.1 Site selection

The sites selected were in general, small areas of remnant vegetation in linear road reserves and fencelines with shelterbelt style remnant vegetation (Table 4, Figures 3-7). Due to the linear arrangement of vegetation, transects were considered to be the best approach to monitoring the condition of the vegetation and species present.

Table 4. GDE sites identified for monitoring

Site	Location	Vegetation
1	Bushs Road	Swampy Riparian Woodland (EVC 83) / Plains Sedgy Wetland (EVC 647) complex
2	Murroon Bushland Reserve	Sedgy Riparian Woodland (EVC 83)
3	Parkers Road	Sedgy Riparian Woodland (EVC 83)
4	Barongarook Creek E	Swamp Scrub (EVC 53)
5	Kawarren E Road	Swamp Scrub (EVC 53)

3.2 Transects

Two of the five potential GDE sites were sampled during the current survey using 50 metre transects. Results of the sampling are presented below in Figure 2 and in Appendix B.

Figure 2 shows that the dominant vegetation type of both transects was Swampy Riparian Woodland, with elements of forest and scrub. Transect 2 also had a small area where wetland vegetation was dominant.

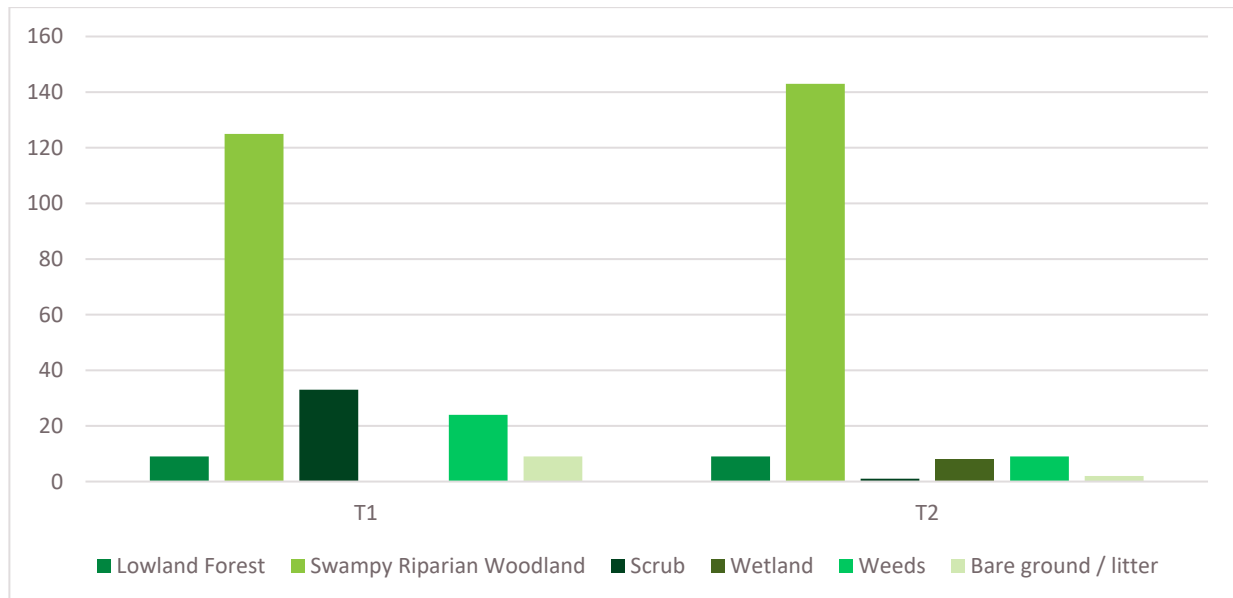


Figure 2. Dominant vegetation types along transects

Vegetation along both transects was in fair health. There was moderate weed infestation, and moderate to low diversity of native species. The canopy layer was the most representative of GDE vegetation, with much of the mid-storey absent due to long-term impacts to vegetation.

The Swamp Gum *Eucalyptus ovata* overstorey was showing some signs of dieback, which may be indicative of changes to water availability.

4. Discussion

Identifying GDEs solely based on the risk-based modelling proved to be difficult. It was uncertain as to whether the vegetation surveyed relied upon existing groundwater or was in fact utilising available surface water. In addition to this, the sites that were identified are not within close proximity to the Barwon Downs borefield (that was used to supplement water supplies between 1982 and 2016) therefore creating a level of uncertainty as to whether drawing from these bores has impacted the vegetation selected for monitoring.

Given this, it is unlikely that continuing to monitor these sites for long-term effects of the pumping of ground water in the past will yield valuable results.

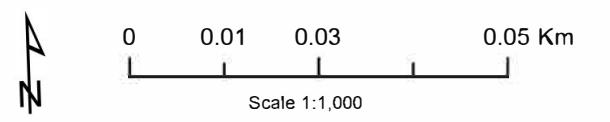
Given the difficulties in identifying GDEs using risk-based modelling, further investigative works should be undertaken to identify where other GDEs may occur within the landscape. This work should specifically target where Lower Tertiary Aquifer (LTA) outcrops are known to reside as these are the areas where groundwater pumping impacts may have occurred. Should other GDEs be identified, these communities should be incorporated into the monitoring program. This will grant a better understanding as to whether the drawing of groundwater has influenced the health of GDEs across the Barwon Downs region. Future investigative works should take the following into consideration:

- Available literature on GDEs, specifically within the Barwon Downs region
- Mapped vegetation communities with known associations to GDEs
- Hydrology
- The ground water system the GDE is drawing from
- Topography
- Geology
- Ground water salinity
- Depth to the watertable
- Past and present climactic conditions

Figure 3. Bushs Road (Site 1)



- Potential groundwater-dependant ecosystem
- Transects (50m)
- Existing
- Proposed



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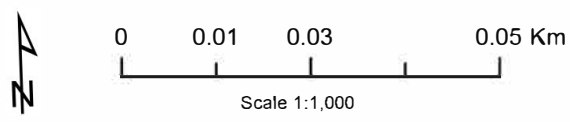


Figure 4. Murroon Bushland Reserve (Site 2)



Source: Esri, Maxar, GeoEye, Earthstar, CNES, Airbus, GeoEye, USDA, USGS, AeroGRID, IGN, SIA, User, Esri

- Potential groundwater-dependant ecosystem
- Transects (50m)
- Existing
- Proposed

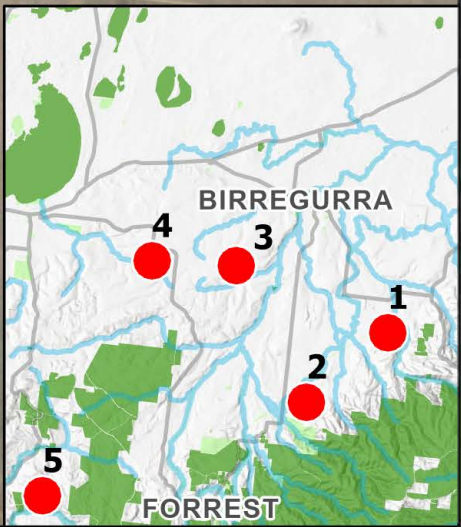


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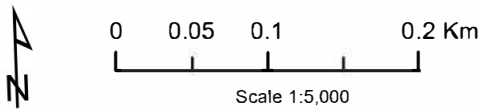


Spatial Reference: GDA 1994 MGA Zone 55

Figure 5. Parkers Road (Site 3)



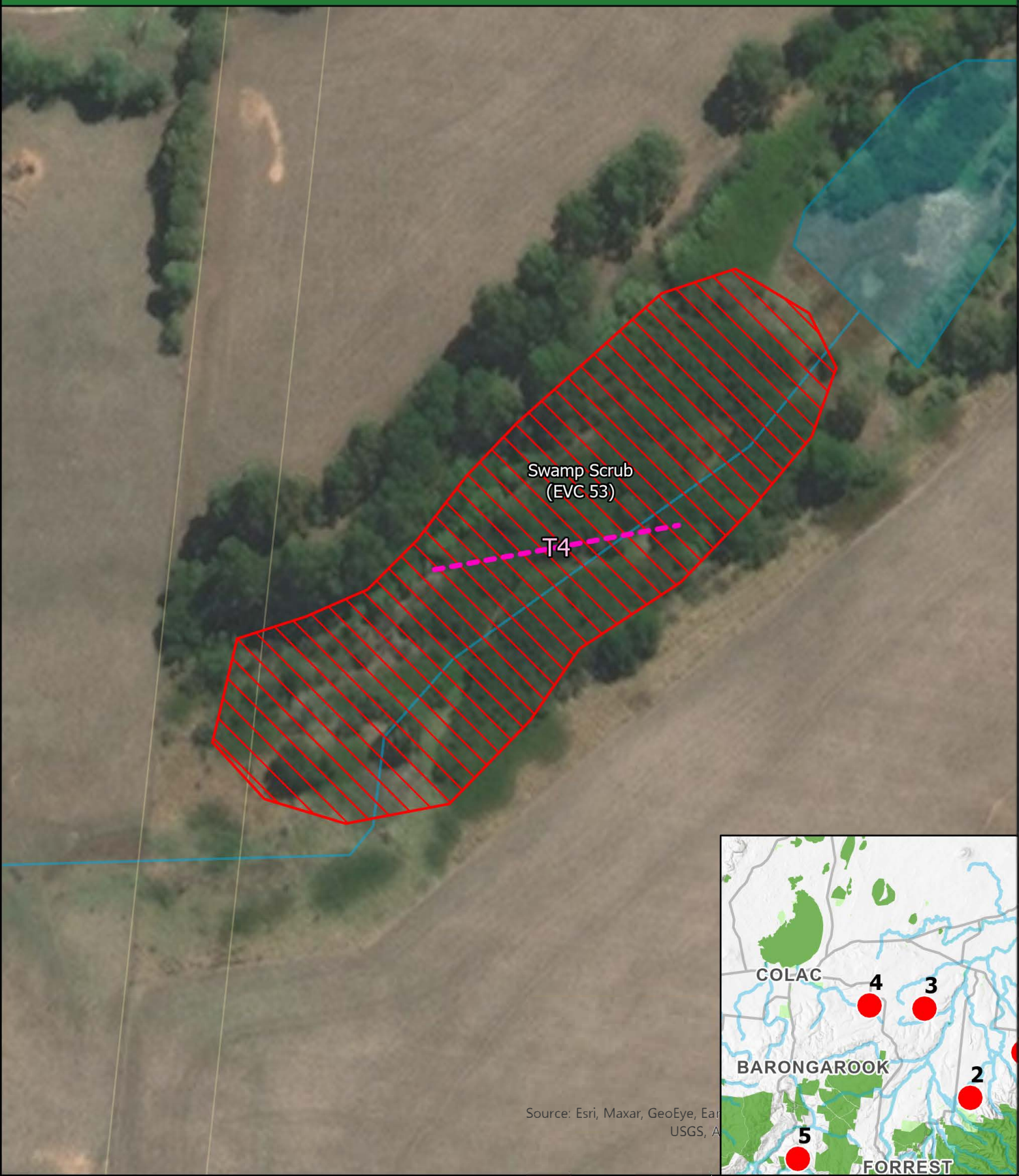
- Potential groundwater-dependant ecosystem
- Transects (50m)**
- Existing
- Proposed



Client name: Barwon Water
Project number: 17547
Date: 9/04/2021
Version: 1

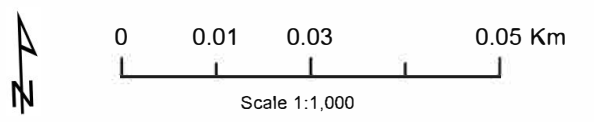


Figure 6. Barongarook Creek E (Site 4)



Source: Esri, Maxar, GeoEye, Earthstar, USGS, Aerial

-  Potential groundwater-dependant ecosystem
-  Transects (50m)
-  Existing
-  Proposed



Client name: Barwon Water
Project number: 17547
Date: 9/04/2021
Version: 1

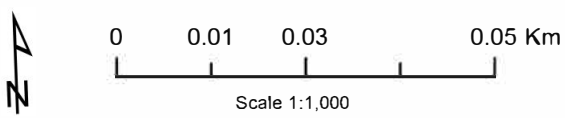


Spatial Reference: GDA 1994 MGA Zone 55

Figure 7. Kawarren E Road (Site 5)



- Potential groundwater-dependant ecosystem
- Transects (50m)**
- Existing
- Proposed



Client name: Barwon Water
Project number: 17547
Date: 9/04/2021
Version: 1



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Eco Logical Australia 2019. *Assessment of historical and current vegetation diversity and condition within Big Swamp*. Prepared for Barwon Water.

Carr, G W. & Muir, A M., 1994. *Inventory and Assessment of Floral and Faunal Values of the Barwon Downs Aquifer Outcrop Areas and Associated Streams, Otway Ranges, Victoria*. Ecology Australia Pty Ltd.

Appendix A Photo log

Transect ID	2020	2022
T1		
T2		
T3	Transect still to be established	
T4	Transect still to be established	
T4	Transect still to be established	

Appendix B Transect data

Table B1. Results of vegetation transects undertaken in GDEs in November 2020

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
0.25	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i> , <i>Acacia dealbata</i>	Litter	<i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Dactylis glomerata</i> , <i>Eucalyptus ovata</i>	Litter
0.5	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Gonocarpus tetragynus</i> , <i>Acacia dealbata</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i>	Litter
0.75	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter		Litter
1	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter		Litter
1.25	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
1.5	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Gonocarpus tetragynus</i>	Litter	<i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
1.75	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
2	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Gonocarpus tetragynus</i>	Litter	<i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
2.25	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Gonocarpus tetragynus</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
2.5	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
2.75	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
3	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
3.25	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
3.5	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
3.75	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
4	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
4.25	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
4.5	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
4.75	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
5	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
5.25	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
5.5	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i>	Litter
5.75	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
6	<i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
6.25	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
6.5	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Bare ground	<i>Eucalyptus ovata</i>	Litter
6.75	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i>	Litter
7	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Eucalyptus ovata</i>	Litter
7.25	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i>	Litter
7.5		Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
7.75	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i>	Litter
8	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
8.25	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Acacia melanoxylon</i>	Litter
8.5	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
8.75	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Logs	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Acacia melanoxylon</i>	Litter
9	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Acacia melanoxylon</i>	Litter
9.25	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
9.5	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
9.75	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Bare ground	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
10	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Bare ground	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
10.25	<i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Acacia dealbata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
10.5	<i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
10.75	<i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
11	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
11.25	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
11.5	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
11.75	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
12	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
12.25	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Ehrharta erecta</i>	Logs	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter
12.5	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Ehrharta erecta</i>	Logs	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
12.75	<i>Acacia dealbata</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Ehrharta erecta</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
13	<i>Acacia dealbata</i> , <i>Ehrharta erecta</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
13.25	<i>Rubus anglocandicans</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Ehrharta erecta</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
13.5	<i>Rubus anglocandicans</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Acacia dealbata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
13.75	<i>Rubus anglocandicans</i> , <i>Acacia dealbata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
14	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> ,	Litter	<i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
14.25	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> ,	Litter	<i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
14.5	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Bare ground	<i>Acacia melanoxylon</i>	Litter
14.75	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> ,	Bare ground	<i>Acacia melanoxylon</i>	Litter
15	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> ,	Bryophytes	<i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
15.25	<i>Holcus lanatus</i>	Litter	<i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i>	Litter
15.5	<i>Holcus lanatus</i>	Litter	<i>Galium aparine</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
15.75	<i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> ,	Litter	<i>Galium aparine</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
16	<i>Rubus anglocandicans</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Holcus lanatus</i>	Litter	<i>Galium aparine</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
16.25	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> ,	Litter	<i>Galium aparine</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
16.5	<i>Rubus anglocandicans</i>	Litter	<i>Galium aparine</i> , <i>Holcus lanatus</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Bare ground

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
16.75	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Bare ground	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Logs
17	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> , <i>Galium aparine</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
17.25	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> , <i>Galium aparine</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i> , <i>Eucalyptus ovata</i>	Litter
17.5	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> ,	Litter	<i>Acacia melanoxylon</i> , <i>Dactylis glomerata</i> , <i>Eucalyptus ovata</i>	Litter
17.75	<i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Holcus lanatus</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
18	<i>Bromus diandrus</i> , <i>Holcus lanatus</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
18.25	<i>Bromus diandrus</i> , <i>Holcus lanatus</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
18.5	<i>Bromus diandrus</i> , <i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Acacia melanoxylon</i>	Litter
18.75	<i>Anthoxanthum odoratum</i>	Litter	<i>Acacia melanoxylon</i>	Litter
19	<i>Bromus diandrus</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i>	Litter	<i>Acacia melanoxylon</i>	Litter
19.25	<i>Bromus diandrus</i> , <i>Holcus lanatus</i> ,	Litter	<i>Acacia melanoxylon</i>	Litter
19.5	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Bromus diandrus</i>	Litter	<i>Acacia melanoxylon</i>	Litter
19.75	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i>	Litter	<i>Acacia melanoxylon</i> , <i>Holcus lanatus</i>	Litter
20	<i>Rubus anglocandicans</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Acacia melanoxylon</i> , <i>Holcus lanatus</i>	Litter
20.25	<i>Bromus diandrus</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Acacia melanoxylon</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
20.5	<i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Holcus lanatus</i> ,	Litter	<i>Acacia melanoxylon</i>	Litter
20.75	<i>Holcus lanatus</i>	Litter	<i>Acacia melanoxylon</i> , <i>Holcus lanatus</i>	Litter
21	<i>Holcus lanatus</i> , <i>Ehrharta erecta</i> ,	Litter	<i>Amphibromus</i> spp., <i>Acacia melanoxylon</i>	Litter
21.25	<i>Holcus lanatus</i> , <i>Ehrharta erecta</i> ,	Litter	<i>Acacia melanoxylon</i> , <i>Holcus lanatus</i>	Litter
21.5	<i>Holcus lanatus</i>	Litter	<i>Acacia melanoxylon</i> , <i>Holcus lanatus</i>	Litter
21.75	<i>Holcus lanatus</i> , <i>Ehrharta erecta</i> ,	Litter	<i>Anthoxanthum odoratum</i>	Litter
22	<i>Holcus lanatus</i> , <i>Ehrharta erecta</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i>	Logs	<i>Bromus diandrus</i>	Litter
22.25	<i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Bromus diandrus</i> , <i>Dactylis glomerata</i>	Litter
22.5	<i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> ,	Litter	<i>Dactylis glomerata</i>	Litter
22.75	<i>Galium aparine</i> , <i>Anthoxanthum odoratum</i> ,	Litter	<i>Dactylis glomerata</i>	Litter
23	<i>Anthoxanthum odoratum</i>	Logs	<i>Dactylis glomerata</i> , <i>Rubus anglocandicans</i>	Litter
23.25	<i>Anthoxanthum odoratum</i> , <i>Clematis aristata</i> , <i>Bromus</i> sp	Litter	<i>Dactylis glomerata</i> , <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
23.5	<i>Ehrharta erecta</i> , <i>Clematis aristata</i> , <i>Eucalyptus ovata</i>	Litter	<i>Dactylis glomerata</i> , <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
23.75	<i>Ehrharta erecta</i> , <i>Holcus lanatus</i> , <i>Bromus</i> sp, <i>Rubus anglocandicans</i>	Litter	<i>Dactylis glomerata</i> , <i>Acaena novae-zelandiae</i> , <i>Eucalyptus ovata</i>	Litter
24	<i>Ehrharta erecta</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i> , <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter	<i>Holcus lanatus</i> , <i>Acaena novae-zelandiae</i> , <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
24.25	<i>Ehrharta erecta</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter	<i>Rubus anglocandicans</i>	Logs
24.5	<i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Amphibromus</i> spp., <i>Holcus lanatus</i>	Logs

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
24.75	<i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Dactylis glomerata</i> , <i>Holcus lanatus</i> , <i>Rubus anglocandicans</i>	Logs
25	<i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Rubus anglocandicans</i> , <i>Dactylis glomerata</i>	Litter
25.25	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Logs	<i>Rubus anglocandicans</i> , <i>Acaena novae-zelandiae</i> , <i>Amphibromus fluitans</i>	Litter
25.5		Litter	<i>Rubus anglocandicans</i> , <i>Acaena novae-zelandiae</i> , <i>Amphibromus fluitans</i>	Litter
25.75	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i>	Litter
26	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i>	Litter
26.25	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i>	Litter
26.5	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i>	Litter
26.75	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i>	Litter
27	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i>	Litter
27.25	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i>	Logs
27.5	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Logs	<i>Amphibromus</i> spp., <i>Rubus anglocandicans</i> , <i>Typha</i> sp.	Litter
27.75	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Amphibromus</i> spp., <i>Rubus anglocandicans</i> , <i>Typha</i> sp.	Litter
28	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Amphibromus</i> spp., <i>Rubus anglocandicans</i> , <i>Typha</i> sp.	Bare ground
28.25		Logs	<i>Amphibromus</i> spp., <i>Holcus lanatus</i> , <i>Typha</i> sp.	Litter
28.5		Logs	<i>Typha</i> sp.	Litter
28.75	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha</i> sp., <i>Holcus lanatus</i>	Litter
29	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Medicago</i> sp., <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
29.25		Logs	<i>Medicago sp., Holcus lanatus, Eucalyptus ovata</i>	Litter
29.5	<i>Pteridium esculentum subsp. esculentum, Clematis aristata,</i>	Logs	<i>Medicago sp., Holcus lanatus, Typha sp., Eucalyptus ovata</i>	Litter
29.75		Logs	<i>Medicago sp., Holcus lanatus, Typha sp., Eucalyptus ovata</i>	Litter
30	<i>Pteridium esculentum subsp. esculentum, Clematis aristata,</i>	Litter	<i>Triglochin striata, Holcus lanatus, Typha sp., Eucalyptus ovata</i>	Litter
30.25	<i>Pteridium esculentum subsp. esculentum</i>	Litter	<i>Eucalyptus ovata, Holcus lanatus</i>	Litter
30.5	<i>Pteridium esculentum subsp. esculentum</i>	Litter	<i>Eucalyptus ovata, Holcus lanatus</i>	Litter
30.75	<i>Pteridium esculentum subsp. esculentum</i>	Litter	<i>Eucalyptus ovata, Holcus lanatus, Cirsium vulgare</i>	Litter
31	<i>Acacia dealbata</i>	Litter	<i>Eucalyptus ovata, Holcus lanatus</i>	Litter
31.25	<i>Acacia dealbata</i>	Litter	<i>Eucalyptus ovata, Holcus lanatus</i>	Litter
31.5	<i>Acacia dealbata</i>	Litter	<i>Eucalyptus ovata, Holcus lanatus</i>	Litter
31.75	<i>Acacia dealbata, Anthoxanthum odoratum,</i>	Litter	<i>Bromus diandrus, Holcus lanatus, Triglochin striata</i>	Litter
32	<i>Holcus lanatus, Eucalyptus ovata,</i>	Litter	<i>Eucalyptus ovata, Holcus lanatus, Triglochin striata</i>	Litter
32.25	<i>Eucalyptus ovata</i>	Litter	<i>Dactylis glomerata, Holcus lanatus, Eucalyptus ovata</i>	Litter
32.5	<i>Bromus diandrus, Australina pusilla, Pteridium esculentum subsp. esculentum subsp. esculentum, Acacia dealbata</i>	Litter	<i>Bromus diandrus, Rubus anglocandicans, Dactylis glomerata, Eucalyptus ovata</i>	Litter
32.75	<i>Galium aparine, Anthoxanthum odoratum, Pteridium esculentum subsp. esculentum</i>	Litter	<i>Dactylis glomerata, Eucalyptus ovata</i>	Litter
33	<i>Microlaena stipoides var. stipoides, Eucalyptus ovata, Pteridium esculentum subsp. esculentum</i>	Litter	<i>Dactylis glomerata, Galium aparine, Acacia melanoxylon, Eucalyptus ovata</i>	Litter
33.25	<i>Anthoxanthum odoratum, Eucalyptus ovata,</i>	Litter	<i>Dactylis glomerata, Galium aparine, Acacia melanoxylon, Eucalyptus ovata</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
33.5	<i>Bromus hordeaceus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Acacia melanoxylon</i> , <i>Galium aparine</i>	Bare ground
33.75	<i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Acacia melanoxylon</i> , <i>Rubus anglocandicans</i>	Litter
34	<i>Bromus diandrus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Holcus lanatus</i> , <i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i>	Logs
34.25	<i>Bromus hordeaceus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Bromus diandrus</i>	Litter	<i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
34.5	<i>Bromus diandrus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Acacia melanoxylon</i> , <i>Galium aparine</i>	Litter
34.75	<i>Bromus hordeaceus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Logs	<i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
35	<i>Holcus lanatus</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i>	Litter	<i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i>	Litter
35.25	<i>Holcus lanatus</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Dactylis glomerata</i> , <i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
35.5	<i>Eucalyptus ovata</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
35.75	<i>Eucalyptus ovata</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Litter
36	<i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> ,	Litter	<i>Typha</i> sp., <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
36.25	<i>Eucalyptus ovata</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha</i> sp., <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
36.5	<i>Eucalyptus ovata</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Bare ground
36.75	<i>Eucalyptus ovata</i> , <i>Clematis aristata</i> ,	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Water

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
37	<i>Eucalyptus ovata</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Water
37.25	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Water
37.5	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i> , <i>Holcus lanatus</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Water
37.75	<i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Anthoxanthum odoratum</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Water
38	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Acacia melanoxylon</i> , <i>Clematis aristata</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i>	Water
38.25	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Acacia melanoxylon</i> , <i>Clematis aristata</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Water
38.5	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Acacia melanoxylon</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Logs
38.75	<i>Eucalyptus ovata</i> , <i>Ehrharta erecta</i> , <i>Acacia melanoxylon</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Logs
39	<i>Eucalyptus ovata</i> , <i>Ehrharta erecta</i> , <i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Logs
39.25	<i>Eucalyptus ovata</i> , <i>Ehrharta erecta</i> , <i>Acacia melanoxylon</i> , <i>Clematis aristata</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Logs
39.5	<i>Eucalyptus ovata</i> , <i>Ehrharta erecta</i> , <i>Acacia melanoxylon</i> , <i>Holcus lanatus</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
39.75	<i>Eucalyptus ovata</i> , <i>Ehrharta erecta</i> , <i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Typha</i> sp., <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
40	<i>Eucalyptus ovata</i> , <i>Ehrharta erecta</i> , <i>Acacia melanoxylon</i> , <i>Anthoxanthum odoratum</i>	Litter	<i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Logs
40.25	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Acacia melanoxylon</i>	Litter	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
40.5	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Ehrharta erecta</i>	Litter	<i>Juncus pauciflorus</i> , <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter
40.75	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Ehrharta erecta</i>	Litter	<i>Juncus pauciflorus</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
41	<i>Bromus diandrus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Clematis aristata</i>	Litter	<i>Amphibromus</i> spp., <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Logs
41.25	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Clematis aristata</i>	Litter	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Logs
41.5	<i>Bromus hordeaceus</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i> , <i>Clematis aristata</i> , <i>Eucalyptus ovata</i>	Litter	<i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
41.75	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Clematis aristata</i>	Litter	<i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
42	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Clematis aristata</i>	Litter	<i>Rubus anglocandicans</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
42.25	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i> , <i>Clematis aristata</i> , <i>Holcus lanatus</i>	Litter	<i>Rubus anglocandicans</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
42.5	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i>	Litter	<i>Rubus anglocandicans</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
42.75	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i>	Litter	<i>Rubus anglocandicans</i> , <i>Dactylis glomerata</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
43	<i>Eucalyptus ovata</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i>	Litter	<i>Rubus anglocandicans</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter
43.25	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter	<i>Eucalyptus ovata</i>	Litter
43.5	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i>	Litter	<i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
43.75	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Acacia melanoxylon</i> , <i>Holcus lanatus</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha sp</i> , <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
44	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Typha sp</i> , <i>Eucalyptus ovata</i>	Bare ground
44.25	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Typha sp</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter
44.5	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Typha sp</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter
44.75	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter	<i>Typha sp</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter
45	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> ,	Litter	<i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter
45.25	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Clematis aristata</i>	Litter	<i>Eucalyptus ovata</i> , <i>Holcus lanatus</i>	Litter
45.5	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>Esculentum</i> , <i>Clematis aristata</i>	Litter	<i>Typha sp</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter
45.75	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha sp</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter
46	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha sp</i> , <i>Eucalyptus ovata</i>	Litter
46.25	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha sp</i> , <i>Eucalyptus ovata</i>	Litter
46.5	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha sp</i> , <i>Eucalyptus ovata</i>	Bare ground
46.75	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i>	Litter	<i>Typha sp</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Bare ground
47	<i>Anthoxanthum odoratum</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i> , <i>Rubus anglocandicans</i>	Litter	<i>Typha sp</i> , <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Bare ground

Point	Transect 1		Transect 2	
	Species	Ground cover	Species	Ground cover
47.25	<i>Anthoxanthum odoratum</i> , <i>Clematis aristata</i> , <i>Pteridium esculentum</i> subsp. <i>esculentum</i> subsp. <i>esculentum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Juncus</i> sp., <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i> , <i>Typha</i> sp	Bare ground
47.5	<i>Anthoxanthum odoratum</i> , <i>Clematis aristata</i> , <i>Eucalyptus ovata</i>	Logs	<i>Juncus</i> sp., <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i> , <i>Typha</i> sp	Bare ground
47.75	<i>Anthoxanthum odoratum</i> , <i>Clematis aristata</i> , <i>Eucalyptus ovata</i>	Litter	<i>Juncus</i> sp., <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i> , <i>Typha</i> sp	Logs
48	<i>Anthoxanthum odoratum</i> , <i>Clematis aristata</i> , <i>Eucalyptus ovata</i>	Litter	<i>Juncus</i> sp., <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i> , <i>Typha</i> sp	Water
48.25	<i>Eucalyptus ovata</i> , <i>Clematis aristata</i> ,	Bryophytes	<i>Juncus</i> sp., <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i> , <i>Typha</i> sp	Water
48.5	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> ,	Litter	<i>Juncus</i> sp., <i>Eucalyptus ovata</i> , <i>Typha</i> sp	Bare ground
48.75	<i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> ,	Litter	<i>Juncus</i> sp., <i>Rubus anglocandicans</i> , <i>Typha</i> sp, <i>Eucalyptus ovata</i>	Litter
49	<i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i>	Litter	<i>Amphibromus</i> spp., <i>Rubus anglocandicans</i> , <i>Typha</i> sp, <i>Eucalyptus ovata</i>	Litter
49.25	<i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , <i>Eucalyptus ovata</i> , <i>Clematis aristata</i>	Litter	<i>Amphibromus</i> spp., <i>Holcus lanatus</i> , <i>Typha</i> sp, <i>Rubus anglocandicans</i> , <i>Eucalyptus ovata</i>	Litter
49.5	<i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , <i>Acacia melanoxylon</i> , <i>Eucalyptus ovata</i>	Litter	<i>Amphibromus</i> spp., <i>Holcus lanatus</i> , <i>Typha</i> sp, <i>Eucalyptus ovata</i>	Litter
49.75	<i>Senecio minimus</i> , <i>Anthoxanthum odoratum</i> , <i>Holcus lanatus</i>	Litter	<i>Amphibromus</i> spp., <i>Holcus lanatus</i> , <i>Typha</i> sp, <i>Eucalyptus ovata</i>	Litter
50	<i>Senecio minimus</i> , <i>Anthoxanthum odoratum</i> ,	Litter	<i>Amphibromus</i> spp., <i>Holcus lanatus</i> , <i>Eucalyptus ovata</i>	Litter

