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**MAIN ROADS WESTERN AUSTRALIA
BRAND HIGHWAY PASSING LANES
BANKSIA WOODLANDS TEC ASSESSMENT**

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ecologia Environment
463 Scarborough Beach Road
Osborne Park WA 6017
Phone: 08 6168 7200
Email: admin@ecologia.com.au

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ACRONYMS

DBCA	Department of Biodiversity, Conservation and Attractions (previously DPaW)
DoEE	Department of the Environment and Energy (Previously DSEWPaC)
DPaW	Department of Parks and Wildlife (now DBCA)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DoEE)
EPA	Environment Protection Authority
EP Act	<i>Environment Protection Act 1986</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FCT	Floristic Community Type
GES	Geraldton Sandplain IBRA bioregion
IBRA	Interim Biogeographic Regionalisation for Australia
NVIS	National Vegetation Information System
PEC	Priority Ecological Community
SWA	Swan Coastal Plain IBRA bioregion
SCP	Swan Coastal Plain
TEC	Threatened Ecological Community
WA	Western Australia

EXECUTIVE SUMMARY

Main Roads Western Australia (MRWA) is proposing to construct thirteen passing lanes on the Brand Highway between Gingin and Eneabba in Western Australia. Three flora and vegetation surveys of the study area have been previously undertaken, however the EPBC Act listed “Banksia Woodlands of the Swan Coastal Plain” Threatened Ecological Community (TEC), which was listed as Endangered by the Department of Environment and Energy on 16 September 2016, was not considered to have been accurately delineated. Consequently, *ecologia* was commissioned by MRWA to undertake an additional vegetation survey to collect floristic data that would enable the TEC to be more accurately characterised and mapped.

A field survey was undertaken in November 2017, where thirty-one 10 x 10 metre floristic quadrats were assessed. A total of 113 quadrats have therefore now been assessed within the close vicinity of the Brand Highway study area over four surveys undertaken in 2016 and 2017. Of these, 40 quadrats from the Swan Coastal Plain were assessed as being representative of the Banksia Woodlands of the Swan Coastal Plain TEC, based on the key diagnostic criteria outlined in the *Approved Conservation Advice* (Threatened Species Scientific Committee 2016). The TEC within the study area also broadly corresponds to the P3 Priority Ecological Community (PEC) FCT23b. Ten patches of the TEC/FCT23b in ‘Good’ or better condition, ranging from 0.56 to 178 hectares in size, were mapped across the southern section of the study area on the Swan Coastal Plain, totalling 294.3 ha.

The Banksia Woodlands TEC within the study area is characterised by dominant *Banksia attenuata*, *B. menziesii* or *B. prionotes* in the upper canopy layer, together with a highly diverse understorey of shrubs and herbs. Emergent *Corymbia calophylla* and *Eucalyptus todtiana* are also present within many examples of the community. A total of 352 vascular plant taxa were recorded across all the *Banksia* woodland quadrats assessed within the study area, with a mean species richness of 41.7 taxa. The most frequently occurring understorey species included *Burchardia congesta*, *Mesomelaena pseudostygia*, *Eremaea pauciflora*, *Bossiaea eriocarpa*, *Stirlingia latifolia*, *Alexgeorgea nitens*, and *Lyginia barbata*, which are also typical for the community in a broader context. Only 16 species were recorded in 50% or more *Banksia* woodland quadrats. This low number of frequently occurring species is indicative of high species turnover across the study area.

Hierarchical cluster analysis indicated that quadrats identified as representing the Banksia Woodlands TEC belong to several distinct clusters and do not form a cohesive floristic group, highlighting the high degree of understorey variability present within the community. *Banksia* woodland quadrats from the Swan Coastal Plain and the Geraldton Sandplain are intermixed, indicating that these communities, as broadly defined here, cannot be distinguished based on overall species composition.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Main Roads Western Australia (MRWA) is proposing to construct thirteen passing lanes on the Brand Highway between Gingin and Eneabba in Western Australia (the study area, Figure 1.1). Previous flora and vegetation surveys of the study area have been undertaken by GHD (GHD 2016a, b) and Astron (Astron 2016). The extent of the EPBC Act listed Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community ('the TEC'), which was listed as Endangered by the Department of Environment and Energy on 16 September 2016, was not considered to have been accurately delineated during these surveys. Consequently, *ecologia* was commissioned by MRWA to undertake an additional vegetation survey to collect floristic data that would enable the TEC to be more accurately characterised and mapped.

1.2 SURVEY OBJECTIVES

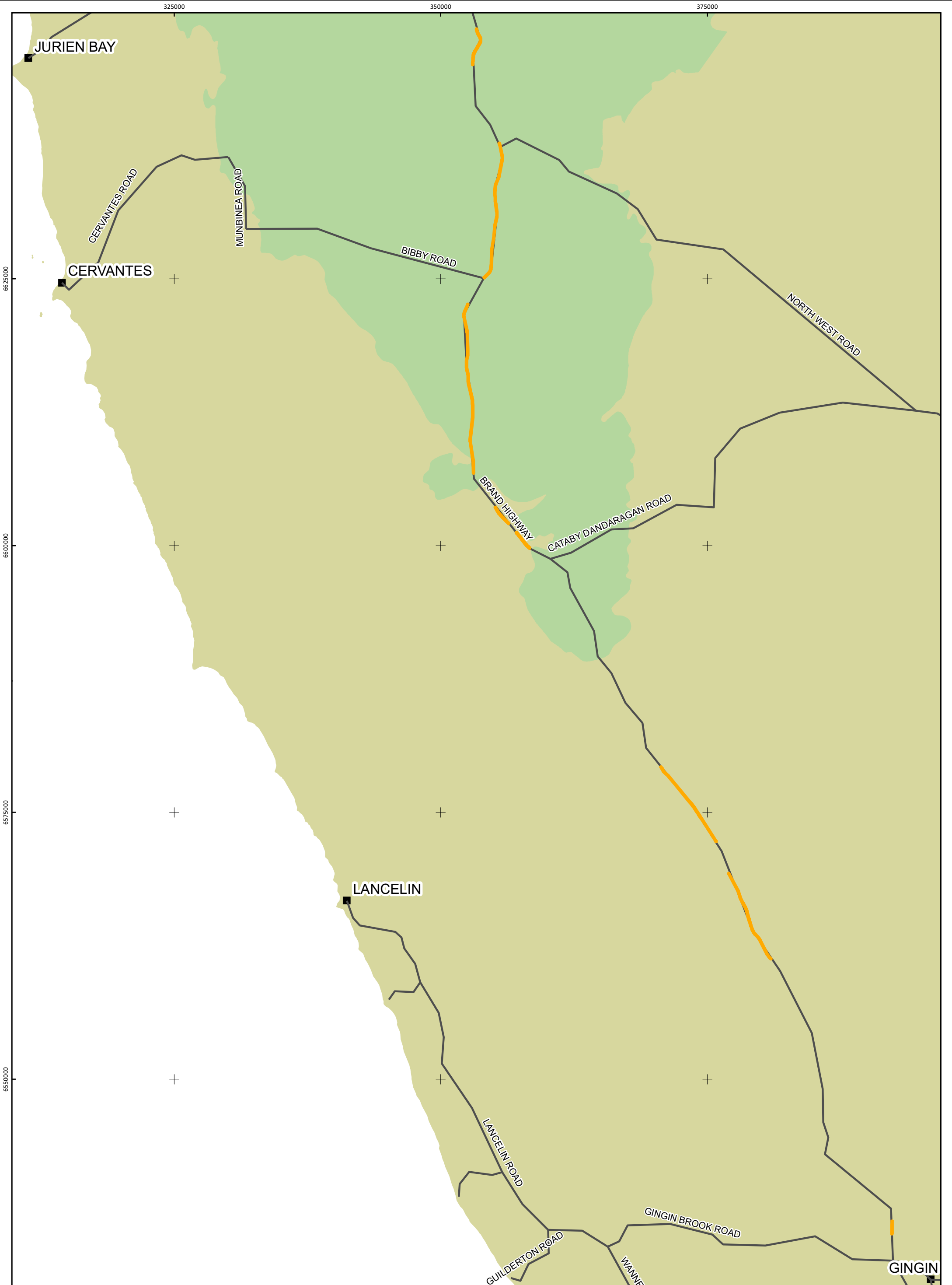
The objectives of the current survey were to:

- Survey additional 10 metre (m) x 10 m floristic quadrats within the study area in vegetation communities potentially representing the TEC, focussing on areas that had not been sufficiently assessed during previous surveys;
- Collate these quadrat data with those collected during previous surveys to identify and characterise the TEC within the study area;
- Use ground-truthed quadrat data to more accurately map the extent of the TEC within and immediately adjacent to the study area.

1.3 LEGISLATIVE FRAMEWORK

The survey was designed and undertaken to comply with the following guidance documents:

- Environmental Factor Guideline: Flora and Vegetation (EPA 2016a);
- Technical Guidance– Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016b);
- Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community (Threatened Species Scientific Committee 2016).



2 METHODOLOGY

2.1 FIELD ASSESSMENT

The field survey was undertaken between 7 and 11 November 2017. Thirty-one 10 m x 10 m quadrats were assessed to determine the presence and extent of the Banksia Woodlands of the Swan Coastal Plain ecological community within the study area. These quadrats were in addition to eighty-two 10 m x 10 m quadrats that have previously been surveyed within the area (Astron 2016, GHD 2016a, b). Quadrats were established within vegetation patches that were considered to potentially represent the TEC (see section 2.3). Quadrat locations were selected to in-fill areas that were not sampled during the previous surveys. Although the TEC does not occur within the Geraldton Sandplain IBRA bioregion (Threatened Species Scientific Committee 2016), several additional quadrats were sampled within *Banksia* woodlands on the Geraldton Sandplain in the northern section of the study area, as these were considered, based on field observations, to broadly represent the same *Banksia* community as that on the Swan Coastal Plain in the south of the study area. In some cases, quadrats were positioned outside of the boundaries of the study area to avoid edge effects or if the vegetation within the study area boundary was not sufficiently wide to accommodate a quadrat. The following were recorded at each quadrat:

- Site number and location (GPS co-ordinate of the north-west corner);
- Photograph from the north-west corner;
- Size and shape of quadrat;
- A comprehensive species list (including weeds), and the dominant growth form, height, and estimated foliage cover of each species;
- Additional information including landform and soils; and
- Vegetation condition (Keighery 1994) and description of disturbance.

2.2 SPECIMEN IDENTIFICATION

Specimen identification was undertaken with reference to current taxonomic literature and herbarium reference specimens. Scientific names used in this report follow species concepts currently adopted by the Western Australian Herbarium. Specimens that were believed to differ somewhat from typical material were indicated with 'affinity' (aff.). Specimens that could not be adequately identified to genus or species level due to the absence of flower or fruit structures required for positive identification were indicated with a question mark, but were not considered to be otherwise anomalous.

2.3 IDENTIFYING THE BANKSIA WOODLANDS OF THE SWAN COASTAL PLAIN TEC

A number of key diagnostic characteristics are used to define the Banksia Woodlands of the Swan Coastal Plain ecological community, which are outlined in *Banksia Woodlands of the Swan Coastal Plain Approved Conservation Advice* (Threatened Species Scientific Committee 2016). These are summarised below, and were used to determine whether the vegetation community represented by a quadrat and associated floristic data corresponded with the TEC.

1. Key Diagnostic Characteristics

Location

- Swan Coastal Plain IBRA bioregion (SWA01, SWA02), and extending into the Jarrah Forest bioregion (JAF01, JAF02).

Soils and Landform

- Well drained, low nutrient soils on sandplains - Bassendean and Spearwood sands and occasionally on Quindalup sands; it is also common on sandy colluvium and aeolian sands of the Ridge Hill Shelf, Whicher Scarp and Dandaragan Plateau, and in other less common scenarios.

Structure

- The community is typically a woodland (although it may occur as a shrubland, open woodland or forest) with a distinctive upper sclerophyllous layer of low trees typically dominated or co-dominated one or more diagnostic *Banksia* species (below), with at least 2% canopy cover of those species;
- Emergent trees of medium or tall (>10 m) eucalypts (typically *Corymbia calophylla*, *Eucalyptus gomphocephala*, or *E. marginata*) or *Allocasuarina* may be present above the *Banksia* canopy;
- An often highly species-rich understorey of shrubs and herbs.

Composition

- The canopy is most commonly dominated by *Banksia attenuata*, *B. menziesii*, *B. prionotes*, or *B. ilicifolia*, and must include at least one of these species;
- If present, the emergent tree layer often includes *Corymbia calophylla*, *Eucalyptus marginata*, *E. gomphocephala*; lower trees often include *E. todtiana*, *Nuytsia floribunda*, *Allocasuarina fraseriana*, *Callitris arenaria*, *C. pyramidalis*, and *Xylomelum occidentale*.

2. Patch Condition

A patch must meet at least the 'Good' condition category (Keighery 1994), typically with at least 'low' native plant species diversity (relative to the expected range of diversity for that vegetation unit, where comparative data exists) and weeds at 5-50% cover. Patches that do not meet the minimum condition thresholds are excluded from national protection.

3. Minimum Patch Size Threshold

To be part of the TEC, minimum patch sizes apply based on vegetation condition (Keighery 1994): 'Pristine' (no minimum patch size); 'Excellent' (minimum of 0.5 ha); 'Very Good' (minimum of 1 ha); 'Good' (minimum of 2 ha).

4. Additional Considerations

- A patch is a discrete and mostly continuous area of the ecological community and may include small-scale (<30 m) variations, gaps and disturbances, such as tracks, paths or breaks;
- Variation in canopy cover, quality or condition of vegetation across a patch should not initially be considered evidence of multiple patches;
- The community is highly diverse and variable; the composition often changes across the patch, but structure and the presence of a significant *Banksia* component are unifying features;
- Restored (revegetated or replanted) sites are not excluded from the listed community.

2.4 SWAN COASTAL PLAIN *BANKSIA ATTENUATA* - *BANKSIA MENZIESII* WOODLANDS PEC

The Swan Coastal Plain *Banksia attenuata* - *Banksia menziesii* woodlands DBCA listed Priority 3 PEC (floristic community type (FCT) 23b of Gibson *et al.* 1994) is a component of the EPBC Act listed Endangered Banksia Woodlands of the Swan Coastal Plain ecological community. FCT23b occurs in the Bassendean system, from Melaleuca Park to Gingin, and is characterised by a set of frequently occurring species (Gibson *et al.* 1994), but is ultimately defined by overall floristic composition.

Assignment of a floristic community type is occasionally undertaken using multivariate cluster analysis, whereby floristic quadrat data are analysed together with that of the Gibson *et al.* (1994) dataset (the Swan Coastal Plain (SCP) dataset). The close overall floristic similarity of a quadrat to a SCP quadrat is considered indicative of it corresponding to the same FCT. However, the SCP dataset was not intended for this purpose, and the result of such analyses can be inconclusive and misleading. The SCP quadrats are confined to locations south of Seabird, approximately 25 kilometre (km) south of the current Brand Highway study area, so notable differences in overall floristic composition would be expected between quadrats due to high species turnover, even if they are considered to reflect the same broad vegetation community.

A more pragmatic approach was taken to identify the PEC here, whereby woodland communities within the study area (and occurring on the Swan Coastal Plain) where *B. attenuata* or *B. menziesii* are dominant in the upper canopy layer and with a diverse shrub and herb understorey, containing at least some species described as 'typical' for the community (i.e. they appear in at least 75% of FCT23b quadrats), were considered to at least broadly correspond to FCT23b (northern *Banksia attenuata* – *B. menziesii* woodlands).

Typical species with at least 75% frequent for FCT23b (Gibson *et al.* 1994) are: Trees: *Banksia attenuata* and *B. menziesii*; Shrubs: *Bossiaea eriocarpa*, *Calytrix flavescens*, *Eremaea pauciflora*, *Hibbertia subvaginata*, *Jacksonia floribunda*, *Petrophile linearis*, *Philothea spicata*, and *Scholtzia involucreta*; and Herbs: *Alexgeorgea nitens*, *Anigozanthos humilis*, *Burchardia congesta*, *Lomandra hermaphrodita*, *Lyginia barbata*, *Patersonia occidentalis*, *Schoenus curvifolius*, *Stylidium repens*, and *Xanthosia huegelii*.

2.5 DATA ANALYSIS

Multivariate cluster analysis using floristic data provide an objective insight into the relationships between quadrats based on the degree of similarity in species composition. Analyses were conducted on floristic data collected from the 113 quadrats assessed as part of the current survey and three previous surveys of the Brand Highway study area (Astron 2016, GHD 2016a, b). All analyses were conducted using R statistical software (R Development Core Team 2016).

During two of the previous surveys (GHD 2016a, b) foliage cover was recorded in broad categories. For data analysis therefore, all records with $\leq 1\%$ cover were treated as 1%, and when a cover range was recorded (e.g. 10-30%) the middle value was used (i.e. 20%). Taxa that could not be identified beyond genus level (e.g. *Lomandra* sp.) were excluded, although taxa with uncertainty (e.g. *Lyginia ?barbata*) were included together with the presumed species. Intraspecific taxa belonging to the same species were grouped if specimens could not be consistently identified to the same level. Annual species were retained.

Cluster analysis was conducted using the R package '*vegan*' (Oksanen *et al.* 2017). The Bray-Curtis coefficient was used to calculate a site association matrix from transformed ($\log(x+1)$) species percent foliage cover data. Transformation is used in this case to downplay the relative influence of dominant species while increasing the relative influence of less abundant species. Unweighted arithmetic average clustering was then used to construct a dendrogram.

Indicator Species Analysis was conducted using the R package '*indicspecies*' (De Caceres and Legendre 2009) to identify diagnostic species for the *Banksia* woodland quadrat group. Species with

high diagnostic value for a group are those that occur in all (or most) quadrats assigned to that group, but also occur in no (or few) quadrats outside of that group.

2.6 VEGETATION MAPPING

The Banksia woodlands of the Swan Coastal Plain TEC was mapped using ground-truthed site data and aerial imagery, with consideration given to condition thresholds, minimum patch size given vegetation condition, and small-scale gaps (< 30 m) between examples of the community. To remain consistent with the vegetation mapping of GHD (GHD 2016a, b) the community was mapped within a buffer zone of approximately 100 m extending from the centreline of the Brand Highway, and therefore mapping extends beyond the boundaries of the study area. The *Banksia* woodland community as defined here was also mapped within the Geraldton Sandplain IBRA bioregion in the north of the study area, as it corresponds to the same vegetation community.

2.7 STUDY TEAM AND LICENCES

This survey was coordinated, executed and reported by those summarised in Table 2.1.

Table 2.1 – Study team.

Project Staff			
Name	Qualifications	Role	Project role
Shaun Grein	B.Sc., Grad. Dip. Nat. Resources, MBA	Managing Director/Principal Scientist	Project management, reporting, QA
Dr Andrew Craigie	B.Sc. (Hons.), PhD (Bot.)	Senior Botanist	Specimen identification, data analysis, reporting
Brian Morgan	B.Sc. (Hons.)	Senior Botanist	Field assessment
Raimond Orifici	B.Sc. (Hons.)	Senior Botanist	Field assessment
The flora and vegetation assessment described in this report was conducted under the authorisation of the following DPaW licences:			
Name	Licence Number	Licence	
Brian Morgan	SL 011731	Licence to collect flora for scientific purposes	

3 RESULTS AND DISCUSSION

3.1 KEY DIAGNOSTIC CHARACTERISTICS

Of the 113 quadrats assessed as part of this study, based on the biogeographic region, soils, landform, community structure and composition, and using the key diagnostic characters outlined in section 2.3, 40 quadrats corresponded with the Banksia Woodlands of the Swan Coastal Plain ecological community. An additional 20 quadrats from the Geraldton Sandplain bioregion in the north of the study area also floristically corresponded with the same vegetation community.

The broad community types present at *Banksia* woodland quadrats were typically *Banksia attenuata* or *B. menziesii* low open woodlands (56 quadrats), with four quadrats representing *B. prionotes* low open woodland (Table 3.1), although many examples of the community across the study area contain emergent *Corymbia calophylla* or *Eucalyptus todtiana*. Canopy cover of indicator *Banksia* species was at least 2% at all quadrats considered to be *Banksia* woodlands but was more typically between 10% and 40% (mean 23.1%). Overall floristic diversity was high, with 352 taxa (not including records that could not be fully identified) recorded across all *Banksia* woodland quadrats. Mean species richness per quadrat was 41.7, ranging from 21 to 65 species, including annual taxa and those that were recorded only in a single quadrat. Mean species richness here was slightly lower but comparable to that of the Northern *Banksia attenuata* – *Banksia menziesii* woodlands FCT23b (53.8 taxa) (Gibson *et al.* 1994).

Vegetation condition at all *Banksia* woodland quadrats was assessed as ‘Good’ or better according to the scale of Keighery (1994) with less than 50%, and usually much lower (mean 2.75%), introduced species cover (Table 3.1), therefore satisfying the minimum condition threshold for the TEC in all cases. Vegetation condition at most quadrats was considered ‘Excellent’ (58.3%), with fewer quadrats assessed as ‘Pristine’ (18.3%), ‘Very Good’ (18.3%), and ‘Good’ (5%). A total of 19 introduced species were recorded across all *Banksia* woodland quadrats, with mean weed species richness of 1.3 taxa.

Mapping of the TEC, including quadrat locations, is presented in Appendix A, and an overview of the TEC across the study area is shown in Figure 3.1. Twenty-six *Banksia* woodland patches were mapped across the study area, of which 10 occur on the Swan Coastal Plain and represent the Banksia Woodlands TEC. All SCP patches exceeded the patch size thresholds required for consideration as the TEC in relation to vegetation condition (Table 3.2). Only two SCP patches were less than 4 hectare (ha), and vegetation condition at both was assessed as ‘Excellent’ (Table 3.2). The Banksia Woodlands TEC is the dominant vegetation community occurring over most of the SCP section of the study area, comprising 294.3 ha of the total mapped area. *Banksia attenuata/menziesii* low open woodlands are present across approximately half of the GES section of the study area, comprising 237.9 ha (Figure 4.1).

3.2 SPECIES DIVERSITY AND INDICATOR SPECIES

A total of 352 vascular plant taxa, excluding those that could not be identified beyond genus level, were recorded from 60 *Banksia* woodland quadrats within the study area. The most diverse families (with 10 or more taxa) within the community were the Myrtaceae (46 taxa), Proteaceae (44 taxa), Fabaceae (32 taxa), Cyperaceae (22 taxa), Haemodoraceae (22 taxa), Asparagaceae (19 taxa), Ericaceae (18 taxa), Orchidaceae (16 taxa), Styliaceae (16 taxa), Droseraceae (15 taxa), Poaceae (15 taxa), Restionaceae (13 taxa), Dilleniaceae (12 taxa), Goodeniaceae (11 taxa) and Asteraceae (10 taxa). This floristic composition is also typical of the broader community (Threatened Species Scientific Committee 2016). A complete list of taxa recorded within *Banksia* woodland quadrats from all four surveys is included in Appendix B.

Key species for the *Banksia* woodland community within the study area are summarised in Table 3.3. The most frequently occurring understorey species included *Burchardia congesta*, *Mesomelaena*

pseudostygia, *Eremaea pauciflora*, *Bossiaea eriocarpa*, *Stirlingia latifolia*, *Alexgeorgea nitens*, and *Lyginia barbata*, which occur in over 65% of *Banksia* woodland quadrats. These species are also considered typical for the community in a broader context (Threatened Species Scientific Committee 2016). Only these 16 key species were present in 50% or more of the *Banksia* woodland quadrats, highlighting the high degree of variability in understorey species composition within the community, and there were no species recorded that occurred in all *Banksia* woodland quadrats. The low number of frequently occurring species within quadrats is indicative of high species turnover across the study area, which is a feature noted for the TEC generally (Threatened Species Scientific Committee 2016). Forty-six species had a significant association with the *Banksia* woodland group (Table 3.4), and are indicator species, to a greater or lesser degree, for the community within the study area. Of these, *Banksia attenuata*, *B. menziesii*, *Lyginia barbata*, *Stirlingia latifolia*, *Eremaea pauciflora*, *Bossiaea eriocarpa*, *Alexgeorgea nitens*, and *Adenanthos cygnorum* subsp. *cygnorum* showed the greatest level of association (> 0.65) within the *Banksia* woodland group.

3.3 VARIATION IN FLORISTIC DIVERSITY AND STRUCTURE WITHIN THE COMMUNITY

Hierarchical cluster analysis was conducted using floristic data from 113 quadrats surveyed within the study area. The 60 quadrats representing *Banksia* woodlands belong to several distinct clusters and do not form a cohesive floristic group, highlighting the high degree of understorey variability present within the community (Figure 3.2). Furthermore, *Banksia* woodland quadrats from the Swan Coastal Plain and the Geraldton Sandplain are intermixed, indicating that these communities, as broadly defined here, cannot be distinguished based on overall species composition.

Variation in indicator *Banksia* canopy cover is highly variable within the community, varying from 2% to 71% across all quadrats (Table 3.1). Towards the Geraldton Sandplain bioregion in the north of the study area, vegetation is increasingly dominated by low mixed heath communities (GHD 2016a, b), and *Banksia attenuata* and *B. menziesii* woodlands tend to be lower and sparser, generally confined to lower slopes on deeper sands. *Banksia* tree canopy cover was very low (< 2%) at some quadrats in this area (e.g. GA19), and therefore these were not considered to represent the TEC. Some quadrats in the same area (e.g. ECO09 and ECO11), however, had higher *Banksia* tree canopy cover (5% and 15% respectively), and were considered to correspond to the TEC. As a consequence of the high variability in vegetation structure and the intergradation of low *Banksia* woodlands with heaths, in some cases it was difficult to accurately delineate the boundary of the TEC.

3.4 SIMILARITY TO THE P3 PEC FCT23B (NORTHERN B. ATTENUATA – B. MENZIESII WOODLANDS)

Thirteen key or indicator species listed above for the Banksia Woodlands TEC within the study area (Table 3.3; Table 3.4) are also listed as one of 19 'typical' species for the P3 Priority Ecological Community (PEC) FCT23b (Gibson *et al.* 1994). The remaining six typical species were also present within the community. Fifteen of the 18 'common' species listed for FCT23b were also present. Consequently, the Banksia Woodlands of the Swan Coastal Plain TEC described and mapped as part of this study broadly corresponds to FCT23b.

Table 3.1 – Summary of *Banksia* woodland quadrats.

<i>Banksia</i> community type	Number of quadrats
<i>Banksia attenuata</i> low open woodland	14
<i>Banksia menziesii</i> low open woodland	2
<i>Banksia attenuata</i> and <i>B. menziesii</i> low open woodland	40
<i>Banksia prionotes</i> low open woodland	4
Indicator <i>Banksia</i> canopy cover	Canopy cover (%)
Minimum canopy cover	2
Maximum canopy cover	71
Mean canopy cover	23.1
Species richness	Species richness
Total number of taxa recorded	352
Minimum quadrat species richness	21
Maximum quadrat species richness	65
Mean quadrat species richness	41.7
Total weeds recorded	19
Mean weed richness	1.3
Weed cover	Foliage cover (%)
Minimum quadrat weed cover	0
Maximum quadrat weed cover	41
Mean quadrat weed cover	2.75
Vegetation condition (TEC quadrats)	Percentage of quadrats
Pristine	18.3%
Excellent	58.3%
Very Good	18.3%
Good	5.0%

Table 3.2 – Size and vegetation condition of *Banksia* woodland patches mapped across the study area.

Patch ID	IBRA	Area (ha)	Vegetation condition	Quadrat
Patch 1	GES	2.44	Good	ECO1
Patch 2	GES	5.97	Very Good - Excellent	GM14, GM16
Patch 3	GES	3.05	Very Good	ECO2
Patch 4	GES	19.41	Pristine	ECO9
Patch 5	GES	4.08	Pristine	NA
Patch 6	GES	1.48	Pristine	NA
Patch 7	GES	4.88	Pristine	ECO11
Patch 8	GES	11.80	Pristine	ECO12
Patch 9	GES	30.41	Pristine	ECO16
Patch 10	GES	8.84	Excellent	GA15
Patch 11	GES	21.08	Excellent	ECO17, GA14
Patch 12	GES	11.68	Pristine	ECO18
Patch 13	GES	6.12	Excellent	GM19
Patch 14	GES	68.21	Very Good - Pristine	ECO20, GA13, GM17, GM32
Patch 15	GES	22.80	Excellent - Pristine	ECO22, GA6
Patch 16	GES	15.54	Pristine	ECO21
Patch 17	SWA	1.32	Excellent	ECO24
Patch 18	SWA	21.90	Very Good - Excellent	ECO5, ECO7, ECO27, ECO28, GM5, GM6
Patch 19	SWA	4.36	Good	ECO30
Patch 20	SWA	0.56	Excellent	ECO31
Patch 21	SWA	51.75	Very Good - Pristine	AST5, ECO10, ECO32, ECO33, ECO34, GM3, GM25
Patch 22	SWA	20.45	Very Good - Excellent	ECO35, GA1, GA2, GM20, GM26
Patch 23	SWA	4.17	Very Good	ECO3, GA4, GA5
Patch 24	SWA	5.35	Very Good	NA
Patch 25	SWA	6.41	Very Good - Excellent	AST12, AST18, ECO13
Patch 26	SWA	178.04	Very Good - Pristine	AST1, AST16, AST17, AST19, ECO15, ECO36, ECO27, ECO38, ECO39, GM1, GM2, GM23, GM24

*Quadrat codes refer to Astron (2016) (AST), GHD (2016a) (GA), GHD (2016b) (GM) and the current survey (ECO).

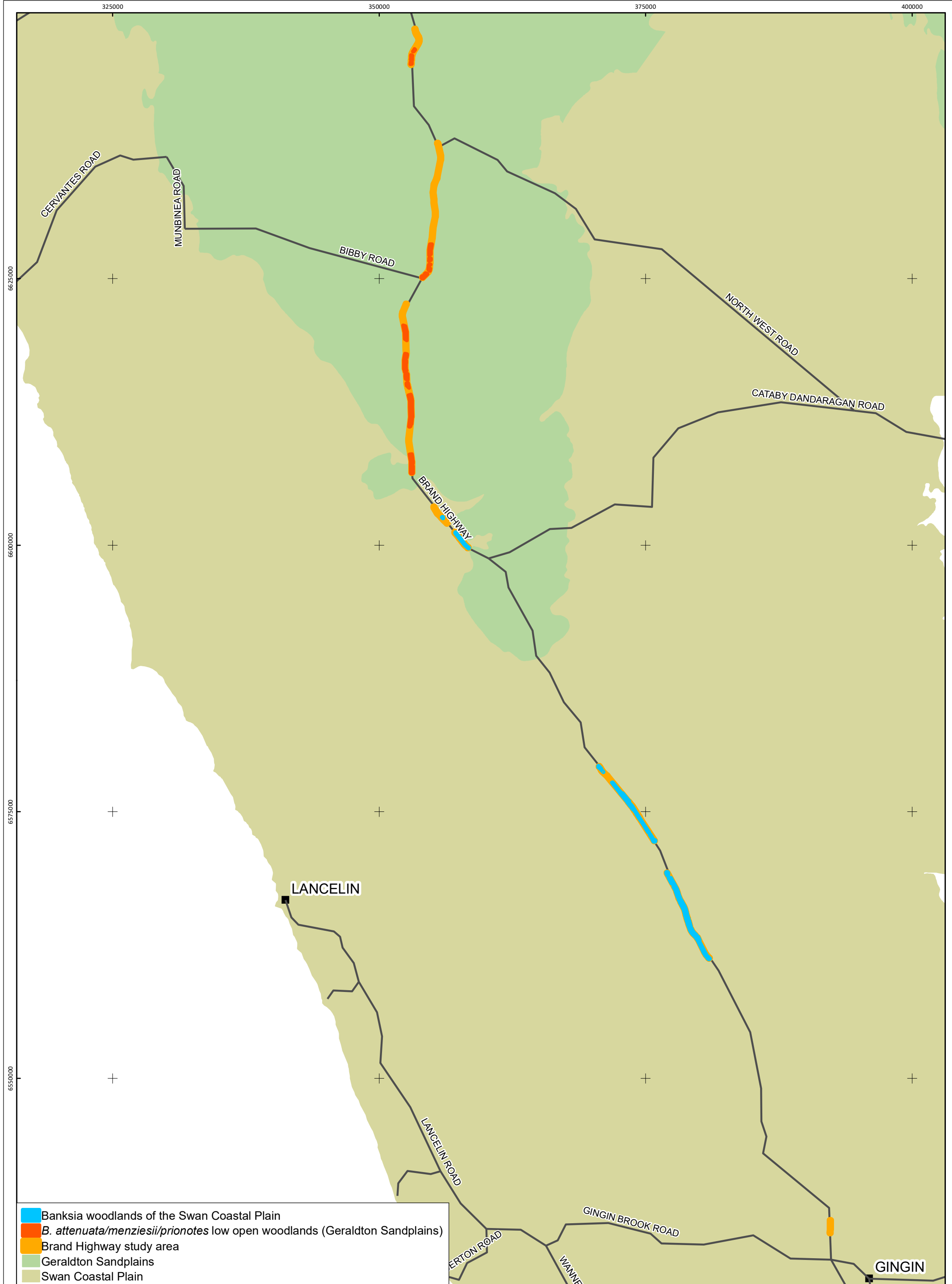
Table 3.3 – Key species ($\geq 50\%$ frequency in quadrats) and associated indicator values (IndVal) for the *Banksia* woodlands group within the study area.

Name	Frequency	Association statistic	p-value
<i>Banksia attenuata</i>	93%	0.962	0.001
<i>Burchardia congesta</i>	75%	-	ns
<i>Mesomelaena pseudostygia</i>	75%	-	ns
<i>Eremaea pauciflora</i>	72%	0.735	0.001
<i>Banksia menziesii</i>	70%	0.836	0.001
<i>Bossiaea eriocarpa</i>	70%	0.728	0.001
<i>Stirlingia latifolia</i>	70%	0.754	0.001
<i>Alexgeorgea nitens</i>	67%	0.671	0.005
<i>Lyginia barbata</i>	67%	0.760	0.001
<i>Hibbertia hypericoides</i>	62%	-	ns
<i>Jacksonia floribunda</i>	60%	0.635	0.034
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	57%	0.670	0.003
<i>Patersonia occidentalis</i>	57%	0.639	0.015
<i>Xanthorrhoea preissii</i>	52%	-	ns
<i>Amphipogon turbinatus</i>	50%	0.594	0.019
<i>Drosera erythrorhiza</i>	50%	0.365	0.006

ns = not significant

Table 3.4 – All species with significant association statistics (‘indicator species’) for the *Banksia* woodland group within the study area.

Name	Association statistic	p-value
<i>Banksia attenuata</i>	0.962	0.001
<i>Banksia menziesii</i>	0.836	0.001
<i>Lyginia barbata</i>	0.760	0.001
<i>Stirlingia latifolia</i>	0.754	0.001
<i>Eremaea pauciflora</i>	0.735	0.001
<i>Bossiaea eriocarpa</i>	0.728	0.001
<i>Alexgeorgea nitens</i>	0.671	0.005
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	0.670	0.003
<i>Patersonia occidentalis</i>	0.639	0.015
<i>Petrophile linearis</i>	0.637	0.001
<i>Jacksonia floribunda</i>	0.635	0.034
<i>Blancoa canescens</i>	0.627	0.001
<i>Amphipogon turbinatus</i>	0.594	0.019
<i>Scholtzia involucreta</i>	0.567	0.001
<i>Conospermum stoechadis</i>	0.551	0.031
<i>Dasyogon obliquifolius</i>	0.542	0.004
<i>Gompholobium tomentosum</i>	0.525	0.001
<i>Eremaea asterocarpa</i>	0.524	0.004
<i>Eucalyptus todtiana</i>	0.513	0.003
<i>Astroloma xerophyllum</i>	0.508	0.001
<i>Conostylis aurea</i>	0.504	0.002
<i>Hibbertia subvaginata</i>	0.502	0.001
<i>Dampiera linearis</i>	0.492	0.009
<i>Lepidosperma apricola</i>	0.483	0.002
<i>Cassytha glabella</i>	0.466	0.006
<i>Jacksonia nutans</i>	0.462	0.050
<i>Lomandra hermaphrodita</i>	0.428	0.002
<i>Phlebocarya filifolia</i>	0.428	0.001
<i>Chordifex microcodon</i>	0.414	0.003
<i>Scaevola repens</i>	0.414	0.035
<i>Lomandra preissii</i>	0.390	0.016
<i>Haemodorum spicatum</i>	0.387	0.004
<i>Phlebocarya ciliata</i>	0.387	0.003
<i>Schoenus pedicellatus</i>	0.387	0.005
<i>Orianthera spermacocea</i>	0.379	0.024
<i>Drosera parvula</i>	0.365	0.006
<i>Thysanotus thyrsoideus</i>	0.365	0.007
<i>Pileanthus filifolius</i>	0.342	0.010
<i>Stylidium piliferum</i>	0.342	0.011
<i>Conostylis juncea</i>	0.316	0.026
<i>Daviesia divaricata</i>	0.316	0.034
<i>Gyrostemon subnudus</i>	0.316	0.031
<i>Hemiandra pungens</i>	0.316	0.027
<i>Scholtzia</i> sp. Wongonderrah (M.E. & M.R. Trudgen MET 12000)	0.316	0.032
<i>Thysanotus spiniger</i>	0.316	0.028
<i>Conostylis angustifolia</i>	0.289	0.044



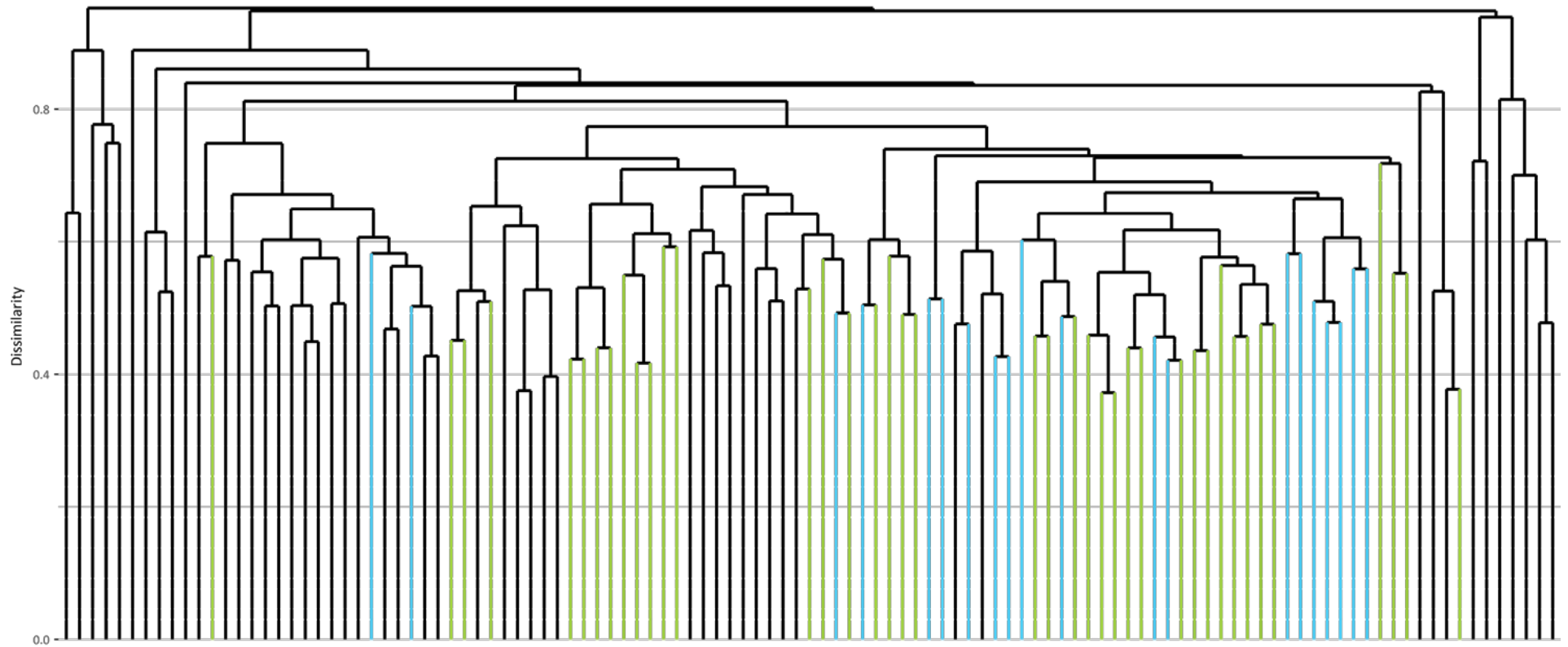
- Banksia woodlands of the Swan Coastal Plain
- B. attenuata/menziesii/prionotes* low open woodlands (Geraldton Sandplains)
- Brand Highway study area
- Geraldton Sandplains
- Swan Coastal Plain

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ENVIRONMENT

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Date: 23 February 2018 A3

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Kilometers
Scale: 1:310,000
MGA94 (Zone 50)

**Distribution of the Banksia Woodlands of the Swan Coastal Plain
ecological community across the study area**



Coloured branches indicate quadrats representing *Banksia attenuata*/*B. menziesii*/*B. prionotes* woodlands; green branches are quadrats from SCP, blue branches are quadrats from GSP.

Figure 3.2 – Dendrogram summarising floristic relationships among quadrats.

3.5 FLORA SURVEY LIMITATIONS AND CONSTRAINTS

An assessment of survey-specific issues and limitations (EPA 2016b) is detailed in Table 3.5.

Table 3.5 – Survey limitations.

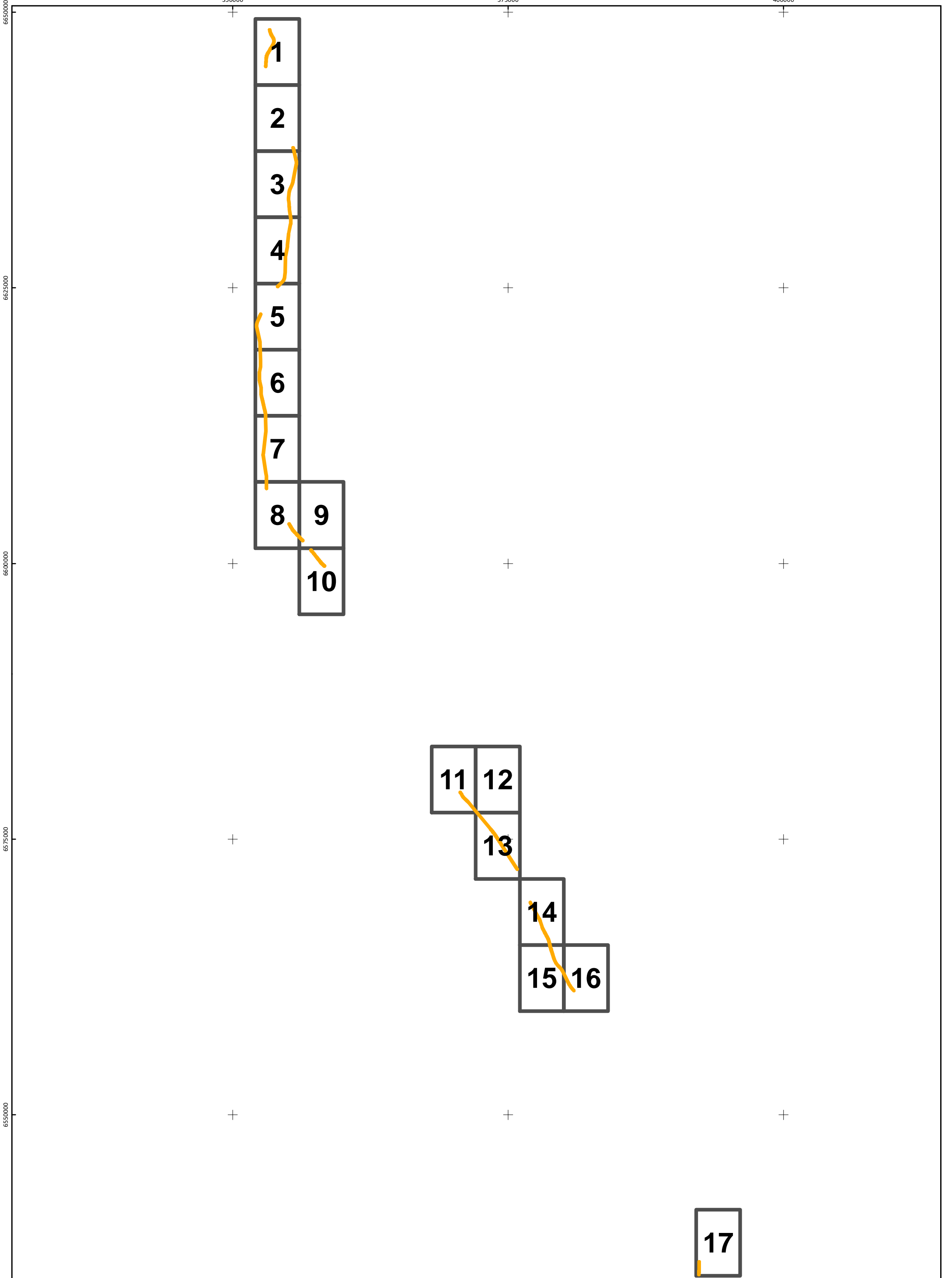
Constraint	Impact	Comment
Availability of contextual information at a regional and local scale	Nil	Local scale vegetation mapping and floristic data were available for the study area. This information was sufficient to provide appropriate contextual information for the current survey.
Competency/experience of the team carrying out the survey, including experience in the bioregion surveyed	Nil	The botanists carrying out the survey have extensive experience undertaking flora and vegetation surveys on the Swan Coastal Plain and Geraldton Sandplain.
Proportion of flora recorded and/or collected, any identification issues	Nil	Several specimens could not be adequately identified to species level due to the absence of required flowering or fruiting material. This is unlikely to have had any notable impact on the analysis or assessment presented.
Was the appropriate area fully surveyed (effort and extent)	Nil	Thirty-one quadrats were assessed during this survey in addition to 82 quadrats assessed during previous surveys. This level of survey effort is considered sufficient.
Access restrictions within the survey area	Nil	All parts of the study area were accessible.
Survey timing, rainfall, season of survey	Nil	The survey was conducted during the optimal season for floristic surveys in the South-West.
Disturbance that may have affected the results of survey such as fire, flood or clearing	Nil	There were no disturbances that constrained the survey.

4 REFERENCES

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5 APPENDICES

APPENDIX A BANKSIA WOODLAND MAPPING





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Date: 23 February 2018 A3

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Kilometers
Scale: 1:18,540
MGA94 (Zone 50)

- + TEC quadrat
- + Non-TEC quadrat
- Banksia woodlands of the Swan Coastal Plain
- B. attenuata/menziesii/prionotes* open woodlands (GSP)
- Brand Highway study area

Banksia woodlands across the study area



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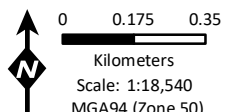
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- + TEC quadrat
- + Non-TEC quadrat
- Banksia woodlands of the Swan Coastal Plain
- B. attenuata/menziesii/prionotes* open woodlands (GSP)
- Brand Highway study area

Banksia woodlands across the study area

Figure: **A11**

Drawn: AC Project ID: 1727 Date: 23 February 2018 A3

Scale: 1:18,540 MGA94 (Zone 50)

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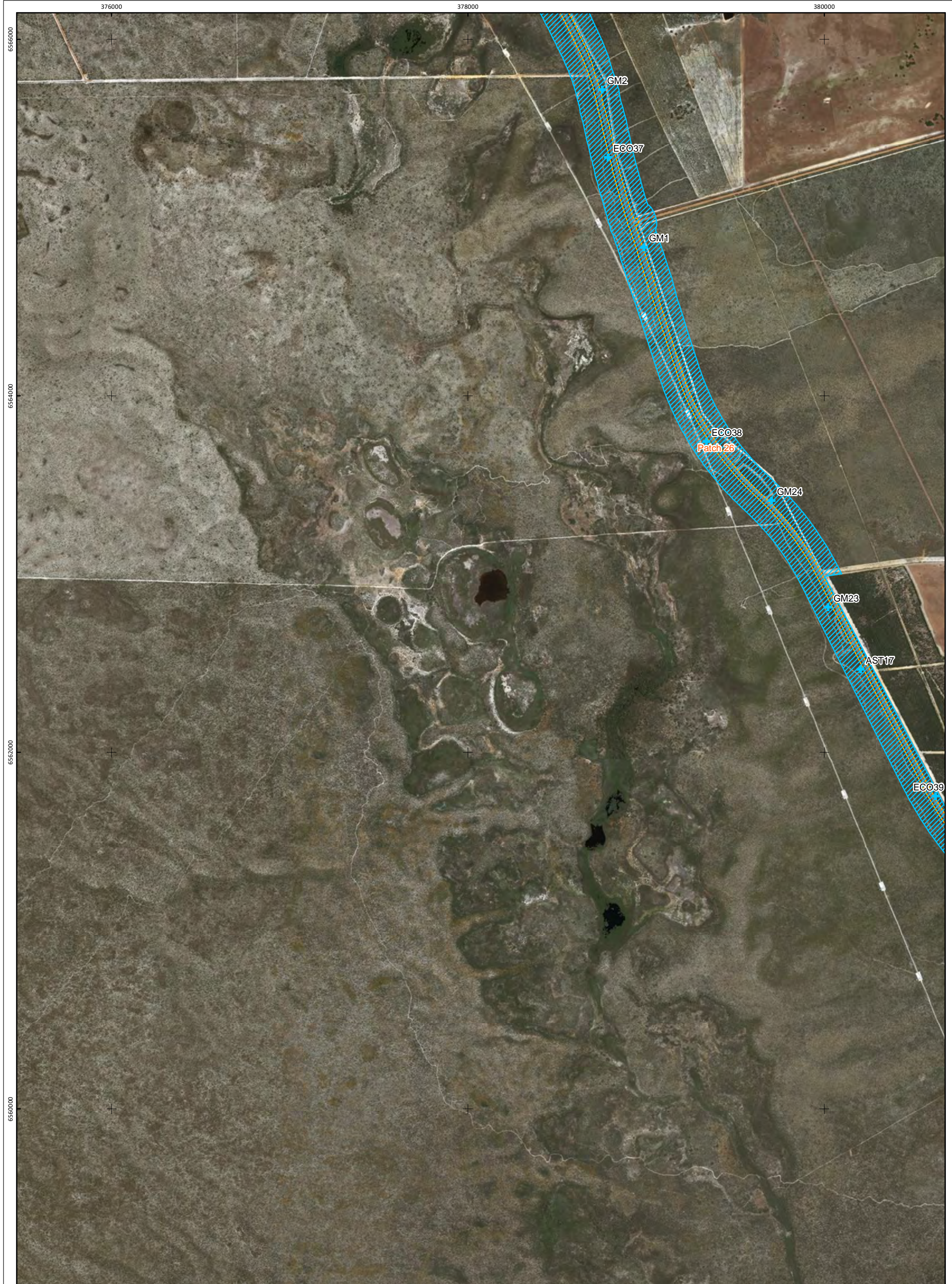
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APPENDIX B **VASCULAR PLANT SPECIES RECORDED FROM
BANKSIA WOODLANDS**

FAMILY	NAME
ANARTHRIACEAE	<i>Anarthria laevis</i>
APIACEAE	<i>Apium prostratum</i> <i>Platysace</i> sp. <i>Xanthosia huegelii</i>
ARALIACEAE	<i>Hydrocotyle callicarpa</i> <i>Trachymene pilosa</i>
ASPARAGACEAE	? <i>Lomandra</i> sp. <i>Chamaescilla corymbosa</i> var. <i>corymbosa</i> <i>Laxmannia omnifertilis</i> <i>Laxmannia sessiliflora</i> <i>Lomandra</i> ? <i>caespitosa</i> <i>Lomandra caespitosa</i> <i>Lomandra hermaphrodita</i> <i>Lomandra preissii</i> <i>Lomandra sericea</i> <i>Lomandra</i> sp. <i>Sowerbaea laxiflora</i> <i>Thysanotus</i> ? <i>thyrsoides</i> <i>Thysanotus arbuscula</i> <i>Thysanotus dichotomus</i> <i>Thysanotus patersonii</i> <i>Thysanotus patersonii/manglesianus</i> <i>Thysanotus</i> sp. <i>Thysanotus sparteus</i> <i>Thysanotus spiniger</i> <i>Thysanotus thyrsoides</i> <i>Thysanotus triandrus</i>
ASTERACEAE	* <i>Arctotheca calendula</i> <i>Helichrysum luteoalbum</i> * <i>Hypochaeris glabra</i> * <i>Hypochaeris radicata</i> <i>Podotheca angustifolia</i> <i>Podotheca gnaphalioides</i> <i>Pterochaeta paniculata</i> * <i>Sonchus oleraceus</i> * <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i> <i>Waitzia suaveolens</i> <i>Waitzia suaveolens</i> var. <i>suaveolens</i>
BRASSICACEAE	* <i>Sisymbrium</i> sp.
CAMPANULACEAE	* <i>Wahlenbergia capensis</i>
CASUARINACEAE	<i>Allocasuarina humilis</i>
CASUARINACEAE	<i>Allocasuarina preissii</i>
CELASTRACEAE	<i>Tripterococcus brunonis</i>

CENTROLEPIDACEAE	<i>Centrolepis drummondiana</i> <i>Centrolepis pilosa</i>
CHLOANTHACEAE	<i>Hemiphora bartlingii</i>
COLCHICACEAE	<i>Burchardia congesta</i>
CRASSULACEAE	<i>Crassula colorata</i> <i>Crassula colorata</i> var. <i>acuminata</i>
CUPRESSACEAE	<i>Callitris arenaria</i>
CUPRESSACEAE	<i>Callitris pyramidalis</i>
CYPERACEAE	<i>Baumea rubiginosa</i> <i>Caustis dioica</i> <i>*Isolepis marginata</i> <i>Lepidosperma apricola</i> <i>Lepidosperma calcicola</i> <i>Lepidosperma leptostachyum</i> <i>Lepidosperma pubisquameum</i> <i>Lepidosperma scabrum</i> <i>Mesomelaena pseudostygia</i> <i>Schoenus ?clandestinus</i> <i>Schoenus brevisetis</i> <i>Schoenus caespitius</i> <i>Schoenus clandestinus</i> <i>Schoenus curvifolius</i> <i>Schoenus grandiflorus</i> <i>Schoenus griffinianus</i> <i>Schoenus latitans</i> <i>Schoenus pedicellatus</i> <i>Schoenus pleiostemoneus</i> <i>Schoenus rigens</i> <i>Schoenus</i> sp. <i>Tetragia octandra</i> <i>Tricostularia neesii</i>
DASYPOGONACEAE	<i>Calectasia narragara</i> <i>Dasyogon bromeliifolius</i> <i>Dasyogon obliquifolius</i>
DILLENACEAE	<i>Hibbertia acerosa</i> <i>Hibbertia aurea</i> <i>Hibbertia crassifolia</i> <i>Hibbertia desmophylla</i> <i>Hibbertia helianthemoides</i> <i>Hibbertia huegelii</i> <i>Hibbertia hypericoides</i> <i>Hibbertia ovata</i> <i>Hibbertia polystachya</i> <i>Hibbertia sericosepala</i> <i>Hibbertia spicata</i> subsp. <i>spicata</i> <i>Hibbertia subvaginata</i>

DROSERACEAE

Drosera citrina
Drosera ?macrantha
Drosera ?pallida
Drosera ?parvula
Drosera bulbosa subsp. *bulbosa*
Drosera citrina
Drosera eneabba
Drosera erythrorhiza
Drosera erythrorhiza ?subsp. *magna*
Drosera gigantea
Drosera humilis
Drosera macrantha
Drosera marchantii
Drosera menziesii
Drosera menziesii subsp. *penicillaris*
Drosera pallida
Drosera parvula
Drosera sp.
Drosera spilos
Drosera subhirtella

ERICACEAE

?*Leucopogon* sp.
Andersonia heterophylla
Andersonia lehmanniana subsp. *lehmanniana*
Astroloma xerophyllum
Conostephium ?pendulum
Conostephium magnum
Conostephium pendulum
Conostephium preissii
Leucopogon aff. *conostephioides*
Leucopogon ?leptanthus
Leucopogon conostephioides
Leucopogon oldfieldii
Leucopogon oliganthus
Leucopogon racemosus
Leucopogon sp.
Leucopogon sp. Moore River (M. Hislop 1695)
Leucopogon sp. Northern ciliate (R. Davis 3393)
Leucopogon sprengelioides
Lysinema elegans
Lysinema pentapetalum

EUPHORBIACEAE

Monotaxis grandiflora var. *grandiflora*

FABACEAE

Acacia barbinervis subsp. *borealis*
Acacia blakelyi
Acacia huegelii
Acacia latipes subsp. *latipes*
Acacia pulchella

Acacia pulchella var. *glaberrima*
Acacia pulchella var. *pulchella*
Acacia stenoptera
Bossiaea eriocarpa
Daviesia angulata
Daviesia decurrens
Daviesia divaricata
Daviesia divaricata subsp. *divaricata*
Daviesia hakeoides subsp. *subnuda*
Daviesia incrassata
Daviesia incrassata subsp. *incrassata*
Daviesia incrassata subsp. *teres*
Daviesia nudiflora
Daviesia nudiflora subsp. *nudiflora*
Daviesia podophylla
Gastrolobium capitatum
Gastrolobium linearifolium
Gastrolobium oxylobioides
Gastrolobium plicatum
Gompholobium aristatum
Gompholobium knightianum
Gompholobium shuttleworthii
Gompholobium tomentosum

Hovea stricta
Isotropis cuneifolia
Isotropis cuneifolia subsp. *cuneifolia*
Jacksonia ?nutans
Jacksonia floribunda
Jacksonia hakeoides
Jacksonia horrida
Jacksonia nutans
Jacksonia sternbergiana
Sphaerolobium linophyllum
Sphaerolobium medium
?Goodeniaceae sp.
Dampiera linearis
Dampiera spicigera
Goodenia coerulea
Lechenaultia floribunda
Lechenaultia linarioides
Lechenaultia stenosepala
Scaevola canescens
Scaevola lanceolata
Scaevola repens
Scaevola repens var. *repens*

GOODENIACEAE

	<i>Verreauxia reinwardtii</i>
GYROSTEMONACEAE	<i>Gyrostemon racemiger</i>
	<i>Gyrostemon subnudus</i>
HAEMODORACEAE	<i>Anigozanthos humilis</i>
	<i>Anigozanthos humilis</i> subsp. <i>humilis</i>
	<i>Anigozanthos pulcherrimus</i>
	<i>Anigozanthos</i> sp.
	<i>Blancoa canescens</i>
	<i>Conostylis aculeata</i>
	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>
	<i>Conostylis aculeata</i> subsp. <i>cygnorum</i>
	<i>Conostylis angustifolia</i>
	<i>Conostylis aurea</i>
	<i>Conostylis candicans</i> subsp. <i>candicans</i>
	<i>Conostylis crassinervia</i>
	<i>Conostylis crassinervia</i> subsp. <i>absens</i>
	<i>Conostylis hiemalis</i>
	<i>Conostylis juncea</i>
	<i>Conostylis setigera</i> subsp. <i>setigera</i>
	<i>Conostylis</i> sp.
	<i>Conostylis teretifolia</i>
	<i>Conostylis teretifolia</i> subsp. <i>teretifolia</i>
	<i>Haemodorum brevisepalum</i>
	<i>Haemodorum loratum</i>
	<i>Haemodorum paniculatum</i>
	<i>Haemodorum</i> sp.
	<i>Haemodorum spicatum</i>
	<i>Haemodorum venosum</i>
	<i>Phlebocarya ciliata</i>
	<i>Phlebocarya filifolia</i>
HALORAGACEAE	<i>Glischrocaryon aureum</i>
	<i>Gonocarpus pithyoides</i>
HEMEROCALLIDACEAE	<i>Arnocrinum preissii</i>
	<i>Corynotheca micrantha</i> var. <i>micrantha</i>
	<i>Hensmania turbinata</i>
	<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>
	<i>Tricoryne elatior</i>
	<i>Tricoryne</i> sp. Eneabba (E.A. Griffin 1200)
IRIDACEAE	* <i>Gladiolus caryophyllaceus</i>
	<i>Patersonia occidentalis</i>
	<i>Patersonia occidentalis</i> subsp. <i>occidentalis</i>
	<i>Patersonia occidentalis</i> var. <i>occidentalis</i>
	* <i>Romulea rosea</i>
LAMIACEAE	<i>Hemiandra incana</i>
	<i>Hemiandra linearis</i>
	<i>Hemiandra pungens</i>

	<i>Hemiandra</i> sp.
	<i>Quoya verbascina</i>
LAURACEAE	<i>Cassytha aurea</i> var. <i>hirta</i>
	<i>Cassytha flava</i>
	<i>Cassytha glabella</i>
	<i>Cassytha glabella</i> forma <i>casuarinae</i>
	<i>Cassytha pomiformis</i>
	<i>Cassytha racemosa</i>
	<i>Cassytha</i> sp.
LOGANIACEAE	<i>Logania spermacoea</i>
	<i>Orianthera spermacoea</i>
	<i>Phyllangium divergens</i>
	<i>Phyllangium paradoxum</i>
LORANTHACEAE	<i>Nuytsia floribunda</i>
MALVACEAE	<i>Lasiopetalum lineare</i>
MOLLUGINACEAE	<i>Macarthuria australis</i>
MYRTACEAE	<i>Babingtonia grandiflora</i>
	<i>Beaufortia</i> ? <i>bicolor</i>
	<i>Beaufortia bicolor</i>
	<i>Beaufortia elegans</i>
	<i>Beaufortia</i> sp.
	<i>Calothamnus quadrifidus</i>
	<i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i>
	<i>Calothamnus sanguineus</i>
	<i>Calytrix depressa</i>
	<i>Calytrix flavescens</i>
	<i>Calytrix fraseri</i>
	<i>Calytrix sapphirina</i>
	<i>Calytrix</i> sp.
	<i>Conothamnus trinervis</i>
	<i>Corymbia calophylla</i>
	<i>Darwinia sanguinea</i>
	<i>Eremaea asterocarpa</i>
	<i>Eremaea asterocarpa</i> subsp. <i>asterocarpa</i>
	<i>Eremaea fimbriata</i>
	<i>Eremaea pauciflora</i>
	<i>Eremaea pauciflora</i> var. <i>calyptra</i>
	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>
	<i>Eucalyptus</i> ? <i>rudis</i> (juvenile)
	<i>Eucalyptus todtiana</i>
	<i>Hypocalymma angustifolium</i>
	<i>Hypocalymma xanthopetalum</i>
	<i>Kunzea glabrescens</i>
	<i>Kunzea micrantha</i>
	<i>Leptospermum erubescens</i>
	<i>Leptospermum spinescens</i>

	<i>Melaleuca ?dichroma</i>
	<i>Melaleuca ?leuropoma</i>
	<i>Melaleuca ?trichophylla</i>
	<i>Melaleuca ciliosa</i>
	<i>Melaleuca leuropoma</i>
	<i>Melaleuca seriata</i>
	<i>Melaleuca systema</i>
	<i>Melaleuca trichophylla</i>
	<i>Melaleuca urceolaris</i>
	<i>Myrtaceae</i> sp.
	<i>Pileanthus filifolius</i>
	<i>Regelia ciliata</i>
	<i>Scholtzia involucrata</i>
	<i>Scholtzia</i> sp.
	<i>Scholtzia</i> sp. Wongonderrah (M.E. & M.R. Trudgen MET 12000)
	<i>Verticordia ?densiflora</i>
	<i>Verticordia densiflora</i> var. <i>densiflora</i>
	<i>Verticordia grandis</i>
	<i>Verticordia nitens</i>
	<i>Verticordia ovalifolia</i>
	<i>Verticordia patens</i>
	<i>Verticordia rutilastra</i>
	<i>Verticordia</i> sp.
ORCHIDACEAE	<i>?Leporella fimbriata</i>
	<i>Caladenia flava</i>
	<i>Caladenia flava</i> subsp. <i>flava</i>
	<i>Caladenia</i> sp.
	<i>Diuris corymbosa</i>
	<i>Elythranthera brunonis</i>
	<i>Leporella fimbriata</i>
	<i>Microtis media</i> subsp. <i>media</i>
	<i>Paracaleana nigrita</i>
	<i>Prasophyllum macrostachyum</i>
	<i>Pterostylis dilatata</i>
	<i>Pterostylis sanguinea</i>
	<i>Pterostylis sanguineus</i>
	<i>Pterostylis</i> sp.
	<i>Pterostylis vittata</i> ('sp. northern' in Brown <i>et al.</i> 2013)
	<i>Pyrorchis nigricans</i>
	<i>Pyrorchis</i> sp.
	<i>Thelymitra campanulata</i>
PHORMIACEAE	<i>Dianella revoluta</i>
PHYLLANTHACEAE	<i>Poranthera microphylla</i>
POACEAE	* <i>Aira caryophyllea</i>
	<i>Amphipogon turbinatus</i>
	<i>Austrostipa compressa</i>

	<i>Austrostipa elegantissima</i>
	<i>Austrostipa hemipogon</i>
	<i>Austrostipa macalpinei</i>
	* <i>Avena barbata</i>
	* <i>Briza maxima</i>
	* <i>Ehrharta calycina</i>
	* <i>Ehrharta longiflora</i>
	* <i>Ehrharta</i> sp.
	<i>Neurachne alopecuroidea</i>
	* <i>Pentameris airoides</i>
	<i>Poaceae</i> sp.
	<i>Rytidosperma setaceum</i>
	* <i>Vulpia bromoides</i>
	* <i>Vulpia muralis</i>
POLYGALACEAE	<i>Comesperma acerosum</i>
	<i>Comesperma calymega</i>
	<i>Muehlenbeckia adpressa</i>
PROTEACEAE	? <i>Grevillea</i> sp.
	<i>Adenanthos cygnorum</i>
	<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>
	<i>Banksia attenuata</i>
	<i>Banksia candolleana</i>
	<i>Banksia dallaneyi</i> var. <i>mellicula</i>
	<i>Banksia dallaneyi</i> var. <i>dallaneyi</i>
	<i>Banksia ilicifolia</i>
	<i>Banksia incana</i> var. <i>brachyphylla</i>
	<i>Banksia loricata</i>
	<i>Banksia menziesii</i>
	<i>Banksia nivea</i>
	<i>Banksia prionotes</i>
	<i>Banksia sessilis</i>
	<i>Banksia shuttleworthiana</i>
	<i>Banksia stenoprion</i>
	<i>Banksia telmatiaea</i>
	<i>Banksia tortifolia</i>
	<i>Conospermum acerosum</i>
	<i>Conospermum acerosum</i> subsp. <i>acerosum</i>
	<i>Conospermum canaliculatum</i>
	<i>Conospermum crassinervium</i>
	<i>Conospermum incurvum</i>
	<i>Conospermum microflorum</i>
	<i>Conospermum</i> sp.
	<i>Conospermum stoechadis</i>
	<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>
	<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i>
	<i>Conospermum wycherleyi</i> subsp. <i>wycherleyi</i>

	<i>Hakea costata</i>
	<i>Hakea flabellifolia</i>
	<i>Hakea incrassata</i>
	<i>Hakea psilorrhyncha</i>
	<i>Hakea ruscifolia</i>
	<i>Hakea trifurcata</i>
	<i>Isopogon linearis</i>
	<i>Lambertia multiflora</i> var. <i>multiflora</i>
	<i>Petrophile brevifolia</i>
	<i>Petrophile linearis</i>
	<i>Petrophile macrostachya</i>
	<i>Petrophile pilostyla</i> subsp. <i>austrina</i>
	<i>Petrophile recurva</i>
	<i>Petrophile rigida</i>
	<i>Petrophile seminuda</i>
	<i>Petrophile</i> sp.
	<i>Stirlingia latifolia</i>
	<i>Strangea cynanchicarpa</i>
	<i>Synaphea</i> ? <i>aephynsa</i>
	<i>Synaphea spinulosa</i>
	<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>
RESTIONACEAE	<i>Alexgeorgea nitens</i>
	<i>Chordifex microcodon</i>
	<i>Chordifex sinuosus</i>
	<i>Desmocladius</i> ? <i>virgatus</i>
	<i>Desmocladius asper</i>
	<i>Desmocladius parthenicus</i>
	<i>Desmocladius subterranea</i>
	<i>Desmocladius virgatus</i>
	<i>Hypolaena exsulca</i>
	<i>Lepidobolus chaetocephalus</i>
	<i>Lepidobolus preissianus</i>
	<i>Leptocarpus coangustatus</i>
	<i>Lyginia</i> ? <i>barbata</i>
	<i>Lyginia barbata</i>
	<i>Lyginia imberbis</i>
	<i>Cryptandra pungens</i>
	<i>Stenanthemum humile</i>
RUBIACEAE	<i>Opercularia vaginata</i>
RUTACEAE	<i>Boronia coerulescens</i>
	<i>Boronia ramosa</i> subsp. <i>anethifolia</i>
	<i>Philotheca pinooides</i>
	<i>Philotheca spicata</i>
	<i>Philotheca spicata</i> subsp. Moore River National Park (G. & D. Woodman Op 47)
SANTALACEAE	<i>Leptomeria empetriformis</i>
STYLIDIACEAE	<i>Levenhookia</i> sp.

	<i>Stylidium ?albolilacinum</i>
	<i>Stylidium ?bicolor</i>
	<i>Stylidium ?hymenocraspedum</i>
	<i>Stylidium adpressum</i>
	<i>Stylidium crossocephalum</i>
	<i>Stylidium dichotomum</i>
	<i>Stylidium miniatum</i>
	<i>Stylidium piliferum</i>
	<i>Stylidium purpureum</i>
	<i>Stylidium repens</i>
	<i>Stylidium rigidulum</i>
	<i>Stylidium schoenoides</i>
	<i>Stylidium sp.</i>
	<i>Stylidium spiciforme</i>
THYMELAEACEAE	<i>Pimelea sulphurea</i>
	<i>Pimelea ?imbricata</i>
	<i>Pimelea angustifolia</i>
VIOLACEAE	<i>Hybanthus calycinus</i>
XANTHORRHOEACEAE	<i>Xanthorrhoea preissii</i>
	<i>Xanthorrhoea sp.</i>
ZAMIACEAE	<i>Macrozamia fraseri</i>
	<i>Macrozamia fraseri/riedlei</i>

APPENDIX C QUADRAT SITE DATA

ECO01

Botanist Raimond Orifici
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 353301 6646384
Landform Footslope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Allocasuarina humilis</i>	Shrub (>2 m)	5
<i>Verticordia grandis</i>	Shrub (>2 m)	< 1
<i>Daviesia divaricata</i>	Shrub (1-2 m)	1
<i>Eremaea pauciflora</i>	Shrub (1-2 m)	1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (1-2 m)	1
<i>Leptospermum erubescens</i>	Shrub (1-2 m)	< 1
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Shrub (1-2 m)	1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Beaufortia elegans</i>	Shrub (0-1 m)	1
<i>Jacksonia nutans</i>	Shrub (0-1 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	< 1
<i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i>	Shrub (0-1 m)	< 1
<i>Hakea costata</i>	Shrub (0-1 m)	< 1
<i>Ehrharta calycina</i>	Grass	40
<i>Amphipogon turbinatus</i>	Grass	< 1

Name	Stratum	Foliage Cover (%)
<i>Austrostipa elegantissima</i>	Grass	1
<i>Alexgeorgea nitens</i>	Sedge	5
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Burchardia congesta</i>	Herb	< 1
<i>Dianella revoluta</i>	Herb	1
<i>Lepidobolus preissianus</i>	Herb	1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	< 1
<i>Conostylis aculeata</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	< 1

ECO02

Botanist Brian Morgan
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 352977 6645223
Landform Plain
Soil Group Sand
Soil Colour Grey
Vegetation Condition Very Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia menziesii</i>	Tree (<10 m)	30
<i>Banksia attenuata</i>	Tree (<10 m)	10
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	3
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Scholtzia involucreta</i>	Shrub (0-1 m)	1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1
<i>Hibbertia subvaginata</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Boronia ramosa</i> subsp. <i>anethifolia</i>	Shrub (0-1 m)	< 1
<i>Conospermum wycherleyi</i> subsp. <i>wycherleyi</i>	Shrub (0-1 m)	< 1
<i>Melaleuca ?leuropoma</i>	Shrub (0-1 m)	1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1
<i>Melaleuca ?trichophylla</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	< 1
<i>Ehrharta calycina</i>	Grass	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Austrostipa macalpinei</i>	Grass	< 1
<i>Alexgeorgea nitens</i>	Sedge	5

Name	Stratum	Foliage Cover (%)
<i>Mesomelaena pseudostygia</i>	Sedge	< 1
<i>Caustis dioica</i>	Sedge	1
<i>Schoenus pleiostemoneus</i>	Sedge	< 1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Schoenus pedicellatus</i>	Sedge	< 1
<i>Lyginia barbata</i>	Herb	3
<i>Burchardia congesta</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Conostylis aurea</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Wahlenbergia capensis</i>	Herb	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	< 1
<i>Hypochaeris glabra</i>	Herb	< 1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Phlebocarya filifolia</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Conostylis</i> sp. 1 (indet.)	Herb	< 1
<i>Goodenia coerulea</i>	Herb	< 1
<i>Arnocrinum preissii</i>	Herb	< 1
<i>Thysanotus thyrsoides</i>	Herb	< 1
<i>Drosera menziesii</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Stylidium piliferum</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	< 1

ECO03

Botanist Brian Morgan
Date 11/8/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 375552 6572641
Landform Plain
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Very Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia prionotes</i>	Tree (<10 m)	20
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Hakea trifurcata</i>	Shrub (1-2 m)	1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	5
<i>Orianthera spermacocea</i>	Shrub (0-1 m)	< 1
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Shrub (0-1 m)	1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1
<i>Jacksonia ?nutans</i>	Shrub (0-1 m)	1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	< 1
<i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i>	Shrub (0-1 m)	< 1
<i>Calothamnus sanguineus</i>	Shrub (0-1 m)	1
<i>Scholtzia involucreta</i>	Shrub (0-1 m)	< 1
<i>Gastrolobium capitatum</i>	Shrub (0-1 m)	1
<i>Allocasuarina humilis</i>	Shrub (0-1 m)	1
<i>Ehrharta calycina</i>	Grass	< 1
<i>Austrostipa elegantissima</i>	Grass	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	5
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Lepidosperma apricola</i>	Sedge	< 1

Name	Stratum	Foliage Cover (%)
<i>Tetraria octandra</i>	Sedge	1
<i>Caustis dioica</i>	Sedge	1
<i>Burchardia congesta</i>	Herb	< 1
<i>Lomandra preissii</i>	Herb	< 1
<i>Hypochaeris glabra</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	1
<i>Opercularia vaginata</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Haemodorum venosum</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	1

ECO05

Botanist Brian Morgan
Date 11/9/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 357877 6600330
Landform Plain
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Excellent
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	20
<i>Daviesia divaricata</i> subsp. <i>divaricata</i>	Shrub (>2 m)	10
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Shrub (1-2 m)	1
<i>Conostephium</i> ? <i>pendulum</i>	Shrub (1-2 m)	1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	10
<i>Daviesia podophylla</i>	Shrub (0-1 m)	1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Scaevola repens</i>	Shrub (0-1 m)	1
<i>Scaevola canescens</i>	Shrub (0-1 m)	1
<i>Scholtzia involuocrata</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	< 1
<i>Melaleuca</i> ? <i>trichophylla</i>	Shrub (0-1 m)	1
<i>Ehrharta calycina</i>	Grass	< 1
<i>Briza maxima</i>	Grass	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Vulpia muralis</i>	Grass	< 1
<i>Amphipogon turbinatus</i>	Grass	1

Name	Stratum	Foliage Cover (%)
<i>Aira caryophyllea</i>	Grass	< 1
<i>Austrostipa macalpinei</i>	Grass	< 1
<i>Austrostipa elegantissima</i>	Grass	< 1
<i>Austrostipa compressa</i>	Grass	< 1
<i>Austrostipa hemipogon</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	10
<i>Schoenus</i> sp. 1 (indet.)	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Conostylis aculeata</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	< 1
<i>Podotheca angustifolia</i>	Herb	< 1
<i>Podotheca gnaphalioides</i>	Herb	< 1
<i>Crassula colorata</i>	Herb	< 1
<i>Drosera menziesii</i>	Herb	< 1
<i>Hypochaeris glabra</i>	Herb	< 1
<i>Isotropis cuneifolia</i>	Herb	< 1
<i>Drosera erythrorhiza</i>	Herb	< 1
<i>Laxmannia sessiliflora</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Opercularia vaginata</i>	Herb	< 1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Thysanotus</i> ? <i>thyrsoides</i>	Herb	< 1
<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>	Herb	< 1

ECO06

Botanist Raimond Orifici
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 355110 6630302
Landform Midslope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	1
<i>Hakea psilorrhyncha</i>	Shrub (>2 m)	< 1
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	< 1
<i>Verticordia grandis</i>	Shrub (1-2 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (1-2 m)	< 1
<i>Calothamnus quadrifidus</i>	Shrub (1-2 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	< 1
<i>Lambertia multiflora</i> var. <i>multiflora</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Verticordia densiflora</i> var. <i>densiflora</i>	Shrub (0-1 m)	< 1
<i>Glischrocaryon aureum</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	< 1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Hemiphora bartlingii</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Beaufortia elegans</i>	Shrub (0-1 m)	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	< 1
<i>Conostylis aurea</i>	Herb	< 1
<i>Dasypogon obliquifolius</i>	Herb	< 1

ECO07

Botanist Raimond Orifici
Date 11/9/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 358226 6599930
Landform Low Rise
Soil Group Sand
Soil Colour Grey
Vegetation Condition Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia prionotes</i>	Tree (<10 m)	15
<i>Jacksonia sternbergiana</i>	Tree (<10 m)	1
<i>Acacia blakelyi</i>	Shrub (>2 m)	1
<i>Hakea trifurcata</i>	Shrub (1-2 m)	1
<i>Calothamnus quadrifidus</i>	Shrub (1-2 m)	1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Lechenaultia linarioides</i>	Shrub (0-1 m)	1
<i>Scaevola canescens</i>	Shrub (0-1 m)	1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Conostephium ?pendulum</i>	Shrub (0-1 m)	< 1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	< 1
<i>Allocasuarina humilis</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Macrozamia fraseri/riedlei</i>	Shrub (0-1 m)	< 1
<i>Ehrharta calycina</i>	Grass	5
<i>Austrostipa elegantissima</i>	Grass	1
<i>Briza maxima</i>	Grass	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	5
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Schoenus grandiflorus</i>	Sedge	1

Name	Stratum	Foliage Cover (%)
<i>Desmocladus asper</i>	Sedge	< 1
<i>Lepidosperma calcicola</i>	Sedge	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Dianella revoluta</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Conostylis aculeata</i>	Herb	1
<i>Gladiolus caryophyllaceus</i>	Herb	< 1
<i>Muehlenbeckia adpressa</i>	Vine	1

ECO09

Botanist Brian Morgan
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 354806 6628137
Landform Plain
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	1
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	6
<i>Hakea costata</i>	Shrub (1-2 m)	< 1
<i>Strangea cynanchicarpa</i>	Shrub (1-2 m)	1
<i>Lambertia multiflora</i> var. <i>multiflora</i>	Shrub (1-2 m)	1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	5
<i>Banksia incana</i> var. <i>brachyphylla</i>	Shrub (0-1 m)	5
<i>Melaleuca</i> ? <i>trichophylla</i>	Shrub (0-1 m)	2
<i>Hibbertia sericosepala</i>	Shrub (0-1 m)	2
<i>Daviesia nudiflora</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Synaphea</i> ? <i>aephynsa</i>	Shrub (0-1 m)	< 1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1
<i>Banksia shuttleworthiana</i>	Shrub (0-1 m)	1
<i>Hibbertia acerosa</i>	Shrub (0-1 m)	< 1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Beaufortia ?bicolor</i> (sterile.)	Shrub (0-1 m)	< 1
<i>Hibbertia sericosepala</i>	Shrub (0-1 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Calothamnus sanguineus</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Banksia shuttleworthiana</i>	Shrub (0-1 m)	< 1
<i>Leucopogon conostephioides</i>	Shrub (0-1 m)	< 1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Babingtonia grandiflora</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Schoenus ?clandestinus</i>	Sedge	< 1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Schoenus pedicellatus</i>	Sedge	1
<i>Schoenus ?clandestinus</i>	Sedge	< 1
<i>Schoenus brevisetis</i>	Sedge	< 1
<i>Dasyogon obliquifolius</i>	Herb	10
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Lomandra sericea</i>	Herb	< 1
<i>Conostylis angustifolia</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Stylidium schoenoides</i>	Herb	< 1
<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Drosera parvula</i>	Herb	< 1
<i>Thysanotus patersonii/manglesianus</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Conostylis crassinervia</i>	Herb	< 1
<i>Haemodorum venosum</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Tricoryne elatior</i>	Herb	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	< 1

ECO10

Botanist Raimond Orifici
Date 11/9/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 372911 6576421
Landform Plain
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Excellent
Disturbance Type



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	1
<i>Jacksonia sternbergiana</i>	Shrub (1-2 m)	1
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Hakea costata</i>	Shrub (1-2 m)	< 1
<i>Jacksonia nutans</i>	Shrub (0-1 m)	15
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	< 1
<i>Hibbertia acerosa</i>	Shrub (0-1 m)	< 1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Scaevola canescens</i>	Shrub (0-1 m)	< 1
<i>Acacia stenoptera</i>	Shrub (0-1 m)	< 1
<i>Calytrix depressa</i>	Shrub (0-1 m)	< 1
<i>Verticordia densiflora</i> var. <i>densiflora</i>	Shrub (0-1 m)	1
<i>Beaufortia</i> sp. (indet.)	Shrub (0-1 m)	< 1
<i>Melaleuca ciliosa</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i>	Shrub (0-1 m)	< 1
<i>Lysinema pentapetalum</i>	Shrub (0-1 m)	< 1
<i>Gastrolobium linearifolium</i>	Shrub (0-1 m)	< 1
<i>Acacia barbinervis</i> subsp. <i>borealis</i>	Shrub (0-1 m)	< 1
<i>Leucopogon oliganthus</i>	Shrub (0-1 m)	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Austrostipa macalpinei</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Caustis dioica</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Thysanotus spiniger</i>	Herb	1
<i>Goodenia coerulea</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Conostylis aurea</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Stylidium piliferum</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1
<i>Stylidium purpureum</i>	Herb	< 1
<i>Stylidium repens</i>	Herb	< 1
<i>Cassytha pomiformis</i>	Vine	1

ECO11

Botanist Raimond Orifici
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 354768 6625873
Landform Foothlope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	10
<i>Banksia menziesii</i>	Tree (<10 m)	5
<i>Nuytsia floribunda</i>	Tree (<10 m)	1
<i>Hakea psilorrhyncha</i>	Shrub (>2 m)	1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (1-2 m)	5
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	5
<i>Lambertia multiflora</i> var. <i>multiflora</i>	Shrub (1-2 m)	5
<i>Calothamnus quadrifidus</i>	Shrub (1-2 m)	5
<i>Petrophile macrostachya</i>	Shrub (1-2 m)	1
<i>Hakea ruscifolia</i>	Shrub (1-2 m)	< 1
<i>Hakea costata</i>	Shrub (1-2 m)	1
<i>Banksia incana</i> var. <i>brachyphylla</i>	Shrub (0-1 m)	1
<i>Beaufortia bicolor</i> (P3)	Shrub (0-1 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Banksia tortifolia</i>	Shrub (0-1 m)	< 1
<i>Babingtonia grandiflora</i>	Shrub (0-1 m)	1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	1
<i>Philothea spicata</i>	Shrub (0-1 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1

Name	Stratum	Foliage Cover (%)
<i>Daviesia nudiflora</i>	Shrub (0-1 m)	< 1
<i>Melaleuca ciliosa</i>	Shrub (0-1 m)	< 1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	< 1
<i>Banksia shuttleworthiana</i>	Shrub (0-1 m)	< 1
<i>Jacksonia nutans</i>	Shrub (0-1 m)	1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Alexgeorgea nitens</i>	Sedge	1
<i>Schoenus</i> sp. 1 (indet.)	Sedge	1
<i>Lepidosperma apricola</i>	Sedge	1
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Caustis dioica</i>	Sedge	< 1
<i>Schoenus curvifolius</i>	Sedge	< 1
<i>Dasypogon obliquifolius</i>	Herb	1
<i>Conostylis aurea</i>	Herb	1
<i>Glischrocaryon aureum</i>	Herb	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Conostylis angustifolia</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Haemodorum venosum</i>	Herb	< 1
<i>Lomandra sericea</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	1

ECO12

Botanist Raimond Orifici
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 354431 6625369
Landform Midslope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	10
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Hakea psilorrhyncha</i>	Shrub (>2 m)	1
<i>Leptospermum erubescens</i>	Shrub (1-2 m)	5
<i>Melaleuca leuropoma</i>	Shrub (1-2 m)	1
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (1-2 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	5
<i>Calytrix depressa</i>	Shrub (0-1 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Dampiera spicigera</i>	Shrub (0-1 m)	1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1
<i>Beaufortia elegans</i>	Shrub (0-1 m)	1
<i>Quoya verbascina</i>	Shrub (0-1 m)	< 1
<i>Conostephium pendulum</i>	Shrub (0-1 m)	1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1

Name	Stratum	Foliage Cover (%)
<i>Schoenus</i> sp. 1 (indet.)	Sedge	1
<i>Schoenus curvifolius</i>	Sedge	< 1
<i>Schoenus pleiostemoneus</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Lyginia barbata</i>	Herb	5
<i>Blancoa canescens</i>	Herb	1
<i>Conostylis aurea</i>	Herb	1
<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>	Herb	< 1
? <i>Lomandra</i> sp. 1	Herb	< 1
<i>Dasypogon obliquifolius</i>	Herb	1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Phlebocarya filifolia</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Glischrocaryon aureum</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	1

ECO13

Botanist Raimond Orifici
Date 11/8/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 376941 6569258
Landform Plain
Soil Group Sand
Soil Colour Brown
Vegetation Condition Very Good
Disturbance Type Recent Fire



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Banksia menziesii</i>	Tree (<10 m)	1
<i>Eucalyptus todtiana</i>	Tree (<10 m)	1
<i>Nuytsia floribunda</i>	Tree (<10 m)	1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (1-2 m)	5
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Hakea costata</i>	Shrub (1-2 m)	1
<i>Jacksonia floribunda</i>	Shrub (1-2 m)	1
<i>Orianthera spermacocea</i>	Shrub (0-1 m)	5
<i>Jacksonia nutans</i>	Shrub (0-1 m)	5
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Hemiphora bartlingii</i>	Shrub (0-1 m)	1
<i>Scaevola repens</i>	Shrub (0-1 m)	1
<i>Gastrolobium capitatum</i>	Shrub (0-1 m)	1
<i>Gyrostemon subnudus</i>	Shrub (0-1 m)	1
<i>Verticordia densiflora</i> var. <i>densiflora</i>	Shrub (0-1 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Lechenaultia linarioides</i>	Shrub (0-1 m)	< 1
<i>Comesperma calymega</i>	Shrub (0-1 m)	< 1
<i>Scaevola canescens</i>	Shrub (0-1 m)	< 1
<i>Lechenaultia floribunda</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Daviesia decurrens</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Verreauxia reinwardtii</i>	Shrub (0-1 m)	< 1
<i>Hakea trifurcata</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	1
<i>Austrostipa hemipogon</i>	Grass	< 1
<i>Caustis dioica</i>	Sedge	5
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Alexgeorgea nitens</i>	Sedge	1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	1
<i>Thysanotus triandrus</i>	Herb	< 1
<i>Laxmannia sessiliflora</i>	Herb	< 1
<i>Stylidium crossocephalum</i>	Herb	< 1
<i>Conostylis aculeata</i>	Herb	< 1
<i>Tricoryne elatior</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Stylidium purpureum</i>	Herb	< 1
? <i>Goodeniaceae</i> sp. (indet.)	Herb	< 1
<i>Goodenia coerulea</i>	Herb	< 1
<i>Sphaerolobium linophyllum</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1

ECO15

Botanist Raimond Orifici
Date 11/8/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 377900 6567565
Landform Plain
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Excellent
Disturbance Type Litter



Name	Stratum	Foliage Cover (%)
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	10
<i>Hakea psilorrhyncha</i>	Shrub (>2 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (>2 m)	1
<i>Petrophile recurva</i>	Shrub (1-2 m)	15
<i>Hakea trifurcata</i>	Shrub (1-2 m)	10
<i>Hakea costata</i>	Shrub (1-2 m)	1
<i>Jacksonia nutans</i>	Shrub (1-2 m)	1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Gompholobium shuttleworthii</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Calectasia narragara</i>	Shrub (0-1 m)	< 1
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Hemiandra pungens</i>	Shrub (0-1 m)	< 1
<i>Leucopogon oliganthus</i>	Shrub (0-1 m)	< 1
<i>Scaevola canescens</i>	Shrub (0-1 m)	< 1
<i>Verticordia rutilastra</i> (P3)	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Orianthera spermacocea</i>	Shrub (0-1 m)	< 1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Hemiandra pungens</i>	Shrub (0-1 m)	< 1
<i>Petrophile pilostyla</i> subsp. <i>austrina</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Conostephium ?pendulum</i>	Shrub (0-1 m)	< 1
<i>Verreauxia reinwardtii</i>	Shrub (0-1 m)	< 1
<i>Hemiphora bartlingii</i>	Shrub (0-1 m)	< 1
<i>Caustis dioica</i>	Sedge	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Dasypogon obliquifolius</i>	Herb	1
<i>Gladiolus caryophyllaceus</i>	Herb	< 1
<i>Goodenia coerulea</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Stylidium adpressum</i>	Herb	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	< 1
<i>Conostylis aurea</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1
<i>Thysanotus spiniger</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Phlebocarya filifolia</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	< 1
<i>Arnocrinum preissii</i>	Herb	< 1
<i>Tricoryne elatior</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	1

ECO16

Botanist Raimond Orifici
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 352559 6619932
Landform Footslope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia menziesii</i>	Tree (<10 m)	15
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Strangea cynanchicarpa</i>	Shrub (1-2 m)	1
<i>Leptospermum erubescens</i>	Shrub (1-2 m)	1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	5
<i>Petrophile linearis</i>	Shrub (0-1 m)	1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Conospermum crassinervium</i>	Shrub (0-1 m)	< 1
<i>Verticordia patens</i>	Shrub (0-1 m)	< 1
<i>Verticordia densiflora</i> var. <i>densiflora</i>	Shrub (0-1 m)	1
<i>Scholtzia involucrata</i>	Shrub (0-1 m)	1
<i>Hibbertia subvaginata</i>	Shrub (0-1 m)	< 1
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	< 1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (0-1 m)	1
<i>Jacksonia hakeoides</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	< 1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	< 1
<i>Verticordia ?densiflora</i> (indet.)	Shrub (0-1 m)	< 1
<i>Lechenaultia stenosepala</i>	Shrub (0-1 m)	< 1
<i>Leucopogon</i> aff. <i>conostephioides</i> [small leaves/flowers]	Shrub (0-1 m)	< 1
<i>Daviesia podophylla</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Jacksonia nutans</i>	Shrub (0-1 m)	1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Anarthria laevis</i>	Sedge	5
<i>Alexgeorgea nitens</i>	Sedge	5
<i>Schoenus curvifolius</i>	Sedge	< 1
<i>Tricostularia neesii</i>	Sedge	< 1
<i>Lepidobolus preissianus</i>	Herb	5
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Stylidium repens</i>	Herb	1
<i>Stylidium dichotomum</i>	Herb	< 1
<i>Thysanotus ?thyrsoides</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	< 1
<i>Conostylis aculeata</i>	Herb	< 1
<i>Dasypogon obliquifolius</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	1
<i>Dampiera linearis</i>	Herb	< 1
<i>Anigozanthos pulcherrimus</i>	Herb	< 1

ECO17

Botanist Brian Morgan
Date 11/11/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 352493 6617256
Landform Low Rise
Soil Group Sand
Soil Colour Grey
Vegetation Condition Excellent - Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia menziesii</i>	Tree (<10 m)	16
<i>Banksia attenuata</i>	Tree (<10 m)	7
<i>Eucalyptus tottiana</i>	Tree (<10 m)	5
<i>Leptospermum erubescens</i>	Shrub (1-2 m)	5
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	12
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1
<i>Acacia stenoptera</i>	Shrub (0-1 m)	< 1
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Macrozamia fraseri/riedlei</i>	Shrub (0-1 m)	1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Calytrix flavescens</i>	Shrub (0-1 m)	< 1
<i>Conostephium pendulum</i>	Shrub (0-1 m)	< 1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Hibbertia subvaginata</i>	Shrub (0-1 m)	1
<i>Scholtzia involucrata</i>	Shrub (0-1 m)	< 1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1
<i>Boronia ramosa</i> subsp. <i>anethifolia</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1

Name	Stratum	Foliage Cover (%)
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	< 1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	< 1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Petrophile pilostyla</i> subsp. <i>austrina</i>	Shrub (0-1 m)	< 1
<i>Hibbertia aurea</i>	Shrub (0-1 m)	< 1
<i>Jacksonia nutans</i>	Shrub (0-1 m)	< 1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	< 1
<i>Boronia ramosa</i> subsp. <i>anethifolia</i>	Shrub (0-1 m)	< 1
? <i>Leucopogon</i> sp. (indet.)	Shrub (0-1 m)	< 1
<i>Leucopogon conostephioides</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Austrostipa macalpinei</i>	Grass	< 1
<i>Schoenus ?clandestinus</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	1
<i>Mesomelaena pseudostygia</i>	Sedge	< 1
<i>Desmocladius virgatus</i>	Sedge	< 1
<i>Schoenus curvifolius</i>	Sedge	< 1
<i>Dasypogon obliquifolius</i>	Herb	9
<i>Lyginia barbata</i>	Herb	5
<i>Phlebocarya filifolia</i>	Herb	2
<i>Conostylis aurea</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	1
<i>Dampiera linearis</i>	Herb	< 1
<i>Stylidium piliferum</i>	Herb	< 1
<i>Conostylis crassinervia</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Stylidium crossocephalum</i>	Herb	< 1
<i>Drosera parvula</i>	Herb	< 1
<i>Stylidium repens</i>	Herb	< 1
<i>Isotropis cuneifolia</i>	Herb	< 1
<i>Stylidium spiciforme</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Drosera erythrorhiza</i>	Herb	< 1
<i>Stylidium adpressum</i>	Herb	< 1
<i>Stenanthemum humile</i>	Herb	< 1
<i>Stylidium</i> sp. (indet.)	Herb	< 1
<i>Phyllangium divergens</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	< 1

ECO18

Botanist Brian Morgan
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 352538 6615828
Landform Dune Slope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	15
<i>Banksia menziesii</i>	Tree (<10 m)	5
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	20
<i>Jacksonia floribunda</i>	Shrub (>2 m)	1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	15
<i>Jacksonia nutans</i>	Shrub (0-1 m)	10
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Calytrix flavescens</i>	Shrub (0-1 m)	< 1
<i>Leucopogon oliganthus</i>	Shrub (0-1 m)	< 1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Hibbertia sericosepala</i>	Shrub (0-1 m)	< 1
<i>Calytrix depressa</i>	Shrub (0-1 m)	1
<i>Calytrix flavescens</i>	Shrub (0-1 m)	< 1
<i>Conospermum microflorum</i>	Shrub (0-1 m)	< 1
<i>Myrtaceae</i> sp. (indet.)	Shrub (0-1 m)	< 1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	< 1
<i>Boronia ramosa</i> subsp. <i>anethifolia</i>	Shrub (0-1 m)	< 1
<i>Calytrix fraseri</i>	Shrub (0-1 m)	< 1
<i>Scholtzia involuocrata</i>	Shrub (0-1 m)	< 1
<i>Daviesia podophylla</i>	Shrub (0-1 m)	< 1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	< 1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1
<i>Allocasuarina humilis</i>	Shrub (0-1 m)	< 1
<i>Lasiopetalum lineare</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Schoenus pleiostemoneus</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Lyginia barbata</i>	Herb	5
<i>Lepidobolus preissianus</i>	Herb	5
<i>Dasyopogon obliquifolius</i>	Herb	1
<i>Stylidium adpressum</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Stylidium piliferum</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	1
<i>Isotropis cuneifolia</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Conostylis angustifolia</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1
<i>Leptocarpus coangustatus</i>	Herb	< 1
<i>Arnocrinum preissii</i>	Herb	< 1
<i>Drosera parvula</i>	Herb	< 1
<i>Conostylis crassinervia</i>	Herb	< 1
<i>Dampiera linearis</i>	Herb	< 1
<i>Drosera erythrorhiza</i>	Herb	< 1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Lomandra preissii</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	< 1

ECO19

Botanist	Brian Morgan
Date	7/7/2017
Quadrat Size	NA - Reconnaissance Site
NW Corner Coordinates	50J 352512 6616530
Landform	Plain
Soil Group	Sand
Soil Colour	Grey
Vegetation Condition	Degraded
Disturbance Type	Weeds, Vegetation Clearing (road verge)

Reconnaissance site description: *Corymbia calophylla* open woodland over **Avena barbata*, **Ehrharta calycina*, and **Bromus diandrus* grassland.

ECO20

Botanist Raimond Orifici
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 352882 6611355
Landform Low Rise
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Eucalyptus tottiana</i>	Tree (<10 m)	5
<i>Banksia menziesii</i>	Tree (<10 m)	1
<i>Banksia attenuata</i>	Tree (<10 m)	1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	20
<i>Jacksonia nutans</i>	Shrub (1-2 m)	5
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Shrub (1-2 m)	1
<i>Jacksonia floribunda</i>	Shrub (1-2 m)	1
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	15
<i>Calothamnus quadrifidus</i>	Shrub (0-1 m)	5
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	5
<i>Leptospermum erubescens</i>	Shrub (0-1 m)	1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Babingtonia grandiflora</i>	Shrub (0-1 m)	< 1
<i>Hemiandra pungens</i>	Shrub (0-1 m)	< 1
<i>Quoya verbascina</i>	Shrub (0-1 m)	< 1
<i>Scholtzia involucrata</i>	Shrub (0-1 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Hakea flabellifolia</i>	Shrub (0-1 m)	< 1
<i>Calytrix depressa</i>	Shrub (0-1 m)	< 1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Daviesia incrassata</i> subsp. <i>teres</i>	Shrub (0-1 m)	< 1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Schoenus curvifolius</i>	Sedge	< 1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	1
<i>Blancoa canescens</i>	Herb	< 1
<i>Dasypogon obliquifolius</i>	Herb	1
<i>Conostylis aurea</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Dampiera linearis</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	< 1

ECO21

Botanist Raimond Orifici
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 353142 6607155
Landform Low Rise
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia prionotes</i>	Tree (<10 m)	15
<i>Nuytsia floribunda</i>	Tree (<10 m)	1
<i>Eucalyptus tottiana</i>	Tree (<10 m)	1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	15
<i>Callitris arenaria</i>	Shrub (>2 m)	1
<i>Banksia sessilis</i>	Shrub (>2 m)	1
<i>Hakea trifurcata</i>	Shrub (1-2 m)	1
<i>Hakea costata</i>	Shrub (1-2 m)	1
<i>Hakea psilorrhyncha</i>	Shrub (1-2 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (1-2 m)	1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	5
<i>Jacksonia nutans</i>	Shrub (0-1 m)	5
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	5
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	5
<i>Beaufortia elegans</i>	Shrub (0-1 m)	5
<i>Allocasuarina humilis</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Banksia telmatiaea</i>	Shrub (0-1 m)	< 1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1

Name	Stratum	Foliage Cover (%)
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Leucopogon racemulosus</i>	Shrub (0-1 m)	< 1
<i>Daviesia podophylla</i>	Shrub (0-1 m)	< 1
<i>Orianthera spermacocea</i>	Shrub (0-1 m)	< 1
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Hemiphora bartlingii</i>	Shrub (0-1 m)	< 1
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Verticordia densiflora</i> var. <i>densiflora</i>	Shrub (0-1 m)	1
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Dasypogon obliquifolius</i>	Herb	1
<i>Tricoryne elatior</i>	Herb	< 1
<i>Waitzia suaveolens</i> var. <i>suaveolens</i>	Herb	< 1
<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>	Herb	< 1
<i>Thysanotus spiniger</i>	Herb	1
<i>Lyginia barbata</i>	Herb	< 1
<i>Stylidium adpressum</i>	Herb	< 1
<i>Stylidium crossocephalum</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	1

ECO22

Botanist Brian Morgan
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 352917 6608488
Landform Dune Slope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Pristine
Disturbance Type None



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	20
<i>Eucalyptus tottiana</i>	Tree (<10 m)	20
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	10
<i>Jacksonia floribunda</i>	Shrub (1-2 m)	1
<i>Jacksonia nutans</i>	Shrub (1-2 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	5
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	5
<i>Darwinia sanguinea</i>	Shrub (0-1 m)	5
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	5
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Scholtzia involucreta</i>	Shrub (0-1 m)	1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1
<i>Pileanthus filifolius</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Banksia tortifolia</i>	Shrub (0-1 m)	< 1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	1
<i>Melaleuca ? trichophylla</i>	Shrub (0-1 m)	< 1
<i>Acacia stenoptera</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Babingtonia grandiflora</i>	Shrub (0-1 m)	< 1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Shrub (0-1 m)	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	20
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Schoenus ?clandestinus</i>	Sedge	< 1
<i>Schoenus pedicellatus</i>	Sedge	1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Caustis dioica</i>	Sedge	< 1
<i>Schoenus pleiostemoneus</i>	Sedge	1
<i>Lepidosperma calcicola</i>	Sedge	< 1
<i>Dasypogon obliquifolius</i>	Herb	1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Drosera parvula</i>	Herb	< 1
<i>Drosera erythrorhiza</i>	Herb	< 1
<i>Isotropis cuneifolia</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Stylidium piliferum</i>	Herb	< 1
<i>Arnocrinum preissii</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	< 1
<i>Thysanotus sparteus</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Drosera menziesii</i>	Herb	< 1
<i>Stylidium crosssocephalum</i>	Herb	< 1
<i>Thysanotus patersonii</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Stylidium ?hymenocraspedum</i> (P3) (indet.)	Herb	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	< 1

ECO23

Botanist Brian Morgan
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 354973 6603945
Landform Plain
Soil Group Sand
Soil Colour Grey
Vegetation Condition Excellent
Disturbance Type



Name	Stratum	Foliage Cover (%)
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Banksia attenuata</i>	Tree (<10 m)	5
<i>Eucalyptus tottiana</i>	Tree (<10 m)	5
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	20
<i>Jacksonia floribunda</i>	Shrub (>2 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (1-2 m)	5
<i>Jacksonia nutans</i>	Shrub (1-2 m)	< 1
<i>Scholtzia involucreta</i>	Shrub (0-1 m)	5
<i>Daviesia podophylla</i>	Shrub (0-1 m)	5
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Hibbertia sericosepala</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Leucopogon conostephioides</i>	Shrub (0-1 m)	< 1
<i>Hibbertia aurea</i>	Shrub (0-1 m)	< 1
<i>Hibbertia subvaginata</i>	Shrub (0-1 m)	< 1
<i>Calytrix fraseri</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	< 1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1
<i>Synaphea ?aephynsa</i>	Shrub (0-1 m)	< 1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	< 1
<i>Schoenus pedicellatus</i>	Sedge	5
<i>Schoenus curvifolius</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Lepidosperma calcicola</i>	Sedge	< 1
<i>Desmocladus ?virgatus</i>	Sedge	< 1
<i>Caustis dioica</i>	Sedge	< 1
<i>Dasypogon obliquifolius</i>	Herb	5
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Stylidium repens</i>	Herb	< 1
<i>Conostylis angustifolia</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Conostylis crassinervia</i>	Herb	1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Phlebocarya filifolia</i>	Herb	< 1
<i>Dampiera linearis</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1
<i>Stylidium piliferum</i>	Herb	< 1
<i>Thysanotus thyrsoides</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Drosera erythrorhiza</i>	Herb	< 1
<i>Drosera pallida</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	< 1

ECO24

Botanist Raimond Orifici
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 355969 6602576
Landform Low Rise
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Excellent
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	15
<i>Nuytsia floribunda</i>	Tree (<10 m)	1
<i>Calothamnus quadrifidus</i>	Shrub (1-2 m)	30
<i>Leptospermum erubescens</i>	Shrub (1-2 m)	5
<i>Jacksonia nutans</i>	Shrub (1-2 m)	5
<i>Hakea trifurcata</i>	Shrub (1-2 m)	1
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Gyrostemon subnudus</i>	Shrub (1-2 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	5
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	5
<i>Cryptandra pungens</i>	Shrub (0-1 m)	< 1
<i>Scaevola canescens</i>	Shrub (0-1 m)	1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Lechenaultia linarioides</i>	Shrub (0-1 m)	1
<i>Hibbertia polystachya</i>	Shrub (0-1 m)	< 1
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	< 1
<i>Orianthera spermacocea</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Austrostipa elegantissima</i>	Grass	1
<i>Briza maxima</i>	Grass	< 1

Name	Stratum	Foliage Cover (%)
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Ehrharta calycina</i>	Grass	< 1
<i>Avena barbata</i>	Grass	< 1
<i>Austrostipa hemipogon</i>	Grass	< 1
<i>Caustis dioica</i>	Sedge	1
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Schoenus</i> sp. 1 (indet.)	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Thysanotus spiniger</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Conostylis aculeata</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Tripterococcus brunonis</i>	Herb	< 1
<i>Stylidium purpureum</i>	Herb	< 1

ECO25

Botanist Raimond Orifici
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 356761 6601718
Landform Low Rise
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Excellent
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	15
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Jacksonia floribunda</i>	Shrub (>2 m)	1
<i>Calothamnus quadrifidus</i>	Shrub (1-2 m)	40
<i>Daviesia divaricata</i>	Shrub (1-2 m)	1
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Hakea trifurcata</i>	Shrub (1-2 m)	1
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Shrub (1-2 m)	< 1
<i>Scaevola canescens</i>	Shrub (0-1 m)	5
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Lechenaultia linarioides</i>	Shrub (0-1 m)	1
<i>Orianthera spermacocea</i>	Shrub (0-1 m)	1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i>	Shrub (0-1 m)	1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Gompholobium aristatum</i>	Shrub (0-1 m)	< 1
<i>Cryptandra pungens</i>	Shrub (0-1 m)	< 1
<i>Austrostipa elegantissima</i>	Grass	1

Name	Stratum	Foliage Cover (%)
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Briza maxima</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	10
<i>Caustis dioica</i>	Sedge	1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Schoenus pleiostemoneus</i>	Sedge	< 1
<i>Hybanthus calycinus</i>	Herb	< 1
<i>Hypochaeris glabra</i>	Herb	< 1
<i>Laxmannia sessiliflora</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Conostylis aculeata</i>	Herb	< 1
<i>Dianella revoluta</i>	Herb	< 1

ECO27

Botanist Raimond Orifici
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 357309 6601048
Landform Low Rise
Soil Group Sand
Soil Colour Brown
Vegetation Condition Very Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	40
<i>Banksia menziesii</i>	Tree (<10 m)	20
<i>Eucalyptus tottiana</i>	Tree (<10 m)	1
<i>Melaleuca leuropoma</i>	Shrub (1-2 m)	5
<i>Conostephium ? pendulum</i>	Shrub (0-1 m)	5
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1
<i>Pimelea angustifolia</i>	Shrub (0-1 m)	< 1
<i>Petrophile pilostyla</i> subsp. <i>austrina</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Scholtzia involucreta</i>	Shrub (0-1 m)	< 1
<i>Hemiandra pungens</i>	Shrub (0-1 m)	< 1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	1
<i>Briza maxima</i>	Grass	< 1
<i>Ehrharta calycina</i>	Grass	1
<i>Mesomelaena pseudostygia</i>	Sedge	5
<i>Alexgeorgea nitens</i>	Sedge	1
<i>Schoenus pleiostemoneus</i>	Sedge	< 1

Name	Stratum	Foliage Cover (%)
<i>Dasypogon obliquifolius</i>	Herb	50
<i>Conostylis aurea</i>	Herb	5
<i>Phlebocarya filifolia</i>	Herb	5
<i>Dampiera linearis</i>	Herb	1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	1
<i>Burchardia congesta</i>	Herb	1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Dianella revoluta</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Thysanotus ?thyrsoides</i>	Herb	< 1
<i>Thysanotus arbuscula</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	1
<i>Hypochaeris glabra</i>	Herb	< 1

ECO28

Botanist Brian Morgan
Date 11/10/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 357591 6600680
Landform plain
Soil Group Sand
Soil Colour Grey
Vegetation Condition Excellent
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	15
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Jacksonia floribunda</i>	Shrub (1-2 m)	5
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Shrub (1-2 m)	1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	20
<i>Melaleuca leuropoma</i>	Shrub (0-1 m)	5
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Leucopogon conostephioides</i>	Shrub (0-1 m)	1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	1
<i>Scholtzia involucreta</i>	Shrub (0-1 m)	< 1
<i>Gastrolobium capitatum</i>	Shrub (0-1 m)	< 1
<i>Calytrix flavescens</i>	Shrub (0-1 m)	< 1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Conostephium</i> ? <i>pendulum</i>	Shrub (0-1 m)	< 1
<i>Scaevola repens</i>	Shrub (0-1 m)	< 1
<i>Daviesia podophylla</i>	Shrub (0-1 m)	< 1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Hemiandra pungens</i>	Shrub (0-1 m)	< 1
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	< 1
<i>Vulpia muralis</i>	Grass	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Austrostipa macalpinei</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Schoenus ?clandestinus</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Schoenus pedicellatus</i>	Sedge	< 1
<i>Dasypogon obliquifolius</i>	Herb	5
<i>Burchardia congesta</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Herb	< 1
<i>Drosera erythrorhiza</i>	Herb	< 1
<i>Tricoryne elatior</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Macarthuria australis</i>	Herb	< 1
<i>Orianthera spermacocea</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Phyllangium divergens</i>	Herb	< 1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Conostylis crassinervia</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Stylidium crosssocephalum</i>	Herb	< 1
<i>Drosera menziesii</i>	Herb	< 1
<i>Phlebocarya filifolia</i>	Herb	< 1
<i>Conostylis angustifolia</i>	Herb	< 1
<i>Wahlenbergia capensis</i>	Herb	< 1
<i>Lomandra preissii</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1
<i>Crassula colorata</i>	Herb	< 1
<i>Arnocrinum preissii</i>	Herb	< 1
<i>Thysanotus ?thyrsoides</i>	Herb	< 1
<i>Centrolepis pilosa</i>	Herb	< 1
<i>Hypochaeris glabra</i>	Herb	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	< 1

ECO30

Botanist Raimond Orifici
Date 11/9/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 370722 6579085
Landform Low Rise
Soil Group Sand
Soil Colour Brown
Vegetation Condition Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	40
<i>Banksia menziesii</i>	Tree (<10 m)	5
<i>Eucalyptus tottiana</i>	Tree (<10 m)	5
<i>Daviesia divaricata</i>	Shrub (1-2 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Hakea incrassata</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	< 1
<i>Melaleuca ciliosa</i>	Shrub (0-1 m)	< 1
<i>Daviesia nudiflora</i>	Shrub (0-1 m)	< 1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	< 1
<i>Hemiandra pungens</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Ehrharta calycina</i>	Grass	10
<i>Ehrharta longiflora</i>	Grass	< 1
<i>Austrostipa elegantissima</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	5
<i>Tetralix octandra</i>	Sedge	5
<i>Lepidosperma apricola</i>	Sedge	< 1

Name	Stratum	Foliage Cover (%)
<i>Caustis dioica</i>	Sedge	1
<i>Dasypogon obliquifolius</i>	Herb	1
<i>Conostylis aurea</i>	Herb	< 1
<i>Sonchus oleraceus</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Thysanotus sparteus</i>	Herb	< 1
<i>Microtis media</i> subsp. <i>media</i>	Herb	< 1
<i>Lomandra sericea</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1

ECO31

Botanist Brian Morgan
Date 11/9/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 370980 6578798
Landform Other
Soil Group Sand
Soil Colour Yellow-Grey
Vegetation Condition Excellent
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	20
<i>Eucalyptus todtiana</i>	Tree (<10 m)	5
<i>Allocasuarina humilis</i>	Shrub (>2 m)	10
<i>Eremaea pauciflora</i>	Shrub (1-2 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Eucalyptus ?rudis (juvenile)</i>	Shrub (0-1 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Petrophile pilostyla</i> subsp. <i>austrina</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Briza maxima</i>	Grass	< 1
<i>Ehrharta calycina</i>	Grass	< 1
<i>Avena barbata</i>	Grass	< 1
<i>Tetraria octandra</i>	Sedge	15
<i>Mesomelaena pseudostygia</i>	Sedge	10
<i>Caustis dioica</i>	Sedge	1
<i>Lepidosperma calcicola</i>	Sedge	1
<i>Dasyogon obliquifolius</i>	Herb	< 1
<i>Lomandra ?caespitosa</i>	Herb	< 1
<i>Microtis media</i> subsp. <i>media</i>	Herb	< 1

Name	Stratum	Foliage Cover (%)
<i>Conostylis aurea</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1

ECO32

Botanist Raimond Orifici
Date 11/9/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 372075 6577478
Landform Plain
Soil Group Sand
Soil Colour Brown
Vegetation Condition Excellent
Disturbance Type



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	40
<i>Eremaea pauciflora</i>	Shrub (1-2 m)	10
<i>Calothamnus quadrifidus</i>	Shrub (1-2 m)	10
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Petrophile macrostachya</i>	Shrub (1-2 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	10
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	1
<i>Hakea incrassata</i>	Shrub (0-1 m)	< 1
<i>Jacksonia floribunda</i>	Shrub (0-1 m)	< 1
<i>Scholtzia involucrata</i>	Shrub (0-1 m)	1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Austrostipa elegantissima</i>	Grass	< 1
<i>Tetraria octandra</i>	Sedge	5
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Caustis dioica</i>	Sedge	< 1
<i>Burchardia congesta</i>	Herb	< 1
? <i>Lomandra</i> sp. 2	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1

Name	Stratum	Foliage Cover (%)
<i>Conostylis aurea</i>	Herb	< 1
<i>Microtis media</i> subsp. <i>media</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	1

ECO34

Botanist Brian Morgan
Date 11/8/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 373922 6575152
Landform Low Rise
Soil Group Sand
Soil Colour Grey
Vegetation Condition Excellent
Disturbance Type Some Banksia death



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	30
<i>Daviesia divaricata</i> subsp. <i>divaricata</i>	Shrub (>2 m)	1
<i>Eremaea pauciflora</i>	Shrub (1-2 m)	10
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Petrophile pilostyla</i> subsp. <i>austrina</i>	Shrub (1-2 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	20
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	5
<i>Melaleuca ciliosa</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Comesperma acerosum</i>	Shrub (0-1 m)	< 1
<i>Banksia candolleana</i>	Shrub (0-1 m)	1
<i>Petrophile recurva</i>	Shrub (0-1 m)	1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Melaleuca ciliosa</i>	Shrub (0-1 m)	< 1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	< 1
<i>Calothamnus sanguineus</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	20

Name	Stratum	Foliage Cover (%)
<i>Tetraria octandra</i>	Sedge	5
<i>Caustis dioica</i>	Sedge	1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Lepidosperma apicola</i>	Sedge	< 1
<i>Conostylis aurea</i>	Herb	< 1
<i>Lomandra preissii</i>	Herb	< 1
<i>Haemodorum venosum</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Thysanotus patersonii/manglesianus</i>	Herb	< 1
<i>Cassytha aurea</i> var. <i>hirta</i>	Vine	< 1

ECO35

Botanist Raimond Orifici
Date 11/8/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 375141 6573282
Landform Footslope
Soil Group Sand
Soil Colour Yellow
Vegetation Condition Very Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia prionotes</i>	Tree (<10 m)	10
<i>Banksia attenuata</i>	Tree (<10 m)	1
<i>Eucalyptus tottiana</i>	Tree (<10 m)	< 1
<i>Jacksonia sternbergiana</i>	Shrub (>2 m)	1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (1-2 m)	5
<i>Jacksonia nutans</i>	Shrub (1-2 m)	5
<i>Allocasuarina humilis</i>	Shrub (1-2 m)	1
<i>Jacksonia floribunda</i>	Shrub (1-2 m)	1
<i>Daviesia divaricata</i>	Shrub (1-2 m)	1
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	5
<i>Gyrostemon subnudus</i>	Shrub (0-1 m)	5
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	1
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>	Shrub (0-1 m)	1
<i>Orianthera spermacocea</i>	Shrub (0-1 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Hibbertia huegelii</i>	Shrub (0-1 m)	< 1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	1
<i>Xanthorrhoea preissii</i>	Shrub (0-1 m)	< 1
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Scaevola canescens</i>	Shrub (0-1 m)	< 1
<i>Ehrharta calycina</i>	Grass	< 1
<i>Neurachne alopecuroidea</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	1

Name	Stratum	Foliage Cover (%)
<i>Lepidosperma apricola</i>	Sedge	< 1
<i>Caustis dioica</i>	Sedge	1
<i>Trachymene pilosa</i>	Herb	< 1
<i>Gladiolus caryophyllaceus</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Goodenia coerulea</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Stylidium crossocephalum</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Microtis media</i> subsp. <i>media</i>	Herb	< 1

ECO36

Botanist Brian Morgan
Date 11/8/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 377375 6568451
Landform Midslope
Soil Group Sand
Soil Colour Grey
Vegetation Condition Excellent
Disturbance Type



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	15
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Eucalyptus tottiana</i>	Tree (<10 m)	5
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	5
<i>Jacksonia floribunda</i>	Shrub (>2 m)	1
<i>Eremaea pauciflora</i>	Shrub (1-2 m)	15
<i>Stirlingia latifolia</i>	Shrub (1-2 m)	1
<i>Verticordia nitens</i>	Shrub (1-2 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Calytrix flavescens</i>	Shrub (0-1 m)	< 1
<i>Hibbertia hypericoides</i>	Shrub (0-1 m)	1
<i>Calytrix fraseri</i>	Shrub (0-1 m)	< 1
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	< 1
<i>Acacia barbinervis</i> subsp. <i>borealis</i>	Shrub (0-1 m)	< 1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Leucopogon conostephioides</i>	Shrub (0-1 m)	< 1
<i>Scholtzia involucrata</i>	Shrub (0-1 m)	< 1
<i>Conostephium</i> ? <i>pendulum</i>	Shrub (0-1 m)	< 1
<i>Philothea pinoides</i>	Shrub (0-1 m)	< 1
<i>Andersonia heterophylla</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Hibbertia subvaginata</i>	Shrub (0-1 m)	< 1
<i>Calytrix sapphirina</i>	Shrub (0-1 m)	< 1
<i>Boronia ramosa</i> subsp. <i>anethifolia</i>	Shrub (0-1 m)	< 1
<i>Conothamnus trinervis</i>	Shrub (0-1 m)	< 1
<i>Hemiandra pungens</i>	Shrub (0-1 m)	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Rytidosperma setaceum</i>	Grass	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Chordifex microdon</i>	Sedge	< 1
<i>Schoenus pedicellatus</i>	Sedge	< 1
<i>Schoenus pleiostemoneus</i>	Sedge	< 1
<i>Lepidobolus preissianus</i>	Herb	5
<i>Lyginia barbata</i>	Herb	5
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Conostylis juncea</i>	Herb	< 1
<i>Dampiera linearis</i>	Herb	1
<i>Drosera erythrorhiza</i>	Herb	< 1
<i>Lomandra preissii</i>	Herb	< 1
<i>Burchardia congesta</i>	Herb	< 1
<i>Phlebocarya ciliata</i>	Herb	1
<i>Hensmania turbinata</i>	Herb	< 1
<i>Drosera parvula</i>	Herb	< 1
<i>Drosera menziesii</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	< 1
<i>Conostylis aurea</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Laxmannia sessiliflora</i>	Herb	< 1
<i>Drosera pallida</i>	Herb	< 1
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Herb	< 1
<i>Thysanotus arbuscula</i>	Herb	< 1
<i>Stylidium spiciforme</i>	Herb	< 1
<i>Anigozanthos</i> sp. (indet.)	Herb	< 1
<i>Stylidium piliferum</i>	Herb	< 1
<i>Gladiolus caryophyllaceus</i>	Herb	< 1
<i>Haemodorum spicatum</i>	Herb	< 1
<i>Thysanotus thyrsoideus</i>	Herb	< 1
<i>Cassytha</i> sp. (indet)	Vine	< 1

ECO38

Botanist Brian Morgan
Date 11/7/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 379340 6563742
Landform Plain
Soil Group Sand
Soil Colour Grey
Vegetation Condition Excellent
Disturbance Type



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	15
<i>Banksia menziesii</i>	Tree (<10 m)	5
<i>Banksia ilicifolia</i>	Tree (<10 m)	< 1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	15
<i>Jacksonia floribunda</i>	Shrub (>2 m)	5
<i>Banksia larcina</i>	Shrub (1-2 m)	10
<i>Verticordia nitens</i>	Shrub (1-2 m)	< 1
<i>Leucopogon conostephioides</i>	Shrub (0-1 m)	5
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	5
<i>Astroloma xerophyllum</i>	Shrub (0-1 m)	5
<i>Philothea spicata</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Hibbertia subvaginata</i>	Shrub (0-1 m)	< 1
<i>Calytrix fraseri</i>	Shrub (0-1 m)	< 1
<i>Conostephium</i> ? <i>pendulum</i>	Shrub (0-1 m)	< 1
<i>Andersonia heterophylla</i>	Shrub (0-1 m)	< 1
<i>Scholtzia involucrata</i>	Shrub (0-1 m)	< 1
<i>Andersonia heterophylla</i>	Shrub (0-1 m)	< 1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Leucopogon ?leptanthus</i>	Shrub (0-1 m)	< 1
<i>Melaleuca ?trichophylla</i>	Shrub (0-1 m)	1
<i>Hypocalymma xanthopetalum</i>	Shrub (0-1 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	< 1
<i>Hibbertia sericosepala</i>	Shrub (0-1 m)	< 1
<i>Gompholobium tomentosum</i>	Shrub (0-1 m)	< 1
<i>Eremaea asterocarpa</i>	Shrub (0-1 m)	< 1
<i>Desmocladius virgatus</i>	Sedge	< 1
<i>Alexgeorgea nitens</i>	Sedge	< 1
<i>Schoenus pedicellatus</i>	Sedge	< 1
<i>Chordifex microdon</i>	Sedge	< 1
<i>Schoenus pleiostemoneus</i>	Sedge	< 1
<i>Platysace sp.</i>	Herb	< 1
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Herb	< 1
<i>Lepidobolus preissianus</i>	Herb	< 1
<i>Phlebocarya ciliata</i>	Herb	1
<i>Phlebocarya filifolia</i>	Herb	1
<i>Lyginia barbata</i>	Herb	1
<i>Blancoa canescens</i>	Herb	< 1
<i>Thysanotus triandrus</i>	Herb	< 1
<i>Lomandra hermaphrodita</i>	Herb	< 1
<i>Gonocarpus pithyoides</i>	Herb	< 1
<i>Conostylis teretifolia</i>	Herb	< 1
<i>Conostylis juncea</i>	Herb	< 1
<i>Drosera pallida</i>	Herb	< 1

ECO39

Botanist Raimond Orifici
Date 11/7/2017
Quadrat Size 10 x 10 m
NW Corner Coordinates 50J 380625 6561753
Landform Plain
Soil Group Sand
Soil Colour Grey
Vegetation Condition Very Good
Disturbance Type Weeds



Name	Stratum	Foliage Cover (%)
<i>Banksia attenuata</i>	Tree (<10 m)	30
<i>Banksia menziesii</i>	Tree (<10 m)	10
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Shrub (>2 m)	15
<i>Hakea psilorrhyncha</i>	Shrub (>2 m)	< 1
<i>Calytrix fraseri</i>	Shrub (1-2 m)	< 1
<i>Stirlingia latifolia</i>	Shrub (0-1 m)	5
<i>Eremaea pauciflora</i>	Shrub (0-1 m)	1
<i>Leptospermum spinescens</i>	Shrub (0-1 m)	1
<i>Petrophile linearis</i>	Shrub (0-1 m)	< 1
<i>Conostephium ? pendulum</i>	Shrub (0-1 m)	1
<i>Scholtzia involucrata</i>	Shrub (0-1 m)	< 1
<i>Boronia ramosa</i> subsp. <i>anethifolia</i>	Shrub (0-1 m)	< 1
<i>Petrophile macrostachya</i>	Shrub (0-1 m)	< 1
<i>Synaphea ? aephyrsa</i>	Shrub (0-1 m)	< 1
<i>Conospermum acerosum</i>	Shrub (0-1 m)	1
<i>Melaleuca ciliosa</i>	Shrub (0-1 m)	< 1
<i>Hibbertia sericosepala</i>	Shrub (0-1 m)	< 1
<i>Philothea pinoides</i>	Shrub (0-1 m)	< 1
<i>Melaleuca ? trichophylla</i>	Shrub (0-1 m)	< 1
<i>Beaufortia ? bicolor</i> (sterile.)	Shrub (0-1 m)	< 1
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	Shrub (0-1 m)	< 1
? <i>Grevillea</i> sp. (indet.)	Shrub (0-1 m)	< 1

Name	Stratum	Foliage Cover (%)
<i>Acacia barbinervis</i> subsp. <i>borealis</i>	Shrub (0-1 m)	< 1
<i>Leucopogon</i> aff. <i>conostephioides</i> [small leaves/flowers]	Shrub (0-1 m)	< 1
<i>Gastrolobium capitatum</i>	Shrub (0-1 m)	< 1
<i>Bossiaea eriocarpa</i>	Shrub (0-1 m)	< 1
<i>Ehrharta calycina</i>	Grass	< 1
<i>Amphipogon turbinatus</i>	Grass	< 1
<i>Mesomelaena pseudostygia</i>	Sedge	1
<i>Alexgeorgea nitens</i>	Sedge	1
<i>Schoenus pedicellatus</i>	Sedge	< 1
<i>Schoenus curvifolius</i>	Sedge	< 1
<i>Dampiera linearis</i>	Herb	1
<i>Burchardia congesta</i>	Herb	1
<i>Gladiolus caryophyllaceus</i>	Herb	< 1
<i>Phlebocarya filifolia</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Conostylis aurea</i>	Herb	< 1
<i>Monotaxis grandiflora</i> var. <i>grandiflora</i>	Herb	< 1
<i>Lyginia barbata</i>	Herb	< 1
<i>Xanthosia huegelii</i>	Herb	< 1
<i>Thysanotus</i> ? <i>thyrsoides</i>	Herb	< 1
<i>Drosera menziesii</i>	Herb	< 1
<i>Lomandra preissii</i>	Herb	< 1
<i>Blancoa canescens</i>	Herb	< 1
<i>Hensmania turbinata</i>	Herb	< 1
<i>Cassytha glabella</i>	Vine	< 1

ECO40

Botanist	Raimond Orifici
Date	7/7/2017
Quadrat Size	NA - Reconnaissance Site
NW Corner Coordinates	50J 392332 6536310
Landform	Plain
Soil Group	Sand
Soil Colour	Grey
Vegetation Condition	Degraded
Disturbance Type	Weeds, Vegetation Clearing (road verge)

Reconnaissance site description: *Corymbia calophylla* open woodland over *Xanthorrhoea preissii* low sparse shrubland over **Avena barbata*, **Ehrharta calycina*, and **Bromus diandrus* grassland.

