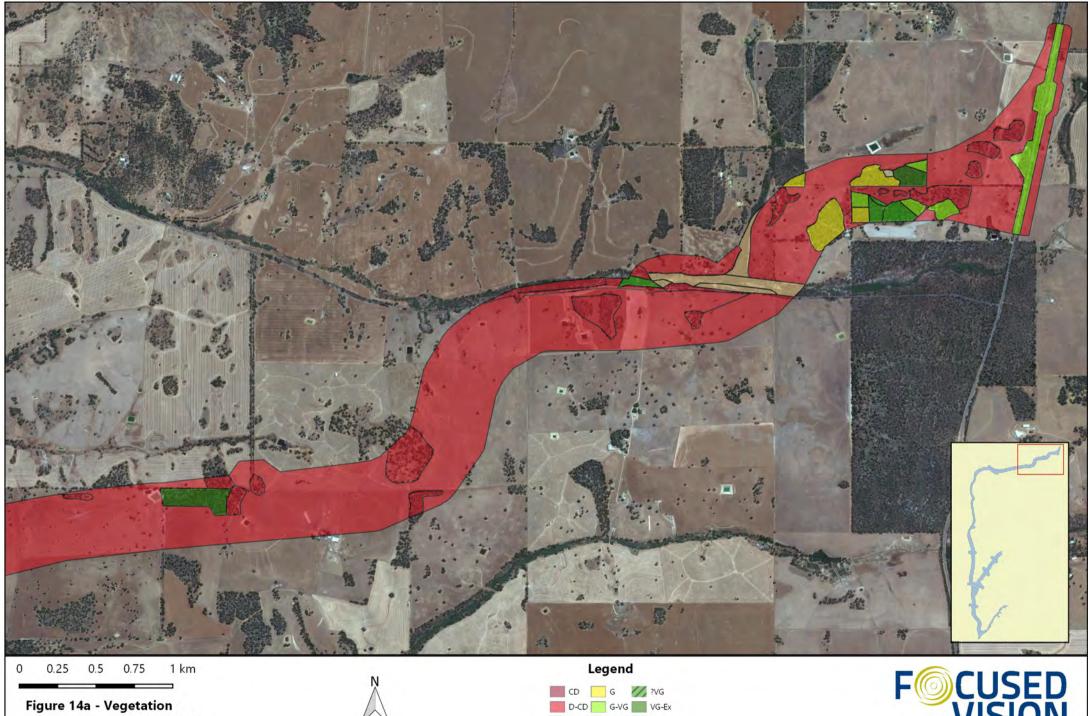
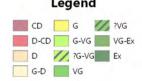


A large proportion of the study area (74.57%, 2,702.18 ha) is in 'Degraded to Completely Degraded' condition and is represented by cleared pasture with occasional trees or stands of trees, usually native Eucalypts. The presence and condition of native understorey is a key factor in determining vegetation condition and therefore most areas of pasture supporting native trees but with no understorey, even if in relatively dense proportions, are classified as 'Degraded to Completely Degraded'. Such pasture areas dominate the study area and the general landscape of the region.

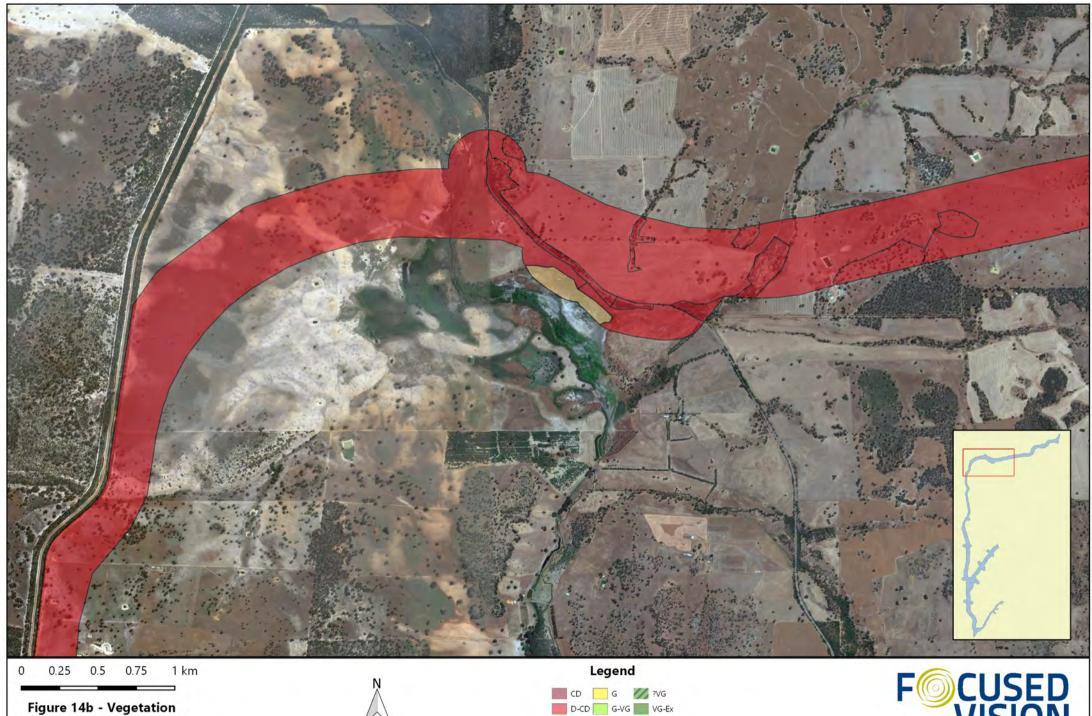
A total of 692.62 ha (19.11%) of the study area was recorded to be in 'Good' condition or better, with 63.93 ha (1.76%) in 'Excellent' condition, but 2,930.89 ha (80.89%) in poorer than 'Good' condition. Across all for survey areas, the majority of the vegetation condition was found to be 'Degraded to Completely Degraded', with relatively small proportions of each survey area supporting vegetation in 'Very Good' or 'Excellent' condition. There are significant areas of vegetation in 'Verry Good' or better condition within Areas 1, 2 and 3, however, these areas are proportionate to the size of each survey area (e.g. Area 2 occupies a significantly larger area, and also supports greater area of better quality vegetation).







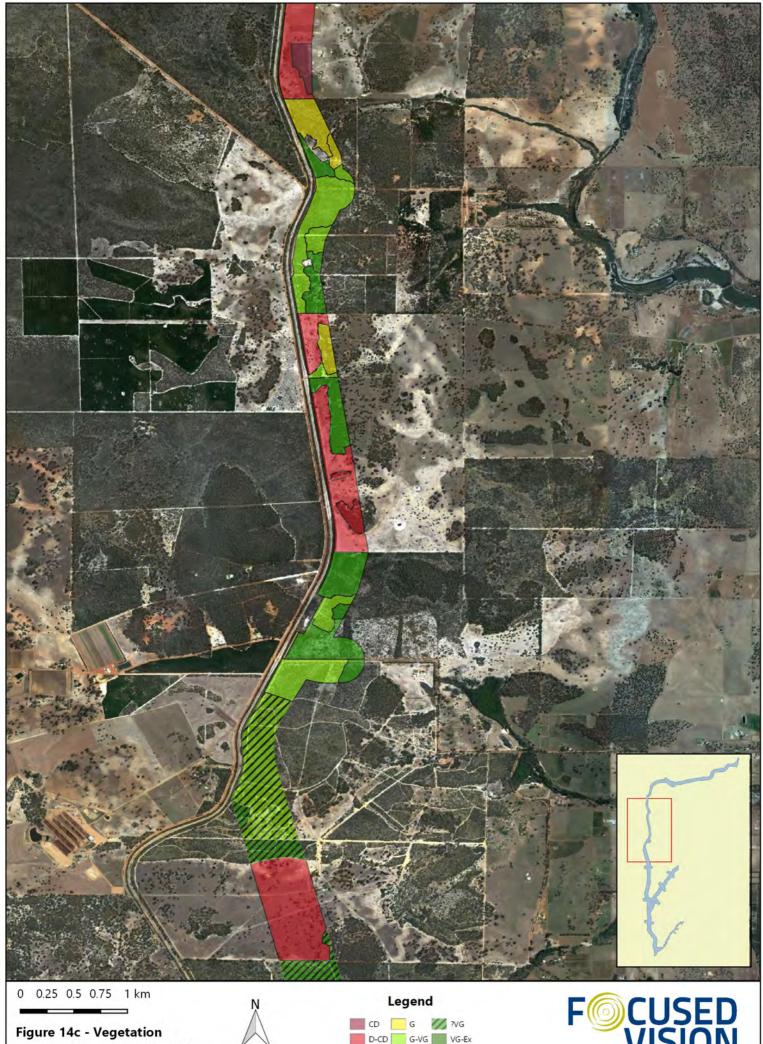






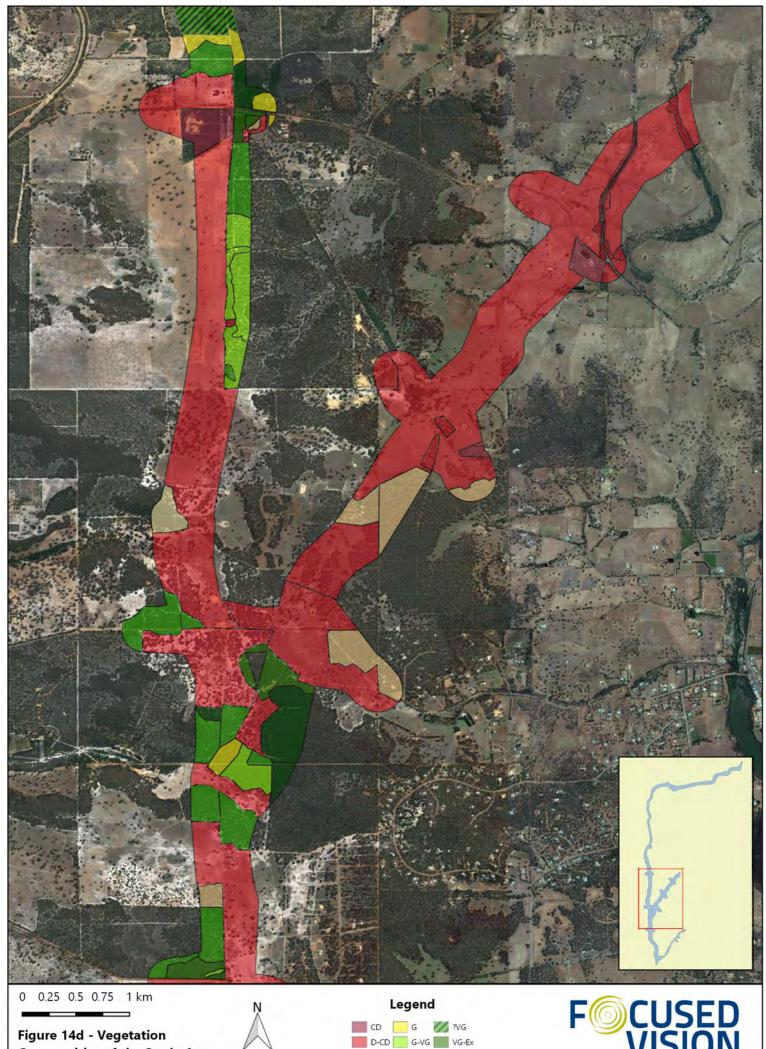






D-CD G-VG VG-Ex D // ?G-VG Ex G-D VG





D // ?G-VG Ex

G-D VG



D-CD G-VG VG-Ex D // ?G-VG Ex G-D VG





7 DISCUSSION

7.1 FLORA

The 350 flora taxa recorded from 183 genera and 56 families is considered relatively high species diversity, but is also reflective of the diversity of landform types, geology/soils and vegetation types across the study area, where two botanical and IBRA regions are traversed and where the scarp and Dandaragan Plateau of the Northern Jarrah Forest transitions to the deep sands of the Swan Coastal Plain.

The most dominant families represented are Fabaceae, Myrtaceae, Proteaceae and Asteraceae, which is typical of flora of the region and the south-west botanical province.

No species of flora listed as Threatened under the WC Act or under the EPBC Act, nor any species exhibiting range extensions were recorded.

Seven species of Priority Flora, listed under the WC Act were recorded, from 13 different locations and all of the survey areas, and spanning six of the 13 recorded vegetation types (**Table 9**). Two species, *Gastrolobium?crispatum* and *Drosera?sewelliae* are uncertain in their identification to species level, due to inadequate material for identification purposes. However, both collections are considered to likely be the queried Priority flora, and one collection certainly identified as *Drosera sewelliae* was also made.

All seven of the Priority flora species recorded resulted from the desktop assessment (**Appendix A**). A further 87 species of conservation significance resulted from the desktop assessment, with 11 of these 94 considered 'likely to occur' within the study area, 30 classified as 'may occur' and 48 considered 'unlikley to occur. Of the further 87 flora species of conservation significance presented in **Appendix A**, 29 are listed as Threatened, with 27 of these of Commonwealth (EPBC) significance. All 27 species are considered 'unlikely to occur' (20 species) or have been classified as 'may occur' (nine species), with none considered 'likely to occur' based on the proximity of previous records, currency of the data, and whether or not suitable habitat is provided in the study area.

It is considered likely that the distribution and abundance of the Priority flora recorded within the study area is more vast and abundant than the assessment results would suggest. It is also possible that additional species of Priority flora occur that were not recorded. This is due to the fact that as per the scope of the project, and as part of a typical Level 2 assessment approach (which focuses on the assessment of quadrats), only selective and opportunistic searches were conducted for Threatened and Priority flora (besides *Thelymitra stellata*, for which significant targeted effort was invested) and dedicated targeted surveys for Priority flora have not yet been carried out within the study area. In this regard, now that a suite of certainly occurring species is known and detailed data is available for determination of suitable habitats for other conservation significant flora, a dedicated targeted survey of the relevant route could be carried out as part of future phases of assessment.

None of the recorded introduced (weed) species are listed as Declared Pest plants under the BAM Act within the districts of the study area.



The timing of the field survey was considered optimal for the majority of flora, with only 15 of the 351 recorded taxa unable to be identified with certainty to species or infra-species level.

7.1.1 Targeted *Thelymitra stellata* Survey

Despite the intensive targeted surveys that systematically searched for *Thelymitra stellata* in areas of optimal or potential habitat, no individuals were recorded. The survey encompassed more than 150 km of walked transect lines covering approximately 75 ha of searched ground (assumes an average visibility of 2.5 m either side of walked centrelines), within more than 220 hectares of search areas included. Four of the recorded vegetation communities, EmXpHh, EwXpHh, EwBeNa and CcXpBe are considered suitable habitat for *Thelymitra stellata*, and these areas total 376.9 ha within the study area. Therefore approximately 58% of suitable habitat was searched, which exceeds the target of 50%.

The timing of the survey which was carried out between 14-23 November 2016 was considered suitable for the identification of the species. Verification of the flowering status of a known *Thelymitra stellata* plant in a location in Chittering, nearby to the study area was carried out before the commemcment at following the completion of the targeted surveys (**Plate 2**). Observatins of this plant indicated that the peak flowering time of the species in the region may have already passed before the field survey commenced, however, identification of the correct species was still considered possible. This is considered primarily based on the distinctive appearance of the large flowers/fruit, the colour and glabrous (non-hairy) nature of the stem and fruits and the taller height in comparison to similar species of orchid. However, it is recommended that any future surveys consider the potential suitability for theing conducted earlier in November if similar climatic conditions (particularly rainfall volumes and timing and day-time temperatures) are experienced to those of late winter and early spring 2016, to optimise chances of accurate detection, should populations exist in the study area.





Plate 2 Thelymitra stellata individual from a known location outside the study area, photographed on 14 November (left) and 23 November (right) 2016

7.2 VEGETATION

7.2.1 TECs and PECs

The State-listed TEC and two PECs of the study area, as revealed by the DPaW database search results are; 'SCP 20a – *Banksia attenuata* woodlands over species rich dense shrublands' (EN TEC), 'Banksia woodlands of the Gingin area restricted to soils dominated by yellow to orange sands' (P2 PEC) and 'SCP 23b – Northern Swan Coastal Plain *Banksia attenuata* – *Banksia menziesii* woodlands' (P3 PEC). All three of these ecological community types are also classified as likely to be equivalent to the Commonwealth listed Banksia woodland TEC.

The Banksia woodlands of the Gingin area ecological community or its buffer is known to occur within the Western A (Area 2) survey area (**Figure 8**) and in this location, corresponds with vegetation community BaXpAn and an area of vegetation expected to more than likely represent vegetation community EtBeEn (**Figure 13**). However, the vegetation supported by the section of the study area thought to represent EtBeAn (designated as ?EtBeAn) was not able to be confirmed via survey due to access restrictions. A very pronounced occurrence of sudden yellow to orange sands was also



observed immediately north of Barn Road (approximately half way along Area 2), where vegetation community EtBeAn has been mapped.

Based on species composition and other characteristics of the Banksia woodlands TEC, vegetation community EtEpAn is also considered to be a likely representation of the Commonwealth-listed TEC.

The total area of likely Banksia woodland TEC within the study area is 22.67 ha, consisting of occurrences of vegetation communities BaXpAn, EtBeAn (including ?EtBeAn) and EtEpAn, all occurring within the Western A (Area 2) study area.

The spring flora and vegetation assessment scope was developed prior to the Banksia Woodlands of the Swan Coastal Plain being announced as a Commonwealth-listed TEC, in Spetmeber 2016. However, future assessments will focus on Banksia woodlands and incorporate methodologies that will enable assessment against the key diagnostic characteristics (Threatened Species Committee 2016) for determination of the presence of the TEC. Further assessment work, including the establishment and scoring of replicate plots (quadrats) will accurately characterise and map the extent of the Banksia woodlands (Commonwealth-listed) TEC within the study area, based on the prescriptive requirements of its definition (Threatened Species Scientific Committee 2016). Importantly, confirmation of the potential presence of this TEC within the previously inaccessible property would also be required to accurately define the extent and quality of this significant vegetation.

7.2.2 Local Representation and Significance

The local significance of the vegetation communities was assessed based on:

- presence of Priority Flora
- presence of flora exhibiting range extensions
- unusually high structural and species diversity
- restricted, small or isolated distribution and/or area.

Six of the thirteen mapped vegetation communities, CcXpBe, EmXpHh, EmBsHh, EtBeAn, ErXpLt, EwBeNa recorded Priority flora, and are therefore considered to be of local significance.

None of the recorded flora species were found to be exhibiting range extensions, and therefore none of the vegetation types are considered locally significant due to this factor.

None of the recorded vegetation communities were found to exhibit unusually high structural diversity, although most of the intact vegetation types of the Swan Coastal Plain are considered to be structurally and floristically diverse. Additionally, four of the recorded vegetation communities, EmXpHh, EwXpHh, BaXpAn and EtBeAn recorded species richness averages of 38 taxa or more per 100 m² from quadrats assessed as part of this study in 2016. Therefore, these vegetation types are considered locally significant due to high species diversity and their relatively high structural diversity is also notable.

The representation of each of the recorded vegetation communities within the study area is presented in **Table 14**, which shows that communities EwBeNa, BmKgHg, EtEpAn, MpRcLf, ErHaBr, ErXpLt and MvJspLs are limited in their local extent and are therefore considered to be locally significant.



Table 14 Extent of Each Vegetation Community in the Study Area

Vegetation Community	Area (ha)	Proportion of Study Area (%)
EmXpHh - Eucalyptus marginata sparse woodland (including ?EmXpHh)	269.68	7.54
EmBsHh - Eucalyptus marginata and Banksia sessilis sparse woodland	140.49	3.93
EwXpHh - <i>Eucalyptus wandoo</i> sparse woodland	41.92	1.17
EwBeNa - Eucalyptus wandoo and Casuarina obesa sparse woodland	4.00	0.11
BaXpAn - <i>Banksia</i> spp. sparse woodland	90.86	2.54
EtBeAn - <i>Eucalyptus todtiana</i> sparse woodland (including ?EtBeAn)	175.27	4.90
BmKgHg - <i>Kunzea glabrescens</i> shrubland	14.75	0.41
EtEpAn - <i>Eucalyptus todtiana</i> sparse woodland	22.67	0.63
MpRcLf - <i>Melaleuca preissiana</i> sparse woodland	11.07	0.31
ErHaBr - Eucalyptus rudis and Melaleuca preissiana sparse woodland	4.74	0.13
ErXpLt - Eucalyptus rudis and Corymbia calophylla sparse woodland	19.09	0.53
CcXpBe - Corymbia calophylla sparse woodland	40.33	1.13
MvJspLs - <i>Melaleuca viminea</i> shrubland	15.26	0.43
Pasture communities and planted areas	2,764.09	77.25%



7.2.3 Regional Significance

The regional significance of the vegetation communities was assessed based on:

- presence of Threatened flora
- extents limited to specific landform types
- regionally uncommon or restricted plant community types.

No Threatened flora species were recorded within the study area, and therefore, none of the vegetation types are considered regionally significant due to this factor.

The study area supports three broad landforms:

- woodlands and forests on lateritic hills of the Northern Jarrah Forest
- woodlands and heaths on sands of the Swan Coastal Plain
- wetlands and surrounding low-lying/wet vegetation associated with both the Northern Jarrah
 Forest and Swan Coastal Plain vegetation.

The wetland landforms and associated vegetation types are relatively less represented in the study area than the other two key landforms listed above. The vegetation types associated with such landforms are EwBeNa, BmKgHg, MpRcLf, ErHaBr, ErXpLt and MvJspLs, which may therefore be considered to be of regional significance.

7.2.3.1 Regional Representation and Extent Remaining

Native vegetation significance can be determined based on a range of factors such as isolation, vegetation supporting conservation significant flora or fauna or representing an unusual landform type, as discussed above. However, the most important factor in consideration of community significance is the representation of the vegetation type in the region. Vegetation communities are considered significant if they are poorly represented.

In order to analyse the regional representation and therefore significance of the vegetation types recorded in the study area, comparisons were made between data from this study and that of regional data available in published work, focused on Shepherd *et al.* (2002), as well as the most recent relevant survey in the region, carried out by Phoenix Environmental Sciences for the Great Northern Highway upgrades at Muchea North and Chittering (Phoenix 2015).

This regional vegetation analysis initially used multivariate cluster analysis of species presence/absence using PATN™ (Belbin 2013), and was performed with data from each quadrat of the current (FVC spring 2016) survey and that of Phoenix (2015) providing a total of 77 sampling points. The presence and absence data were consolidated with some adjustments to the species matrices to update synonyms to currently accepted nomenclature (Western Australian Herbarium 1998-2017) to maintain consistency across the surveys. An association matrix of the Bray-Curtis coefficient was generated from the presence and absence of site by species matrix using the software.

The resultant dendrogram is presented in **Figure 15** and was used to determine the similarity between the described vegetation units of the 2016 FVC survey and those from the nearby survey by Phoenix (2015).

In order to gain a wider context for assessing the regional representation of the vegetation units of the current study, the vegetation types recorded were also aligned with the broad, regional vegetation



associations of Shepherd *et al.* (2002), relevant to the region of the study area. These alignments are also presented in **Figure 15**. Where regional vegetation associations had been aligned by Phoenix (2015) to recorded vegetation types, or where the aligned regional associations were part of the suite considered for this Bindoon bypass assessment, these are also presented in **Figure 15**.

Given that data is available pertaining to the representation of the regional (Shepherd *et. al* 2002) vegetation associations within the relevant Local Government (Shire of Chittering), conclusions as to regional representation, extent remaining and therefore significance are able to be made. The results of this analysis are presented in **Table 15**.

EPA Position Statement No. 2 (EPA 2000) identifies a series of constraints in relation to biodiversity. One of which is to protect at least 30% of the original extent of vegetation complexes in unconstrained areas and 10% in constrained areas such as urban zones in accordance with the principles of Bush Forever (Government of Western Australia 2000). The study area is considered to be an unconstrained area and as such the minimum retention target of 30% applies.

Within the Shire of Chittering three of the vegetation associations represented by vegetation communities within the study area (4, 999 and 1018) are represented by less than 30% of their pre-European extent remaining (**Table 15**). Therefore, these vegetation associations and the vegetation communities that align with them (EwXpHh, CcXpBe and EwBeNa) are considered to be regionally significant.

One vegetation community, BmKgHg was not found to be representative of any of the regional (Shepherd *et. al* 2002) vegetation associations (as defined by Shepherd *et. al* 2002). This community type was also observed to be locally restricted to two locations in the study area, associated with a wetland, with the two locations separated only by Mooliabeenee Road. This vegetation community is therefore considered to be locally and regionally significant, due to limited local and regional representation, as well as being limited to specific landform type (wetland).

Two mapped vegetation communities, ErXpLt and EwBeNa were found to be representative of vegetation associations present in the wider region (1009 and 1018), both of which are not regionally mapped as occurring in the immediate vicinity of the study area. These vegetation types are therefore considered to be of further reginal significance.



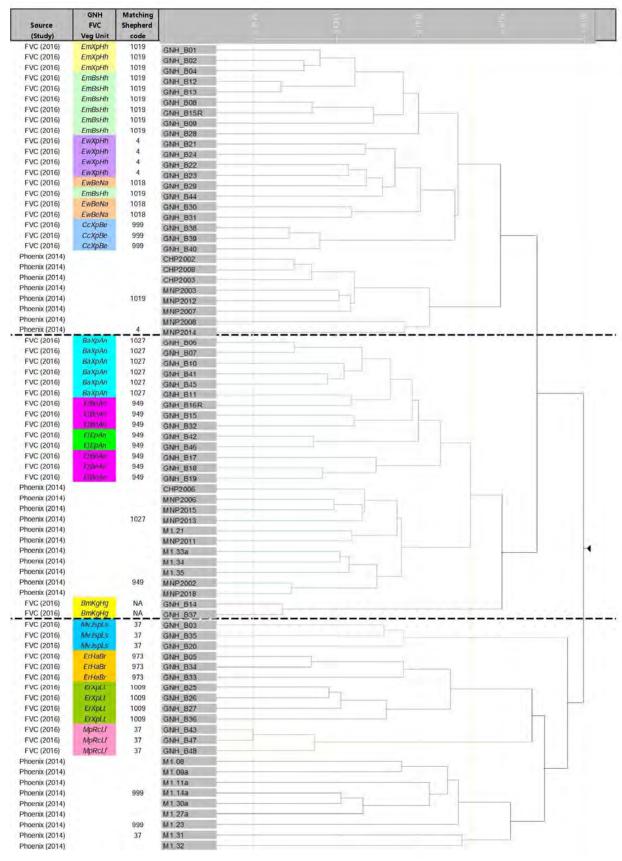


Figure 15 Regional Vegetation Analysis Dendrogram



Table 15 Regional Extent of Vegetation Associations within the Shire of Chittering and Study Area, as Represented by Vegetation Communities Recorded

Shepherd <i>et.al.</i> (2002) Association	Description	Corresponding Vegetation Community/ies	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Extent in the Study Region	% of the Extent in Study Region
4	Medium woodland; marri & wandoo	EwXpHh	54,209.81	15,314.37	28.25	21,458.48	16.80
37	Shrublands; teatree thicket	MpRcLf, MvJspLs	139.52	104.10	74.62	608.48	0.48
949	Low woodland; banksia	EtBeAn, EtEpAn,	13,749.46	12,749.33	92.73	8,057.08	6.31
973	Low forest; paperbark (<i>Melaleuca rhaphiophylla</i>)	ErHaBr	242.04	108.87	44.98	284.48	0.22
999	Medium woodland; marri	СсХрВе	222.11	41.02	18.47	135.11	0.11
1009*	Medium woodland; marri & river gum	ErXpLt	6,839.88	2,169.17	31.71	0	0
1018	Mosaic: Medium forest; jarrah-marri/Low woodland; banksia/Low forest; teatree/Low woodland; <i>Casuarina obesa</i>	EwBeNa	2,861.34	629.63	22.00	0	0
1019	Medium sparse woodland; jarrah & marri	EmXpHh, EmBsHh	511.19	192.11	37.58	944.04	0.74
1027	Mosaic: Medium open woodland; jarrah & marri, with low woodland; banksia/Medium sparse woodland; jarrah & marri	BaXpAn	12,176.15	5,626.35	46.21	16,722.21	13.09

^{*}Not documented as represented in Shire of Chittering, therefore values presented are for Shire of Gingin



7.2.4 National Significance

The national significance of the vegetation communities was assessed based on:

- presence of Threatened flora
- presence of national (EPBC) listed TECs.

No species of Threatened flora were recorded within the study area, and therefore none of the vegetation types are considered nationally significant due to this factor.

As discussed in **Section 7.2.1**, three of the recorded vegetation communities, BaXpAn, EtBeAn (including ?EtBeAn) and EtEpAn are considered likely to be representative of the Commonwealth-listed TEC, Banksia woodlands of the Swan Coastal Plain and, therefore, these areas of vegetation are considered to be of national significance (**Figure 14**).

7.2.5 Summary of Vegetation Significance

The significant vegetation communities of the study area, along with the factors determining their significance are summarised in **Table 16**.



Table 16 Summary of Significant Vegetation Communities

Vegetation Community	Represeted in Survey Area/s	Significance
EmXpHh - <i>Eucalyptus marginata</i> sparse woodland (including ?EmXpHh)	1, 2, 3 & 4	Locally significant (supports Priority flora) Locally significant (floristically diverse) Regionally significant (represented by <30% of pre- European extent)
EmBsHh - <i>Eucalyptus marginata</i> and <i>Banksia sessilis</i> sparse woodland	2 & 3	Locally significant (supports Priority flora)
EwXpHh - <i>Eucalyptus wandoo</i> sparse woodland	1 & 2	Locally significant (floristically diverse)
EwBeNa - <i>Eucalyptus wandoo</i> and <i>Casuarina obesa</i> sparse woodland	2	Locally significant (supports Priority flora) Locally significant (limited local extent) Regionally significant (limited to specific landforms) Regionally significant (represented by <30% of pre- European extent) Regionally significant (not locally represented by regional vegetation associations)
BaXpAn - <i>Banksia</i> spp. sparse woodland	1 & 2	Locally significant (floristically diverse) Nationally significant (likely represents a Commonwealth TEC)
EtBeAn - <i>Eucalyptus todtiana</i> sparse woodland (including ?EtBeAn)	1 & 2	Locally significant (supports Priority flora) Locally significant (floristically diverse) Nationally significant (likely represents a Commonwealth TEC)
BmKgHg - <i>Kunzea glabrescens</i> shrubland	2	Locally significant (limited local extent) Locally significant (locally uncommon) Regionally significant (limited to specific landforms) Regionally significant (regionally uncommon)
EtEpAn - <i>Eucalyptus todtiana</i> sparse woodland	2	Locally significant (limited local extent) Nationally significant (likely represents a Commonwealth TEC)
MpRcLf - <i>Melaleuca preissiana</i> sparse woodland	2	Locally significant (limited local extent) Regionally significant (limited to specific landforms)
ErHaBr - <i>Eucalyptus rudis</i> and <i>Melaleuca preissiana</i> sparse woodland	1	Locally significant (limited local extent) Regionally significant (limited to specific landforms)
ErXpLt - <i>Eucalyptus rudis</i> and <i>Corymbia calophylla</i> sparse woodland	2	Locally significant (supports Priority flora) Locally significant (limited local extent) Regionally significant (limited to specific landforms) Regionally significant (not locally represented by regional vegetation associations)
CcXpBe - <i>Corymbia calophylla</i> sparse woodland	4	Locally significant (supports Priority flora) Regionally significant (represented by <30% of pre- European extent)
MvJspLs - <i>Melaleuca viminea</i> shrubland	1 & 2	Locally significant (limited local extent) Regionally significant (limited to specific landforms)



8 CONCLUSIONS

The key results and conclusions from the Level 2 flora and vegetation assessment, and targeted *Thelymitra stellata survey* are as follows:

- Seven species listed as Priority Flora under the Wildlife Conservation Act 1950, Synaphea panhesya (P1), Gastrolobium?crispatum (P1), Drosera sewelliae (with Drosera ?sewelliae) (P2), Acacia drummondii subsp. affinis (P2), Adenanthos cygnorum subsp. chamaephyton (P3), Anigozanthos humilis subsp. chrysanthus (P3) and Hibbertia miniata (P4) were recorded during the field studies.
- It is considered very likely that the distribution and abundance of the Priority flora recorded within the study area is greater than the assessment results would suggest and that additional species of Priority flora occur that were not recorded, due to the approach of the Level 2 assessment, highlighting the need for further, more detailed surveys to target Priority flora.
- No species of Threatened flora, including *Thelymitra stellata* were recorded within the study area.
- One State-listed TEC and two PECs are known to occur within or closely adjacent to the study area, with all three of these community types representative of the Commonwealth-listed Banksia woodlands of the Swan Coastal Plan TEC.
- The total area of likely Banksia woodland TEC within the study area is 22.67 ha, consisting of occurrences of vegetation communities BaXpAn, EtBeAn (including ?EtBeAn) and EtEpAn, all occurring within the Western A (Area 2) study area.
- Further assessment work would be required to accurately characterise and map the extent of the Banksia woodlands (Commonwealth) TEC within the study area, due to the prescriptive requirements of its definition.
- All of the recorded vegetation communities have been determined to be of local, regional or national significance, or a combination of these levels of importance. Most are locally significant due to supporting populations of Priority flora or having a limited local representation. Other factors determining local significance are, being considered floristically diverse or locally uncommon. Vegetation communities have been determined to be regionally significant due to being represented by less than 30% of their pre-European extent in the local government area, being limited to specific landform types, or being regionally uncommon. Three vegetation communities (BaXpAn, EtBeAn (including ?EtBeAn) and EtEpAn) are of national significance due to likely representing a TEC of Commonwealth significance.



9 LIST OF PARTICIPANTS

Table 17 summarises the FVC personnel who contributed to the project.

Table 17 Project Team

Name	Qualification	Years of Relevant Experience	Role
Kellie Bauer – Simpson Principal Ecologist/Botanist	BSc. (Biological Science)	18	Project manager, flora, vegetation and targeted flora field assessment, data analysis, report preparation
Gabriela Martinez Senior Botanist/Environmental Scientist	BEnvSc. (Hons) (Conservation Biology)	16	Flora, vegetation and targeted flora field assessment; report technical review
Lisa Chappell Senior Botanist/Environmental Scientist	BEnvSc. (Hons) (Conservation Biology)	15	Targeted flora field assessment, report preparation
Udani Sirisena Botanist/Taxonomist	PhD Bsc. (Botany and Chemistry)	7	Plant identifications, data and PATN analysis, report preparation
Will Bauer – Simpson Advisor	Cert IV (Health and Safety)	6	Field safety and logistics planning, GIS and mapping
Simon Crofts Senior Spatial Analyst	NA	20	GIS, mapping, spatial data management



10 REFERENCES

Beard, J.S. (1981) *The vegetation of the Swan Area.* 1: 1 000 000 Vegetation Series - Explanatory Notes to Sheet 7, Vegetation Survey of Western Australia. University of Western Australia Press

Beard, J.S. (1990) Plant Life of Western Australia. Kangaroo Press, Kenthurst NSW.

Beard, J.S., Beeston, G.R., Harvy, J.M., Hopkins, A.J.M. and Shepherd, D.P. (2013) The Vegetation of Western Australia at the 1:3 000 000 scale, Explanatory Memoir, Second Edition. *Conservation Science Western Australia* Volume 9: 1 - 152

Belbin, L. (2013) PATN© software http://www.patn.com.au

Bureau of Meteorology (BoM) (2016) *Climate statistics for Australian locations.* Monthly climate statistic. Gingin Aero (Site Number 009178)

http://www.bom.gov.au/climate/averages/tables/cw_009178.shtml Accessed 17th December 2016

ClimateData.org (2016) *Climate: Bindoon*. http://en.climate-data.org/location/12593/ Accessed 16th December 2016

Commonwealth of Australia (2013a) *Australia's Bioregions (IBRA)* http://www.environment.gov.au/land/nrs/science/ibra Accessed 16th December 2016

Commonwealth of Australia (2013b) Guidelines for detecting orchids listed as 'Threatened" under the *Environment Protection and Biodiversity Conservation Act 1999*

Department of Agriculture and Food Western Australia (DAFWA) (2016a) *Western Australian Organism List (WAOL)*. https://www.agric.wa.gov.au/organisms-Accessed 15th December 2016

Department of Agriculture and Food Western Australia (DAFWA) (2016b) WA Soil Landscape Zone Mapping. Soil Lanscape zones created from all available SW surveys. 1:1000000

Department of Conservation and Land Management (CALM) (1999), *Environmental Weed Strategy for Western Australia*, CALM, Como, Western Australia.

Department of Environment and Conservation (DEC) (2011), *Invasive Plant Prioritization Process for DEC - An integrated approach to Environmental Weed Management in WA*.

Department of Environment and Conservation (DEC) (2013) *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities.* Publicly available list prepared by the Department of Environment and Conservation. Western Australia. https://www.dpaw.wa.gov.au/images/plants-animals/threatened-

species/definitions categories and criteria for threatened and priority ecological communities.pdf Accessed 14th December 2016

Department of Environment and Conservation (DEC) (2001). *Conserving Threatened Ecological Communities*. Publicly available brochure prepared by the Department of Environment and Conservation in conjunction with National Heritage Trust



Department of the Environment (2016) Banksia Woodlands of the Swan Coastal Plain - Draft description and threats

Department of Environment Regulation (DER) (2016) *Clearing permits*. Framework for regulation of clearing of native vegetation. https://www.der.wa.gov.au/our-work/clearing-permits Accessed 15th December 2016

Department of Environment Water Heritage and the Arts (DEWHA) (2009) *Matters of National Environmental Significance. Significant impact guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999.*

Department of Parks and Wildlife (DPaW) (2015) Threatened and Priority Flora List. 11th November 2015. Publicly available list prepared by Department of Parks and Wildlife Western Australia. https://www.DPaW.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

Department of Parks and Wildlife (DPaW) (2016a) FloraBase www.florabase.DPaW.wa.gov.au

Department of Parks and Wildlife (DPaW)(2016b) Threatened and Priority Flora Databases Search Results for Bindoon and Wannamal Area (Search No. 40-1016FL). 17 October 2016

Department of Infrastructure and Regional Development (DOIRD) (2015) *The National Land transport Net*work. http://investment.infrastructure.gov.au/whatis/network/ Accessed 13th December 2016

Desmond A (2001) Swan Coastal Plain 1 (SWA1 – Dandaragan Plateau subregion) in A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002. Collaboration between the Department of Conservation and Land Management and the Western Australian Museum

ecologia Environment (2004) *Great Northern Highway: assessment of flora and vegetation.* Ecologia Environment Pty Ltd, West Perth WA. Unpublished report prepared for Kellogg Brown and Root (KBR) on behalf of Main Roads Western Australia

English, V. and Blyth, J. (1997) *Identifying and Conserving Threatened Ecological Communities (TECs)* in the South West Botanical Province. ANCA National Reserves System Cooperative Program: Project Number N702. Department of Conservation and Land Management, Wanneroo

ENV. 2007. *Great Northern Highway flora and vegetation assessment – SLK 89 to SLK 114*. ENV. Australia Pty Ltd, Perth, WA. Unpublished Report prepared for Sinclair Knight Merz

Environmental Protection Authority (EPA) (2000) *Position Statement No. 2: Environmental Protection of Native Vegetation in Western Australia : Clearing Native Vegetation with Particular Reference to Agricultural Areas*

Environmental Protection Authority (EPA) (2002) Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity

Environmental Protection Authority (EPA) (2004) Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia



Environmental Protection Authority (EPA) (2007) *State of the Environment Report: Western Australia 2007,* Department of Environment and Conservation Perth, Western Australia.

Environmental Protection Authority (EPA) (2008) *Guidance Statement No. 33: Environmental Guidance for Planning and Development*

Environmental Protection Authority (EPA) & Department of Parks and Wildlife (DPaW) (2015) Technical Guide: Flora and Vegetation Surveys for Environmental Impact Assessment

GHD (2011a) Report for Great Northern Highway Upgrade: Muchea to Bindoon Environmental Impact Assessment. GHD Pty Ltd, WA. Unpublished report prepared for Main Roads Western Australia

GHD (2011b) Report for Great Northern Highway Upgrade: Muchea to Bindoon Flora and Fauna Assessment GHD Pty Ltd, WA. Unpublished report prepared for Main Roads Western Australia

Gibson N, Keighery B, Keighery G, Burbidge A and Lyons M (1994). *A floristic survey of the Southern Swan Coastal Plain.* Unpublished report for the Australian Heritage Commission, prepared by the Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.).

Goble-Garratt, E.M. (2005) *Great Northern Highway Upgrade – Bindoon South Section (Hart Drive to Bindoon Townsite SLK 54.6 to 62.0).* Flora and Vegetation Survey. Unpublished report prepared for Kellogg Brown and Root (KBR)

Government of Western Australia (2000) *Bush Forever, Volume 2: Directory of Bush Forever sites.* Department of Environmental Protection, Perth, Western Australia.

Government of Western Australia (2013). 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis, current as of October 2012. WA Department of Environment and Conservation, Perth. https://www2.landgate.wa.gov.au/web/guest/downloader

Havel, J.J. and Mattiske, E.M. (2000), *Vegetation mapping of South West Forest Regions of Western Australia*. Department of Conservation and Land Management, Perth.

Heddle, E. M., Loneragan, O. W., and Havel, J. J (1980) Vegetation Complexes of the Darling System, Western Australia. In: *Atlas of Natural Resources*. Western Australia Department of Conservation and Environment

KBR (2005) Preliminary Environmental Impact Assessment. Great Northern Highway, Muchea (SLK 36) to Wubin (SLK 253). Unpublished report prepared for Main Roads Western Wheatbelt North Region

KBR (2006) Environmental Impact Assessment and Management Plan. Great Northern Highway – Bindoon South SLK 54.6 to SLK 62.1. Unpublished report prepared for Main Roads Western Australia Wheatbelt North Region

Keighery BJ, Keighery GJ, Webb A, Longman VM and Griffin EA (2008). *A floristic survey of the Whicher Scarp.* Department of the Environment and Conservation, Perth. 272p



Keighery, BJ (1994) Bushland Plant Survey: a Guide to Plant Community Survey for the Community, Nedlands, Wildflower Society of WA (Inc.).

Muir, B.G. (1977) *Biological Survey of the Western Australian Wheatbelt - Part II.* Records of the Western Australian Museum, Supplement No 3

NatureMap (2016) *NatureMap Species Report*. Collaborative project of the Department of Parks and Wildlife and the Western Australian Museum. https://naturemap.DPaW.wa.gov.au/ Accessed 28th December 2016

Ninox Wildlife Consulting (1989) *Biological Survey – Great Northern Highway: Muchea to Walebing,* Unpublished report prepared for Main Roads, Western Australia

Phoenix Environmental Services (2015) *Flora and fauna assessment for Muchea North and Chittering study area.* Great Northern Highway, Muchea to Wubin Upgrade Stage 2 Project. Unpublished report prepared for Muchea to Wubin Integrated Project Team (Main Roads WA, Jacobs and Arup)

Shepherd, DP, Beeston, GR, and Hopkins, AJM (2002), *Native Vegetation in Western Australia – Extent, Type and Status,* Resource Management Technical Report 249, Perth, Department of Agriculture, Western Australia

Sinclair Knight Mertz (SKM)(2003) Survey for Significant Flora – Great Northern Highway Road Widening: Walebing to Dalwallinu. Unpublished report prepared for Western Botanical

Threatened Species Scientific Committee (2016). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain Ecological Community. Canberra: Department of the Environment and Energy. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-

Trudgen, M. E. (1991) Vegetation Condition Scale. In: *National Trust (WA) 1993 Urban Bushland Policy*. National Trust of Australia (WA), Wildflower Society of WA (Inc.) and the Tree Society (Inc), Perth, Western Australia.

Urban Bushland Council (2011). Perth's Banksia Woodlands, Precious and Under Threat. Proceedings of a symposium on the ecology of these ancient woodlands and their need for protection from neglect and destruction, 25 March 2011

Western Botanical (2006) Flora for extension of proposed disturbances on Great Northern Highway road reserves. Western Botanical Pty Ltd, Mundaring, WA. Unpublished report prepared for Sinclair Knight Mertz

Williams, K. & Mitchell, D. (2001). *Jarrah Forest 1 (JF1—Northern Jarrah Forest subregion)*. In: May, J. E. & McKenzie, N. L. (eds) A biodiversity audit of Western Australia's biogeographical subregions in 2002. Department of Conservation and Land Management, Perth, WA, pp. 369–381.

advice.pdf. Accessed 6th January 2017



APPENDIX A: THREATENED AND PRIORITY WITH THE POTENTIAL TO OCCUR WITHIN THE STUDY AREA

Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Darwinia foetida	Critically Endangered	Endangered	Erect, or spreading, shrub to 0.7 m high. Green flowers in spring	Grey-white sand on swampy, seasonally wet sites	May occur, recorded by Phoenix (2015)	Phoenix (2015)
Caladenia huegelii	Endangered	Critically Endangered	Tuberous, perennial, herb, 0.25-0.6 m high. Flowers green & cream & red, September to October	Grey or brown sand, clay loam	Unlikely to occur, not previously recorded from within Shire of Chittering	EPBC Phoenix (2015)
Drakaea elastica	Endangered	Critically Endangered	Tuberous, perennial, herb, 0.12-0.3 m high. Flowers red & green & yellow, October to November	White or grey sand. Low-lying situations adjoining winter-wet swamps	May occur; previously recorded within Area 2	DPaW (2016) NatureMap
Eremophila scaberula	Endangered	Critically Endangered	Low compact or sprawling to upright shrub, 0.15-0.7(-1.5) m high. Flowers purple-blue, August to October	Clay, sandy clay or loam. Winter-wet plains, inundated areas	Unlikely to occur, known to occur in Moora district	EPBC
Eucalyptus x balanites	Endangered	Critically Endangered	(Mallee), to 5 m high, bark rough, flaky. Flowers white, October to December or January to February	Sandy soils with lateritic gravel	Unlikely to occur, known records occur a significant distance from the study area	EPBC Phoenix (2015)
Gastrolobium hamulosum	Endangered	Critically Endangered	Low shrub, 0.2-0.45 m high. Flowers yellow and orange and red and purple, August to October	Sandy, often gravelly soils or clay. Flats, slopes, ridges	Unlikely to occur, known to occur in Geraldton Sandplains and Avon Wheatbelt IBRA Regions	ЕРВС
Grevillea althoferorum subsp. fragilis	Endangered	Critically Endangered	Bluish green, lignotuberous shrub. Flowers yellow with reddish to reddish-brown buds, in spring	Base of the Darling Scarp in greyish-yellow colluvial sand. Banksia woodland	May occur, known to occur within the Shire of Chittering	Phoenix (2015)
Grevillea pythara	Endangered	Critically Endangered	Suckering shrub, 0.06-0.3 m high. Flowers orange and red and blue, May to October	Sand or sandy loam with gravel	Unlikely to occur, known to occur in Geraldton sandplains and Avon Wheatbelt IBRA Regions	EPBC
Jacksonia pungens	Endangered	Critically Endangered	Rounded shrub, 0.45-0.8 m high. Flowers orange, November to December	Yellow sand, gravelly lateritic soils. Undulating areas	Unlikely to occur, known to occur in Geraldton sandplains and Avon Wheatbelt IBRA Regions	Phoenix (2015)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Thelymitra dedmaniarum	Endangered	Critically Endangered	Tuberous, perennial, herb, to 0.8 m high. Flowers yellow, November to December or January	Granite	Unlikely to occur, suitable habitat not present within study area	EPBC DPaW (2016) Phoenix (2015)
Conospermum densiflorum subsp. unicephalatum	Endangered	Endangered	Erect, much-branched shrub, 0.3-0.6 m high, inflorescence a spike. Flowers cream/white & blue, September to November	Clay soils. Low-lying areas	Unlikely to occur, no previously known records within the Shire of Chittering	EPBC Phoenix (2015)
Darwinia acerosa	Endangered	Endangered	Prostrate shrub 20 cm high.	Granite rocks and outcrop. Orange - brown gravelly soil. Very Open Woodland	Unlikely occur, closest known record from 1975 occurs 600m of the study area. Historic collection	EPBC DPaW (2016)
Eucalyptus leprophloia	Endangered	Endangered	(Mallee), 2-5(-8) m high, bark rough loose & flaky to 1 m. Flowers cream- white, August to October	White or grey sand over laterite. Valley slopes	Unlikely to occur, known to occur in Geraldton Sandplains IBRA Region	EPBC Phoenix (2015)
Grevillea curviloba subsp. incurva	Endangered	Endangered	Prostrate to erect shrub, 0.1-2.5 m high. Flowers white-cream, August to September	Sand, sandy loam. Winter-wet heath	Unlikely to occur, study area unlikely to support suitable habitat	EPBC Phoenix (2015)
Melaleuca sciotostyla	Endangered	Endangered	Spreading shrub, 0.6-1.5 m high. Flowers August	Orange clayey sand with lateritic pebbles. Scree slopes	Unlikely to occur, distributed to the east within Avon Wheatbelt region	EPBC
Thelymitra stellata	Endangered	Endangered	Tuberous, perennial, herb, 0.15-0.25 m high. Flowers yellow & brown, October to November	Sand, gravel, lateritic loam. Marri, wandoo open woodland	May occur, suitable habitat is present within study area	EPBC DPaW (2016) Phoenix (2015)
Andersonia gracilis	Endangered	Vulnerable	Slender erect or open straggly shrub, 0.1-0.5(-1) m high. Flowers white- pink-purple, September to November	White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps	Unlikely to occur, no known records within close proximity to study area	Phoenix (2015)
Chamelaucium sp. Gingin (N.G. Marchant 6)	Endangered	Vulnerable	Open straggly shrub 1-2 m high, slender, stiff branches with numerous axillary shoots. Flowers pale pinkish- white, buds tinged deeper pink. Flowers September to December.	White/yellow sand supporting open low banksia woodland	May occur, known to occur in Bindoon and Chittering area	EPBC
Eucalyptus recta	Endangered	Vulnerable	Tree, to 15 m high, bark smooth	Sandy laterite	Unlikely to occur, known to occur in Avon Wheatbelt IBRA Region	EPBC



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Grevillea corrugata	Endangered	Vulnerable	Robust shrub 2-5 m high, white flowers August to September	In gravelly loam <i>Eucalyptus</i> forest. Disturbed road verge	May occur, known to occur approximately 800 m from study area	EPBC DPaW (2016) NatureMap Phoenix (2016)
Spirogardnera rubescens	Endangered	Vulnerable	Spindly leafless shrub, to 1.6 m high. Flowers white, August to December	Wandoo Low Open Woodland. laterite, sand over laterite, loam	May occur, recorded along Hay Flat road within 20 m of survey boundary	EPBC DPaW (2016)
Acacia anomala	Vulnerable	Vulnerable	Slender, rush-like shrub, 0.2-0.5 m high. Flowers yellow, August to September	Lateritic soils. Slopes	Unlikely to occur, study area is outside range distribution	Phoenix (2015)
Anigozanthos viridis subsp. terraspectans	Vulnerable	Vulnerable	Rhizomatous, perennial, herb, 0.05-0.2 m high. Flowers green/yellow-green, August to September	Grey sand, clay loam. Winterwet depressions	Unlikely to occur, not previously recorded within Shire of Chittering	Phoenix (2015)
Asterolasia nivea	Vulnerable	Vulnerable	Low open shrub to 0.5 m. Flowers white.	Open Eucalyptus woodland	May occur, closest known record occurs 500 m north of Area 2 within road reserve along GNH	EPBC DPaW (2016) Ecologia (2005)
<i>Banksia serratuloides</i> subsp. <i>serratuloides</i>	Vulnerable	Vulnerable	Low, bushy, lignotuberous shrub, 0.3- 1 m high. Fl. yellow, Jul to Sep	Loam or clay loam over laterite, sandy gravel.	Unlikely to occur, not known to occur in Shire of Chittering	KBR (2005)
Diuris micrantha	Vulnerable	Vulnerable	Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown, September to October	Brown loamy clay. Winter-wet swamps, in shallow water	Unlikely to occur, known populations occur south of Perth	Phoenix (2015)
Eleocharis keigheryi	Vulnerable	Vulnerable	Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high. Flowers green, August to November	On creekline. In <i>Casuarina</i> woodland swampy area. Clay, sandy loam. Emergent in freshwater: creeks, claypans	Unlikely occur, closest known record occurs 1.5 km from study area. Study area unlikely to support suitable habitat	EPBC DPaW (2016) NatureMap
Stylidium semaphorum		Critically Endangered	Erect perennial, herb, 0.15-0.2 m high, Flowers white/pink, September to October	Lateritic gravelly soils. Hill summits. Low Scrub with Banksia sessilis	Unlikely to occur, previously recorded within study area however is an old historic collection from 1966	DPaW (2016)
Goodenia arthrotricha		Endangered	Erect perennial, herb, to 0.4 m high. Flowers blue, October to November	Granitic soil. Scattered low forest over mixed scrub.	May occur, closest record occurs 2.5 km east of study area; study area may support suitable habitat	DPaW (2016)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Androcalva fragifolia		Priority 1	Small prostrate shrub with dark green crenate or serrate, stellately hairy leaves. Flowers white, January, February, October, November or December.	Avon Wheatbelt or Jarrah Forest	May occur, closest record is within 300 m of study area	DPaW (2016)
Conostylis caricina subsp. elachys		Priority 1	Rhizomatous, tufted perennial, grass- like or herb, 0.05-0.1 m high. Flowers cream-yellow, July to August	Gravel, clayey loam, sand	May occur, previously recorded from Bindoon area	DPaW (2016)
Daviesia localis		Priority 1	No available information	No available information	May occur, previously recorded from Bindoon area	DPaW (2016)
Gastrolobium crispatum		Priority 1	Tall shrub, to 2.5 m high. Flowers yellow and orange and red, September to October	Yellow or brown sandy loam, red laterite soils. Steep gullies, slopes, ridges, breakaways	Likely to occur, previously recorded from Bindoon area. Recorded plant identified as possibly this species.	DPaW (2016)
<i>Hibbertia glomerata</i> subsp. <i>ginginensis</i>		Priority 1	Erect shrub, to 0.5 m high. Flowers yellow, July to September	In <i>Eucalyptus-Dryandra-Xanthorrhoea</i> woodland. Sand, brown clay, laterite. Near roadsides	May occur, previously recorded within 300 m of study area	DPaW (2016) NatureMap Phoenix (2015)
<i>Lasiopetalum</i> sp. Toodyay (F. Hort 2689)		Priority 1	No available information	No available information	Unlikely to occur, closest record occurs 3 km north of Area 2	DPaW (2016)
Lechenaultia magnifica		Priority 1	Erect perennial, herb or shrub (subshrub), to 0.6 m high	Brown, grey, yellow or white sand, brown sandy loam, laterite. Slopes and flats	Unlikely to occur, closest known occurrence is in Gingin area	DPaW (2016)
Senecio gilbertii		Priority 1	Erect, slender perennial, herb, to 1.5 m high. Flowers yellow, September to November	Peaty sand. Swamps, slopes	Unlikely to occur, one record over 3 km from study area	DPaW (2016)
Synaphea panhesya		Priority 1	Erect shrub, 0.3-0.6 m high. Flowers yellow, August to September	Gravelly loam & sandy gravel	Recorded during current study	DPaW (2016)
Acacia browniana var. glaucescens		Priority 2	Multi-stemmed shrub, 0.2-0.5 m high, spreading by subterranean runners. Flowers yellow, August	Lateritic gravelly soils. In Wandoo	Unlikely to occur, closest known record is approximately 2.7 km north of Area 2	DPaW (2016)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
<i>Cyanicula ixioides</i> subsp. <i>candida</i>		Priority 2	Tuberous, perennial, herb, 0.04-0.12 m high. Flowers white, August to October	Eucalyptus wandoo and E. calophylla woodland over formerly mid-dense Hakea. Sand, Laterite	Unlikely to occur, old historic collection	DPaW (2016) NatureMap
Drosera sewelliae		Priority 2	Fibrous-rooted, rosetted perennial, herb, to 0.06 m high, to 0.025 m wide. Flowers orange, October	Laterite & silica sand soils	Recorded during current study	DPaW (2016)
Gastrolobium nudum		Priority 2	Spreading, twiggy shrub, to 0.8 m high. Flowers orange and red, February	Red-brown clay, brown loam, gravel, laterite, granite. Flats, slopes, hilltops, ridges, valleys, breakaways	Unlikely to occur, Historic collection from 1956	DPaW (2016) NatureMap
Grevillea sp. Toodyay West (F. Hort et al. 3296)		Priority 2	No available information	No available information	Unlikely to occur, known to occur in Toodyay area	DPaW (2016)
Leucopogon cymbiformis		Priority 2	Dense, erect or spreading shrub, 0.1- 0.6(-0.8) m high. Flowers white, July to November or February to March	White/grey or yellow sand, lateritic gravelly soils. Sandplains, wet flats, foothills	Unlikely to occur, Species is distributed around Albany	Phoenix (2016)
<i>Leucopogon</i> sp. Bindoon (F. Hort 2766)		Priority 2	Erect, spreading shrub, to 2 m high	Brown, yellow, white grey sandy clay, brown sandy clay loam, yellow clay, gravel, laterite. Rock outcrops, breakaways, scree slopes drainage lines, gullies	Unlikely to occur, closest known occurrence is in Toodyay area	DPaW (2016)
Millotia tenuifolia var. laevis		Priority 2	Ascending to erect annual, herb, 0.02-0.1 m high. Flowers yellow, September to October	Granite or laterite soils	Unlikely to occur, closest known occurrence is in Toodyay area	Phoenix (2015)
Stylidium glabrifolium		Priority 2	Rosetted perennial, herb, 0.2-0.3 m high, Flowers yellow, October to November	Grey brown clay loam over laterite. Hillslopes or gullies. Eucalyptus wandoo forest	Unlikely to occur, known records 1.5km from study area	DPaW (2016)
Stylidium squamellosum		Priority 2	Caespitose perennial, herb, 0.12-0.35 m high. Inflorescence racemose. Flowers yellow, October to November	Brown to red-brown clay loam. Winter-wet habitats and depressions, open woodland, shrubland	Likely to occur, recorded by Phoenix (2015)	Phoenix (2015)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Tetratheca spartea		Priority 2	No available information	No available information	Unlikely to occur, known populations from Julimar area	DPaW (2016)
Verticordia serrata var. udumung (D. Hunter & B. Yarran 941006)		Priority 2	Shrub	Open jarrah/marri woodland and open shrub understorey	May occur, closest record occurs 700 m from the study area	DPaW (2016)
Acacia anarthros		Priority 3	Erect or prostrate, spinose shrub, 0.1- 0.5 m high. Flowers yellow, June to September	Lateritic gravelly soils. Slopes. Marri/Wandoo Woodland	Unlikely to occur, previously recorded within study area however is old historic collection from 1963	DPaW (2016) NatureMap Ecologia (2005)
Acacia cummingiana		Priority 3	Sprawling, straggly, rush-like shrub, 0.3-0.5 m high. Flowers yellow, May to June or August	Grey or yellow sand, lateritic gravel. Sandplains, lateritic breakaways	May occur, suitable habitat may be present in study area	DPaW (2016)
Acacia drummondii subsp. affinis		Priority 3	Erect shrub, 0.3-1 m high. Flowers yellow, July to August	Jarrah woodland. Plateau, laterite. Lateritic gravelly soils	Likley to occur, closest known record occurs within 900 m of Area 2. Recorded plant identified as possibly this species.	DPaW (2016) NatureMap Phoenix (2015) GHD (2010) Western Botanical (2006) KBR (2006) Ecologia (2004)
Acacia oncinophylla subsp. oncinophylla		Priority 3	Shrub, 0.9-2.5 m high, 'minni-ritchi' bark, phyllodes mostly 8-13 cm long, 1-2 mm wide. Flowers yellow, August to October	Low Forest B over Scrub over Dwarf Scrub D	Unlikely to occur, closest know record occurs 4km north of study area	DPaW (2016)
Acacia pulchella var. reflexa acuminate bracteole variant (R.J. Cumming 882)		Priority 3	Shrub, 0.3-1 m high. Flowers yellow, July to September	Sandy loam or sandy clay over laterite. Woodland. Eucalyptus calophylla-wandoo woodland	May occur, previously recorded within area however old historic collection from 1970	DPaW (2016) NatureMap Phoenix (2015) Western Botanical (2006)
Adenanthos cygnorum subsp. chamaephyton		Priority 3	Prostrate, mat-forming, non- lignotuberous shrub, to 0.3 m high. Flowers white-cream-pink- green/green, July or September to December or January	Low Heath C over Low Heath D; Allocasuarina humilis, Calothamnus sanguineus, Hibbertia hypericoides. Grey sand, lateritic gravel	Recorded during the current study and previously recorded within Area 2	DPaW (2016) NatureMap KBR (2006)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Allocasuarina ramosissima		Priority 3	Erect, compact, dwarf shrub. Dioecious, somewhat divaricate shrub, 0.3-1.2 m high	Road verge. Grey-red lateritic soil	May occur, closet record occurs 4km north of area 2 along road reserve on lateritic soil	DPaW (2016)
Asteridea gracilis		Priority 3	Annual, herb, 0.15-0.35 m high. Flowers white-pink, September to December	Sand, clay, gravelly soils	May occur, suitable habitat may be present in study area	DPaW (2016)
Banksia kippistiana var. paenepeccata		Priority 3	Erect, prickly, lignotuberous shrub, 0.3-1.2 m high. Flowers yellow-cream, October to November	Lateritic gravelly soils	May occur, closest known record from Gingin and Wannamal	DPaW (2016)
<i>Banksia pteridifolia</i> subsp. <i>vernalis</i>		Priority 3	Prostrate, lignotuberous shrub, to 0.4 m high. Flowers cream-white/yellow, September to October	White/grey sand over laterite	May occur, suitable habitat may be present in study area	DPaW (2016)
Chamaescilla gibsonii		Priority 3	Clumped tuberous, herb. Flowers blue, September	Clay to sandy clay. Winter-wet flats, shallow water-filled claypans	May occur, suitable habitat may be present in study area	Phoenix (2015)
Cyathochaeta teretifolia		Priority 3	Rhizomatous, clumped, robust perennial, grass-like or herb (sedge), to 2 m high, to 1.0 m wide. Flowers brown	Grey sand, sandy clay. Swamps, creek edges	Unlikely to occur, no suitable habitat	Phoenix (2015)
<i>Daviesia debilior</i> subsp. <i>sinuans</i>		Priority 3	Straggling shrub, to 0.8 m high. Flowers yellow & red/purple, May to July	Gravelly lateritic clay	May occur, previously recorded from Bindoon area	Phoenix (2015) Western Botanical (2006)
<i>Dielsiodoxa leucantha</i> subsp. <i>leucantha</i>		Priority 3	No available information	1.2km north of Area 2	May occur, closest record occurs 1.2km north of Area 2	DPaW (2016)
Grevillea florida		Priority 3	Erect shrub, to 0.9 m high. Flowers cream-yellow, July to September	In open low woodland of Eucalyptus drummondii, and E. calophylla. Sandy clay, gravel, laterite. Sandplain, slopes, road verges	Likely to occur; previously recorded within Area 2	DPaW (2016)
Guichenotia tuberculata		Priority 3	Erect, open shrub, (0.25-)0.6-0.9 m high. Flowers purple-pink, August to October	Eucalyptus woodland with Hakea trifurcata, Sand clay over laterite, sand	May occur, occurs 2 km north of Area 2	DPaW (2016)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Haemodorum loratum		Priority 3	Bulbaceous, perennial, herb, 0.45-1.2(-2) m high. Flowers black/brown-black/green, November	Grey or yellow sand, gravel	Likely to occur, recorded by Phoenix (2015)	Phoenix (2015)
Halgania corymbosa		Priority 3	Erect shrub, 0.35-1 m high. Flowers blue-purple, August to November	Gravelly soils, soils over granite	Unlikely to occur, historic collection from 1947 3 km east of survey boundary	DPaW (2016)
Johnsonia inconspicua		Priority 3	Rhizomatous, tufted perennial, grass- like or herb, 0.1-0.3 m high, to 0.2 m wide. Flowers green-white/pink, October to November	White-grey or black sand. Low dunes, winter-wet flats	Unlikely to occur, closest known occurrence is in Toodyay area	DPaW (2016)
Lasiopetalum venustum		Priority 3	No available information	No available information	Unlikely to occur, known record from Boonanarring NR	DPaW (2016)
Petrophile plumosa		Priority 3	Erect, compact shrub, 0.3-1.3 m high. Flowers yellow, July to November	Red/brown laterite, loam. Sandplains, hills	May occur, previously recorded from Bindoon area	DPaW (2016)
Platysace ramosissima		Priority 3	Perennial, herb, to 0.3 m high. Flowers white-cream, October to November	Sandy soils	Unlikely to occur, known record from Boonanarring NR	DPaW (2016)
Stylidium cymiferum		Priority 3	Perennial herb. Flowers yellow, laterally paired, throat appendages eight. Juvenile buds pendulous. Flowers October to November	In open Wandoo forest with Stylidium caricifolium. Loam and lateritic soils	Likely to occur, recorded Caligiri - Wongan Hills Road within 25 m of study area boundary	DPaW (2016)
Stylidium sacculatum		Priority 3	Creeping, matted plant with white/pink flowers - laterally paired petals - and red throat markings. Ca 12 cm high	Wandoo open woodland. Jarrah/Marri Woodlands	May occur, known records 1.5 km from study area	DPaW (2016)
Tetratheca pilifera		Priority 3	Spreading shrub, 0.1-0.3 m high. Flowers purple, August to October	Gravelly soils. Slope, breakaway. Eucalyptus wandoo fringing shrubland	May occur, previously recorded from Bindoon area	NatureMap
Tetratheca similis		Priority 3	Spreading shrub, to 0.3 m high. Flowers pink, August to September	Sandy clay with lateritic	Unlikely to occur, all known populations occur east of study area	DPaW (2016)
<i>Verticordia serrata</i> var. <i>linearis</i>		Priority 3	Shrub, to 1 m high, Flowers September to October	White sand, gravel. Open woodland	Likely to occur, recorded by Phoenix (2015)	Phoenix (2015) Ecologia (2004)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Acacia alata var. platyptera		Priority 4	Dense shrub, 0.5-1 m high. Flowers yellow, June to August	Clay, gravelly sandy clay. Lateritic ridges, clay flats. Marri/Wandoo Woodland	Unlikely to occur, study area unlikely to support suitable habitat	NatureMap
Anigozanthos humilis subsp. chrysanthus		Priority 4	Rhizomatous, perennial, herb, 0.2-0.4 (-0.8) m high. Flowers yellow, July to October	Banksia Woodland. Grey or yellow sand	Recorded during current study	DPaW (2016)
Banksia chamaephyton		Priority 4	Low, lignotuberous shrub, to 0.4 m high, up to 2 m wide. Flowers cream & brown, October to December	Grey or white sand over laterite	Unlikely to occur, known from populations north of the study area	DPaW (2016)
Boronia tenuis		Priority 4	Procumbent or erect & slender shrub, 0.1-0.5 m high. Flowers blue/pink- white, August to November	Laterite, stony soils, granite. Pale orange sandy gravelly loam. Dense Heath C over Dwarf Scrub D	Unlikely to occur, closest know record occurs 3km north of study area	DPaW (2016)
Calothamnus pachystachyus		Priority 4	Shrub 1 - 2 ft, stems and young inflorescences grey ribbons. Erect, much-branched, often straggly shrub, (0.3-)0.6-1.7 m high. Flowers redbrown-black, August to October	In red clay loam. Granite. Lateritic soils, often gravelly. Ridges, road verges	Unlikely to occur, old historic collection	DPaW (2016)
Eucalyptus caesia		Priority 4	(Mallee), 1.8-14 m high, bark 'minni- ritchi'. Flowers pink-red, May to September	Loam. Granite outcrops	Unlikely to occur, Phoenix (2015) recorded one planted specimen all other records occur east of Jarrah Forest IBRA region	Phoenix (2015)
Eucalyptus exilis		Priority 4	(Whipstick mallee), 2-6 m high, bark smooth. Flowers white, August to October	Grey sand, gravelly loam. Lateritic ridges	May occur, previously recorded from Bindoon area	DPaW (2016)
Grevillea drummondii		Priority 4	Flowers red, June to December. Compact bushy shrub, 1 - 2 m tall.	Gravelly loam	May occur, previously recorded within road reserve	DPaW (2016) Ecologia (2005)
Hibbertia miniata		Priority 4	Decumbent or erect shrub, 0.1-1 m high. Flowers orange/orange-red, August to November	Open Woodland of <i>Corymbia</i> calophylla. Lateritic gravelly soils	Recorded within the study, previous known records within 300 m of study area	DPaW (2016) NatureMap Ecologia (2005)
Hypolaena robusta		Priority 4	Dioecious rhizomatous, perennial, herb, ca 0.5 m high. Flowers September to October	White sand. Sandplains	May occur, suitable habitat may be present in study area	Phoenix (2015)



Species	EPBC Act Cons. Status	WA Cons. Status	Description	Preferred Habitat	Likelihood of occurrence	Source
Oxymyrrhine coronata		Priority 4	Erect open shrub 40 cm high, flowers pink and white	Lateritic gravel. Marginal Jarrah/Wandoo forest	May occur, closest record occurs 2 km east of study area	NatureMap
Persoonia sulcata		Priority 4	Much-branched shrub 40 cm tall; fruit green with a few longitudinal brown streaks, white-spotted	In open woodland	May occur, recorded 500 m west of study area	DPaW (2016) NatureMap Phoenix (2015) GHD (2010)
Stylidium longitubum		Priority 4	Erect annual (ephemeral), herb, 0.05- 0.12 m high. Flowers pink, October to December	Sandy clay, clay. Seasonal wetlands	Unlikely to occur, little suitable habitat	DPaW (2016)
Stylidium striatum		Priority 4	Rosetted perennial, herb, 0.15-0.55 m high, Inflorescence racemose. Flowers yellow, October to November	Brown clay loam over laterite. Hillslopes. Jarrah/Marri forest, Wandoo woodland	May occur, study area may support suitable habitat	Phoenix (2015)
Synaphea grandis		Priority 4	Tufted shrub, ca 0.3 m high. Flowers Yellow, October to November	Wandoo/Marri Woodland Laterite	May occur, previously recorded within study area from historic record (1949)	DPaW (2016) NatureMap (2016) Phoenix (2015)
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>		Priority 4	Erect shrub, 0.2-0.75 m high. Flowers pink, May or November to December or January	Sand, sandy clay. Winter-wet depressions. <i>Banksia</i> and <i>Melaleuca</i> winter wetland	Likely to occur, recorded by Phoenix (2015), study area supports suitable habitat	Phoenix (2015) Western Botanical (2006) KBR (2005) Ecologia (2004)
Verticordia paludosa		Priority 4	Erect shrub, 0.3-0.9 m high. Flowers pink-white, January to May	White/grey sand. Winter-wet flats	May occur, study area supports suitable habitat	DPaW (2016)



APPENDIX B: QUADRAT DATA



Site B01

Date 10/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 410672mE 6519240mN

Habitat and Waterway

Slope
Flat
Surface Layer
Loose Soil
Soil Colour
Brown
Soil Texture
Rock Type
No Rocks
Rock Size and Abundance
Vphill
Flat
Loose Soil
Brown
Sandy loam
No Rocks
No Rocks - N/A

Vegetation Condition Excellent

Disturbance Type Drought, few weeds

Time since Fire >5 years Leaf Litter Distribution and Cover Scattered; 60%



Species	Cover (%)	Height (m)
Eucalyptus marginata	10	6
Eucalyptus wandoo	outside q	16
Xanthorrhoea preissii	15	1.5
Hibbertia hypericoides	2	0.4
Lechenaultia biloba	5	0.3
Acacia squamata	+	
Arctotheca calendula	+	
Banksia dallanneyi	+	
Boronia ramosa subsp. anethifolia	+	
Bossiaea eriocarpa	+	



Species	Cover (%)	Height (m)
Bossiaea ornata	+	
Briza maxima	+	
Caesia occidentalis	+	
Chamaescilla corymbosa	+	
Conostylis setosa	+	
Daviesia divaricata	+	
Gladiolus caryophyllaceus	+	
Haemodorum laxum	+	
Hibbertia commutata	+	
Hibbertia huegelii	+	
Hypochaeris glabra	+	
Kennedia stirlingii	+	
Lepidosperma ?squamatum	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Petrophile serruriae	+	
Philotheca spicata	+	
Stylidium amoenum	+	
Stylidium piliferum	+	
Tetraria octandra	+	
Tetratheca hirsuta	+	
Trachymene pilosa	+	
Trichocline spathulata	+	
Xanthosia candida	+	
Xanthosia huegelii	+	



Date 11/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409860mE 6521002mN

Habitat and WaterwayMid slopeSlopeGentleSurface LayerLoose SoilSoil ColourBrown

Soil Texture Sandy loam, Gravel

Rock Type No Rocks

Rock Size and Abundance No Rocks - N/A

Vegetation Condition Excellent

Disturbance Type Fire, some weeds

Time since Fire <2 years

Leaf Litter Distribution and Cover Scattered; 15%



Species	Cover (%)	Height (m)
Eucalyptus marginata	15	9
Calothamnus sanguineus	25	0.8
Xanthorrhoea preissii	8	1.5
Hibbertia hypericoides	10	0.5
Anigozanthos humilis	+	
Austrostipa scabra	+	
Banksia dallanneyi	+	
Banksia sessilis	+	
Banksia telmatiaea	+	
Bossiaea eriocarpa	+	
Burchardia congesta	+	



Species	Cover (%)	Height (m)
Caesia occidentalis	+	
Cassytha racemosa	+	
Conostylis setosa	+	
Crassula colorata	+	
Daviesia preissii	+	
Desmocladus fasciculatus	+	
Gladiolus caryophyllaceus	+	
Gompholobium marginatum	+	
Grevillea synapheae	+	
Haemodorum laxum	+	
Hakea lissocarpha	+	
Hakea stenocarpa	+	
Hakea stenocarpa	+	
Hibbertia commutata	+	
Hibbertia huegelii	+	
Hibbertia hypericoides	+	
Hypochaeris glabra	+	
Lagenophora huegelii	+	
Laxmannia ramosa subsp. ramosa	+	
Lechenaultia floribunda	+	
Lepidosperma ?squamatum	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Neurachne alopecuroidea	+	
Pentameris airoides	+	
Petrorhagia dubia	+	
Philotheca spicata	+	
Podotheca gnaphalioides	+	
Pyrorchis nigricans	+	
Rhodanthe citrina	+	
Schoenus brevisetis	+	
Tetraria octandra	+	
Thelymitra crinita	+	
Trachymene pilosa	+	
Ursinia anthemoides	+	
Vulpia myuros	+	
Xanthosia huegelii	+	



Date 11/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 410030mE 6521030mN

Habitat and Waterway Swamp (Stream) Slope Valley (Flat) **Surface Layer** Moist Soil **Soil Colour** Brown **Soil Texture** Clay **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good **Disturbance Type** Weeds **Time since Fire** >5 years Leaf Litter Distribution and Cover Scattered; 8%



Species	Cover (%)	Height (m)
Melaleuca viminea	70	5
Drosera neesii subsp. neesii	1	0.10
Utricularia multifida	1	0.50
Briza minor	+	
Isolepis cernua	+	
Juncus bufonius	+	
Lotus angustissimus	+	
Stachys arvensis	+	
Watsonia meriana	+	_



Date 11/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409710mE 6521508mN

Habitat and Waterway

Slope
Gentle
Surface Layer
Loose Soil
Soil Colour
Brown
Soil Texture
Rock Type
No Rocks
Rock Size and Abundance
Nid slope
Gentle
Loose Soil
Brown
Sandy loam
No Rocks
No Rocks - N/A

Vegetation Condition Excellent

Disturbance Type Minimal, weeds, tracks etc.

Time since Fire <5 years

Leaf Litter Distribution and Cover Scattered; 50%



Species	Cover (%)	Height (m)
Eucalyptus marginata	25	12
Xanthorrhoea preissii	20	2.2
Hibbertia hypericoides	+	
Banksia dallanneyi	+	
Bossiaea eriocarpa	+	
Calothamnus sanguineus	+	
Calytrix variabilis	+	
Cassytha racemosa	+	
Chamaescilla corymbosa	+	



Species	Cover (%)	Height (m)
Conostylis setosa	+	
Drosera ?sewelliae	+	
Drosera erythrorhiza	+	
Gonocarpus pithyoides	+	
Goodenia berardiana	+	
Haemodorum laxum	+	
Hakea lissocarpha	+	
Hibbertia commutata	+	
Hibbertia huegelii	+	
Hypochaeris glabra	+	
Lagenophora huegelii	+	
Lechenaultia floribunda	+	
Millotia tenuifolia var. tenuifolia	+	
Pentameris airoides	+	
Philotheca spicata	+	
Podotheca gnaphalioides	+	
Stenanthemum coronatum	+	
Stylidium piliferum	+	
Styphelia tenuiflora	+	
Synaphea panhesya	+	
Synaphea spinulosa	+	
Tetraria octandra	+	
Tetratheca hirsuta	+	
Thelymitra ?benthamiana	+	
Thelymitra crinita	+	
Ursinia anthemoides	+	
Xanthosia huegelii	+	



Date 11/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409627mE 6523963mN

Habitat and Waterway Wetland Slope Valley (Flat) **Surface Layer** Moist Soil **Soil Colour** Black **Soil Texture** Sandy loam **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good-Excellent **Disturbance Type** Recent fire, weeds

Time since Fire <2 years

Leaf Litter Distribution and Cover Scattered; 25%



Species	Cover (%)	Height (m)
Eucalyptus rudis	6	10
Melaleuca preissiana	3	8
Xanthorrhoea preissii	15	2.2
Hypocalymma angustifolium	80	0.7
Lepidosperma striatum	10	1.8
Aotus gracillima	+	
Baumea rubiginosa	+	
Briza maxima	+	
Cyperus polystachyos	+	
Gastrolobium capitatum	+	



Species	Cover (%)	Height (m)
Jacksonia furcellata	+	
Juncus pallidus	+	
Lotus subbiflorus	+	
Patersonia occidentalis	+	



Date 11/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408681mE 6524387mN

Habitat and Waterway Mid slope

Slope Gentle-Moderate

Surface LayerLoose SoilSoil ColourWhiteSoil TextureSandRock TypeNo RocksRock Size and AbundanceNo Rocks - N/AVegetation ConditionVery Good-ExcellentDisturbance TypeDrought or dieback, weeds

Time since Fire >5 years

Leaf Litter Distribution and Cover Scattered; 60%



Species	Cover (%)	Height (m)
Eucalyptus todtiana	20	5
Banksia attenuata	10	4
Banksia menziesii	8	4
Allocasuarina humilis	2	2
Stirlingia latifolia	2	0.8
Hibbertia hypericoides	2	0.5
Lepidosperma squamatum	3	0.2
Lyginia imberbis	2	0.4
Acacia pulchella	+	
Alexgeorgea nitens	+	



Species	Cover (%)	Height (m)
Alexgeorgea nitens	+	
Bossiaea eriocarpa	+	
Burchardia congesta	+	
Calothamnus sanguineus	+	
Calytrix flavescens	+	
Conostephium pendulum	+	
Conostylis juncea	+	
Conostylis teretifolia	+	
Drosera erythrorhiza	+	
Gompholobium tomentosum	+	
Hibbertia huegelii	+	
Hibbertia subvaginata	+	
Hyalosperma cotula	+	
Hypolaena exsulca	+	
Hypolaena pubescens	+	
Lepidosperma squamatum	+	
Lomandra caespitosa	+	
Lomandra caespitosa	+	
Lyginia imberbis	+	
Petrophile linearis	+	
Phyllangium divergens	+	
Scholtzia involucrata	+	
Stirlingia latifolia	+	
Stylidium androsaceum	+	
Synaphea sp.	+	
Synaphea spinulosa	+	
Thysanotus manglesianus	+	
Trachymene pilosa	+	
Tricoryne elatior	+	
Ursinia anthemoides	+	



Date 11/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408970mE 6524368mN

Habitat and Waterway Mid slope Slope Moderate **Surface Layer** Loose Soil **Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good **Disturbance Type** ?Dieback, weeds **Time since Fire** >5 years

Leaf Litter Distribution and Cover Scattered; 6%



Species	Cover (%)	Height (m)
Eucalyptus marginata	10	12
Banksia attenuata	10	5
Banksia grandis	4	3
Banksia menziesii	6	5
Xanthorrhoea preissii	15	2
Hibbertia hypericoides	15	0.8
Alexgeorgea nitens	+	
Alexgeorgea nitens	+	
Bossiaea eriocarpa	+	
Briza maxima	+	



Calandrinia liniflora + Calytrix flavescens + Calytrix sylvana + Conostylis aculeata + Conostylis aculeata + Conostylis teretifolia + Conostylis teretifolia + Cornostylis teretifolia + Construction + Galaciolus candinalia + Galaciolus candinalia + Hemiandra pungens + Hibbertia subragination + Hibbertia subragination + Hibbertia subragination + Hypolaena exsulca + Hypolaena exsulca + Hypolaena pubescens	Species	Cover (%)	Height (m)
Calytrix sylvana + Conostylis aculeata + Conostylis aculeata + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia + Conostylis teretifolia Conostylis teret	Calandrinia liniflora	+	
Conostylis aculeata + Conostylis juncea + Conostylis juncea + Conostylis juncea + Conostylis teretifolia + Coryonotheca micrantha + Coryonotheca m	Calytrix flavescens	+	
Conostylis aculeata + Conostylis juncea + Conostylis teretifolia + Conynotheca micrantha + Crassula colorata + Drosera glanduligera Galdiolus caryophyllaceus Gompholobium tomentosum	Calytrix sylvana	+	
Conostylis juncea + + Conostylis teretifolia + + Conostylis teretifolia + + Conynotheca micrantha + + Crassula colorata + + Crassula colorata + + Compositiva con properties of the control of the contro	Conostylis aculeata	+	
Conostylis juncea + + Conostylis teretifolia + + Conostylis teretifolia + + Conynotheca micrantha + + Crassula colorata + + Crassula colorata + + Compositiva con properties of the control of the contro	Conostylis aculeata	+	
Corynotheca micrantha + Crassula colorata + + Drosera glandulligera + + Gladiolus caryophyllaceus + + Gompholobium tomentosum + + Hemiandra pungens + + Hibbertia huegelii + + Hypolaena exsulca + + Hypolaena pubescens + Hypolaena pubesce		+	
Crassula colorata	Conostylis teretifolia	+	
Drosera glanduligera + Gladiolus caryophyllaceus + Gompholobium tomentosum + Hemiandra pungens + Hibbertia huegelii + Hibbertia subvaginata + Hypochaeris glabra + Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra priessii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pertameris airoides + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Synaphea spinulosa + Synaphea spinulosa + Hamandra pungensi + Hamandra priessii +	Corynotheca micrantha	+	
Gladiolus caryophyllaceus + Gompholobium tomentosum + Hemiandra pungens + Hibbertia huegelii + Hiypochaeris glabra + Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra perissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pertameris airoides + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium neurophyllum + Synaphea spinulosa + Emmandra perissin + Handia del	Crassula colorata	+	
Gladiolus caryophyllaceus + Gompholobium tomentosum + Hemiandra pungens + Hibbertia huegelii + Hiypochaeris glabra + Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra perissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pertameris airoides + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium neurophyllum + Synaphea spinulosa + Emmandra perissin + Handia del	Drosera glanduligera	+	
Gompholobium tomentosum Hemiandra pungens Hibbertia huegelii Hibbertia subvaginata Hypochaeris glabra Hypochaeris glabra Hypolaena exsulca Hypolaena pubescens Lepidosperma squamatum Levenhookia pusilla Lomandra caespitosa Lomandra hermaphrodita Lomandra preissii Lyginia imberbis Macrozamia riedlei Microlaena stipoides Patersonia occidentalis Pentameris airoides Poranthera microphylla Pyrorchis nigricans Sowerbaea laxiflora Stylidium neurophyllum Synaphea spinulosa + Helibertia vera de la Hemiser de la H		+	
Gompholobium tomentosum + Hemiandra pungens + Hibbertia huegelii + Hibbertia huegelii + Hibbertia subvaginata + Hypochaeris glabra + Hypochaeris glabra + Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra preissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa + H		+	
Hemiandra pungens +	-	+	
Hibbertia huegelii + Hibbertia subvaginata + Hypochaeris glabra + Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra preissii + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Synaphea spinulosa + Stylidium neurophyllum + Synaphea spinulosa + + + + + + + + + + + + +		+	
Hibbertia subvaginata + Hypochaeris glabra + Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra preissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa + Handa Hamberta Hamberta + Hamberta Ham		+	
Hypolaena exsulca + Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra preissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa + Sowerbaea spinulosa + Synaphea spinulosa + Sumanus Hermanus + Hermanus He	_	+	
Hypolaena exsulca + Hypolaena pubescens + Lepidosperma squamatum + Levenhookia pusilla + Lomandra caespitosa + Lomandra hermaphrodita + Lomandra preissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa + Pontameris sinulosa + Psynaphea spinulosa + Psynaphe		+	
Hypolaena pubescens+Lepidosperma squamatum+Levenhookia pusilla+Lomandra caespitosa+Lomandra hermaphrodita+Lomandra preissii+Lyginia imberbis+Macrozamia riedlei+Microlaena stipoides+Patersonia occidentalis+Pentameris airoides+Petrophile linearis+Podotheca gnaphalioides+Poranthera microphylla+Pyrorchis nigricans+Sowerbaea laxiflora+Stylidium androsaceum+Synaphea spinulosa+		+	
Lepidosperma squamatum+Levenhookia pusilla+Lomandra caespitosa+Lomandra hermaphrodita+Lomandra preissii+Lyginia imberbis+Macrozamia riedlei+Microlaena stipoides+Patersonia occidentalis+Pentameris airoides+Petrophile linearis+Podotheca gnaphalioides+Poranthera microphylla+Pyrorchis nigricans+Sowerbaea laxiflora+Stylidium androsaceum+Stylidium neurophyllum+Synaphea spinulosa+		+	
Levenhookia pusilla +		+	
Lomandra caespitosa + Lomandra hermaphrodita + + Lomandra preissii + + Lyginia imberbis + + Macrozamia riedlei + + Microlaena stipoides + + Patersonia occidentalis + + Pentameris airoides + + Petrophile linearis + + Podotheca gnaphalioides + + Poranthera microphylla + + Pyrorchis nigricans + + Sowerbaea laxiflora + Stylidium neurophyllum + + Stylidium neurophyllum + + + Synaphea spinulosa + + + + + + + + + + + + + + + + + + +		+	
Lomandra hermaphrodita + Lomandra preissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium neurophyllum + Synaphea spinulosa + + **Ething in prication in pricatio		+	
Lomandra preissii + Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa + + + + + + + + + + + - - -	·	+	
Lyginia imberbis + Macrozamia riedlei + Microlaena stipoides + Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Synaphea spinulosa + Synaphea spinulosa + + + + + + + + + + + + - -	·	+	
Macrozamia riedlei+Microlaena stipoides+Patersonia occidentalis+Pentameris airoides+Petrophile linearis+Podotheca gnaphalioides+Poranthera microphylla+Pyrorchis nigricans+Sowerbaea laxiflora+Stylidium androsaceum+Synaphea spinulosa+		+	
Microlaena stipoides+Patersonia occidentalis+Pentameris airoides+Petrophile linearis+Podotheca gnaphalioides+Poranthera microphylla+Pyrorchis nigricans+Sowerbaea laxiflora+Stylidium androsaceum+Stylidium neurophyllum+Synaphea spinulosa+		+	
Patersonia occidentalis + Pentameris airoides + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Synaphea spinulosa + Synaphea spinulosa + **Petrophile linearis + **Head		+	
Petrophile linearis + Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa +	,	+	
Petrophile linearis + Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa +			
Podotheca gnaphalioides + Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa +			
Poranthera microphylla + Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa +		+	
Pyrorchis nigricans + Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa +			
Sowerbaea laxiflora + Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa +			
Stylidium androsaceum + Stylidium neurophyllum + Synaphea spinulosa +			
Stylidium neurophyllum + Synaphea spinulosa +			
Synaphea spinulosa +			
	Trachymene pilosa	+	



Species	Cover (%)	Height (m)
Ursinia anthemoides	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408910mE 6526768mN

Habitat and Waterway Valley Slope Flat **Surface Layer** Loose Soil **Soil Colour** Pale yellow **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good

Disturbance Type?DiebackTime since Fire>5 years

Leaf Litter Distribution and Cover Scattered; 40%



Species	Cover (%)	Height (m)
Corymbia calophylla	5	12
Eucalyptus marginata	10	9
Banksia grandis	2	3
Banksia sessilis	25	4
Xanthorrhoea preissii	3	2
Hibbertia hypericoides	1.5	0.8
Stirlingia latifolia	1	1
Alexgeorgea nitens	+	
Anigozanthos manglesii	+	



Species	Cover (%)	Height (m)
Banksia dallanneyi	+	
Bossiaea eriocarpa	+	
Bossiaea ornata	+	
Burchardia congesta	+	
Caladenia flava	+	
Calytrix sylvana	+	
Conostephium pendulum	+	
Conostylis aculeata	+	
Conostylis teretifolia	+	
Crassula colorata	+	
Desmocladus fasciculatus	+	
Drosera ?sewelliae	+	
Drosera glanduligera	+	
Grevillea synapheae	+	
Hypochaeris glabra	+	
Lepidosperma ?squamatum	+	
Leucopogon pulchellus	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Lomandra sericea	+	
Lyginia imberbis	+	
Mesomelaena pseudostygia	+	
Patersonia occidentalis	+	
Pentameris airoides	+	
Pericalymma ellipticum	+	
Petrophile linearis	+	
Phyllangium divergens	+	
Poa drummondiana	+	
Stylidium neurophyllum	+	
Ursinia anthemoides	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408976mE 6526668mN

Habitat and WaterwayMid slopeSlopeModerateSurface LayerLoose GravelSoil ColourBrown

Soil TextureSandy gravelRock TypeNo RocksRock Size and AbundanceNo Rocks - N/A

Vegetation ConditionGoodDisturbance Type?DiebackTime since Fire>5 years



Species	Cover (%)	Height (m)
Eucalyptus marginata	1	4
Banksia sessilis	35	3
Xanthorrhoea preissii	4	1
Hibbertia hypericoides	3	0.7
Bossiaea eriocarpa	+	
Burchardia congesta	+	
Caladenia flava	+	
Chamaescilla corymbosa	+	



Species	Cover (%)	Height (m)
Conostephium pendulum	+	
Conostylis setigera	+	
Daviesia decurrens	+	
Dillwynia laxiflora	+	
Drosera macrantha subsp. macrantha	+	
Eremaea pauciflora	+	
Gladiolus caryophyllaceus	+	
Gompholobium knightianum	+	
Gompholobium preissii	+	
Grevillea synapheae	+	
Haemodorum laxum	+	
Hakea lissocarpha	+	
Hibbertia commutata	+	
Levenhookia pusilla	+	
Lomandra preissii	+	
Lomandra sericea	+	
Lomandra sericea	+	
Millotia tenuifolia var. tenuifolia	+	
Pentameris airoides	+	
Pentapeltis peltigera	+	
Poa drummondiana	+	
Ptilotus manglesii	+	
Stylidium neurophyllum	+	
Stylidium piliferum	+	
Styphelia tenuiflora	+	
Synaphea spinulosa	+	
Tetraria octandra	+	
Trachymene pilosa	+	
Tricoryne elatior	+	
Ursinia anthemoides	+	
Xanthosia huegelii	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408947mE 6527153mN

Habitat and Waterway Mid slope Slope Moderate **Surface Layer** Loose Soil **Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good-Excellent

Disturbance Type?DiebackTime since Fire>5 years

Leaf Litter Distribution and Cover Scattered; 50%



Species	Cover (%)	Height (m)
Eucalyptus todtiana	6	6
Banksia attenuata	8	6
Beaufortia elegans	10	1.5
Scholtzia involucrata	15	0.4
Anigozanthos humilis	+	
Bossiaea eriocarpa	+	
Briza maxima	+	
Calytrix variabilis	+	
Cassytha racemosa	+	
Conostephium minus	+	



Species	Cover (%)	Height (m)
Conostephium pendulum	+	
Conostylis juncea	+	
Desmocladus fasciculatus	+	
Drosera erythrorhiza	+	
Drosera glanduligera	+	
Drosera macrantha subsp. macrantha	+	
Eremaea pauciflora	+	
Gastrolobium pauciflorum	+	
Gladiolus caryophyllaceus	+	
Gompholobium tomentosum	+	
Hibbertia huegelii	+	
Hibbertia subvaginata	+	
Hypochaeris glabra	+	
Lagenophora huegelii	+	
Lechenaultia biloba	+	
Leucopogon pulchellus	+	
Levenhookia pusilla	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Lyginia imberbis	+	
Melaleuca trichophylla	+	
Nuytsia floribunda	+	
Pentameris airoides	+	
Petrophile linearis	+	
Poa drummondiana	+	
Podotheca gnaphalioides	+	
Poranthera microphylla	+	
Schoenus sp.	+	
Scholtzia involucrata	+	
Stylidium androsaceum	+	
Stylidium piliferum	+	
Stylidium repens	+	
Trachymene pilosa	+	
Ursinia anthemoides	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408930mE 6527206mN

Habitat and Waterway

Slope

Moderate-Steep

Surface Layer

Soil Colour

Mid slope

Moderate-Steep

Loose Soil

White

Soil Colour White
Soil Texture Sand
Rock Type No Rocks
Rock Size and Abundance No Rocks - N/A
Vegetation Condition Excellent

Disturbance Type No disturbance Time since Fire >5 years
Leaf Litter Distribution and Cover Sparse; 3%



Species	Cover (%)	Height (m)
Allocasuarina humilis	6	2.5
Xanthorrhoea preissii	1	1.5
Schoenus sp.	15	0.7
Hibbertia hypericoides	15	0.8
Alexgeorgea nitens	+	
Banksia dallanneyi	+	
Bossiaea eriocarpa	+	
Bossiaea ornata	+	
Briza maxima	+	
Calothamnus sanguineus	+	
Calytrix sylvana	+	



Species	Cover (%)	Height (m)
Cassytha racemosa	+	
Conostylis teretifolia	+	
Drosera erythrorhiza	+	
Drosera glanduligera	+	
Drosera menziesii	+	
Eremaea pauciflora	+	
Gladiolus caryophyllaceus	+	
Hibbertia huegelii	+	
Hibbertia subvaginata	+	
Hypolaena exsulca	+	
Jacksonia floribunda	+	
Johnsonia pubescens subsp. pubescens	+	
Lomandra sericea	+	
Lyginia imberbis	+	
Lysinema pentapetalum	+	
Mesomelaena pseudostygia	+	
Mesomelaena tetragona	+	
Petrophile linearis	+	
Philotheca spicata	+	
Phyllangium divergens	+	
Podotheca gnaphalioides	+	
Schoenus brevisetis	+	
Schoenus curvifolius	+	
Scholtzia involucrata	+	
Stirlingia latifolia	+	
Stylidium androsaceum	+	
Stylidium schoenoides	+	
Ursinia anthemoides	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409521mE 6526905mN

Habitat and Waterway

Slope

Moderate

Surface Layer

Soil Colour

Brown

Soil TextureSandy gravelRock TypeNo RocksRock Size and AbundanceNo Rocks - N/A

Vegetation Condition Excellent

Disturbance TypeNo disturbance **Time since Fire**>5 years

Leaf Litter Distribution and Cover Scattered; 12%



Species	Cover (%)	Height (m)
Eucalyptus marginata	7	6
Banksia sessilis	1	3
Xanthorrhoea preissii	4	1.5
Hibbertia hypericoides	25	0.4
Anigozanthos humilis	+	
Banksia dallanneyi	+	
Bossiaea eriocarpa	+	
Calothamnus sanguineus	+	
Cassytha racemosa	+	
Conostylis teretifolia	+	
Crassula colorata	+	
Drosera menziesii	+	



Species	Cover (%)	Height (m)
Hakea lissocarpha	+	
Hibbertia commutata	+	
Hypochaeris glabra	+	
Laxmannia ramosa subsp. ramosa	+	
Lepidosperma ?squamatum	+	
Leucopogon pulchellus	+	
Leucopogon sp.	+	
Levenhookia pusilla	+	
Lomandra hermaphrodita	+	
Neurachne alopecuroidea	+	
Pentameris airoides	+	
Petrophile striata	+	
Philotheca spicata	+	
Podotheca gnaphalioides	+	
Pterochaeta paniculata	+	
Ptilotus manglesii	+	
Scholtzia involucrata	+	
Stylidium androsaceum	+	
Stylidium piliferum	+	
Stylidium sp. Bindoon (K.F. Kenneally 11405)	+	
Synaphea panhesya	+	
Synaphea spinulosa	+	
Ursinia anthemoides	+	
Vulpia myuros	+	
Xanthosia huegelii	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409496mE 6526521mE

Habitat and Waterway Up slope Slope Flat

Surface Layer Loose Gravel

Soil Colour Brown

Soil TextureSandy gravelRock TypeNo RocksRock Size and AbundanceNo Rocks - N/AVegetation ConditionVery GoodDisturbance Type?DiebackTime since Fire> 5 years

Leaf Litter Distribution and Cover Scattered; 30%



Species	Cover (%)	Height (m)
Corymbia calophylla	4	8
Eucalyptus marginata	20	6
Banksia sessilis	5	3
Xanthorrhoea preissii	4	1
Hibbertia hypericoides	30	0.5
Banksia bipinnatifida	+	
Bossiaea eriocarpa	+	
Briza maxima	+	
Briza maxima	+	
Dampiera alata	+	
Desmocladus fasciculatus	+	
Drosera erythrorhiza	+	
Drosera glanduligera	+	



Species	Cover (%)	Height (m)
Drosera menziesii	+	
Gompholobium knightianum	+	
Gompholobium preissii	+	
Haemodorum laxum	+	
Hakea lissocarpha	+	
Hemigenia sericea	+	
Hibbertia commutata	+	
Hibbertia huegelii	+	
Hyalosperma cotula	+	
Hypochaeris glabra	+	
Laxmannia ramosa subsp. ramosa	+	
Lepidosperma ?squamatum	+	
Leucopogon propinquus	+	
Leucopogon pulchellus	+	
Levenhookia pusilla	+	
Lomandra hermaphrodita	+	
Lomandra hermaphrodita	+	
Lomandra sericea	+	
Pentameris airoides	+	
Petrophile striata	+	
Philotheca spicata	+	
Podotheca gnaphalioides	+	
Ptilotus manglesii	+	
Stylidium androsaceum	+	
Stylidium neurophyllum	+	
Synaphea sp.	+	
Synaphea spinulosa	+	
Trachymene pilosa	+	
Xanthorrhoea gracilis	+	
Xanthosia huegelii	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409104mE 6533675mN

Habitat and Waterway Swamp Slope Valley floor **Surface Layer** Moist Soil **Soil Colour** Brown **Soil Texture** Sandy loam **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Excellent No disturbance **Disturbance Type**

Time since Fire >10 years
Leaf Litter Distribution and Cover Covered; 90%



Species	Cover (%)	Height (m)
Banksia littoralis	25	7
Banksia menziesii	10	6
Kunzea glabrescens	85	7
Xanthorrhoea preissii	5	1
Bossiaea ornata	+	
Drosera erythrorhiza	+	
Drosera macrantha subsp. macrantha	+	
Hypochaeris glabra	+	
Labichea punctata	+	
Petrophile linearis	+	
Poa drummondiana	+	
Pterostylis glebosa	+	
Schoenus sp.	+	



Species	Cover (%)	Height (m)
Trachymene pilosa	+	
Ursinia anthemoides	+	



Date 12/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408975mE 6534240mN

Habitat and Waterway Up slope Gentle Slope **Surface Layer** Loose Soil **Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good **Disturbance Type** Weeds, fire **Time since Fire** <3 years

Leaf Litter Distribution and Cover Scattered; 15%



Species	Cover (%)	Height (m)
Eucalyptus todtiana	15	5
Banksia attenuata	0.2	0.5
Eremaea pauciflora	10	0.7
Jacksonia sternbergiana	2	1.5
Conostylis aculeata	2	0.4
Corynotheca micrantha	60	0.6
Alexgeorgea nitens	+	
Austrostipa elegantissima	+	
Bossiaea eriocarpa	+	
Burchardia congesta	+	



Species	Cover (%)	Height (m)
Caladenia flava	+	
Crassula colorata	+	
Gladiolus caryophyllaceus	+	
Gompholobium tomentosum	+	
Hyalosperma cotula	+	
Hypochaeris glabra	+	
Isolepis marginata	+	
Lagenophora huegelii	+	
Laxmannia squarrosa	+	
Lomandra hermaphrodita	+	
Lyginia barbata	+	
Macarthuria australis	+	
Sowerbaea laxiflora	+	
Stirlingia latifolia	+	
Trachymene pilosa	+	
Ursinia anthemoides	+	
Wahlenbergia capensis	+	



Site B15R

Date 13/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408043mE 6536864mN

Habitat and Waterway Mid slope Slope Moderate **Surface Layer** Loose Soil **Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good **Disturbance Type** Weeds, tracks **Time since Fire** >5 years

Leaf Litter Distribution and Cover Scattered; 60%



Species	Cover (%)	Height (m)
Corymbia calophylla	15	13
Eucalyptus marginata	25	12
Banksia sessilis	10	3
Xanthorrhoea preissii	18	1.5
Hibbertia hypericoides	6	0.8
Acacia applanata	+	
Alexgeorgea nitens	+	
Bossiaea eriocarpa	+	
Conostephium pendulum	+	
Conostylis aculeata	+	
Daviesia decurrens	+	
Desmocladus fasciculatus	+	
Gompholobium knightianum	+	
Gompholobium preissii	+	



Species	Cover (%)	Height (m)
Gompholobium tomentosum	+	
Hypochaeris glabra	+	
Lepidosperma ?squamatum	+	
Leporella fimbriata	+	
Levenhookia pusilla	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Poa drummondiana	+	
Podotheca gnaphalioides	+	
Stylidium piliferum	+	
Trachymene pilosa	+	
Tripterococcus brunonis	+	
Ursinia anthemoides	+	



Site B16R

Date 13/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408459mE 6538264mN

Habitat and Waterway Plain Slope Flat Loose Soil **Surface Layer Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A

Vegetation Condition Good-Very Good **Disturbance Type** Fire, weeds, drought

Time since Fire <5 years

Leaf Litter Distribution and Cover Scattered; 10%



Species	Cover (%)	Height (m)
Eucalyptus todtiana	5	6
Banksia attenuata	10	4
Banksia ilicifolia	20	8
Calytrix fraseri	30	1
Stirlingia latifolia	6	1.2
Xanthorrhoea preissii	4	1
Alexgeorgea nitens	15	0.1
Alexgeorgea nitens	+	
Amphipogon turbinatus	+	
Austrostipa elegantissima	+	
Banksia dallanneyi	+	
Beaufortia elegans	+	
Bossiaea eriocarpa	+	
Conospermum acerosum subsp. acerosum	+	



Species	Cover (%)	Height (m)
Conostephium pendulum	+	
Conostylis teretifolia	+	
Crassula colorata	+	
Daviesia triflora	+	
Drosera ?sewelliae	+	
Drosera menziesii	+	
Eremaea purpurea	+	
Gladiolus caryophyllaceus	+	
Hibbertia aurea	+	
Isotropis cuneifolia subsp. cuneifolia	+	
Jacksonia floribunda	+	
Leucopogon sprengelioides	+	
Levenhookia pusilla	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Lyginia imberbis	+	
Lysinema pentapetalum	+	
Mesomelaena pseudostygia	+	
Monotaxis grandiflora	+	
Petrophile linearis	+	
Petrophile macrostachya	+	
Philotheca spicata	+	
Philotheca spicata	+	
Phyllangium divergens	+	
Poa drummondiana	+	
Poranthera microphylla	+	
Pterochaeta paniculata	+	
Pyrorchis nigricans	+	
Schoenus brevisetis	+	
Schoenus curvifolius	+	
Stylidium araeophyllum	+	
Stylidium neurophyllum	+	
Stylidium piliferum	+	
Stylidium repens	+	
Synaphea spinulosa	+	
Trachymene pilosa	+	
Wahlenbergia capensis	+	
Xanthosia huegelii	+	



Date 13/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408741mE 6542889mN

Habitat and Waterway Mid slope Slope Gentle **Surface Layer** Loose Soil **Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good **Disturbance Type** Drought, some weeds

Time since Fire >5 years **Leaf Litter Distribution and Cover** Sparse; 5%



Species	Cover (%)	Height (m)
Allocasuarina humilis	30	2.5
Hibbertia hypericoides	30	0.5
Lyginia barbata	15	0.2
Amphipogon turbinatus	+	
Anigozanthos humilis	+	
Brachyscome pusilla	+	
Calytrix depressa	+	
Caustis dioica	+	
Conospermum stoechadis subsp. stoechadis	+	
Conostylis teretifolia	+	



Species	Cover (%)	Height (m)
Drosera ?stolonifera	+	
Drosera erythrorhiza	+	
Gladiolus caryophyllaceus	+	
Haemodorum laxum	+	
Laxmannia squarrosa	+	
Lepidobolus preissianus	+	
Mesomelaena pseudostygia	+	
Mesomelaena tetragona	+	
Opercularia vaginata	+	
Pimelea suaveolens subsp. suaveolens	+	
Podotheca gnaphalioides	+	
Scholtzia involucrata	+	
Stackhousia pubescens	+	
Stylidium albolilacinum	+	
Stylidium repens	+	
Trachymene pilosa	+	
Ursinia anthemoides	+	
Verticordia nobilis	+	
Waitzia suaveolens var. suaveolens	+	



Date 13/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408567mE 6542548mN

Habitat and Waterway Plain Slope Flat Loose Soil **Surface Layer Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good

Disturbance Type Drought, some weeds

Time since Fire >5 years Leaf Litter Distribution and Cover Sparse; 15%



Species	Cover (%)	Height (m)
Banksia attenuata	10	5
Allocasuarina humilis	40	2
Acacia pulchella	+	
Anigozanthos humilis	+	
Beaufortia elegans	+	
Bossiaea eriocarpa	+	
Bossiaea eriocarpa	+	
Brachyscome pusilla	+	
Calytrix depressa	+	



Species	Cover (%)	Height (m)
Calytrix depressa	+	
Conospermum stoechadis subsp. stoechadis	+	
Conostylis setosa	+	
Conostylis teretifolia	+	
Drosera ?sewelliae	+	
Drosera macrantha subsp. macrantha	+	
Gladiolus caryophyllaceus	+	
Gompholobium aristatum	+	
Gompholobium tomentosum	+	
Hibbertia acerosa	+	
Hibbertia huegelii	+	
Hypochaeris glabra	+	
Laxmannia squarrosa	+	
Lepidobolus preissianus	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Lomandra hermaphrodita	+	
Mesomelaena pseudostygia	+	
Mesomelaena pseudostygia	+	
Mesomelaena tetragona	+	
Patersonia occidentalis	+	
Patersonia occidentalis	+	
Phyllangium divergens	+	
Pimelea suaveolens subsp. suaveolens	+	
Podotheca gnaphalioides	+	
Pterochaeta paniculata	+	
Schoenus curvifolius	+	
Scholtzia involucrata	+	
Siloxerus humifusus	+	
Sowerbaea laxiflora	+	
Stirlingia latifolia	+	
Stylidium albolilacinum	+	
Stylidium androsaceum	+	
Stylidium piliferum	+	
Synaphea spinulosa	+	
Ursinia anthemoides	+	
Verticordia nobilis	+	
Waitzia suaveolens var. suaveolens	+	



Date 13/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408521mE 6542663mN

Habitat and Waterway Mid slope

Slope Flat **Surface Layer** Loose Soil **Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good **Disturbance Type** ?Dieback or drought

Time since Fire >5 years

Leaf Litter Distribution and Cover Scattered; 70%



Species	Cover (%)	Height (m)
Eucalyptus todtiana	35	7
Banksia attenuata	3	4
Banksia menziesii	5	3
Macrozamia riedlei	4	3
Stirlingia latifolia	2	1.5
Hibbertia hypericoides	6	0.4
Acacia huegelii	+	
Alexgeorgea nitens	+	
Anigozanthos humilis	+	
Austrostipa elegantissima	+	



Species	Cover (%)	Height (m)
Boronia ramosa subsp. anethifolia	+	
Bossiaea eriocarpa	+	
Brachyscome pusilla	+	
Calytrix depressa	+	
Conospermum stoechadis subsp. stoechadis	+	
Conostephium pendulum	+	
Conostylis aculeata	+	
Conostylis teretifolia	+	
Daviesia triflora	+	
Drosera ?sewelliae	+	
Drosera erythrorhiza	+	
Drosera macrantha subsp. macrantha	+	
Drosera menziesii	+	
Gompholobium aristatum	+	
Gonocarpus pithyoides	+	
Hibbertia acerosa	+	
Isolepis marginata	+	
Lepidosperma tenue	+	
Levenhookia pusilla	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Melaleuca trichophylla	+	
Mesomelaena pseudostygia	+	
Millotia tenuifolia var. tenuifolia	+	
Patersonia occidentalis	+	
Petrophile linearis	+	
Philotheca spicata	+	
Phyllangium divergens	+	
Podotheca gnaphalioides	+	
Poranthera microphylla	+	
Pterochaeta paniculata	+	
Pyrorchis nigricans	+	
Schoenus curvifolius	+	
Stylidium albolilacinum	+	
Stylidium piliferum	+	
Trachymene pilosa	+	
Ursinia anthemoides	+	
Wahlenbergia capensis	+	



Date 13/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 412012mE 6548117mN

Habitat and Waterway Creek Slope Valley floor **Surface Layer** Moist Soil **Soil Colour** Brown **Soil Texture** Loamy clay **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Degraded **Disturbance Type** Weeds, Grazing **Time since Fire** >5 years Leaf Litter Distribution and Cover No litter; 0%



Species	Cover (%)	Height (m)
Melaleuca teretifolia	16	4
Melaleuca viminea	20	3
Juncus acutus	0.5	1
Cotula coronopifolia	2	0.1
Hordeum leporinum	20	0.3
Isolepis marginata	5	0.05
Briza minor	+	
Lolium rigidum	+	
Lotus subbiflorus	+	



Date 14/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 421264mE 6551857mN

Habitat and Waterway Up slope Slope Flat

Surface Layer Loose Gravel

Soil Colour Brown

Soil TextureLoam, gravelRock TypeNo RocksRock Size and AbundanceNo Rocks - N/AVegetation ConditionGood-Very Good

Disturbance TypeWeedsTime since Fire>5 yearsLeaf Litter Distribution and Cover Sparse; 10%



Species	Cover (%)	Height (m)
Banksia sessilis	3	3
Macrozamia riedlei	4	1.2
Xanthorrhoea preissii	2	1.2
Acacia huegelii	6	0.4
Banksia dallanneyi	8	0.3
Hibbertia hypericoides	10	0.5
Acanthocarpus preissii	+	
Astroloma pallidum	+	
Austrostipa elegantissima	+	
Bossiaea eriocarpa	+	
Briza maxima	+	
Comesperma scoparium	+	



Species	Cover (%)	Height (m)
Crassula colorata	+	
Desmocladus fasciculatus	+	
Drosera ?stolonifera	+	
Drosera glanduligera	+	
Drosera menziesii	+	
Gladiolus caryophyllaceus	+	
Grevillea pilulifera	+	
Haemodorum laxum	+	
Hakea lissocarpha	+	
Hibbertia commutata	+	
Hyalosperma cotula	+	
Hypochaeris glabra	+	
Isolepis marginata	+	
Laxmannia squarrosa	+	
Leucopogon pulchellus	+	
Levenhookia pusilla	+	
Lomandra hermaphrodita	+	
Lysimachia arvensis	+	
Neurachne alopecuroidea	+	
Opercularia vaginata	+	
Parentucellia latifolia	+	
Patersonia occidentalis	+	
Pentameris airoides	+	
Petrorhagia dubia	+	
Poa drummondiana	+	
Podolepis lessonii	+	
Ptilotus manglesii	+	
Stackhousia pubescens	+	
Tetraria octandra	+	
Trachymene pilosa	+	
Tricoryne elatior	+	
Ursinia anthemoides	+	



Date 14/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 421159mE 6551783mN **Habitat and Waterway** Mid slope-Up slope

Slope Gentle

Surface Layer Loose soil-gravel

Soil Colour Brown

Soil Texture Sandy loam, Gravel

Rock TypeNo RocksRock Size and AbundanceNo Rocks - N/AVegetation ConditionVery Good-Excellent

Disturbance TypeSome weedsTime since Fire>5 yearsLeaf Litter Distribution and Cover Scattered; 50%



Species	Cover (%)	Height (m)
Eucalyptus wandoo	20	14
Macrozamia riedlei	3	1.5
Bossiaea eriocarpa	6	0.8
Hibbertia hypericoides	3	0.4
?Iridaceae sp.	+	
Acacia pulchella var. reflexa	+	
Acanthocarpus preissii	+	
Austrostipa elegantissima	+	
Banksia bipinnatifida	+	
Banksia dallanneyi	+	
Conostylis setosa	+	



Species	Cover (%)	Height (m)
Dianella revoluta	+	
Drosera menziesii	+	
Gladiolus caryophyllaceus	+	
Grevillea synapheae	+	
Hakea undulata	+	
Hibbertia commutata	+	
Lepidosperma squamatum	+	
Lepidosperma tenue	+	
Leucopogon pulchellus	+	
Levenhookia pusilla	+	
Lobelia rhombifolia	+	
Lomandra sericea	+	
Lysimachia arvensis	+	
Neurachne alopecuroidea	+	
Petrophile striata	+	
Phyllangium divergens	+	
Phyllanthus calycinus	+	
Podolepis aristata	+	
Podolepis lessonii	+	
Pterostylis sp.	+	
Stylidium affine	+	
Thysanotus patersonii	+	
Trachymene pilosa	+	
Tricoryne elatior	+	
Tricoryne elatior	+	
Ursinia anthemoides	+	



Date 14/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 420997mE 6551744mN

Habitat and Waterway Up slope Slope Flat

Surface Layer Loose soil-gravel

Soil Colour Brown

Soil Texture Sandy loam, Gravel

Rock TypeNo RocksRock Size and AbundanceNo Rocks - N/AVegetation ConditionVery Good

Disturbance Type Some weeds, senescing Banksias

Time since Fire <5 years

Leaf Litter Distribution and Cover Scattered; 40%



Species	Cover (%)	Height (m)
Corymbia calophylla	3	14
Eucalyptus wandoo	10	15
Banksia sessilis	3	4
Xanthorrhoea preissii	4	1.5
Bossiaea eriocarpa	4	0.8
Hibbertia hypericoides	2	0.4
Acacia pulchella	+	
Boronia ramosa	+	
Calytrix variabilis	+	
Cassytha racemosa	+	
Chamaescilla corymbosa	+	



Species	Cover (%)	Height (m)
Conostylis setosa	+	
Desmocladus fasciculatus	+	
Drosera menziesii	+	
Gompholobium knightianum	+	
Grevillea synapheae	+	
Hakea lissocarpha	+	
Hyalosperma cotula	+	
Hypochaeris glabra	+	
Lagenophora huegelii	+	
Laxmannia squarrosa	+	
Lepidosperma ?squamatum	+	
Lepidosperma tenue	+	
Leucopogon polymorphus	+	
Levenhookia pusilla	+	
Lomandra caespitosa	+	
Neurachne alopecuroidea	+	
Petrophile serruriae	+	
Phyllanthus calycinus	+	
Podotheca gnaphalioides	+	
Pterostylis sp.	+	
Stylidium brunonianum	+	
Stylidium piliferum	+	
Thysanotus patersonii	+	
Trachymene pilosa	+	



Date 14/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 420420mE 6551747mN

Habitat and Waterway

Slope

Moderate

Surface Layer

Soil Colour

Brown

Soil TextureLoam, gravelRock TypeNo RocksRock Size and AbundanceNo Rocks - N/A

Vegetation ConditionGoodDisturbance TypeFire, WeedsTime since Fire<3 years</th>

Leaf Litter Distribution and Cover Scattered; 30%



Species	Cover (%)	Height (m)
Eucalyptus wandoo	20	12
Xanthorrhoea preissii	4	1.5
Hibbertia hypericoides	3	0.2
Acacia sphacelata subsp. sphacelata	+	
Allocasuarina fraseriana	+	
Austrostipa elegantissima	+	
Babingtonia camphorosmae	+	
Banksia fraseri var. fraseri	+	
Banksia dallanneyi	+	



Comesperma scoparium +	Species	Cover (%)	Height (m)
Daviesia preissii + Drosera ?stolonifera + Elythranthera brunonis + Gompholobium aristatum + Grevillea bipinnatifida subsp. bipinnatifida + Haemodorum laxum + Hakea undulata + Hakea undulata + Hakea undulata + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Kennedia prostrata + Lagenophora huegelii + Laxmannia squarrosa + Lechenaultia biloba + Lepidosperma tenue + Lepidosperma tenue + Lepidosperma tenue + Levenhookia pusilla + Lomandra sericea + Neurachne alopecuroidea + Opercularia vaginata + Peterstylis glebosa + Petiotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stylidium ?bulbiferum + Stylidium androsaceum + +	Comesperma scoparium	+	
Drosera ?stolonifera + Elythranthera brunonis + Compholobium aristatum + Crevillea bipinnatifida subsp. bipinnatifida + Crevillea synapheae + Haemodorum laxum + Hakea undulata + Hakea undulata + Hakea undulata + Heniogenia sericea + Hibbertia acerosa + Hypochaeris glabra + Cennedia prostrata + Hagenophora huegelii + Laxmannia squarrosa + Helpidosperma tenue + Lepidosperma tenue + Pericalymma ellipticum + Pericalymma ellipticum + Pericalymma ellipticum + Pericalymma ellipticum + Stylidium ?bulbiferum + Stylidium ?bulbiferum + Stylidium androsaceum		+	
Drosera ?stolonifera + Elythranthera brunonis + Compholobium aristatum + Crevillea bipinnatifida subsp. bipinnatifida + Crevillea synapheae + Haemodorum laxum + Hakea undulata + Hakea undulata + Hakea undulata + Heniogenia sericea + Hibbertia acerosa + Hypochaeris glabra + Cennedia prostrata + Hagenophora huegelii + Laxmannia squarrosa + Helpidosperma tenue + Lepidosperma tenue + Pericalymma ellipticum + Pericalymma ellipticum + Pericalymma ellipticum + Pericalymma ellipticum + Stylidium ?bulbiferum + Stylidium ?bulbiferum + Stylidium androsaceum	Daviesia preissii	+	
Gompholobium aristatum + Grevillea bipinnatifida subsp. bipinnatifida + Heriologia synapheae + Haemodorum laxum + Hakea undulata + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hagenopora huegelii + Heniquia biloba + Heniquia bilob	·	+	
Gompholobium aristatum + Grevillea bipinnatifida subsp. bipinnatifida + Heriologia synapheae + Haemodorum laxum + Hakea undulata + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hagenopora huegelii + Heniquia biloba + Heniquia bilob	Elythranthera brunonis	+	
Grevillea synapheae + Haemodorum laxum + Hakea undulata + Hekea undulata + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hemnedia prostrata + Hamigenia squarrosa + Hupochaeris glabra + Hamigenia squarrosa		+	
Haemodorum laxum + Hakea undulata + Hakea undulata + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hemigenia sericea + Hibbertia acerosa + Hibbertia a	Grevillea bipinnatifida subsp. bipinnatifida	+	
Haemodorum laxum + Hakea undulata + Hakea undulata + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hemigenia sericea + Hibbertia acerosa + Hibbertia a	Grevillea synapheae	+	
Hakea undulata + Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hypochaeris glabra + Hypochaeris glabra + Hagenophora huegelii + Hamannia squarrosa + Hechenaultia biloba + Hechenaultia biloba + Hechenaultia biloba + Hepidobolus preissianus + Hepidosperma tenue + Hepidosperma tenue + Hepidosperma tenue + Hevenhookia pusilla + Hevenhookia pusilla + Hevenhookia pusilla + Heriodoperuroidea + H		+	
Hemigenia sericea + Hibbertia acerosa + Hypochaeris glabra + Hypochaeris	Hakea undulata	+	
Hibbertia acerosa + Hypochaeris glabra + Hypochaeri	Hakea undulata	+	
Hypochaeris glabra + Hendrich Ekennedia prostrata + Heagenophora huegelii + Hendrich Ekenaultia biloba + Hepidobolus preissianus + Hepidosperma tenue + Hepidosperma tenue + Hepidosperma tenue + Heupidosperma tenu	Hemigenia sericea	+	
Kennedia prostrata+Lagenophora huegelii+Laxmannia squarrosa+Lechenaultia biloba+Lepidobolus preissianus+Lepidosperma tenue+Lepidosperma tenue+Levenhookia pusilla+Lomandra sericea+Neurachne alopecuroidea+Opercularia vaginata+Patersonia occidentalis+Pericalymma ellipticum+Pterostylis glebosa+Ptilotus manglesii+Schoenus clandestinus+Stackhousia pubescens+Stylidium ?bulbiferum+Stylidium androsaceum+	Hibbertia acerosa	+	
Kennedia prostrata+Lagenophora huegelii+Laxmannia squarrosa+Lechenaultia biloba+Lepidobolus preissianus+Lepidosperma tenue+Lepidosperma tenue+Levenhookia pusilla+Lomandra sericea+Neurachne alopecuroidea+Opercularia vaginata+Patersonia occidentalis+Pericalymma ellipticum+Pterostylis glebosa+Ptilotus manglesii+Schoenus clandestinus+Stackhousia pubescens+Stylidium ?bulbiferum+Stylidium androsaceum+	Hypochaeris glabra	+	
Lagenophora huegelii+Laxmannia squarrosa+Lechenaultia biloba+Lepidobolus preissianus+Lepidosperma tenue+Lepidosperma tenue+Levenhookia pusilla+Lomandra sericea+Neurachne alopecuroidea+Opercularia vaginata+Patersonia occidentaliis+Pericalymma ellipticum+Ptilotus manglesii+Schoenus clandestinus+Sowerbaea laxiflora+Stackhousia pubescens+Stylidium ?bulbiferum+Stylidium androsaceum+		+	
Laxmannia squarrosa+Lechenaultia biloba+Lepidobolus preissianus+Lepidosperma tenue+Lepidosperma tenue+Levenhookia pusilla+Lomandra sericea+Neurachne alopecuroidea+Opercularia vaginata+Patersonia occidentalis+Pericalymma ellipticum+Pterostylis glebosa+Ptilotus manglesii+Sowerbaea laxiflora+Stackhousia pubescens+Stylidium ?bulbiferum+Stylidium androsaceum+		+	
Lechenaultia biloba + Lepidobolus preissianus + Lepidosperma tenue + Lepidosperma tenue + Lepidosperma tenue + Levenhookia pusilla + Lomandra sericea + Lomandra sericea + Lomandra sericea + Lomandra sericea + Lomandra vaginata		+	
Lepidosperma tenue+Levenhookia pusilla+Lomandra sericea+Neurachne alopecuroidea+Opercularia vaginata+Patersonia occidentalis+Pericalymma ellipticum+Pterostylis glebosa+Ptilotus manglesii+Schoenus clandestinus+Sowerbaea laxiflora+Stackhousia pubescens+Stylidium ?bulbiferum+Stylidium androsaceum+		+	
Lepidosperma tenue+Levenhookia pusilla+Lomandra sericea+Neurachne alopecuroidea+Opercularia vaginata+Patersonia occidentalis+Pericalymma ellipticum+Pterostylis glebosa+Ptilotus manglesii+Schoenus clandestinus+Sowerbaea laxiflora+Stackhousia pubescens+Stylidium ?bulbiferum+Stylidium androsaceum+	Lepidobolus preissianus	+	
Lepidosperma tenue + Levenhookia pusilla + Lomandra sericea + Neurachne alopecuroidea + Patersonia occidentalis + Patersonia occidentalis + Pericalymma ellipticum + Periostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stylidium ?bulbiferum + Stylidium androsaceum + Stylidium andros		+	
Levenhookia pusilla + Lomandra sericea + Neurachne alopecuroidea + Opercularia vaginata + Patersonia occidentalis + Pericalymma ellipticum + Pterostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stylidium ?bulbiferum + Stylidium androsaceum +		+	
Lomandra sericea + Neurachne alopecuroidea + Opercularia vaginata + Patersonia occidentalis + Pericalymma ellipticum + Pterostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stylidium ?bulbiferum + Stylidium androsaceum +		+	
Opercularia vaginata + Patersonia occidentalis + Pericalymma ellipticum + Pterostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +		+	
Opercularia vaginata + Patersonia occidentalis + Pericalymma ellipticum + Pterostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +	Neurachne alopecuroidea	+	
Patersonia occidentalis + Pericalymma ellipticum + Pterostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +	·	+	
Pterostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +		+	
Pterostylis glebosa + Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +	Pericalymma ellipticum	+	
Ptilotus manglesii + Schoenus clandestinus + Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +		+	
Schoenus clandestinus + Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +	• •	+	
Sowerbaea laxiflora + Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +	<u> </u>		
Stackhousia pubescens + Stylidium ?bulbiferum + Stylidium androsaceum +		+	
Stylidium ?bulbiferum + Stylidium androsaceum +		+	
Stylidium androsaceum +		+	
		+	
	•	+	



Date 17/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408760mE 6543972mN

Habitat and Waterway

Slope

Valley floor

Surface Layer

Moist Soil

Brown

Soil Texture

Rock Type

No Rocks

Rock Size and Abundance

Creek

Valley floor

Loam

Rown

No Rocks

Vegetation Condition Good

Disturbance Type Weeds, erosion **Time since Fire** >5 years

Leaf Litter Distribution and Cover Scattered; 35%



Species	Cover (%)	Height (m)
Eucalyptus rudis	35	14
Acacia saligna	3	2
Hakea varia	2	2
Xanthorrhoea preissii	1	1.5
Lepidosperma ?squamatum	35	0.6
Lepidosperma tenue	20	0.6
Briza minor	+	
Conyza bonariensis	+	
Ehrharta longiflora	+	
Hypochaeris glabra	+	



Species	Cover (%)	Height (m)
Isolepis marginata	+	
Lagenophora huegelii	+	
Lysimachia arvensis	+	
Sowerbaea laxiflora	+	
Ursinia anthemoides	+	



Date 17/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408769mE 6544036mN

Habitat and Waterway

Slope

Valley floor

Surface Layer

Moist Soil

Soil Colour

Brown

Clay

Rock Type

No Rocks

Rock Size and Abundance

No Rocks - N/A

Vegetation ConditionGoodDisturbance TypeWeedsTime since Fire> 5 years

Leaf Litter Distribution and Cover Scattered; 25%



Species	Cover (%)	Height (m)
Corymbia calophylla	5	9
Eucalyptus rudis	15	14
Hakea varia	25	4
Lepidosperma ?squamatum	20	0.4
Lepidosperma tenue	15	0.5
Gonocarpus nodulosus	15	0.1
Acacia saligna	+	
Anigozanthos viridis subsp. viridis	+	



Species	Cover (%)	Height (m)
Arctotheca calendula	+	
Austrostipa elegantissima	+	
Briza maxima	+	
Caesia occidentalis	+	
Drosera gigantea subsp. gigantea	+	
Hibbertia stellaris	+	
Hyalosperma cotula	+	
Hypochaeris glabra	+	
Isolepis marginata	+	
Jacksonia floribunda	+	
Lagenophora huegelii	+	
Lomandra sericea	+	
Lysimachia arvensis	+	
Neurachne alopecuroidea	+	
Parentucellia latifolia	+	
Patersonia occidentalis	+	
Podotheca gnaphalioides	+	
Tricoryne elatior	+	
Ursinia anthemoides	+	
Verticordia densiflora	+	



Date 17/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408708mE 6544041mN

Habitat and Waterway

Slope

Valley floor

Surface Layer

Moist Soil

Soil Colour

Brown

Clay loam

Rock Type

No Rocks

Rock Size and Abundance

No Rocks - N/A

Vegetation ConditionGoodDisturbance TypeWeedsTime since Fire>5 yearsLeaf Litter Distribution and Cover Sparse; 3%



Species	Cover (%)	Height (m)
Corymbia calophylla	2	5
Eucalyptus rudis	5	8
Hakea varia	3	2
Jacksonia furcellata	2	2
Hypocalymma angustifolium	2	1
Lepidosperma ?squamatum	2	0.3
Lepidosperma tenue	1	0.3
Briza maxima	+	
Caesia occidentalis	+	



Species	Cover (%)	Height (m)
Crassula colorata	+	
Dianella revoluta	+	
Dischisma capitatum	+	
Drosera ?sewelliae	+	
Drosera glanduligera	+	
Hyalosperma cotula	+	
Hypocalymma angustifolium	+	
Kennedia prostrata	+	
Millotia myosotidifolia	+	
Ornithopus pinnatus	+	
Patersonia occidentalis	+	
Podotheca gnaphalioides	+	
Pterostylis sp.	+	
Trachymene pilosa	+	
Ursinia anthemoides	+	
Verticordia densiflora	+	
Xanthorrhoea preissii	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 416688mE 6549328mN

Habitat and Waterway Mid-Up slope

Slope Flat

Vegetation Condition

Surface Layer Loose Gravel

Soil Colour Brown

Soil Texture Clay loam, Gravel

Rock TypeRock Size and Abundance
No Rocks - N/A

Disturbance Typesome weedsTime since Fire> 10 yearsLeaf Litter Distribution and Cover Scattered; 0%



Very Good-Excellent

Species	Cover (%)	Height (m)
Eucalyptus marginata	5	16
Banksia sessilis	3	4
Calothamnus sanguineus	3	1
Hibbertia hypericoides	4	0.6
Neurachne alopecuroidea	4	0.5
Acacia pulchella var. pulchella	+	
Alexgeorgea nitens	+	
Babingtonia camphorosmae	+	
Banksia armata	+	
Banksia dallanneyi	+	



Species	Cover (%)	Height (m)
Banksia polycephala	+	
Calytrix flavescens	+	
Calytrix variabilis	+	
Chamaescilla corymbosa	+	
Drosera macrantha subsp. macrantha	+	
Drosera sewelliae	+	
Haemodorum laxum	+	
Hibbertia hibbertioides var. hibbertioides	+	
Hibbertia miniata	+	
Hypochaeris glabra	+	
Hypolaena pubescens	+	
Laxmannia squarrosa	+	
Lepidosperma ?squamatum	+	
Lepidosperma tenue	+	
Leucopogon pulchellus	+	
Levenhookia octomaculata	+	
Lobelia rhombifolia	+	
Lomandra caespitosa	+	
Lomandra sericea	+	
Pentameris airoides	+	
Podotheca gnaphalioides	+	
Stylidium albolilacinum	+	
Stylidium repens	+	
Tetraria octandra	+	
Trachymene pilosa	+	
Ursinia anthemoides	+	
Verticordia bifimbriata	+	
Verticordia serrata var. ciliata	+	
Vulpia bromoides	+	
Xanthorrhoea gracilis	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 419396mE 6550986mN

Habitat and WaterwayLower slopeSlopeModerateSurface LayerLoose GravelSoil ColourBrownSoil TextureLoam, gravel

Rock Type Rock Size and AbundanceNo Rocks - N/A

Vegetation ConditionGoodDisturbance TypeWeedsTime since Fire>5 yearsLeaf Litter Distribution and Cover Patchy; 15%



Species	Cover (%)	Height (m)
Eucalyptus wandoo	20	14
Casuarina obesa	15	5
Gastrolobium calycinum	15	1.5
Bossiaea eriocarpa	2	0.4
Neurachne alopecuroidea	18	0.4
Opercularia vaginata	4	0.3
Acacia pulchella var. pulchella	+	
Briza maxima	+	
Chamaescilla corymbosa	+	



Species	Cover (%)	Height (m)
Dianella revoluta	+	
Drosera menziesii	+	
Gladiolus caryophyllaceus	+	
Gompholobium shuttleworthii	+	
Goodenia berardiana	+	
Goodenia coerulea	+	
Hakea lissocarpha	+	
Hibbertia commutata	+	
Hypochaeris glabra	+	
Hypolaena pubescens	+	
Kennedia prostrata	+	
Lagenophora huegelii	+	
Lepidosperma tenue	+	
Lysimachia arvensis	+	
Ptilotus manglesii	+	
Romulea rosea	+	
Sowerbaea laxiflora	+	
Stylidium ?bulbiferum	+	
Stylidium affine	+	
Stylidium piliferum	+	
Stypandra glauca	+	
Trachymene pilosa	+	
Trifolium campestre	+	
Trymalium angustifolium	+	
Xanthorrhoea preissii	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 419426mE 6550979mN

Habitat and WaterwayLower slopeSlopeModerateSurface LayerLoose GravelSoil ColourBrown

Soil TextureLoam, gravelRock TypeNo RocksRock Size and AbundanceNo Rocks - N/AVegetation ConditionGood-Very Good

Disturbance Type Weeds **Time since Fire** >5 years

Leaf Litter Distribution and Cover Scattered; 45%



Species	Cover (%)	Height (m)
Eucalyptus wandoo	18	12
Casuarina obesa	3	3
Gastrolobium calycinum	1	0.8
Neurachne alopecuroidea	7	0.4
Borya sphaerocephala	+	
Burchardia congesta	+	
Drosera ?stolonifera	+	
Drosera macrantha subsp. macrantha	+	
Drosera subhirtella	+	



Species	Cover (%)	Height (m)
Ericomyrtus tenuior	+	
Gompholobium shuttleworthii	+	
Hyalosperma cotula	+	
Isolepis marginata	+	
Laxmannia squarrosa	+	
Lepidobolus preissianus	+	
Lepidosperma squamatum	+	
Lepidosperma tenue	+	
Opercularia vaginata	+	
Podolepis lessonii	+	
Pterostylis glebosa	+	
Stylidium androsaceum	+	
Trachymene pilosa	+	
Tricoryne elatior	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 419858mE 6550951mN

Habitat and Waterway Lower slope Slope Gentle **Surface Layer** Loose Soil **Soil Colour** Brown **Soil Texture** Loam **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good **Disturbance Type** Some weeds **Time since Fire** >5 years



Species	Cover (%)	Height (m)
Eucalyptus wandoo	15	10
Casuarina obesa	25	8
Hakea lissocarpha	2	1.2
Hypocalymma angustifolium	2	1
Verticordia chrysanthella	4	1.2
Neurachne alopecuroidea	2	0.4
Borya sphaerocephala	1	0.1
Astroloma pallidum	+	



Species	Cover (%)	Height (m)
Banksia fraseri var. fraseri	+	
Bossiaea eriocarpa	+	
Brachyscome pusilla	+	
Briza maxima	+	
Chamaescilla corymbosa	+	
Conostylis setosa	+	
Daviesia physodes	+	
Dianella revoluta	+	
Disa bracteata	+	
Drosera ?sewelliae	+	
Drosera macrantha subsp. macrantha	+	
Drosera menziesii	+	
Drosera subhirtella	+	
Ericomyrtus tenuior	+	
Gladiolus caryophyllaceus	+	
Gompholobium knightianum	+	
Gompholobium marginatum	+	
Goodenia coerulea	+	
Grevillea bipinnatifida subsp. bipinnatifida	+	
Grevillea pilulifera	+	
Hibbertia hypericoides	+	
Hypochaeris glabra	+	
Jacksonia sternbergiana	+	
Laxmannia ramosa subsp. ramosa	+	
Lepidobolus preissianus	+	
Lepidosperma tenue	+	
Lepidosperma tenue	+	
Levenhookia pusilla	+	
Neurachne alopecuroidea	+	
Pterostylis glebosa	+	
Ptilotus manglesii	+	
Sowerbaea laxiflora	+	
Sowerbaea laxiflora	+	
Stylidium androsaceum	+	
Tricoryne elatior	+	
Ursinia anthemoides	+	
Wurmbea dioica subsp. alba	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408997mE 6524339mN

Habitat and Waterway Lower slope Slope Gentle **Surface Layer** Loose Soil **Soil Colour** Brown **Soil Texture** Sandy loam **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Excellent **Disturbance Type** Some weeds

Time since Fire >10 years

Leaf Litter Distribution and Cover Scattered; 45%



Species	Cover (%)	Height (m)
Corymbia calophylla	5	14
Eucalyptus marginata	40	14
Banksia attenuata	10	5
Banksia grandis	3	4
Macrozamia riedlei	3	1
Xanthorrhoea preissii	4	1.5
Hibbertia hypericoides	4	0.8
Alexgeorgea nitens	+	
Alexgeorgea nitens	+	
Austrostipa elegantissima	+	



Species	Cover (%)	Height (m)
Banksia dallanneyi	+	
Bossiaea eriocarpa	+	
Briza maxima	+	
Caladenia flava	+	
Chamaescilla corymbosa	+	
Corynotheca micrantha	+	
Daviesia nudiflora	+	
Drosera erythrorhiza	+	
Freesia alba x leichtlinii	+	
Gladiolus caryophyllaceus	+	
Gompholobium tomentosum	+	
Hypochaeris glabra	+	
Hypolaena exsulca	+	
Kennedia prostrata	+	
Lagenophora huegelii	+	
Lepidosperma ?squamatum	+	
Lomandra caespitosa	+	
Lomandra hermaphrodita	+	
Philotheca spicata	+	
Podotheca gnaphalioides	+	
Pyrorchis nigricans	+	
Styphelia tenuiflora	+	
Tetrarrhena laevis	+	
Thysanotus manglesianus	+	
Trachymene pilosa	+	
Tricoryne elatior	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409481mE 6524055mN

Habitat and Waterway Swamp Slope Valley floor **Surface Layer** Moist Soil **Soil Colour** Brown **Soil Texture** Clay **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good

Disturbance TypeFire

7 years

1 Leaf Litter Distribution and Cover No litter; 0%



Species	Cover (%)	Height (m)
Eucalyptus rudis	2	4
Melaleuca preissiana	15	6
Baumea articulata	85	2
Baumea rubiginosa	40	1.5
Typha sp.	2	1.5



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409578mE 6523992mN

Habitat and Waterway Swamp (Creek)

Gentle Slope **Surface Layer** Moist Soil **Soil Colour** Brown **Soil Texture** Clay loam **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good **Disturbance Type** Fire, some weeds

Time since Fire <2 years Leaf Litter Distribution and Cover Patchy; 0%



Species	Cover (%)	Height (m)
Banksia littoralis	6	6
Eucalyptus rudis	1	3
Aotus gracillima	2	2
Xanthorrhoea preissii	2	1.5
Hypocalymma angustifolium	80	0.8
Alexgeorgea nitens	+	
Astartea scoparia	+	
Baumea rubiginosa	+	
Briza minor	+	



Species	Cover (%)	Height (m)
Crassula colorata	+	
Cyperus polystachyos	+	
Drosera ?stolonifera	+	
Drosera gigantea subsp. gigantea	+	
Drosera glanduligera	+	
Gompholobium tomentosum	+	
Helichrysum luteoalbum	+	
Hypochaeris glabra	+	
Hypolaena exsulca	+	
Isolepis marginata	+	
Jacksonia furcellata	+	
Kennedia prostrata	+	
Lagenophora huegelii	+	
Levenhookia pusilla	+	
Lotus subbiflorus	+	
Melaleuca preissiana	+	
Mesomelaena tetragona	+	
Patersonia occidentalis	+	
Pentameris airoides	+	
Phyllangium divergens	+	
Romulea rosea	+	
Tricoryne elatior	+	
Trifolium dubium	+	
Ursinia anthemoides	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 410127mE 6521299mN

Habitat and Waterway

Slope

Valley floor

Surface Layer

Soil Colour

Soil Texture

Rock Type

Rock Size and Abundance

Creek (Creek)

Valley floor

Moist Soil

Brown

Clay loam

No Rocks

No Rocks - N/A

Vegetation Condition Good

Disturbance Type Grazing, weeds
Time since Fire >5 years
Leaf Litter Distribution and Cover Scattered; 25%



Species	Cover (%)	Height (m)
Kunzea glabrescens	25	4
Melaleuca viminea	5	4
Haemodorum simplex	+	
Hydrocotyle alata	+	
Isolepis cernua	+	
Utricularia multifida	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409166mE 6533657mN

Habitat and Waterway Swamp Slope Flat Moist Soil **Surface Layer Soil Colour** White **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good

Disturbance TypeWeedsTime since Fire> 10 yearsLeaf Litter Distribution and Cover Scattered; 65%



Species	Cover (%)	Height (m)
Corymbia calophylla	20	12
Eucalyptus rudis	10	10
Banksia grandis	1	3
Kunzea glabrescens	40	5
Melaleuca preissiana	6	4
Xanthorrhoea preissii	1	0.8
Lepidosperma tenue	3	0.4
Baumea rubiginosa	+	
Briza maxima	+	



Caladenia flava	+	
Species	Cover (%)	Height (m)
Crassula colorata	+	
Drosera erythrorhiza	+	
Drosera subhirtella	+	
Eriochilus dilatatus	+	
Hypochaeris glabra	+	
Jacksonia sternbergiana	+	
Kennedia prostrata	+	
Lepidosperma ?squamatum	+	
Phyllangium divergens	+	
Schoenus efoliatus	+	
Trachymene pilosa	+	



Date 18/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409060mE 6533684mN

Habitat and Waterway Swamp Gentle Slope **Surface Layer** Moist Soil **Soil Colour** Brown **Soil Texture** Loamy sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good-Excellent **Disturbance Type** Fallen trees, some weeds

Time since Fire > 10 years

Leaf Litter Distribution and Cover Evenly spread; 85%



Species	Cover (%)	Height (m)
Banksia attenuata	3	9
Banksia ilicifolia	4	9
Banksia menziesii	6	7
Kunzea glabrescens	80	6
Xanthorrhoea preissii	5	1
?Philotheca spicata	+	
Calytrix flavescens	+	
Drosera erythrorhiza	+	
Hypochaeris glabra	+	
Labichea punctata	+	
Phyllangium divergens	+	
Poa drummondiana	+	
Ursinia anthemoides	+	



Date 19/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 411474mE 6520537mN

Habitat and Waterway Mid slope Slope Gentle **Surface Layer** Loose Soil **Soil Colour** Brown **Soil Texture** Clay loam **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good **Disturbance Type** Fire, weeds **Time since Fire** <3 years Leaf Litter Distribution and Cover Sparse; 3%



Species	Cover (%)	Height (m)
Corymbia calophylla	4	5
Eucalyptus marginata	1	1
Xanthorrhoea preissii	15	2
Bossiaea eriocarpa	30	1
Phyllanthus calycinus	30	0.4
Acacia saligna	+	
Adenanthos cygnorum subsp. chamaephyton	+	
Alexgeorgea nitens	+	
Briza maxima	+	
Briza minor	+	
Crassula colorata	+	
Drosera erythrorhiza	+	



Species	Cover (%)	Height (m)
Grevillea bipinnatifida subsp. bipinnatifida	+	
Grevillea vestita subsp. vestita	+	
Haemodorum laxum	+	
Hakea lissocarpha	+	
Hibbertia commutata	+	
Hyalosperma cotula	+	
Hydrocotyle alata	+	
Hypochaeris glabra	+	
Jacksonia furcellata	+	
Kennedia coccinea	+	
Kennedia prostrata	+	
Lagenophora huegelii	+	
Lysimachia arvensis	+	
Moraea flaccida	+	
Neurachne alopecuroidea	+	
Orobanche minor	+	
Pentameris airoides	+	
Petrorhagia dubia	+	
Poa drummondiana	+	
Podolepis aristata	+	
Podotheca gnaphalioides	+	
Stackhousia pubescens	+	
Tetraria octandra	+	
Thomasia grandiflora	+	
Thysanotus manglesianus	+	
Trachymene pilosa	+	
Trifolium hirtum	+	
Ursinia anthemoides	+	



Date 19/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 411463mE 6520540mN

Habitat and Waterway

Slope
Gentle
Surface Layer
Loose Soil
Soil Colour
Brown
Clay loam
Rock Type
No Rocks
Rock Size and Abundance
Nick Slope
No Rocks - N/A

Vegetation ConditionGoodDisturbance TypeFire, weedsTime since Fire<3 years</th>Leaf Litter Distribution and Cover Scattered; 5%



Species	Cover (%)	Height (m)
Corymbia calophylla	20	6
Xanthorrhoea preissii	30	2
Bossiaea eriocarpa	35	1.2
Hypocalymma angustifolium	12	1
Phyllanthus calycinus	10	1
Adenanthos cygnorum subsp. chamaephyton	+	
Austrostipa elegantissima	+	
Briza maxima	+	
Briza minor	+	



Species	Cover (%)	Height (m)
Burchardia congesta	+	
Crassula colorata	+	
Erodium botrys	+	
Grevillea bipinnatifida subsp. bipinnatifida	+	
Haemodorum laxum	+	
Hibbertia hypericoides	+	
Hydrocotyle alata	+	
Hypochaeris glabra	+	
Kennedia prostrata	+	
Lysimachia arvensis	+	
Neurachne alopecuroidea	+	
Pentameris airoides	+	
Petrorhagia dubia	+	
Poa drummondiana	+	
Podolepis aristata	+	
Podotheca gnaphalioides	+	
Tetraria octandra	+	
Thomasia grandiflora	+	
Trachymene pilosa	+	
Trifolium dubium	+	
Ursinia anthemoides	+	



Date 19/10/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 411480mE 6520589mN

Habitat and Waterway

Slope
Gentle
Surface Layer
Loose Soil
Soil Colour
Brown
Clay loam
Rock Type
No Rocks
Rock Size and Abundance
Nick Slope
No Rocks - N/A

Vegetation ConditionGoodDisturbance TypeFire, weedsTime since Fire<3 years</th>

Leaf Litter Distribution and Cover Scattered; 10%



Species	Cover (%)	Height (m)
Corymbia calophylla	15	18
Jacksonia sternbergiana	12	3
Xanthorrhoea preissii	3	1.5
Bossiaea eriocarpa	30	0.8
Hypocalymma angustifolium	60	0.7
Acacia iteaphylla	+	
Acacia saligna	+	
Adenanthos cygnorum subsp. chamaephyton	+	
Alexgeorgea nitens	+	
Austrostipa elegantissima	+	
Briza maxima	+	
Burchardia congesta	+	



Species	Cover (%)	Height (m)
Caladenia longicauda subsp. Longicauda	+	
Comesperma calymega	+	
Daviesia physodes	+	
Gastrolobium ?crispatum	+	
Gastrolobium capitatum	+	
Gompholobium knightianum	+	
Grevillea bipinnatifida subsp. bipinnatifida	+	
Haemodorum laxum	+	
Haemodorum laxum	+	
Hibbertia hypericoides	+	
Hyalosperma cotula	+	
Hypochaeris glabra	+	
Labichea punctata	+	
Lysimachia arvensis	+	
Neurachne alopecuroidea	+	
Pentameris airoides	+	
Phyllanthus calycinus	+	
Podolepis aristata	+	
Podotheca gnaphalioides	+	
Ptilotus manglesii	+	
Romulea rosea	+	
Sowerbaea laxiflora	+	
Synaphea panhesya	+	
Thomasia grandiflora	+	
Thysanotus manglesianus	+	
Trachymene pilosa	+	
Tricoryne elatior	+	
Ursinia anthemoides	+	



Date 22/11/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 409062mE 6532363mN

Habitat and Waterway Mid slope Gentle Slope **Surface Layer** Loose Soil **Soil Colour** Pale grey **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good **Disturbance Type** ?Dieback, some weeds

Time since Fire >5 years **Leaf Litter Distribution and Cover** Scattered; 0%



Species	Cover (%)	Height (m)
Banksia attenuata	20	5
Banksia menziesii	5	3
Nuytsia floribunda	15	4
Xanthorrhoea preissii	10	1.5
Lyginia imberbis	3	0.5
Melaleuca seriata	15	0.5
Mesomelaena pseudostygia	5	0.5



Species	Cover (%)	Height (m)
?Philotheca spicata	+	
Acacia huegelii	+	
Alexgeorgea nitens	+	
Amphipogon strictus	+	
Anigozanthos humilis	+	
Banksia dallanneyi	+	
Beaufortia elegans	+	
Bossiaea eriocarpa	+	
Calytrix flavescens	+	
Cassytha racemosa	+	
Caustis dioica	+	
Chamaescilla corymbosa	+	
Conostephium pendulum	+	
Conostylis prolifera	+	
Desmocladus fasciculatus	+	
Drosera erythrorhiza	+	
Gladiolus caryophyllaceus	+	
Gompholobium tomentosum	+	
Haemodorum laxum	+	
Hibbertia huegelii	+	
Hypochaeris glabra	+	
Jacksonia eremodendron	+	
Lepidosperma tenue	+	
Levenhookia pusilla	+	
Lomandra hermaphrodita	+	
Neurachne alopecuroidea	+	
Orchidaceae sp.	+	
Petrophile linearis	+	
Podotheca gnaphalioides	+	
Schoenus curvifolius	+	
Stirlingia latifolia	+	
Stylidium brunonianum	+	
Stylidium piliferum	+	
Stylidium repens	+	
Synaphea spinulosa	+	
Thysanotus manglesianus	+	
Tricoryne elatior	+	
Trifolium dubium	+	



Species	Cover (%)	Height (m)
Ursinia anthemoides	+	



Date 22/11/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408784mE 6538363mN

Habitat and Waterway Mid slope Slope Gentle **Surface Layer** Loose Soil **Soil Colour** Pale grey **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Very Good **Disturbance Type** Some weeds **Time since Fire** >5 years Leaf Litter Distribution and Cover Scattered; 0%



Species	Cover (%)	Height (m)
Eucalyptus todtiana	20	6
Banksia attenuata	8	4
Eremaea pauciflora	5	1.2
Alexgeorgea nitens	60	0.1
Bossiaea eriocarpa	2	0.3
Austrostipa hemipogon	+	
Banksia dallanneyi	+	
Briza maxima	+	
Calytrix fraseri	+	_



Species	Cover (%)	Height (m)
Conostephium pendulum	+	
Dampiera linearis	+	
Daviesia nudiflora	+	
Daviesia physodes	+	
Disa bracteata	+	
Ehrharta calycina	+	
Haemodorum laxum	+	
Hypochaeris glabra	+	
Hypolaena exsulca	+	
Jacksonia furcellata	+	
Pentameris airoides	+	
Petrophile linearis	+	
Phlebocarya ciliata	+	
Podotheca gnaphalioides	+	
Stirlingia latifolia	+	
Ursinia anthemoides	+	



Date 22/11/2016

Botanist Kellie Bauer-Simpson, Gabriela Martinez

Quadrat Size 10 x 10 m

NW Corner Coordinates 408867mE 6538795mN

Habitat and Waterway Mid slope Gentle Slope **Surface Layer** Loose Soil **Soil Colour** Pale grey **Soil Texture** Sand **Rock Type** No Rocks **Rock Size and Abundance** No Rocks - N/A **Vegetation Condition** Good-Very Good **Disturbance Type** Senescence **Time since Fire** >5 years Leaf Litter Distribution and Cover Scattered; 0%



Species	Cover (%)	Height (m)
Melaleuca preissiana	4	7
Banksia attenuata	8	5
Adenanthos cygnorum	5	2
Regelia ciliata	65	1.6
Lyginia imberbis	2	1
Phlebocarya ciliata	3	0.6
Austrostipa hemipogon	+	
Briza maxima	+	
Crassula colorata	+	
Dampiera linearis	+	