Figure 1. Location of the Perth-Darwin National Highway route

Note: Figure provided by Coffey.

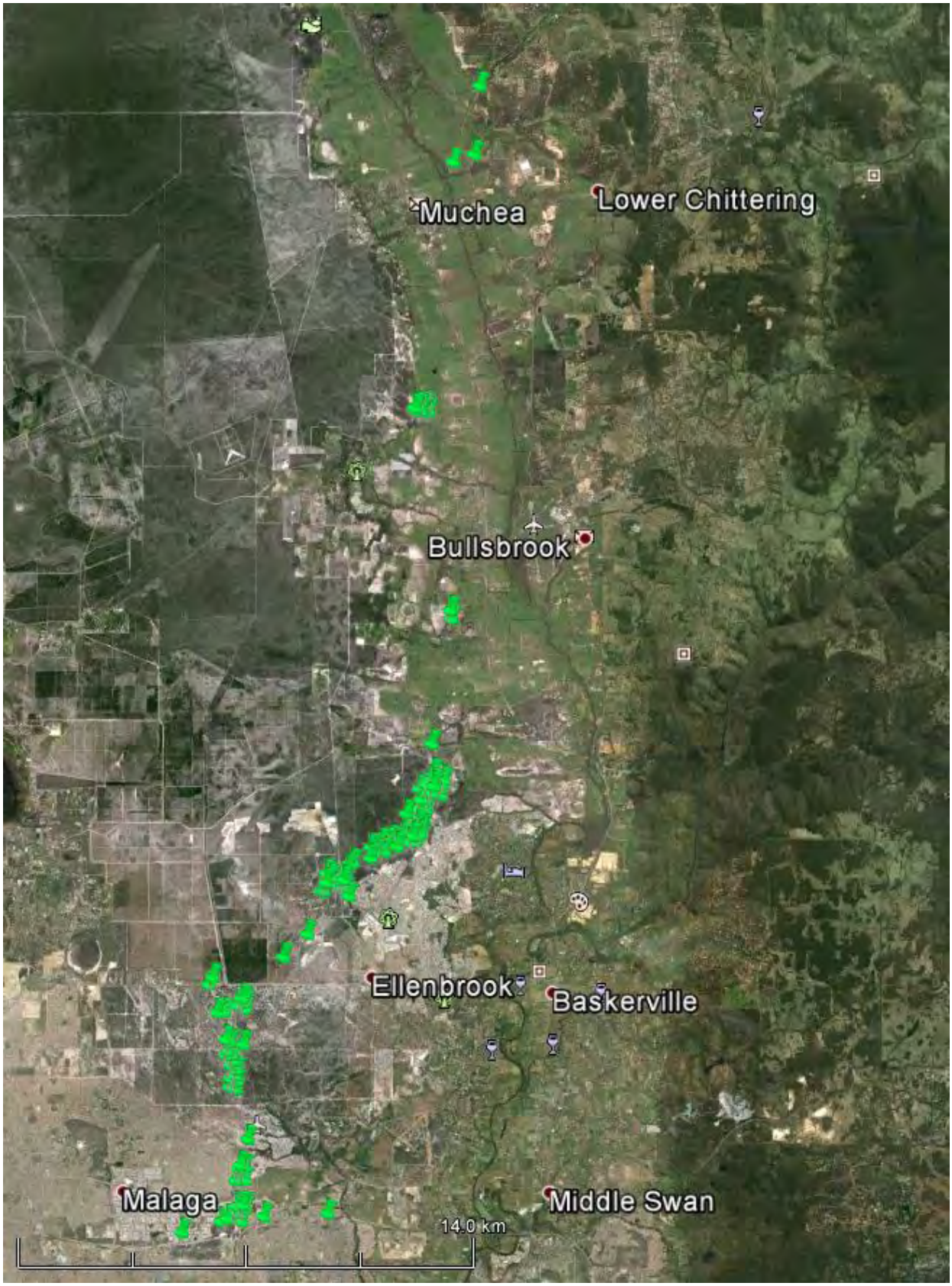

Figure 2. Locations of the vegetation sits recorded for the Perth-Darwin National Highway route

Note: Sites are shown by green "pins" and were recorded by Coffey and 360 Environmental.

1.3 Floristic classification of vegetation and structural classification

Floristic classification of vegetation data is a process of grouping sites where vegetation data (especially lists of species present) has been recorded into units based on the similarity of the lists of species recorded at the sites (sometimes abundance is also used, particularly when there is a lot of data for an area and the area is not large). This is done using pattern analysis computer programs (in Australia frequently the analysis package PATN (Belbin 1987) or similar packages). Structural/dominance classifications use the abundance of plants in the different layers (herbs, shrubs, trees) in the vegetation coupled with the contribution by different species. In this type of classification, the more abundant or dominant species and their life-form are emphasised, at lower levels of synthesis more species are taken into account and fewer at higher levels, until at the vegetation formation level species are ignored and only life-form is used (and only of the highest or dominant layer).

There are no defined levels for floristic classification of vegetation data such as those that are well known for vegetation based on structure and dominant species. This can lead to confusion, as the groups produced using floristic analysis are not infrequently referred to as 'floristic community types', creating a false impression that they are of the same level of synthesis as the comparatively well known 'plant community'. This mis-understanding can be exacerbated when no discussion of the level of units presented is given for an analysis.

Plant community is the lowest level of the commonly accepted hierarchical structural and dominance set of units for vegetation. Above it in order are 'society', 'vegetation association', 'vegetation alliance' and 'vegetation formation'. The latter unit is of such a high level of synthesis that it only uses the structure of the upper layer of the vegetation being described (e.g. 'open woodland' or 'closed forest'). Floristic analyses are often at much higher levels of synthesis than plant community, often because the data sets available are limited in the number of sites in relation to the area being studied.

That several levels of structural units (sometimes modified with sub-community etc.) are necessary (with specification of species in the lower levels) to classify vegetation in that methodology, hints at the significant complexity of this natural phenomenon. Some idea of this complexity can be gained from the fact that there are some 2,000 species in the vegetation of the Swan Coastal Plain. While floristic analysis is one way to investigate this complexity, it can be best described and assessed by using floristic classification and

structural description as complementary tools to better understand the overall values of the vegetation under consideration.

1.4 The existing regional floristic classification for the Swan Coastal Plain and implications for conservation assessment

There is an existing regional level classification (Gibson *et al* 1994) of the vegetation of the Swan Coastal Plain from Gingin south to the southern end of the Plain (a distance of 280 kilometres). This classification was based on five hundred and nine (509) 10 by 10 metre vegetation recording sites. The authors of the report (using the PATN pattern analysis package) developed a classification of thirty (30) floristic community types, some of which had sub-communities, giving a total of forty-three (43) units. While the Swan Coastal Plain survey is based on a very significant amount of work, it must be viewed as a "first pass" survey, limited, in the context of the great variety of vegetation present in the very large area surveyed, by the relatively limited number of sites (quadrats) it is based on. To a small degree, this limitation has subsequently been addressed in an "update" to the work of the Swan Coastal Plain Survey which describes additional units. Some of the data used in the "update" was available for use in this report.

The five hundred and nine sites recorded by Gibson *et al* (1992) sample an area of approximately six thousand square kilometres that includes substantial geomorphic and soil variation. This variation includes three major dune systems (the Quindalup, Spearwood and Bassendean dune systems), the Pinjarra Plain (the area between the Bassendean Dune System and the Darling Scarp), soils associated with the rivers crossing the Swan Coastal Plain, and soils associated with a variety of wetland types. Overlain over this geomorphic/soil variation, there is a gradient of climatic factors (particularly a drop in rainfall) from south to north. Bearing in mind the size of their study area, the number of native species in the area, and the variation in the soils, geomorphology and climate of their study area, it is not surprising that the "floristic community types" described by Gibson *et al* (1994) are of a quite high order of synthesis.

Reference to Appendix 1 suggests that while they are not equivalent in type, the Gibson *et al* (1994) units are of a similar order of synthesis to vegetation formation for the Swan Coastal Plain. This is not as immediately straight forward as it seems, because however big an area you consider there are only so many vegetation formations. However, examples of many of

the possible vegetation formations can be found on the Swan Coastal Plain and for an area as large as the Gibson *et al* study area the comparison is reasonable. Even if one went down a level, and considered the Gibson *et al* (1992) units to be of similar level of synthesis to vegetation alliance, this is still a high order of synthesis.

The importance of understanding that the Gibson *et al* (1994) floristic community types are formed at a very high level of synthesis (see Trudgen 1999, volume 1, for further discussion of this point), that is that they are very broad and in a sense abstract, is that without such understanding their appropriate use cannot be understood.

The important effects of the limited size data set used by the Swan Coastal Plain survey (Gibson *et al* 1994) and of the relatively small number of floristic community types defined by them can be summarised by the following points:

1. The definition for 18 of the 24 Threatened Ecological Communities on the Swan Coastal Plain (English and Blyth 1997) has been based on the floristic community types of the Swan Coastal Plain survey. It therefore follows, that with six exceptions, only vegetation units from one study that are different at a high order of floristics are treated as rare by Government. No account is taken of lower order floristic units or of other important differences, such as differences in structure and dominance;

2. For the definition (using programs such as PATN) of floristic community types to be robust, a sufficient sized database is needed to give adequate precision in their definition. About half of the floristics community types (or sub types) of the Swan Coastal Plain survey are based on less than 10 sites. It is likely that with a larger data set there would be significant alteration in the classification of those floristic community types from the Swan Coastal Plain survey based on small numbers of sites.

3. As noted above, many (if not most) of the floristic community types defined by the Swan Coastal Plain survey are very broad. They contain very significant variation in floristics, structure and dominance. Some (or in more highly cleared parts of the Swan Coastal Plain much) of this variation may be rare by any reasonable definition, but it is currently "buried" within larger groups;

4. There is likely to be significant variation not sampled by the Swan Coastal Plain survey. This includes some variation at a high level of floristic difference (see Trudgen 1999, volume 1, for an example of this) and undoubtedly significant amounts of variation at "medium" and "low" levels.

5. The document, and its use by Government, has focussed attention in the environmental impact assessment process on the high level of units described, deflecting attention from the layers of variation beneath these units that also have significant conservation value.

From the points above, it is clear that there is a need for a major "upgrade" to the floristic analysis of the vegetation of the Swan Coastal Plain. This is needed to provide a more detailed floristic classification that considers not only more of the variation present, but explicitly recognises more of the variation present in formally described units.

Obviously, such a reworking would affect what vegetation is considered rare on the Swan Coastal Plain. It needs to be stressed that it would be very unlikely to find that any of the vegetation currently considered to be rare on the basis of the Swan Coastal Plain survey*'s* classification was not rare. On the other hand, it is likely that such a review would very probably consider to be rare some vegetation which is not currently considered rare.

1.5 Data provided by Coffey

The data provided for the Perth-Darwin National Highway sites by Coffey for analysis consisted of flora lists and associated data (location, habitat, soil, etc.) from vegetation recording sites. Coffey provided the data in a standardised database format that readily allowed the data to be combined into a single database with the data from the other studies being used in the analyses.

As one of the authors (MET) identified the specimens collected by Coffey, it was possible to ensure that the naming of specimens was consistent with some other surveys in the general area that the new data came from. Particularly, the data from the survey of two lots on Maralla Road (Trudgen 1999) and for sites from the Pearce area.

1.6 Some earlier studies in the area traversed by the Perth-Darwin National Highway route

The vegetation of the area traversed by the Perth-Darwin National Highway route has been the subject of several earlier botanical studies. It is not possible due to time constraints to refer to all of these, but some are particularly important. They include a National Heritage Assessment of part of the area traversed (Trudgen 1998), a review of the *flora and vegetation conservation values of the Ellenbrook Estate* (Weston *et al* 1992) and a survey of two lots on Maralla Road (Trudgen 1999).

2.0 METHODS

2.1 Data Preparation

The data for the Perth-Darwin National Highway sites were provided by Coffey in a standard Microsoft Access based database designed for this type of data. One virtue of the database is that the species recorded at each site are stored against standard codes (numbers, those used by the Western Australian Herbarium) for each species. This facilitates ready comparison of data from different surveys stored in the same system using computer software.

The data were incorporated into a larger database containing the data from a number of other projects, including data from the Swan Coastal Plain Survey (Gibson *et al* 1994) and from surveys near the Perth-Darwin National Highway route. Of note are data from an area at Pearce, data from two lots on Maralla Road (Trudgen 1999) and data collected by one the authors (EAG) in the Ellenbrook area that was collected for an environmental assessment document (Weston et al 1992) and was later included in the analysis for the update of the Gibson *et al* analysis.

As the data in the overall data set was collected by various workers over a period of more than twenty years, there have been many changes in the application of the names of species. To make the data of different surveys as compatible as possible, it is necessary to reconcile these differences. A three-step process was carried out. The first was to update as many as possible of the names in the larger data set, this was initiated before the Coffey data for the Perth-Darwin National Highway was received; this resulted in some 12,000 corrections to that data set (for many species this included checking that the distribution of the records in the data set is compatible with the known distribution of the species using Florabase and Australia's Virtual Herbarium maps). When the Perth-Darwin National Highway data was received, this process was continued with a focus on names in that data. Both these processes were limited by time. The third stage was to focus on the list of names for the data sets (which included the Perth-Darwin National Highway data) to be used and make corrections to be applied to just the data used in the analyses.

Not all the taxonomic problems in the data sets could be resolved by updating names used to current use. Three issues were encountered. Firstly, instances where some data has species named to species level only and other surveys have the species named to subspecies or variety level. Secondly, instances where confusion is known to have occurred in field

observations and identifications (some of this is caused by sterile material that cannot be identified beyond a species group). In these cases, the data was reduced to species level, or two entities were treated as one for the analysis. This approach conserves a proportion of the information in the records, while reducing "noise" caused by incorrect naming. The third issue was where records were only identified to genus; in this case, the data was omitted.

The final part of the reconciliation process was relatively straight forward as most of the names had already been standardised. An emphasis of this part of the reconciliation was to conform to the methods that the Swan Coastal Plain survey (Gibson *eta al*1994) used to manage confusing taxa. In addition some more nomenclatural changes were reconciled (see Appendix 5).

2.2 Comparability of datasets

It was not easy to make any firm conclusions about the compatibility of the data from general summaries. However, much of the data is from standard (for the Swan Coastal Plain) 10 by 10 metre quadrats. However, the skill of field workers involved varies and sites in some surveys are known to have been revisited more than sites in other surveys and the sites sampled vary in the amount of disturbance. Against this, must be considered the fact that this is the data available, and to not use it would be to default to broad generalisations based on very high level synthesis vegetation mapping and surrogate data such as soil/geomorphology mapping.

Other experience reconciling the Swan Coastal Plain (Gibson *et al* 1994) data set with later data and running analyses (e.g. Trudgen & Trudgen 2010) has suggested that the proportion of the large amount of data in the data sets involved that is correct is sufficient to give valid outcomes from the types of analyses carried out for this report.

2.3 Comparisons made

Two data sets (subs-sets of the larger dataset corrected) were used; one to investigate the Gibson et al (1994) floristic community types that the Perth-Darwin National Highway sites should be referred to and another to investigate the diversity of floristic types ("floristic community types") in the Perth-Darwin National Highway vegetation (as sampled in the data provided) in relation to the sub-region it is located in (see section 4.6).

For the inference of floristic community types for the new sites, the 104 Perth-Darwin National Highway sites were combined with the 509 sites from the Swan Coastal Plain survey (Gibson et al 1994) of the southern part of the Swan Coastal Plain (south of Gingin) and 55 sites recorded by E.A. Griffin from the Ellenbrook area that had been used in the update to the Gibson *et al* analysis. Compiling this data set (in the file Coffey_SVB.mdb) enabled various analyses to be performed, the main purpose of which was to assign the new sites to the Floristic Community Types defined in the Swan Coastal Plain survey and update.

The second dataset included a more restricted (subregional) group of sites: the Perth-Darwin National Highway sites, Maralla Road site, Pearce, a subset of the Gibson *et al* sites, and sites recorded by E.A Griffin. To select this data set an area from the eastern part of the Swan Coastal Plain with a north-south range slightly greater than the Perth-Darwin National Highway sites plus nearest neighbours from the earlier analysis.

2.4 Analyses carried out

Several different analyses were carried out using numerical classification techniques based on the similarity of the floristic composition of the Perth-Darwin National Highway sites to sites in the Swan Coastal Plain survey data set and other data sets. The analyses were made using the PATN analysis package (Belbin 1987), an integrated set of different computing modules written for these types of analyses.

2.4.1 Use of the PATN analysis package

Several modules of the numerical classification package PATN (Belbin 1987) were used for the analyses. The parameter values (settings used) were the same as those used by the Gibson *et al* (1994) for the analysis of their Swan Coastal Plain survey data. This was done to ensure consistency of analysis with that study, especially for the allocation of the Perth-Darwin National Highway sites to the floristic community types defined by Gibson *et al*.

The PATN modules used were ASO (calculation of similarity matrix), FUSE (classification based on the results of ASO), DEND (representation of classification) and NNB (determination of sites most similar to each site, called nearest neighbours analysis in this report). The results of these analyses were imported into a database (Coffey_SVB.mdb) so that site characteristics and previous classifications (eg. the floristic community types from

the Gibson *et al* classifications) could be associated with the results and various other analyses based on these data could be performed.

The assignment of floristic community types to the Perth-Darwin National Highway sites was initially made by summarising the results of two different methods:

1. A classification (analysis) of the Perth-Darwin National Highway sites combined with the Gibson *et al* (1994) Swan Coastal Plain survey data set. This analysis is displayed as a dendrogram showing the relationship of the sites. This is the same grouping or pattern analysis methodology used by Gibson *et al* to define their floristic community types.
2. A "Nearest Neighbours" analysis. This analysis makes a list of the sites that have the most similar species lists in the Gibson *et al* data to a site from the Coffey Perth-Darwin National Highway. This list is likely to have the sites that are in the floristic community type as the new site. However, as different species have different grouping value in the classification, this is not as straight forward as it initially seems and the correct assignment may not be represented by the first sites.

To facilitate interpretation of the classification dendrogram of the combined dataset, the floristic community site numbers of the Gibson *et al* (1994) analysis were associated with the sites from that survey. It was then possible to assess the floristic community site number of the Gibson *et al* (1994) analysis implied for the Perth-Darwin National Highway sites by their position in the dendrogram. Of particular importance in this process was the way the Perth-Darwin National Highway sites joined to the Gibson *et al* Swan Coastal Plain survey sites, that is at what level of similarity they joined.

In the "Nearest Neighbours" analysis, the 40 sites in the combined data set that were most similar to each of the Perth-Darwin National Highway sites were obtained from the nearest neighbour method (using the NNB module of PATN). As the floristic community type numbers of the Gibson *et al* (1994) analysis is known, the nearest neighbours from that survey to Perth-Darwin National Highway sites implied the most likely floristic community types for each of the Perth-Darwin National Highway sites.

Previous experience has shown that the results of these two approaches are likely to vary, but that from the "nearest neighbours' analysis more commonly gives a reasonable answer. This is because of data quality issues, especially for (new) sites recorded in disturbed areas or that have high levels of weed invasion. However, it is not possible to know in any particular case which of the methods has given the best answer. Therefore, it was necessary to reconcile the results for these two quite different methods of assigning Gibson *et al* floristic community types to the Perth-Darwin National Highway sites.

In a number of cases, the two approaches gave similar results, suggesting a reasonable answer had been achieved. In other cases, they either suggested conflicting results or it was considered that the method was not viable. In the latter cases, a third technique called single site insertion (Trudgen & Trudgen 2010) was used. This is a variant of the classification approach that avoids the problem of sites from a survey grouping together because they have similar data quality issues by only classifying one new site with the reference data set. In this case, one Perth-Darwin National Highway site with the 509 sites from the Gibson *et al* (1994) Swan Coastal Plain survey. The process is repeated for each site to be allocated to a floristic community type. While tedious to implement, the technique can provide some clarity for assigning sites that are difficult to assign otherwise. It has been found (Trudgen & Trudgen 2010) to give answers that correspond well to the assignments given by the other techniques described above for the same data sets.

3.0 LIMITATIONS

The results of the various analyses carried out for this report are all affected to some degree by the limitations of the data used and of the analyses themselves.

A particular problem with the classification approach to assigning floristic community types defined in the Gibson *et al* (1994) report is that the addition of new sites to the 509 sites from that survey often causes significant disruption of the original classification as displayed in a dendrogram. The more data added, usually the higher the level of the disruption. The main causes of this problem are:

1. That the new data is not adequately compatible with the data from the Gibson *et al* survey in the degree of thoroughness of the searching of the quadrats, level of collecting (which effects naming accuracy) and naming of specimens;
2. New sites are not infrequently recorded in disturbed areas or areas with high weed invasion. This adds to data incompatibility because species have been lost from the site either by the disturbance, or the competition from the weeds.

The difference in the data quality of the two data sets is "seen" by the pattern analysis program as different floristic community types. In the case we are dealing with here, many of the sites were from disturbed areas and area with higher weed levels than the sites chosen for the Gibson *et al* 1994 survey, which had the luxury to deal with sites chosen partly on the basis of low disturbance levels.

To the reduce the impact of data quality differences as much as possible, particular attention was paid to naming of specimens from the Perth-Darwin National Highway quadrats collected by Coffey. It was considered desirable to check those collected earlier by 360 Environmental, however these were not available. As noted above in the methodology section, extensive reconciliation of names between different data sets was carried out to reduce this problem.

As well as disruption of the dendrogram (classification) the data quality issues described above commonly cause new sites to group to their cohorts. In some cases this has proven to result from common deficiencies in the data, ie. whole groups of species missing. This

absence tends to draw them together. The more sites in the added batch, the tighter they draw together.

The analyses described above were conducted without personal knowledge of the new sites and no photographs were provided.

4.0 RESULTS

4.1 Determination of floristic community type by classification

The dendrogram showing the classification of the Perth-Darwin National Highway sites with the 509 Gibson et *al* (1994) Swan Coastal Plain survey sites has several large blocks of the Perth-Darwin National Highway sites that appear to have grouped together because of data quality issues. That is, attributes of this data set such as the proportion of weed species present, species not present (i.e. lost) due to disturbance levels or not recorded due to season of survey have apparently drawn these sites together in the classification.

Consequently, it was not possible to assign many of the Perth-Darwin National Highway sites to floristic community types from the Gibson *et al* (1994) analysis, or the supplementary analysis, using this method with any certainty. The relevant sections of the dendrogram are given in Appendix 2 and a small section given here as Table 1 to illustrate the results. The results it was possible to glean using this method are given in Table 4 (see section 4.4 below) in the column 'FCT from classification'.

Table 1. Small section of dendrogram of classification

Notes: The Perth-Darwin National Highway sites are shaded grey. The other sites are from the Gibson *et al* data. The column Gp# gives the Gibson *et al* floristic community type number. The numbers across the top row of the right hand column are a measure of the dissimilarity with which sites join in the dendrogram.

site	Gp#	Dendrogram
		0.2050 0.3844 0.5639 0.7433 0.9228 1.1
		| | | | | |
360Q02		_____
360Q36		_____|__
SVB025		_____|_____
SVB020		_____ |
SVB023		_____|__ |
SVB028		_____|__|_
360Q06		_____ |
SVB019		_____ | |
SVB029		_____|_|_____|_____
PLINE-3	21a	_____ |
SVB021		_____|____ |
SVB026		_____|_____|_____
BANK-2	23a	_____ |
hurst03	23a	_____ | |
MODO-4	23a	_____|___ | |
low13b	23a	_____|_|__ |

The representative section of the dendrogram in Table 1 shows two clusters of Perth-Darwin National Highway sites with the sites in them joining with fairly low dissimilarity. One of

those clusters also contains one Gibson *et al* (1994) site (PLINE-3) that was assigned to Floristic Community Type 21A. This site is located 9.5 km west of the northern outskirts of Muchea, on the Bassendean Dune System. However, it is the only Gibson *et al* site these clusters of Perth-Darwin National Highway sites join with, and the upper cluster joins the lower cluster at moderate dissimilarity. Therefore, this is not a strong result that these Perth-Darwin National Highway sites are Floristic Community Type 21a and using the classification method they were considered to be Floristic Community Type "?21a".

Similar interpretations were made for the other Perth-Darwin National Highway sites and are given in Table 4 (see section 4.4 below) with the results from other methods. It should be noted that data quality issues are not the only reason why a new site may be hard to assign to a Gibson *et al* (1994) floristic community type. The other reason could be that a new site samples a unit at the level of the Gibson *et al* analysis that was not sampled by those authors, or a vegetation type that is intermediate between the units of that analysis.

4.2 Determination of floristic community type by 'Nearest Neighbours' method

A 'Nearest Neighbours' analysis was carried out that resulted in a list of sites with most similar species composition to each of the Perth-Darwin National Highway area sites. It must be noted that this does not mean that the lists are necessarily *very* similar. With over 2,000 species present on the Swan Coastal Plain the most similar site to any given site can be quite *dissimilar*.

The table with the results of the analysis is given in Appendix 3 and a representative sample given here as Table 2. In this table (and in the Appendix), the Perth-Darwin National Highway sites are in the left hand column and the other sites are from the Gibson *et al* (1994) data. In the part of the Appendix in Table 2, the first five closest sites from the Gibson *et al* data are given in the columns s1, s2, s3, s4, s5. The Gibson *et al* floristic community type of those sites are given in the columns f1, f2 etc. A measure of dissimilarity between the Perth-Darwin National Highway site and each Gibson *et al* site is given in the columns v1, v2, etc. In the Appendix, the next five closest Gibson *et al* sites are also given.

The first Perth-Darwin National Highway site in the table is site 360Q02, the first "Nearest Neighbour" site is WIRR-2 which is a member of Floristic Community Type 23a. The next four "Nearest Neighbour" sites are all from Floristic Community Type 21a, and using this

method site 36Q02 was categorised as "21a/23a". That is it was not possible to give a definite referral to a floristic community type, but the interpretation was consistent with the result from the classification method (see Table 4). However, the two methods often do not agree when data quality is poorer.

In a similar manner all the Perth-Darwin National Highway sites were referred to a Gibson *et al* (1994) floristic community type or a mixed designation. These interpretations of the "Nearest Neighbour" method are given in column four of Table 4 (see section 4.4 below).

Table 2. Results of Nearest Neighbour analysis

Note: The column headings are explained in the text above. Only sites from Gibson *et al* (1994) were tabulated (often, the nearest neighbour sites of a site are from the same survey).

SVB sites	s1	f1	v1	s2	f2	v2	s3	f3	v3	s4	f4	v4	s5	f5	v5
360Q02	WIRR-2	23a	0.517	CAPEL-7	21a	0.527	GUTHR-5	21a	0.541	AUSTRA-1	21a	0.546	ELE04	21a	0.553
360Q03	GOLF-1	20a	0.452	WIRR-1	23a	0.471	WARB-3	23a	0.475	WHITE-1	23a	0.475	MODO-4	23a	0.492
360Q04	hurst03	23a	0.413	WHITE-1	23a	0.436	ELDO-1	23b	0.451	MPK03	23b	0.451	MODO-4	23a	0.455
360Q06	MELA-9	23b	0.431	hurst03	23a	0.504	WHITE-1	23a	0.519						
360Q10	ELE21	s09	0.556	ELE28	23b	0.564	YULE-1	23a	0.575						
360Q12	NINE-2	21a	0.474	YULE-1	23a	0.485	MELA-9	23b	0.485	ELE08	23b	0.488	ELE24	23b	0.494
360Q13	NEER-2	28	0.562	ELE04	21a	0.564	NEER-3	28	0.565	low07	21c	0.569	ELE15	21a	0.593
360Q14	ELE17	23b	0.493	MELA-2	23b	0.500	hurst04	23a	0.505	ELE24	23b	0.506	hymus03	21c	0.507
360Q15	low07	21c	0.556	NINE-2	21a	0.577	ELE27	21c	0.579	CLIF-1	21a	0.583	low04	21a	0.584
360Q16	TAM-1	21a	0.533	NEER-8	28	0.547	HARRY-2	28	0.556	low07	21c	0.558	YULE-1	23a	0.564
360Q17	hymus03	21c	0.463	hurst03	23a	0.496	MELA-9	23b	0.500	TWIN-8	21c	0.511	low07	21c	0.527
360Q20	YAN-21	14	0.625	hymus01	11	0.657	FL-9	4	0.667	hymus02	11	0.676	BANK-1A	13	0.692
360Q21	WIRR-1	23a	0.488	WARB-1	23a	0.491	WARB-3	23a	0.492	WHITE-1	23a	0.495	ELE25	21c	0.500
360Q22	hurst03	23a	0.429	YULE-1	23a	0.485	MELA-9	23b	0.485	ELE08	23b	0.489	YULE-2	23a	0.490
360Q23	ELE08	23b	0.429	hymus03	21c	0.447	YULE-1	23a	0.451	ELE28	23b	0.455	WHITE-1	23a	0.462
360Q24	TWIN-1	6	0.674	GUTHR-2	5	0.677	C71-1	11	0.680	hymus01	11	0.689	GUTHR-4	5	0.695
360Q25	ELE21	s09	0.489	ELE28	23b	0.544	ELE25	21c	0.551	YULE-1	23a	0.561	MILT-6	21a	0.574
360Q26	WHITE-1	23a	0.444	ELE08	23b	0.453	YULE-1	23a	0.453	MP04	23b	0.455	MELA-2	23b	0.455
360Q27	MPK03	23b	0.583	hymus03	21c	0.583	low07	21c	0.590	TWIN-8	21c	0.595	hurst03	23a	0.596
360Q28	PLINE-2	23b	0.402	ELE16	23b	0.413	ELE08	23b	0.423	MELA-2	23b	0.444	MELA-8	23b	0.447
360Q29	MELA-5	22	0.581	WARB-3	23a	0.587	MODO-4	23a	0.600	WHITE-1	23a	0.604	MPK03	23b	0.608
360Q30	THOM-2	24	0.672	SHENT-1	28	0.672	WOODV-2	28	0.672	low04	21a	0.672	low06b	21c	0.677
360Q31	ELE29	21c	0.608	TWIN-8	21c	0.618	MODO-2	21c	0.639						

4.3 Determination of floristic community type by 'Single Site Insertion'

A series of sixty-four (64) classifications were run with each having one of the Perth-Darwin National Highway sites added to (inserted into) the Gibson *et al* (1994) data set (see methods

section). Relevant sections of the resulting dendrograms displaying these classifications are given in Appendix 4 and a sample of them is given in Table 3. As this is a time consuming method, only those sites where it was thought useful were investigated in this way.

Table 3. Representative sections of the dendrograms from the Single Site Insertion of the Perth-Darwin National Highway sites

Note: The Perth-Darwin National Highway sites are highlighted with grey. The column FCT# gives the Gibson *et al* (1994) floristic community type for their sites. Sections of all 64 dendrograms are given in Appendix 4.

site	FCT#	data
360Q02		_____
MANEA-2	21a	_____|_
FL-4	21a	_____|____
KOOLJ-2	21a	_____ |
KOOLJ-3	21a	_____ | |
KOOLJ-4	21a	_____|_____|_____|___
360Q03		_____
GOLF-1	20a	_____|_____
KOON-1	20a	_____ |
KOON-2	20a	_____|_____ |
LAND-1	20a	_____|_____|_____
360Q04		_____
BULL-3	23a	_____ |
WHITE-1	23a	_____|____|___
360Q06		_____
BANK-2	23a	_____ |
hurst03	23a	_____ | |
MODO-4	23a	_____|____ | |
low13b	23a	_____|_|__ |
BULL-3	23a	_____ | |
WHITE-1	23a	_____|_____| |
YULE-1	23a	___ | |
YULE-2	23a	__|_____|____ |
WARB-1	23a	_____ | |
WIRR-1	23a	_____|____ | |
WIRR-2	23a	_____|____ | |
WARB-3	23a	_____|_____|_____ |
hurst01	23a	_____ | |
hurst02	23a	_____ | | |
hurst04	23a	_____|_|_____|_|___

The first Perth-Darwin National Highway site in Table 3 is 360Q02, it is shown joining to a cluster of five sites from the Gibson *et al* (1994) dataset that are each part of Floristic Community Type 21a. This is a quite good indication that site 360Q02 should be considered

to represent part of an occurrence of that floristic community type and is not incompatible with the results using the other methods detailed above (see Table 4 below for comparison).

In a similar fashion the floristic community types for another sixty –two Perth-Darwin National Highway sites from Single Site Insertion can be inferred from Appendix 4. The results are summarised in column 5 of Table 4 (see next section) where they are tabulated with those from the other methods.

4.4 Final assignment of the Perth-Darwin National Highway sites to floristic community types

Sixteen Gibson *et al* floristic community types were assigned to sites from the Perth-Darwin National Highway vegetation survey. In addition, other sites (often degraded sites) could only be assigned with doubt to a floristic community type, or were assigned as close to two floristic community types. Some of the latter sites may represent variation not sampled in the Gibson *et al* (1994) and supplementary analyses.

The inferred Gibson *et al* floristic community types for the Perth-Darwin National Highway sites using each of the methods used are summarised in Table 4 (columns three to five). For each site, a final assignment has then been inferred and is given in column six. For convenience, this table is arranged so that sites with the same Gibson *et al* floristic community types as a final assignment are grouped together. The number of sites with each final assignment is summarised in Table 5 (see next section).

This is a significant diversity of high level floristic units, but is not particularly surprising as the project area is some 37 km long and traverses areas of two landforms (the Bassendean Dunes and the Pinjarra Plain). The number of sites recorded for each of the Gibson *et al* (1994) and supplementary analysis floristic community types recorded is summarised in Table 5, with their known distribution and an assessment of their variation based on their range.

Table 4. Assignment of the Perth-Darwin National Highway sites to the Gibson *et al* (1994) and supplementary analysis floristic community types

Notes: FCT = floristic community type of Gibson *et al* (1994) or the supplementary survey. #One site (SVB086) has been assessed on the basis of location and vegetation not fitting into the FCT classification well and as being mis-classified as 17/11.

SITE	PROJECT (all Perth-Darwin National Highway)	FCT from classification	FCT from nearest neighbours analysis	FCT from single site insertion	Final assignment to FCT of Gibson et al
SVB007	ENP04483AA	?s02	??4/s02	4/s02	04/s02
SV07	SV	6	???4		04???
SVB042	ENP04483AA	?21c	?21c/5/??22	5	05
SVB048	ENP04483AA	6	??21c/s02/5	5	05
SVB056	ENP04483AA	6	??5/26b/s02	5	05
SVB094	ENP04483AA	5	5		05
SV33	SV	6	??23a/6/21c	6	06
SVB031	ENP04483AA	6	?6		06?
SV08	SV	6	??6		06??
360Q24	ENP04483AA	6	??6/5/11	11	11
360Q32	ENP04483AA	?12	??s02/s03/11	11	11
360Q34	ENP04483AA	11	11		11
360Q37	ENP04483AA	11	11		11
SV01	SV	6	???11/9/6/4	11	11
SVB068	ENP04483AA	11	11		11
SVB077	ENP04483AA	11	?11/??12	11	11
SVB098	ENP04483AA	11	11		11
360Q35	ENP04483AA	11	?11		11?
SVB079A	ENP04483AA	11	?11		11?
SVB018	ENP04483AA	11	??11		11??
SVB076	ENP04483AA	11	??11		11??
SVB084	ENP04483AA	11	??11		11??
SVB091	ENP04483AA	11	??11		11??
SVB078	ENP04483AA	11	???11		11???
SVB005	ENP04483AA	?12	??12/9/4	12	12
SVB045	ENP04483AA	?12	???12		12???
SVB002	ENP04483AA	?12	??13/12	13	13
SVB044	ENP04483AA	?12	??13/12	13	13
360Q20	ENP04483AA	11	??14/11	14	14
SVB040	ENP04483AA	?12	??s02/???s03/???14	14	14
SVB041	ENP04483AA	?12	???6/13	14	14
SVB051	ENP04483AA	?12	??5/s02	14	14
SVB052	ENP04483AA	?12	??14/5	14	14
SVB086#	ENP04483AA	11	???11/12/13	17/11	17/11
SVB011	ENP04483AA	11	??11/3c	2/11	2/11
360Q03	ENP04483AA	??21c	20a/23a	20a	20a
360Q39	ENP04483AA	??21c	23b/23a/?20a	20a	20a
SVB001	ENP04483AA	??21c	23a/20a	20a	20a
SVB016	ENP04483AA	??21c	23b/28	20a	20a
360Q02	ENP04483AA	?21a	21a/23a	21a	21a
SVB021	ENP04483AA	21a	21a		21a
SVB026	ENP04483AA	21a	21a/28	21a	21a
SVB034	ENP04483AA	??21c	21a		21a
SVB058	ENP04483AA	??21	21a		21a
360Q10	ENP04483AA	??21c	?s09/23a/23b	21c	21c
360Q14	ENP04483AA	??21c	23b/23a/21c	21c	21c
360Q15	ENP04483AA	??21c	?21c/21a	21c	21c
360Q17	ENP04483AA	??21c	21c/23a/23b	21c	21c
360Q21	ENP04483AA	??21c	23a/?21c	21c	21c

360Q23	ENP04483AA	??21c	23b/23a/21c	21c	21c
360Q26	ENP04483AA	??21c	23a/23b	21c	21c
360Q27	ENP04483AA	??21c	?21c/23b/23a	21c	21c
360Q29	ENP04483AA	??21c	?22/23a	21c	21c
360Q36	ENP04483AA	?21a	23a/23b	21c	21c
SV38	SV	?21c	??23b/23a	21c	21c
SVB004	ENP04483AA	??21	21/23	21c	21c
SVB013	ENP04483AA	??21c	23b/23a	21c	21c
SVB023	ENP04483AA	?21a	23a/23b	21c	21c
SVB025	ENP04483AA	?21a	23a/23b	21c	21c
SVB035	ENP04483AA	??21c	??21c/21a	21c	21c
SVB046	ENP04483AA	6	??21c/26b	21c	21c
SVB049	ENP04483AA	??21c	21c/23b	21c	21c
SVB055	ENP04483AA	??21c	21c/23b	21c	21c
360Q12	ENP04483AA	??21c	21a/23b/23a	21c/s09	21c/s09
360Q25	ENP04483AA	??21c	s09/23b	21c/s09	21c/s09
SVB047	ENP04483AA	??21c	??21c		21c??
360Q31	ENP04483AA	6	??21c		21c??
SV11	SV	22	22		22
360Q04	ENP04483AA	??21c	23a/23b	23a	23a
360Q06	ENP04483AA	?21a	23b/23a	23a	23a
360Q22	ENP04483AA	??21c	23a/23b	23a	23a
SV09	SV	??21c	23a		23a
SVB012	ENP04483AA	??21c	23a		23a
SVB019	ENP04483AA	?21a	23a		23a
SVB020	ENP04483AA	?21a	23a		23a
SVB030	ENP04483AA	??21c	23a/23b	23a	23a
SVB036	ENP04483AA	??21c	23a/23b	23a	23a
SVB037	ENP04483AA	??21c	23a		23a
SVB038	ENP04483AA	??21c	23a		23a
SVB039	ENP04483AA	??21c	23a		23a
SVB054	ENP04483AA	??21c	23a/23b	23a	23a
SVB057	ENP04483AA	??21c	23a/23b	23a	23a
360Q28	ENP04483AA	??21c	23b		23b
SV05	SV	23b	23b		23b
SVB014A	ENP04483AA	??21c	23b		23b
SVB022	ENP04483AA	23b	23b		23b
SVB024	ENP04483AA	??21c	23b		23b
SVB028	ENP04483AA	?21a	23b		23b
SVB029	ENP04483AA	?21a	23b		23b
SVB043	ENP04483AA	??21c	23b		23b
SVB092	ENP04483AA	??21c	23b		23b
SVB093	ENP04483AA	??21c	23b		23b
360Q30	ENP04483AA	6	??21/24/28	24	24
SV18	SV	23b	23a/23b	24	24
SVB003	ENP04483AA	??21c	21a/24/23a	24	24
360Q13	ENP04483AA	??21	?28/21a	28	28
360Q16	ENP04483AA	??21c	21a/28/21c	28	28
SVB088	ENP04483AA	28	28		28
SVB053	ENP04483AA	s03	s02		s02
SVB079	ENP04483AA	s02	s02		s02
SVB008	ENP04483AA	?21c	?s02/4	s02/4	s02/4
SV19	SV	11	??13/5/s02/11/4	s02/s03	s02/s03
SVB006	ENP04483AA	s03	?s03/13/12	s03	s03
SVB050	ENP04483AA	?12	??6/4/5	s03	s03

Table 5. Summary of the number of Perth-Darwin National Highway sites for different floristic community types with distribution and status

Notes: FCT = floristic community type of Gibson *et al* (1994) or the supplementary survey. Distribution of the Gibson et al units and the supplementary unit is the sites used to define them plus other sites record by System Six surveys and data of E.A. Griffin. Other sites would have been recorded by DPAW and from other surveys. Some of these sites will have been lost (cleared). Lower order units in this table means lower than Gibson et al FCTs, not low order (interpret as intermediate relative to the). While not necessarily comprehensive, the data is adequate to illustrate the distribution of the units.

Final assignment to FCT	Distribution of FCT or part of mixed assignment (not including Perth-Darwin National Highway sites)	Number of sites in Perth-Darwin National Highway data	Comment on FCT variation
4/s02	FCT 4: Widespread from S of Gingin to Busselton area, all sites are on the Swan Coastal Plain. [See s02 near bottom of table.]	1	The N-S & E-W distribution of FCT4 suggests a number of lower order units covered by it.
4???		1	
5	Three groups of sites, 3 sites from W to SSE of Gingin; 4 sites from S of Perth to W of Pinjarra and 1 site W of Harvey. All on the Swan Coastal Plain (2 at E edge).	4	The N-S & E-W distribution of this FCT suggests a number of lower order units covered by it.
6	8 sites in the Muchea-Bullsbrook area (6 in pairs very close together) and 2 near Cardup. All on the E edge of the Swan Coastal Plain.	1	The N-S distribution of this FCT suggests at least 2 lower order units covered by it.
6? Or 6??		2	
11	Two sites in Muchea S to Bullsbrook S area, a cluster Perth and Mandurah, two near Mandurah and 1 SSW of Busselton. 1 additional NW of Gingin 1 just on Dandaragan Plateau, rest on Swan Coastal Plain. Sites S of the Swan River are on the centre or nearer the coast, those N of the River on the east of the plain.	8	The distribution of this FCT suggests a number of lower order units covered by it. Likely that the (1 or 2?) variants N of the river quite different to those S of the River.
11?, 11?? Or 11???		7	
12	4 records from S of Perth to NE of Busselton. A later record from Perth Airport and another from N of Pinjar. All records on the Swan Coastal Plain.	1	The distribution N-S & E-W of this FCT suggests at least four lower order units covered by it.
12???		1	
13	7 records scattered from S of Casuarina to W of Busselton and 1from NNW of Muchea, separated from the others by a large gap. All records on the Swan Coastal Plain.	1	The distribution of this FCT suggests a number of lower order units covered by it.
14	Two sites NE of Yanchep on the Swan Coastal Plain.	5	The (previously known) distribution of this FCT suggests it is a very restricted wetland type.
17/11	FCT 17: 8 locations near the coast from Busselton to near Kwinana, and 1 N of the Swan River near Guilderton. All on the Swan Coastal Plain.	1 [May be better called 11???]	The distribution of this FCT suggests a number of lower order units covered by it.
2/11	FCT 2: 4 locations near Busselton.	[May be better called 11???]	A relatively less varied FCT.
20a	1 cluster of sites from S of Midland to Forrestfield on the E of the Plain, another in Koondoola and Marangaroo in the centre of the Plain and 1 site N of Muchea on the Dandaragan Plateau.	4	The E-W distribution (near the bottom of the Scarp and well away from it) and on the Dandaragan Plateau suggests 2 groups and 1 other lower level units covered by

			this FCT.
21a	About 30 sites from Armadale to ENE of Busselton and 10 sites from Whiteman to W of Gingin.	5	The N-S and E-W distribution of this FCT suggests a number of lower order units covered by it.
21c	2 sites N & NW of Muchea, a cluster of 8 sites at and NE & NW of Ellenbrook, 1 site at Cullacabardee, and 15 sites from Bibra Lake to Bunbury. All on Swan Coastal Plain.	19	The N-S and E-W distribution of this FCT suggests a number of lower order units covered by it.
21c/s09	FCT s09: 31 sites from Gingin N to Mogumber and W to near the coast, 1 site N of Ellenbrook.	2	The E-W distribution of this FCT suggests a number of lower order units covered by it.
21c??		2	
22	22 sites: a cluster of sites W of Wannamal on the Dandaragan Plateau, 2 sites further W on the Swan Coastal Plain, small clusters of sites from NW of Muchea to Melaleuca Park (apparently in eastern & western bands), 3 sites S of Perth and 1 SE of Mandurah.	1	The N-S and E-W distribution of this FCT suggests a number of lower order units covered by it.
23a	43 sites: From W of Muchea to SE of Port Kennedy. 1 site on the Dandaragan Plateau	14	The N-S and E-W distribution of this FCT suggests a number of lower order units covered by it.
23b	This FCT is relatively common, with 81 sites from Ellenbrook to Regans Ford and E onto the Dandaragan Plateau (about 1/3rd of the sites there).	10	The N-S and E-W distribution of this FCT suggests a number of lower order units covered by it.
24	This FCT has 36 near coastal sites from S of Rockingham to Alkimos and 1 site from Beermullah, which is further N and nearer the E side of the Swan Coastal Plain.	3	The N-S and E-W distribution of this FCT suggests a number of lower order units covered by it.
28	This FCT has 61 sites from east of Rockingham near Lancelin (few in the northern part), with most near coastal. However, 3 are on the E side of the Swan Coastal Plain 1 near Beermullah and 2 near Muchea, while 8 are on the Dandaragan Plateau (in 2 clusters, 1 SE of Muchea & 1 East of Regans Ford)	3	The N-S distribution of this FCT suggests a number of lower order units covered by the near coastal sites. The Beermullah & Muchea sites on the Swan Coastal Plain & sites on the Dandaragan Plateau suggest 2 or more inland subunits that are relatively rare.
s02	FCT s02: Two sites near Wattle Grove, 1 near Whiteman, a cluster north of Ellenbrook and 3 widely spaced in the Boonanarring Moore River NP area	2	The large gap between the southern and northern sites, the spread across the Swan Coastal Plain and one of the sites being on the Dandaragan Plateau suggests several lower order groups are present in this FCT.
s02/4	[See FCT 4 near beginning of table.]	1	
s02/s03		1	
s03	This FCT is known from 9 sites, 1 south of the Swan River near Southern River, 7 in an area from N of Ellenbrook to N of Lake Pinjar and 1 further N west of Beermullah. All on the Swan Coastal Plain.	2	The moderate N-S and E-W distributions suggest a few lower order units are present in this FCT.

Another aspect of the sixteen floristic community types recorded can be seen from the summary of their distributions in Table 5. This is that many of them (see Table 5 column 4) are likely to be quite diverse, that is they mostly are likely to have a number of sub-types. This is simply a reflection of the high order of synthesis of these units.

One site (SVB086) has been assessed on the basis of location and vegetation as not fitting into the FCT classification well and as being mis-classified as 17/11. It is a clay soil wetland site on the very eastern side of the Swan Coastal Plain adjacent to Great Northern Highway. It has *Casuarina obesa* and other wetland species and (on the data presented) is best considered as outside the existing classification. As Floristic Community Type 17 is a found on the western part of the Swan Coastal Plain it is unlikely to be close to that type. As weeds were included in the analysis (to conform to the methodology of Gibson *et al* 1994) this may have affected the placement of this species poor site. As the site was only visited once (in September 2014), this may have meant annual native species only available later in the season on such sites were not recorded, again affecting the placement.

4.5 Presence of Priority and Threatened ecological communities in the Perth-Darwin National Highway sites and diversity of the Gibson *et al* level floristic community types recorded

Of the sixteen of the Gibson *et al* (1994) and supplementary analysis floristic community types that were found to occur in the Perth-Darwin National Highway data, several are the basis for either a Threatened Ecological Community (TEC) or Priority Ecological Communities (PECs). These are indicated in Table 6. In addition to priority threatened communities based on Gibson *et al* (1994) and supplementary analysis floristic community types, some other PECs and TECs are or may be present. These include South-West PEC 22 which is a widely defined type based on *Banksia attenuata* and *Banksia menziesii* woodlands (this PEC overlaps some of the PECs based on floristic community types dominated by the same species), TEC 7 Mound Springs on the Swan Coastal Plain and TEC 11 vegetation of the Muchea Limestone.

Floristic Community Type 20a is the basis of a Threatened Ecological Community (TEC 1, see Table 6) whose vegetation is *Banksia attenuata* woodland over species rich dense shrublands. Four Perth-Darwin National Highway sites were assigned to FCT 20a, representing a significant proportion of the recorded occurrences. The distribution of this PEC is shown in Figure 3. From this figure it is quite clear that Floristic Community Type 20a has groups of sites from the east and centre of the Swan Coastal Plain and one site from the Dandaragan Plateau. Vegetation from these three areas would have significant differences in floristic composition, and this shows the high level of synthesis of the Gibson *et al* (1994) and suggests that the central group of sites has significantly different conservation values to sites from the other areas.

The distributions given for the Gibson *et al* (1994) and comments on their likely variation in Table 5 should enable similar identification of significant variation in the other PECs and TECs based on floristic community types.

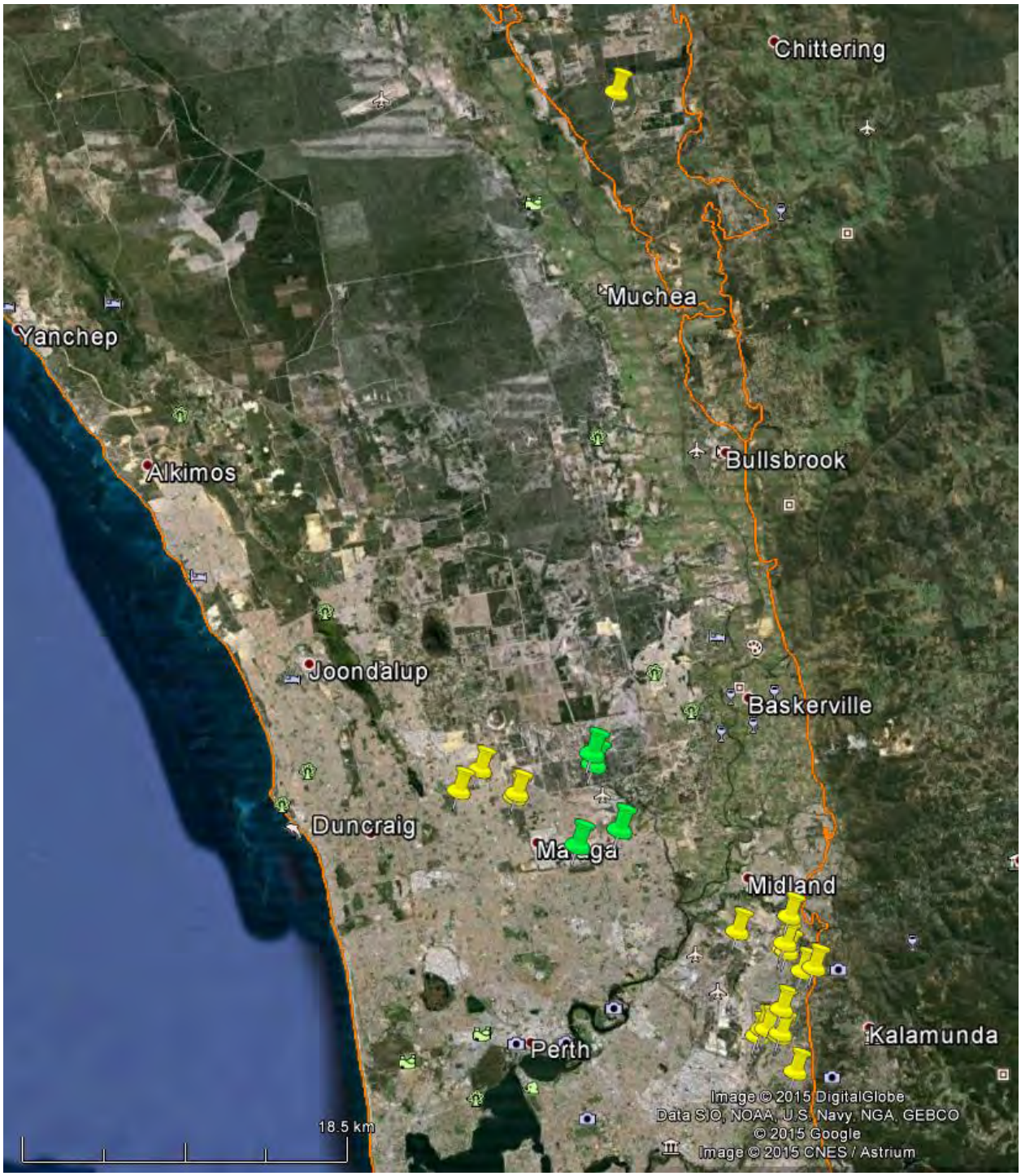

Figure 3. Locations of vegetation sites recorded for TEC 1, which is based on Floristic Community Type 20a

Note: Perth-Darwin National Highway site are shown by green "pins" sites from Gibson *et al*(1994) and other data are shown by yellow pins..

Table 6. Threatened and Priority Ecological Communities in the Perth-Darwin National Highway data

Notes: FCT = floristic community type of Gibson *et al* (1994) or the supplementary survey. It was outside the terms of reference of this report to identify PECs & TECs not based on Gibson et al (or supplementary) FCTs. They are included for completeness.

PEC/TEC	Description	Rank (W.A. systems)	Confirmed?
TEC 1. SCP20a	**Banksia attenuata woodland over species rich dense shrublands**	EN B) ii)	4 Perth-Darwin National Highway sites were assigned to FCT 20a
TEC 7. Mound Springs SCP	**Communities of Tumulus Springs (Organic Mound Springs, Swan Coastal Plain)**	CR A) i), CR A) ii), CR B) i), CR B) ii)	Presence advised by Coffey.
TEC 11. MUCHEA LIMESTONE	**Shrublands and woodlands on Muchea Limestone**	EN B) ii)	Known from close to or in Perth-Darwin National Highway corridor.
Affinity: PEC 4 [Swan] OR Affinity PEC6 (see below)	PEC 4: ***Casuarina obesa* association** Thomas Rd to Serpentine River, Swan Coastal Plain. No detailed information to assess if distinct community. [Note: Site SVB086 does not seem to fit well into any State PEC/TEC unit. However It certainly falls under the Commonwealth EPBC Act unit "Claypans of the Swan Coastal Plain"]	Priority 1	Site SVB086 is placed here with some doubt.
PEC 66 [= 6 of SWAN]	**Claypans with mid dense shrublands of *Melaleuca lateritia* over herbs** (classified as Claypans of the Swan Coastal Plain under EPBC Act) Claypans (predominantly basins) usually dominated by a shrubland of *Melaleuca lateritia* occurring both on the coastal plain and the adjacent plateau. These claypans are characterized by aquatic (*Hydrocotyle lemnoides* – Priority 4) and amphibious taxa (e.g. *Glossostigma diandrum*, *Villarsia [now Ornduffia] capitata* and *Eleocharis keighery[i* - DRF)	Priority 1 [Critically Endangered TEC under the Commonwealth EPBC Act]	**Present?** The dominant (*Melaleuca lateritia*) was recorded at eight (8) sites, but it occurs in other vegetation and this PEC is not defined by an FCT.
PEC 72 [= 22 of SW]	**Banksia dominated woodlands of the Swan Coastal Plain IBRA region** The main feature of these Banksia woodlands is the presence of *Banksia attenuata* and/or *B. menziesii* occurring on deep sands. The species commonly co-occur. The community occurs on the Quindalup, Spearwood and Bassendean dunes and rarely on the Pinjarra Plain, landforms that comprise the dominant landforms of the Swan Coastal Plain.	Priority 3(iii)	*Banksia menziesii* was recorded at 68 and *B. attenuata* at 67 of the sites recorded (they often occur together) Several FCTs have vegetation with *Banksia attenuata* &/or B. *menziesii.*
PEC 19 [of SW]	***Banksia ilicifolia* woodlands, southern Swan Coastal Plain ('community type 22')** Low lying sites generally consisting of *Banksia ilicifolia* – *B. attenuata* woodlands, but *Melaleuca preissiana* woodlands and scrubs are also recorded. Occurs on	Priority 2	FCT 22 was recorded at 1 site

	Bassendean and Spearwood systems in the central Swan Coastal Plain north of Rockingham. Typically has very open understorey, and sites are likely to be seasonally waterlogged.		
PEC 24	**Low lying *Banksia attenuata* woodlands or shrublands ('community type 21c')** This type occurs sporadically between Gingin and Bunbury, and is largely restricted to the Bassendean system. The type tends to occupy lower lying wetter sites and is variously dominated by *Melaleuca preissiana, Banksia attenuata*, *B. menziesii, Regelia ciliata, Eucalyptus marginata* or *Corymbia calophylla*. Structurally, this community type may be either a woodland or occasionally shrubland.	Priority 3(i)	FCT 21c was recorded at 19 sites and a further 4 sites were possibly this FCT or transitional between it and another FCT.
PEC22	**Swan Coastal Plain *Banksia attenuata - Banksia menziesii* woodlands ('community type 23b')** These woodlands occur in the Bassendean system, from Melaleuca Park to Gingin. Occurs in reasonably extensive Banksia woodlands north of Perth.	Priority 3(i)	FCT 23b was recorded at 10 sites
PEC 25	**Northern Spearwood shrublands and woodlands ('community type 24')** Heaths with scattered *Eucalyptus gomphocephala* occurring on deeper soils north from Woodman Point. Most sites occur on the Cottesloe unit of the Spearwood system. The heathlands in this group typically include *Dryandra sessilis, Calothamnus quadrifidus*, and *Schoenus grandiflorus*.	Priority 3(i)	FCT 24 was recorded at 3 sites

4.6 Classification of the Perth-Darwin National Highway sites with a subregional data set

As discussed above, the floristic community types of Gibson *et al* 1994 are defined at a high level of synthesis, and arguably are higher than is desirable for environmental impact assessment. To provide information at a somewhat lower level of synthesis the Perth-Darwin National Highway sites were classified with a selection of data from the surrounding sub-region. This data set included relevant sites from the Gibson *et al* survey, sites from Maralla Road (the "Mt Lawley Land") from Trudgen (1999), sites recorded from the Ellenbrook area for Weston *et al* (1992), sites from the Pearce area and data collected by one of the authors (E.A. Griffin). This classification (as a dendrogram) is given in Appendix 6.

It is not the intention to give a list of units from this classification, apart from time restrictions, the limitations of the Perth-Darwin National Highway data (much was collected from disturbed areas) make it not practical to do that in a complete manner. Rather the intention is to show the degree of variation present in the vegetation sampled by giving examples from parts of the classification where the data seems to have been more reliable.

In the extracts from the dendrogram, sites from the Pearce survey are coloured dull green, the Perth-Darwin National Highway sites are coloured light brown, the Maralla Road (Mt Lawley Land) sites coloured yellow and the Ellenbrook sites (Weston *et al* 1992) sites are coloured dull blue.

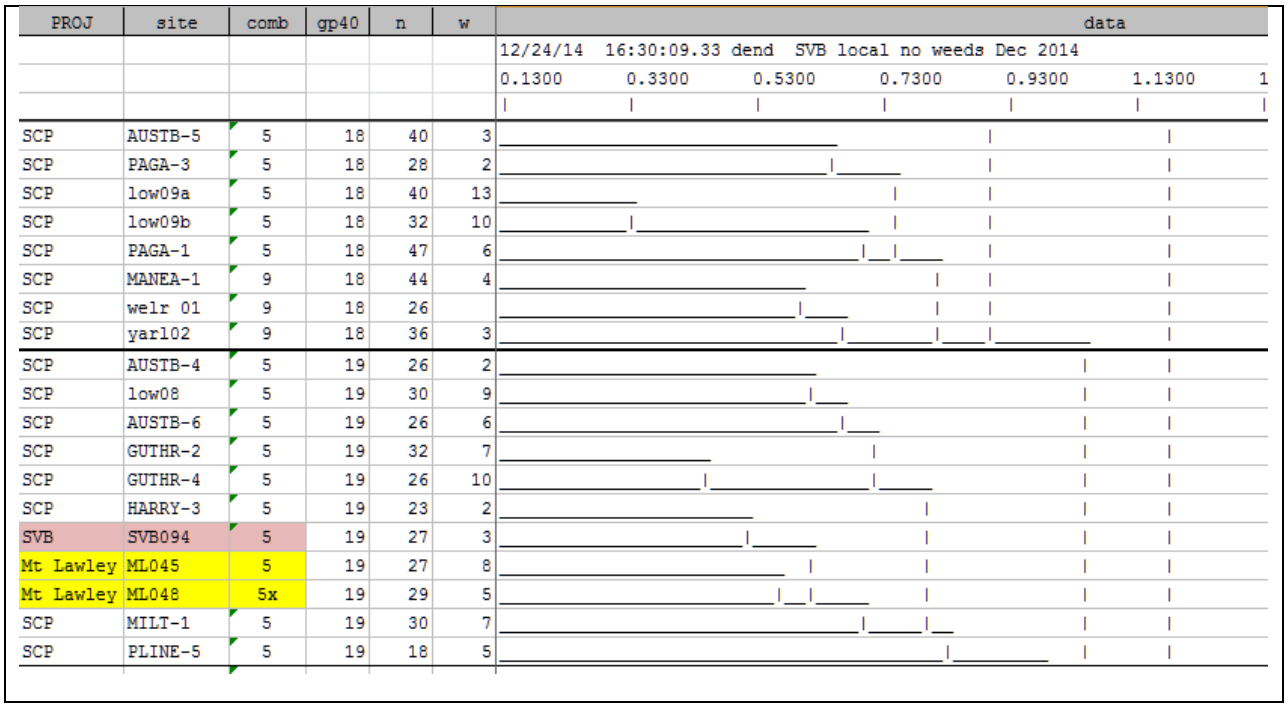

Figure 4. Section of dendrogram of subregional classification showing most sites referred to Floristic Community 5 of Gibson *et al* (1994)

Notes: The column to the right of the column with the site assignment of sites to FCT (for Perth-Darwin National Highway sites by combination of the three methods discussed above). The column "gp40" is the group number for the division of the classification into 40 arbitrary groups. The columns "n" and "w" are the number of native species recorded and number of weeds recorded at a site..

Figure 4 shows a section of the subregional classification showing most of the sites referred to Floristic Community Type 5 in earlier classifications, and including one Perth-Darwin National Highway site (SVB094) referred to that Floristic Community Type. The dendrogram suggests that the 16 sites in the sample from FCT 5 are from five reasonably different subgroups of Floristic Community 5, and that site SVB094 belongs to a floristic group at an intermediate level of synthesis of five sites. Note that three sites referred to FCT 9 are in the middle of this part of the dendrogram. This change from the grouping in Gibson *et al* (1994) may simply be due to the omission of weeds from the current classification, note that the number of native species (and of weeds) varies quite significantly.

PROJ	site	comb	gp40	n	w	12/24/14 16:30:09.33 dend SVB local no weeds Dec 2(
						0.1300 0.3300 0.5300 0.7300 0.93(
SVB	360Q39	20a	38	46	6	
SVB	SVB012	23a	38	63	7	
SVB	SVB030	23a	38	51	7	
SVB	SVB039	23a	38	50	5	
SVB	360Q26	21c	38	45	5	
SVB	360Q28	23b	38	51	8	
SVB	SVB057	23a	38	47	12	
SVB	SVB024	23b	38	44	2	
SVB	SV09	23a	38	35	5	
SVB	SVB014A	23b	38	46	5	
SVB	SVB001	20a	38	46	8	
SVB	SVB016	20a	38	37	10	
SVB	SVB003	24	38	29	9	
SVB	SVB013	21c	38	37	5	
SVB	360Q10	21c	38	20	5	
SVB	360Q12	9	38	35	6	
SVB	360Q22	23a	38	42	6	
SVB	360Q14	21c	38	35	6	
SVB	360Q23	21c	38	41	7	
SVB	SVB054	23a	38	45	7	
SVB	360Q21	21c	38	41	6	
SVB	SVB036	23a	38	45	7	
SVB	SVB092	23b	38	42	3	
SVB	SVB037	23a	38	37	5	
SVB	SVB038	23a	38	40	7	
SVB	360Q16	28	38	33	13	
SVB	360Q25	9	38	22	5	
SVB	SVB043	23b	38	28	4	
SVB	SVB049	21c	38	33	3	
SVB	360Q17	21c	38	44	8	
SVB	SVB093	23b	38	51	6	
SVB	SVB047	??21c	38	21	6	
SVB	360Q04	23a	38	52	8	
SVB	SVB022	23b	38	55	3	
SVB	SVB034	21a	38	43	5	
Mt Lawley	ML002A	23a	38	54	5	
Mt Lawley	ML039	23b	38	68	4	
Mt Lawley	ML017A	23a	38	52	2	
Mt Lawley	ML041	23b	38	49	8	

Figure 5. Section of dendrogram of subregional classification showing most sites referred to Floristic Community 5of Gibson *et al* (1994)

Notes: See Figure 4 notes for column headings.

Figure 5 shows part of group 38 of the subregional classification. In this large group of sites, there has been significant clustering of sites based on the survey they were recorded in. This is probably partly due to where sites were recorded and partly due to survey specific factors such as time of recording, expertise of recorders, number of visits to the sites and degree of disturbance of sites recorded. While these would be significant problems if we were

attempting to make an overall classification, we can largely avoid them by just considering the large block of Perth-Darwin National Highway sites, for which most of these factors are the same (the degree of disturbance will vary).

There are 37 Perth-Darwin National Highway sites in the group of sites in Figure 5, which have been assigned to seven Gibson *et al* (1994) floristic community types. They are mostly *Banksia attenuata*, *Banksia menziesii* sites and most have reasonable numbers of native species recorded, but a number have low species number. The grouping between these sites is not particularly clear cut, but there are at least twelve groups at an intermediate, or intermediate to low level of synthesis. There are another fifty sites (including three more Perth-Darwin National Highway sites) in the overall group 38 of the subregional classification, which divide into about thirteen groups at an intermediate, or intermediate to low level of synthesis and all but three of which are FCT 23a or FCT 23b.

While we cannot give a number of types, what we can say is that at an intermediate or intermediate to low level of synthesis, the *Banksia* woodlands in the area sampled by the Perth-Darwin National Highway data is quite diverse in floristic groups below the Gibson *et al* (1994) level of synthesis. For comparison, for the Maralla Road (Mt Lawley land) sites in this group, which are from a limited area and are good data, we can say that there are four groups at an intermediate or intermediate to low level of synthesis from sites referred to FCTs 23a and 23b.

Similar conclusions can be made by examining other parts of the subregional classification.

5.0 CONSERVATION ASSESSMENT

5.1 Conservation value for Gibson *et al* floristic community types

The vegetation sampled by the vegetation site data provided by Coffey for the Perth-Darwin National Highway corridor has high value for Gibson *et al* (1994) floristic community types. The value at this high level of synthesis of floristic community types is self-evident from the simple statistic that there are sixteen (see Table 5) of these units (and variation that may represent intergrades or new units) present in the data.

5.2 Conservation value for Priority and Threatened Ecological Communities

The vegetation sampled by the vegetation site data provided by Coffey for the Perth-Darwin National Highway corridor has high value for Priority and Threatened Ecological Communities, as it has vegetation that represents three Threatened Ecological Communities and six Priority Ecological communities. In addition, another vegetation type is present that may be another Priority Ecological Community (see Table 6).

5.2 Conservation value for floristic community types below the level of the Gibson et al units

The sub-regional classification (Appendix 6) discussed in section 4.6 demonstrates that there is a very large amount of variation in the floristic composition of the vegetation below the level of the Gibson *et al* (1994) units, but still at levels relevant to environmental impact assessment.

This variation is indicative of high conservation value for many vegetation types at the plant community to vegetation association level.

6. ACKNOWLEDGEMENTS

Coffey provided the Perth-Darwin National Highway data for the analysis.

Other data has been made available from various surveys and the work of others in collecting that data is a gratefully acknowledged.

Lucy Dadour of Coffey assisted with the identification of specimens.

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Appendices

Appendix 1. Comparison of some studies of vegetation on the Swan Coastal Plain and the adjoining Darling Plateau to the commonly accepted structural/dominance classification of vegetation to indicate the approximate relationship of level of synthesis of these examples of various approaches used to study vegetation and the distribution of flora.

Notes: Definitions of *alliance* and *society* follow Aplin (1979), the definition of *association* used is similar in meaning to that of Aplin. The definition of *biome* by various authors varies significantly, the concept used here is somewhat more restricted than used by some authors (see Allaby 1998, p 54 for example) who would equate it to all examples of a particular formation or a climatic type arguably could be above or below formation in the left hand column of this table (or in the column to the right at a higher level than land system (bioregion). Alliance and society are rarely used.

Vegetation divided on structure only at the two upper level(s) and on structure and dominant genera or species at the lower levels	**Vegetation divided on broad geomorphological boundaries (+/- land system) with some subdivision on structure and dominant species**	**Vegetation divided on less broad geomorphological boundaries (+/- land unit) with subdivision on structure and dominant species**	**Vegetation divided on the basis of the presence or absence of flora species (floristic analysis). Sometimes extended to include structure (dominance)**	**Multivariate analysis of the physical (slope, temperature, water availability etc.) attributes of sites. Cross referenced to species that indicate the attributes**
Biome: A concept that is partly distinguished on structure and partly on being a geographical entity. For example, the tropical rainforests of the Amazon Basin are a biome. Obviously, such as a large entity would not be entirely one formation but would have inclusions of others that would occur in a related fashion. This concept therefore straddles the conceptual boundary between the units in this column and the next.				
Vegetation formation A concept that covers vegetation of the same structure of the upper layer without reference to dominant species. While stands referred to a particular formation may have similar structure, they may have different dominant and associated species. For example a Banksia woodland with two shrub layers and a herb layer and a Casuarina woodland with virtually no understorey are both simply woodlands at the formation level. Aplin's (1979) modification of Specht provides a list of 29 formations	**Vegetation complex on the Swan Coastal Plain** A concept that covers a range of structural types that occur in a related pattern with borders defined by major geomorphological units with some subdivision on floristics between southern and northern parts of the geomorphological units. As mapped, fairly similar to CSIRO/ AGWA use of land systems with some subdivision. Co-incidentally, Heddle *et al* (1980) describe 29 vegetation complexes for the Swan Coastal Plain, this would include vegetation from many of the formations listed by Aplin (1979)	**Vegetation complex on the Darling Plateau** A concept that covers a range of vegetation that occurs on one part of the range of geomorphology of the Plateau and the valleys incised into it and with subdivisions based on changes in vegetation related to broad climatic para meters. (Note: this reflects the fact that the Plateau/ Scarp complex has a higher range of topography and is older than the coastal plain, meaning that more diverse ecological situations have *developed. The result (with exceptions) is that there is less structural diversity in P/S vegetation complexes(Heddle *et al* 1980 gives 30 veg complexes for the Northern Jarrah Forest) [? variable, possibly to sub-formation]	**Gibson *et al* (1994) level floristic community type** Uses a concept that divides flora records for sites into a number of groups of sites on the basis of species presence and absence. The number of groups used being selected by the person doing the analysis. That is, varies from study to study. Gives 36 Floristic community types for the southern Swan Coastal Plain. [(? Variable, possibly to alliance)	**Havel site types** A concept that covers a range of sites with similar physical characteristics. Sites can be referred to a "site type" by the presence or absence of indicator *species. (Heddle *et al* 1980 give 20 Havel site types for the Northern Jarrah Forest) [(? Variable, possibly to alliance)
Vegetation sub-formation: At the sub-formation level, the genus of the dominant of the upper layer is included to group examples of the same formation with related species as the dominant(s). For example, *Eucalyptus* woodland.		**Mapping by McArthur and Mattiske** (1985) of the Bassendean Dunes of the Gnangara Mound		
Vegetation alliance: This groups examples of the same formation that have the same dominant species. For example, *Eucalyptus marginata* (Jarrah) forest and may have the same or related species important in the understorey				
Vegetation association: A concept that covers two or more plant communities with similar structure and dominant species. May vary significantly in associated species but all stands referred to it will have some visual similarity.				
Society: A series of plant communities with the same structure and the same species dominant in the different strata				
Plant community: The basic unit of vegetation description. Standing at one place looking at a stand of vegetation one is looking at a physical example of a plant community. Extending this concept to several very similar stands introduces some variation and it becomes a concept.				
Stand: A particular example of a plant community				

Note: This table from Trudgen 1999, slightly modified

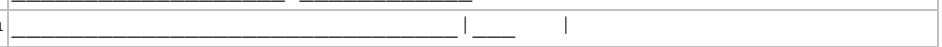
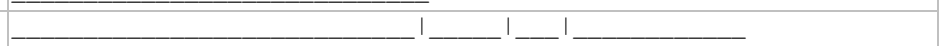
Appendix 2. Extracts from the dendrogram (classification) of the combined Perth-Darwin National Highway and Gibson et al (1994) data sets

The Perth-Darwin National Highway sites are shaded grey. The other sites are from the Gibson *et al* data. The column Gp# gives the Gibson *et al* floristic community type number. The numbers across the top row of the right hand column are a measure of the dissimilarity with which sites join in the dendrogram

site	Gp#	Dendrogram

site	Gp#	Dendrogram					
		0.2050	0.3844	0.5639	0.7433	0.9228	1.1
		|	|	|	|	|	|
360Q02		_____					
360Q36		_____|__					
SVB025		_____|_____					
SVB020		_____ |				
SVB023		_____|__ |				
SVB028		_____|__|_					
360Q06		_____ |				
SVB019		_____ | |				
SVB029		_____|_|_____|_____					
PLINE-3	21a	_____ |				
SVB021		_____|____ |				
SVB026		_____|_____|_____					
BANK-2	23a	_____ |				
hurst03	23a	_____ | |				
MODO-4	23a	_____|___ | |				
low13b	23a	_____|_|__ |				
BULL-3	23a	_____ | |				
WHITE-1	23a	_____|____| |				
YULE-1	23a	___ | |				
YULE-2	23a	__|_____|____ |				
WARB-1	23a	_____ | |				
WIRR-1	23a	_____|_____ | |				
WIRR-2	23a	_____|___ | |				
WARB-3	23a	_____|_____|____ |				
hurst01	23a	_____ | |				
hurst02	23a	_____ | | |				
hurst04	23a	_____|_|_____|__ |				
MELA-9	23b	_____ | |				
SVB022		_____|_____ | |				
MPK01	23b	_____ | | |				
MPK03	23b	_____|_____|____ | |				
SV05		_____ | | |				
SV18		_____|_____|___|_____|__					
360Q03		_____ |				
360Q39		_____| |				
SVB012		_____ || |				
SVB030		_____|_____|| |				
SVB039		_____|||___ |				
SV09		_____|__ |				

site	Gp#	Dendrogram
SVB014A		
SVB024		
360Q04		
SVB013		
SVB034		
SVB003		
SVB001		
SVB016		
360Q10		
360Q25		
SVB043		
SVB049		
SVB047		
360Q12		
360Q14		
SVB092		
360Q21		
SVB036		
360Q22		
360Q23		
SVB037		
SVB038		
360Q26		
360Q28		
SVB054		
SVB057		
360Q16		
360Q17		
SVB093		
360Q15		
360Q29		
360Q27		
SVB035		
SVB055		
TWIN-8	21c	
DEJONG-c	21c	
FL-5	21c	
FL-6	21c	
hymus03	21c	
hymus04	21c	
360Q13		
SVB058		
ELE02	21c	
ELE11	21a	
ELE21	s09	
ELE22	21c	
ELE15	21a	
ELE25	21c	
ELE27	21c	
ELE29	21c	

site	Gp#	Dendrogram
MILT-6	21a	
MUCK-1	23b	
ELE04	21a	
ELE05	s02	
FL-4	21a	
SF03	21c	
SVB004		
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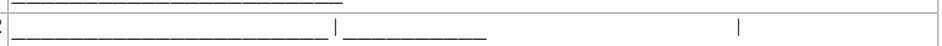
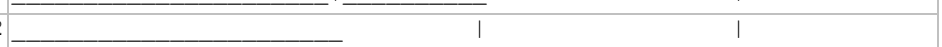
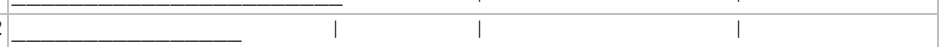
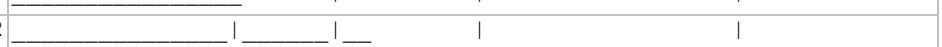
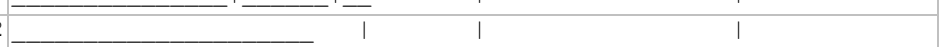
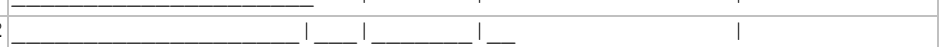
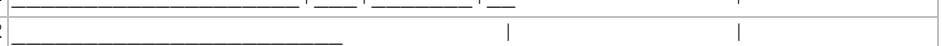
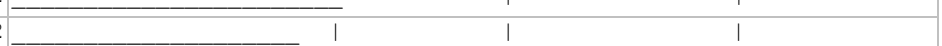
DEJONG-a	22	
MELA-10	22	
WARB-2	22	
WARB-4	22	
MELA-5	22	
MPK02	22	
ELE18	22	
ELE23	22	
SV11		
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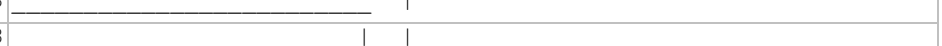
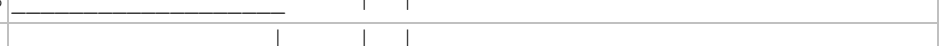
YAN-22	22	
YAN-18	22	
KING-1	28	
KING-2	28	
SHENT-1	28	
SVB088		
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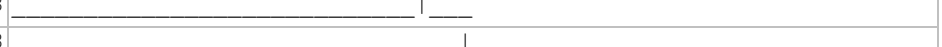
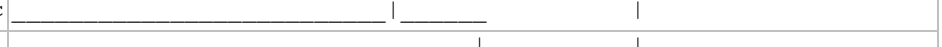
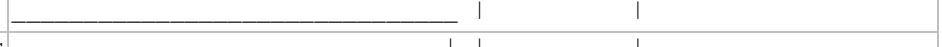
WARI-1	28	
WARI-2	28	
TRIG-4	28	
NEER-3	28	
NEER-4	28	
BULL-5	5	
BULL-7	5	
FL-1	4	
TWIN-7	21c	
SV38		
YULE-3	21c	
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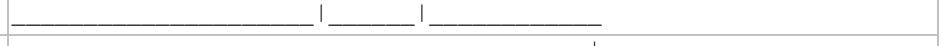
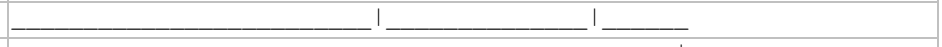
SV19		
SVB011		
360Q37		
hymus01	11	
SVB068		
SVB079A		
360Q34		
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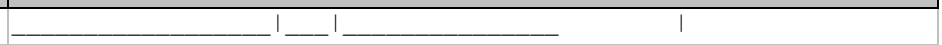
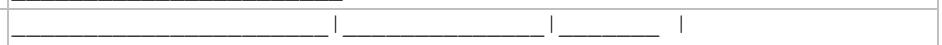
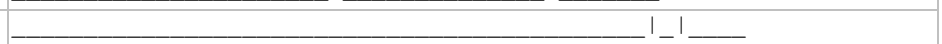
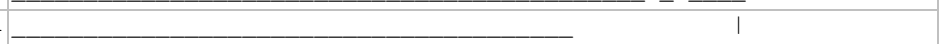
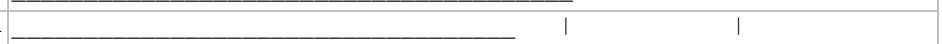
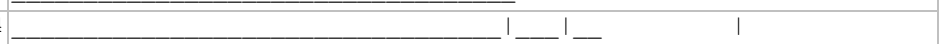
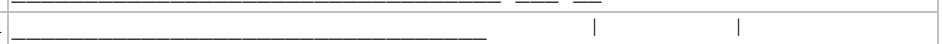
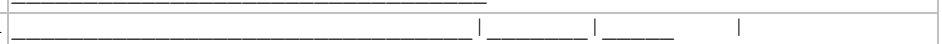
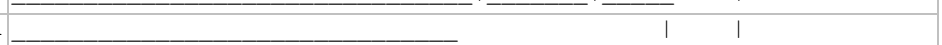
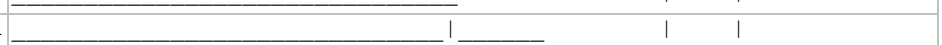
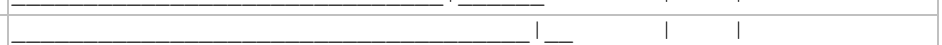
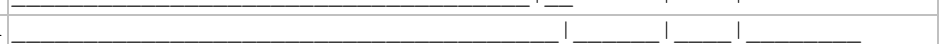
360Q35		
SVB077		

site	Gp#	Dendrogram
SVB098		
SVB084		
SVB086		
SVB078		
BULL-12	11	
MODO-3	11	
YAN-21	14	
C71-1	11	
HARRY-6	11	
CARAB-3	11	
rowe01	11	
SVB018		
low10b	11	
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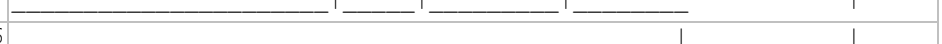
SVB046		
SVB056		
360Q30		
360Q31		
SV33		
SV01		
SV07		
card10	6	
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SVB031		
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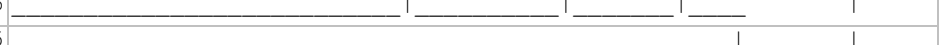
card4	6	
AUSTB-4	5	
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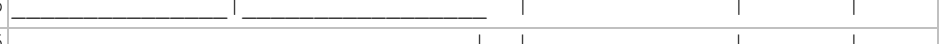
GUTHR-2	5	
GUTHR-4	5	
HARRY-3	5	
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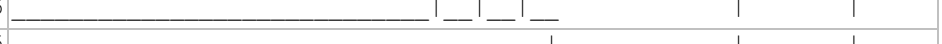
PLINE-5	5	
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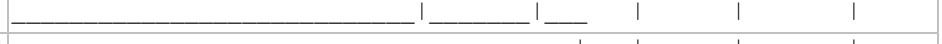
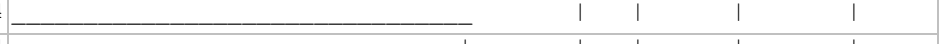
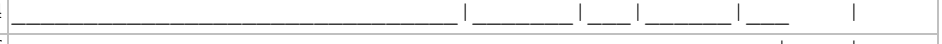
PLINE-7	21c	
SVB008		
SVB042		
PLINE-4	4	
WHITE-2	4	
ELLEN-7	6	
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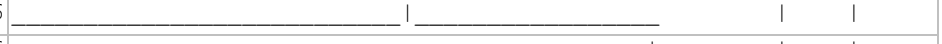
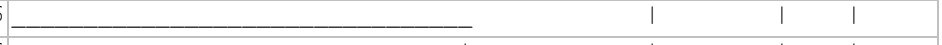
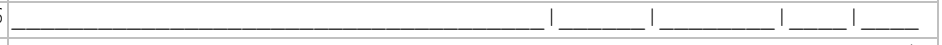
TWIN-1	6	
TWIN-2	6	
TWIN-3	6	
TWIN-4	6	
360Q32		
SVB041		
SVB040		
SVB045		

site	Gp#	Dendrogram
SVB044		_____ | | |
SVB052		_____|_____|___ | |
SVB051		_____|__|__ |
SVB050		_____|_____ |
RIVD-1	12	_____ | |
SVB002		_____ | | |
SVB005		_____|_____|___|_____ |
BANK-1A	13	_____ | |
ELE19	s03	_____|___ | |
SVB006		_____ | | |
SVB053		_____|_____|_____ | |
ELE20	s03	_____|_|_____|_
ELE34	s02	_____
SVB079		_____|_____
MP02	s02	_____|_____
SF04	s02	_____ |
SVB007		_____|___|_

Appendix 3. Nearest Neighbours analysis results for the Perth-Darwin National Highway sites

The Perth-Darwin National Highway sites are in the left hand column. The other sites are from the Gibson *et al* data.

In the first part of the Appendix, the first five closest sites from the Gibson *et al* data are given in the columns s1, s2, s3, s4. The Gibson *et al* floristic community type of those sites are given in the columns f1, f2 etc. A measure of dissimilarity between the Perth-Darwin National Highway site and each Gibson *et al* site is given in the columns v1, v2, etc.

In the second part of the Appendix, the next five closest sites from the Gibson *et al* data for each Perth-Darwin National Highway site are given.

SVB sites	s1	f1	v1	s2	f2	v2	s3	f3	v3	s4	f4	v4	s5	f5	v5
360Q02	WIRR-2	23a	0.517	CAPEL-7	21a	0.527	GUTHR-5	21a	0.541	AUSTRA-1	21a	0.546	ELE04	21a	0.553
360Q03	GOLF-1	20a	0.452	WIRR-1	23a	0.471	WARB-3	23a	0.475	WHITE-1	23a	0.475	MODO-4	23a	0.492
360Q04	hurst03	23a	0.413	WHITE-1	23a	0.436	ELDO-1	23b	0.451	MPK03	23b	0.451	MODO-4	23a	0.455
360Q06	MELA-9	23b	0.431	hurst03	23a	0.504	WHITE-1	23a	0.519						
360Q10	ELE21	s09	0.556	ELE28	23b	0.564	YULE-1	23a	0.575						
360Q12	NINE-2	21a	0.474	YULE-1	23a	0.485	MELA-9	23b	0.485	ELE08	23b	0.488	ELE24	23b	0.494
360Q13	NEER-2	28	0.562	ELE04	21a	0.564	NEER-3	28	0.565	low07	21c	0.569	ELE15	21a	0.593
360Q14	ELE17	23b	0.493	MELA-2	23b	0.500	hurst04	23a	0.505	ELE24	23b	0.506	hymus03	21c	0.507
360Q15	low07	21c	0.556	NINE-2	21a	0.577	ELE27	21c	0.579	CLIF-1	21a	0.583	low04	21a	0.584
360Q16	TAM-1	21a	0.533	NEER-8	28	0.547	HARRY-2	28	0.556	low07	21c	0.558	YULE-1	23a	0.564
360Q17	hymus03	21c	0.463	hurst03	23a	0.496	MELA-9	23b	0.500	TWIN-8	21c	0.511	low07	21c	0.527
360Q20	YAN-21	14	0.625	hymus01	11	0.657	FL-9	4	0.667	hymus02	11	0.676	BANK-1A	13	0.692
360Q21	WIRR-1	23a	0.488	WARB-1	23a	0.491	WARB-3	23a	0.492	WHITE-1	23a	0.495	ELE25	21c	0.500
360Q22	hurst03	23a	0.429	YULE-1	23a	0.485	MELA-9	23b	0.485	ELE08	23b	0.489	YULE-2	23a	0.490
360Q23	ELE08	23b	0.429	hymus03	21c	0.447	YULE-1	23a	0.451	ELE28	23b	0.455	WHITE-1	23a	0.462
360Q24	TWIN-1	6	0.674	GUTHR-2	5	0.677	C71-1	11	0.680	hymus01	11	0.689	GUTHR-4	5	0.695
360Q25	ELE21	s09	0.489	ELE28	23b	0.544	ELE25	21c	0.551	YULE-1	23a	0.561	MILT-6	21a	0.574
360Q26	WHITE-1	23a	0.444	ELE08	23b	0.453	YULE-1	23a	0.453	MP04	23b	0.455	MELA-2	23b	0.455
360Q27	MPK03	23b	0.583	hymus03	21c	0.583	low07	21c	0.590	TWIN-8	21c	0.595	hurst03	23a	0.596
360Q28	PLINE-2	23b	0.402	ELE16	23b	0.413	ELE08	23b	0.423	MELA-2	23b	0.444	MELA-8	23b	0.447
360Q29	MELA-5	22	0.581	WARB-3	23a	0.587	MODO-4	23a	0.600	WHITE-1	23a	0.604	MPK03	23b	0.608
360Q30	THOM-2	24	0.672	SHENT-1	28	0.672	WOODV-2	28	0.672	low04	21a	0.672	low06b	21c	0.677
360Q31	ELE29	21c	0.608	TWIN-8	21c	0.618	MODO-2	21c	0.639						
360Q32	ELE19	s03	0.667	MP02	s02	0.667	hymus01	11	0.688	ELE26	s02	0.704	RIVD-1	12	0.714
360Q34	hymus01	11	0.550	hymus02	11	0.714	low10b	11	0.721	HARRY-6	11	0.727	MODO-3	11	0.771
360Q35	hymus01	11	0.579	low08	5	0.714	TWIN-1	6	0.722	MODO-6	4	0.733	hymus02	11	0.750
360Q36	WIRR-2	23a	0.504	MELA-9	23b	0.509	hurst03	23a	0.539	YULE-1	23a	0.547	WHITE-1	23a	0.556
360Q37	hymus01	11	0.351	card10	6	0.644	HARRY-6	11	0.659	rowe01	11	0.677	hymus02	11	0.692
360Q39	SF01	23b	0.467	WARB-3	23a	0.468	WHITE-1	23a	0.486	GOLF-1	20a	0.496	ELE16	23b	0.505
SV01	HARRY-6	11	0.714	welr 01	9	0.721	TWIN-1	6	0.722	FL-9	4	0.726	hurst01	23a	0.735
SV05	MPK03	23b	0.500	WIRR-2	23a	0.541	HARRY-4	23a	0.550	WIRR-1	23a	0.561	NINE-2	21a	0.565
SV07	WHITE-2	4	0.704	hurst01	23a	0.735	ELE10	s05	0.742	HARRY-1	28	0.746	THOM-2	24	0.746
SV08	card10	6	0.696	card4	6	0.721	WOODV-1	28	0.738	WHITE-2	4	0.741	WOODV-2	28	0.746
SV09	YULE-2	23a	0.521	WARB-3	23a	0.536	YULE-1	23a	0.537	BULL-11	28	0.546	WHITE-1	23a	0.546
SV11	ELE23	22	0.487	ELE18	22	0.522	MELA-1	4	0.542	MP06	23b	0.569	MP01	23b	0.574

SVB sites	s1	f1	v1	s2	f2	v2	s3	f3	v3	s4	f4	v4	s5	f5	v5
SV18	YULE-1	23a	0.458	MPK03	23b	0.468	NINE-2	21a	0.468	hurst03	23a	0.477	ELE01	23b	0.482
SV19	BANK-1A	13	0.655	HARRY-3	5	0.667	MP02	s02	0.667	hymus01	11	0.684	FL-9	4	0.686
SV33	hurst01	23a	0.632	card11	6	0.644	FL-6	21c	0.661	YULE-2	23a	0.667	THOM-2	24	0.672
SV38	MELA-6	23b	0.606	YULE-2	23a	0.615	HARRY-4	23a	0.618	WARB-3	23a	0.636	YULE-3	21c	0.646
SVB001	hurst03	23a	0.488	GOLF-1	20a	0.491	WHITE-1	23a	0.500	WIRR-2	23a	0.504	YULE-2	23a	0.514
SVB002	WATER-1	13	0.692	RIVD-1	12	0.727	RUAB-3	13	0.733	CAPEL-6	12	0.750	CAPEL-4	13	0.750
SVB003	NINE-2	21a	0.522	THOM-2	24	0.524	YULE-1	23a	0.532	YULE-2	23a	0.537	WIRR-2	23a	0.541
SVB004	ELE25	21c	0.536	ELE15	21a	0.587	HARRY-4	23a	0.600	MP10	23b	0.605	MP08	23b	0.623
SVB005	RIVD-1	12	0.636	welr 01	9	0.714	KOOLJ-1	4	0.721	CAPEL-6	12	0.729	WHITE-2	4	0.733
SVB006	ELE19	s03	0.571	BANK-1A	13	0.579	RIVD-1	12	0.647	MP02	s02	0.714	ELE20	s03	0.733
SVB007	MP07	4	0.630	ELE30	s02	0.643	ELE06	s02	0.643	SF04	s02	0.652	MP03	4	0.655
SVB008	ELE07	4	0.563	ELE26	s02	0.563	ELE06	s02	0.667	ELE14	4	0.676	MP03	4	0.677
SVB011	hymus01	11	0.659	WATER-3	3c	0.690	MP02	s02	0.704	FL-9	4	0.704	ELE06	s02	0.706
SVB012	WARB-3	23a	0.418	BULL-3	23a	0.420	WIRR-1	23a	0.431	ELE24	23b	0.436	WHITE-1	23a	0.444
SVB013	ELE24	23b	0.446	YULE-2	23a	0.469	WHITE-1	23a	0.475	hurst03	23a	0.482	NINE-2	21a	0.495
SVB014A	SINT-1	23b	0.537	SF02	23b	0.548	M53	20a	0.554	GOLF-1	20a	0.556	talb9	20c	0.576
SVB016	BULL-3	23a	0.539	WIRR-2	23a	0.542	BULL-11	28	0.543	hurst03	23a	0.544	SHENT-1	28	0.548
SVB018	rowe01	11	0.700	MODO-3	11	0.714	hymus01	11	0.769	CARAB-3	11	0.771	hymus02	11	0.786
SVB019	WHITE-1	23a	0.412	WIRR-1	23a	0.431	WARB-1	23a	0.446	WARB-3	23a	0.448	MELA-9	23b	0.453
SVB020	WIRR-2	23a	0.424	WARB-1	23a	0.480	MPK03	23b	0.482	WHITE-1	23a	0.482	hurst03	23a	0.488
SVB021	PLINE-3	21a	0.480	WIRR-2	23a	0.554	card7	21a	0.566	TWIN-8	21c	0.566	low06b	21c	0.568
SVB022	MELA-9	23b	0.382	hurst03	23a	0.471	SINT-1	23b	0.474	MELA-2	23b	0.476	WIRR-2	23a	0.488
SVB023	WHITE-1	23a	0.482	MPK03	23b	0.500	hurst03	23a	0.504	MELA-9	23b	0.509	WARB-1	23a	0.513
SVB024	MELA-6	23b	0.393	ELE08	23b	0.438	MP05	23b	0.448	MP01	23b	0.450	MP04	23b	0.463
SVB025	WIRR-2	23a	0.513	MELA-9	23b	0.519	WHITE-1	23a	0.547	hurst03	23a	0.565	HARRY-5	21a	0.580
SVB026	PLINE-3	21a	0.500	WATERRD1	28	0.528	ELE27	21c	0.548	hurst03	23a	0.553	YULE-1	23a	0.565
SVB028	MELA-9	23b	0.439	MPK03	23b	0.467	WARB-1	23a	0.483	WHITE-1	23a	0.505	card7	21a	0.505
SVB029	MELA-9	23b	0.431	hurst03	23a	0.469	YULE-1	23a	0.490	WIRR-2	23a	0.504	BULLER-3	21c	0.515
SVB030	WHITE-1	23a	0.409	WARB-3	23a	0.415	MELA-9	23b	0.434	hurst03	23a	0.436	SF02	23b	0.451
SVB031	card4	6	0.600	WOODV-1	28	0.683	WOODV-2	28	0.692	SHENT-1	28	0.692	rowe01	11	0.706
SVB034	NINE-2	21a	0.449	ELE17	23b	0.475	MELA-9	23b	0.480	MP04	23b	0.488	MPK03	23b	0.490
SVB035	TWIN-8	21c	0.605	MILT-6	21a	0.652	low07	21c	0.653	low06b	21c	0.654	hymus03	21c	0.656
SVB036	WHITE-1	23a	0.421	ELE24	23b	0.451	YULE-1	23a	0.467	ELE08	23b	0.468	WARB-3	23a	0.475
SVB037	YULE-1	23a	0.449	WARB-3	23a	0.478	MPK03	23b	0.479	WHITE-1	23a	0.480	MP01	23b	0.487
SVB038	YULE-1	23a	0.431	WARB-3	23a	0.462	MELA-8	23b	0.491	YULE-2	23a	0.495	MP01	23b	0.512
SVB039	WARB-3	23a	0.417	WHITE-1	23a	0.464	MELA-9	23b	0.491	MELA-2	23b	0.495	MILT-3	23b	0.500
SVB040	ELE26	s02	0.688	MP02	s02	0.739	ELE19	s03	0.739	MILT-5	14	0.742	MELA-1	4	0.744
SVB041	TWIN-1	6	0.722	McLART-1	13	0.733	TWIN-4	6	0.750	HARRY-3	5	0.762	YAN-21	14	0.771
SVB042	MODO-2	21c	0.600	HARRY-3	5	0.600	ELE18	22	0.611	ELE23	22	0.655	BANK-1	22	0.661
SVB043	ELE28	23b	0.460	ELE17	23b	0.500	MELA-9	23b	0.523	MP04	23b	0.543	YULE-1	23a	0.546
SVB044	WATER-2	13	0.684	RIVD-1	12	0.714	MILT-2	13	0.714	HARRY-3	5	0.722	hymus01	11	0.750
SVB045	CAPEL-8	12	0.709	FL-10	12	0.742	RIVD-1	12	0.750	TWIN-1	6	0.758	CAPEL-6	12	0.760
SVB046	low07	21c	0.632	YAN-5	26b	0.647	low10a	21a	0.667	HARRY-1	28	0.679	YAN-11	26b	0.680
SVB047	hymus03	21c	0.636	low07	21c	0.636	DEPOT-1	28	0.652	ELE21	s09	0.652	TAM-1	21a	0.657
SVB048	MODO-2	21c	0.667	ELE34	s02	0.677	GUTHR-2	5	0.684	MP02	s02	0.692	hurst01	23a	0.694
SVB049	hymus03	21c	0.508	ELE28	23b	0.515	ELE08	23b	0.525	YULE-1	23a	0.539	WARB-3	23a	0.556
SVB050	TWIN-1	6	0.667	FL-9	4	0.686	low09b	5	0.695	TWIN-3	6	0.733	ELE20	s03	0.760
SVB051	HARRY-3	5	0.650	ELE26	s02	0.677	MILT-5	14	0.733	CLIF-3	26a	0.746	low12b	21a	0.750
SVB052	YAN-21	14	0.667	HARRY-3	5	0.676	ELE37	s17	0.680	TWIN-1	6	0.742	BANK-1A	13	0.750
SVB053	MP02	s02	0.529	BANK-1A	13	0.636	ELE19	s03	0.647	ELE36	s05	0.652	ELE37	s17	0.652
SVB054	WHITE-1	23a	0.400	ELE08	23b	0.443	hurst03	23a	0.462	hymus03	21c	0.463	NINE-2	21a	0.472

SVB sites	s1	f1	v1	s2	f2	v2	s3	f3	v3	s4	f4	v4	s5	f5	v5
SVB055	TWIN-8	21c	0.500	low07	21c	0.549	low04	21a	0.553	ELE27	21c	0.571	ELE28	23b	0.574
SVB056	GUTHR-2	5	0.646	YAN-5	26b	0.648	ELE26	s02	0.649	YAN-11	26b	0.654	GUTHR-4	5	0.658
SVB057	hurst03	23a	0.460	MELA-9	23b	0.461	WHITE-1	23a	0.470	YULE-1	23a	0.478	YULE-2	23a	0.500
SVB058	MILT-6	21a	0.529	ELE27	21c	0.571	ELE22	21c	0.591	ELE15	21a	0.609	ELE25	21c	0.641
SVB068	hymus01	11	0.529	rowe01	11	0.571	MP02	s02	0.600	MP03	4	0.643	ELE26	s02	0.655
SVB076	hymus01	11	0.636	hymus02	11	0.652	MODO-3	11	0.692	AUSTB-3	11	0.720	low14a	4	0.729
SVB077	hymus01	11	0.714	hymus02	11	0.730	CAPEL-9	12	0.750	RIVD-1	12	0.750	TWIN-1	6	0.758
SVB078	rowe01	11	0.750	hymus01	11	0.800	ELE34	s02	0.810	ELLEN-7	6	0.813	low10b	11	0.818
SVB079	ELE34	s02	0.391	ELE26	s02	0.556	MP02	s02	0.556	MP03	4	0.615	MP07	4	0.667
SVB079A	hymus01	11	0.561	MODO-3	11	0.667	YAN-21	14	0.684	C58-1	4	0.714	low14a	4	0.714
SVB084	hymus02	11	0.700	hymus05	11	0.702	low10b	11	0.707	hymus06	11	0.714	hymus01	11	0.737
SVB086	RIVD-1	12	0.739	hymus05	11	0.767	McLART-1	13	0.769	BAMBUN-2	15	0.793	CAPEL-9	12	0.795
SVB088	SHENT-1	28	0.465	WARI-2	28	0.500	NEER-3	28	0.540	HARRY-2	28	0.542	TRIG-3	28	0.546
SVB091	hymus01	11	0.622	hymus02	11	0.641	FL-9	4	0.680	low08	5	0.709	TWIN-1	6	0.714
SVB092	MELA-2	23b	0.462	ELE03	23b	0.495	MP01	23b	0.500	WARB-3	23a	0.504	ELE08	23b	0.506
SVB093	MELA-9	23b	0.429	ELE08	23b	0.446	hymus03	21c	0.488	MELA-2	23b	0.505	WARB-3	23a	0.519
SVB094	HARRY-3	5	0.482	MILT-1	5	0.636	PLINE-5	5	0.654	GUTHR-4	5	0.656	WHITE-2	4	0.667
SVB098	hymus01	11	0.539	hymus02	11	0.610	rowe01	11	0.697	MODO-3	11	0.706	RIVD-1	12	0.714

s	s6	f6	v6	s7	f7	v7	s8	f8	v8	s9	f9	v9	s10	f10	v10
360Q02	CAPEL-1	21b	0.553	GOLF-1	20a	0.562	card7	21a	0.563	MELA-9	23b	0.564	GUTHR-6	21a	0.584
360Q03	hurst03	23a	0.496	WARB-1	23a	0.504	BULL-3	23a	0.508	BULL-11	28	0.525			
360Q04	MELA-2	23b	0.463	WAND-1	23a	0.466	WIRR-1	23a	0.467	WARB-1	23a	0.469	NINE-2	21a	0.469
360Q06															
360Q10															
360Q12	ELE17	23b	0.507	ELE21	s09	0.516	ELE02	21c	0.518						
360Q13	MILT-6	21a	0.593	ELE27	21c	0.600	ELE11	21a	0.600	ELE21	s09	0.600	low01	21c	0.607
360Q14	ELE28	23b	0.514	ELE08	23b	0.524	MELA-6	23b	0.524						
360Q15	low13a	21a	0.591	ELE22	21c	0.593	ELE29	21c	0.607	low06b	21c	0.615	TWIN-8	21c	0.616
360Q16	HARRY-5	21a	0.567	WIRR-2	23a	0.569									
360Q17															
360Q20	TWIN-1	6	0.697	low08	5	0.698	WATER-1	13	0.714	FL-7	8	0.714	ELE19	s03	0.714
360Q21	hurst03	23a	0.500	SINT-1	23b	0.505	MELA-9	23b	0.505						
360Q22	WHITE-1	23a	0.495	MP05	23b	0.500	ELE28	23b	0.500						
360Q23	ELE17	23b	0.463	WIRR-2	23a	0.470	MELA-6	23b	0.473	YULE-2	23a	0.476	WARB-1	23a	0.478
360Q24	ELE26	s02	0.700	LYONS-2	25	0.707	SHE-6	26b	0.710	WABL-2	26b	0.714	SHE-1	26b	0.718
360Q25															
360Q26	MELA-8	23b	0.456	ELE28	23b	0.457	MELA-6	23b	0.474	WARB-1	23a	0.479	ELE16	23b	0.480
360Q27	low12a	21a	0.600												
360Q28	WHITE-1	23a	0.453	WARB-1	23a	0.453	MELA-3	23b	0.455	MELA-9	23b	0.461	MELA-7	23b	0.464
360Q29	NINE-2	21a	0.608	MELA-2	23b	0.608									
360Q30															
360Q31															
360Q32	HARRY-6	11	0.722	HARRY-3	5	0.722	ELE10	s05	0.760	WATER-1	13	0.760	hymus02	11	0.765
360Q34	FL-9	4	0.774	WOODV-1	28	0.778	low14a	4	0.782	AUSTB-3	11	0.783	MODO-6	4	0.787
360Q35	rowe02	4	0.761	low09b	5	0.763	GUTHR-4	5	0.769	TWIN-2	6	0.773	low14a	4	0.774
360Q36	card7	21a	0.565	TWIN-8	21c	0.565	LAND-1	20a	0.570	MODO-4	23a	0.571	WIRR-1	23a	0.571
360Q37	TWIN-1	6	0.714	FL-7	8	0.727	low14a	4	0.731	FL-9	4	0.760	CAPEL-3	4	0.765
360Q39	MP01	23b	0.517	YULE-2	23a	0.519	ELE24	23b	0.527						

s	s6	f6	v6	s7	f7	v7	s8	f8	v8	s9	f9	v9	s10	f10	v10
SV01	hymus01	11	0.737	ELE30	s02	0.742	ELE06	s02	0.742	hymus02	11	0.750	MP02	s02	0.750
SV05	ELE01	23b	0.570	WARB-1	23a	0.570	MELA-9	23b	0.575	MPK01	23b	0.575	YULE-1	23a	0.575
SV07															
SV08	SHENT-1	28	0.746	BOLD-1	24	0.746	rowe01	11	0.750	YAN-11	26b	0.754	AUSTB-6	5	0.755
SV09	hurst03	23a	0.547	ELE24	23b	0.556	BANK-2	23a	0.560	SF02	23b	0.571			
SV11	MELA-10	22	0.593	WARB-2	22	0.607	ELE28	23b	0.607	WARB-4	22	0.616	ELE22	21c	0.623
SV18	HARRY-4	23a	0.488	hurst04	23a	0.489	WIRR-1	23a	0.500	MELA-9	23b	0.500	MODO-4	23a	0.510
SV19	MODO-6	4	0.689	RIVD-1	12	0.704	low08	5	0.714	TWIN-1	6	0.722	ELE34	s02	0.724
SV33															
SV38	TWIN-8	21c	0.647	MILT-3	23b	0.647	SF03	21c	0.649	ELDO-1	23b	0.650	MELA-2	23b	0.653
SVB001	BANK-2	23a	0.530	NINE-2	21a	0.537	SHENT-1	28	0.540	WARB-3	23a	0.543	hurst04	23a	0.556
SVB002	YOON-2	2	0.786	ELE19	s03	0.790	welr 01	9	0.790	ELE20	s03	0.800	WATER-2	13	0.800
SVB003	TAM-1	21a	0.542	hurst03	23a	0.543	ELE02	21c	0.550	WARB-1	23a	0.551	ELE03	23b	0.553
SVB004	SF03	21c	0.625	NINE-2	21a	0.632	hurst04	23a	0.632	WIRR-1	23a	0.633	MUCK-1	23b	0.636
SVB005	PAGA-3	5	0.736	SF04	s02	0.750	CAPEL-8	12	0.750	GUTHR-4	5	0.759	AUSTB-3	11	0.760
SVB006	WATER-2	13	0.733	TWIN-11	11	0.733	MODO-3	11	0.739	SF04	s02	0.750	FL-10	12	0.750
SVB007	MP11	s02	0.667	ELE34	s02	0.692	welr 01	9	0.700	KOOLJ-1	4	0.706	ELE14	4	0.714
SVB008	MODO-2	21c	0.686	ELE40	4	0.692	MELA-5	22	0.704	ELE29	21c	0.707	MP07	4	0.724
SVB011	ELE30	s02	0.706	MP03	4	0.714	low14a	4	0.714	WOODV-2	28	0.727	HARRY-6	11	0.733
SVB012	RAAF-2	23b	0.447	SF02	23b	0.451	hurst03	23a	0.467	MP04	23b	0.472	WARB-1	23a	0.475
SVB013	YULE-1	23a	0.505	ELE17	23b	0.507	ELE08	23b	0.512	BULL-3	23a	0.514	WIRR-2	23a	0.518
SVB014A	BULL-3	23a	0.576	LAND-1	20a	0.580	MP04	23b	0.581	SF01	23b	0.586	MELA-6	23b	0.591
SVB016	talb7	20c	0.551	GOLF-1	20a	0.551	YULE-2	23a	0.558	NINE-2	21a	0.564			
SVB018	low10b	11	0.793	cool 09	19b	0.818	TWIN-11	11	0.857	ELLEN-7	6	0.857	NINE-1	21a	0.867
SVB019	hurst03	23a	0.453	WIRR-2	23a	0.455	YULE-2	23a	0.492	BULL-3	23a	0.512	dard02	21b	0.514
SVB020	MELA-9	23b	0.491	YULE-1	23a	0.491	hurst02	23a	0.500	WATERRD1	28	0.516	hurst04	23a	0.519
SVB021	CAPEL-1	21b	0.576	BANK-3	23a	0.578	MILT-6	21a	0.579	MELA-9	23b	0.588	WIRR-1	23a	0.590
SVB022	MUCK-1	23b	0.490	MPK01	23b	0.491	WIRR-1	23a	0.492	MELA-6	23b	0.495	WARB-1	23a	0.496
SVB023	WIRR-2	23a	0.521	YULE-1	23a	0.528	ELDO-1	23b	0.539	SINT-1	23b	0.546			
SVB024	ELE16	23b	0.468	ELDO-1	23b	0.469	RAAF-2	23b	0.475	MELA-7	23b	0.485	ELE24	23b	0.488
SVB025	BULL-10	28	0.585	HARRY-2	28	0.586	MPK03	23b	0.588	YULE-1	23a	0.596	hurst01	23a	0.597
SVB026	MELA-9	23b	0.565	MELA-5	22	0.568	YAN-20	23b	0.569	MILT-6	21a	0.578	SINT-1	23b	0.583
SVB028	WIRR-2	23a	0.508	WIRR-1	23a	0.512	YULE-1	23a	0.514	hurst03	23a	0.525			
SVB029	WIRR-1	23a	0.525	WARB-3	23a	0.529	HARRY-5	21a	0.531	YULE-2	23a	0.534			
SVB030	ELE24	23b	0.455	MELA-6	23b	0.471	ELE08	23b	0.471	MELA-8	23b	0.471	MP04	23b	0.474
SVB031	card10	6	0.708	TRIG-3	28	0.711	TRIG-5	24	0.719	card11	6	0.721	PAGA-8	25	0.726
SVB034	MP10	23b	0.500	MUCK-1	23b	0.500	MELA-2	23b	0.505	TWIN-8	21c	0.512	ELE24	23b	0.512
SVB035	card7	21a	0.658												
SVB036	BULL-3	23a	0.479	hurst03	23a	0.483	SF02	23b	0.489	MELA-6	23b	0.489	MELA-2	23b	0.490
SVB037	ELE08	23b	0.494	MELA-6	23b	0.494	MELA-7	23b	0.495						
SVB038	ELE08	23b	0.517	WHITE-1	23a	0.519	WARB-1	23a	0.530						
SVB039	hurst03	23a	0.504	ELE28	23b	0.506	MELA-8	23b	0.509						
SVB040	HARRY-3	5	0.756	YAN-21	14	0.765	CAPEL-6	12	0.769	RIVD-1	12	0.769	hymus01	11	0.784
SVB041	WHITE-2	4	0.778	CARAB-3	11	0.787	YAN-11	26b	0.790	hymus01	11	0.790			
SVB042	MP03	4	0.667	PLINE-4	4	0.676	ELE26	s02	0.677	MELA-1	4	0.684	MELA-5	22	0.698
SVB043	MELA-2	23b	0.556	ELDO-1	23b	0.558	NINE-2	21a	0.558						
SVB044	WATER-1	13	0.760	hymus02	11	0.765	MILT-5	14	0.769	Possum5	17	0.769	ELE19	s03	0.778
SVB045	BANK-1A	13	0.769	WATER-1	13	0.786	HARRY-3	5	0.795	GUTHR-4	5	0.796	CAPEL-9	12	0.800
SVB046	NEER-22	28	0.685	GUTHR-3	21a	0.691	C71-3	21a	0.692	YALG-6	26b	0.694	DEPOT-1	28	0.696
SVB047	low04	21a	0.662	ELE17	23b	0.672	HARRY-2	28	0.682	FL-6	21c	0.683			
SVB048	GUTHR-4	5	0.704	ELE26	s02	0.714	HARRY-3	5	0.727	YAN-11	26b	0.729	TWIN-1	6	0.737
SVB049	MILT-3	23b	0.558	hurst03	23a	0.569									

s	s6	f6	v6	s7	f7	v7	s8	f8	v8	s9	f9	v9	s10	f10	v10
SVB050	HARRY-3	5	0.762	MODO-1	4	0.765	PAGA-1	5	0.771	low09a	5	0.771	AUSTB-3	11	0.773
SVB051	YAN-21	14	0.758	NEER-23	28	0.765	ELE22	21c	0.767	SHE-1	26b	0.768	GARDEN-1	30a1	0.771
SVB052	hymus01	11	0.758	ELE36	s05	0.760	CARAB-3	11	0.762	ELE10	s05	0.769	PLINE-7	21c	0.773
SVB053	MP11	s02	0.692	ELE26	s02	0.692	TWIN-11	11	0.697	HARRY-3	5	0.714	ELE34	s02	0.727
SVB054	WARB-3	23a	0.472												
SVB055	YULE-1	23a	0.581	low06a	21c	0.583	YULE-2	23a	0.586	ELE22	21c	0.586	NINE-2	21a	0.595
SVB056	NEER-22	28	0.663	MILT-1	5	0.692	WHITE-2	4	0.692	SHE-6	26b	0.696	HARRY-3	5	0.697
SVB057	ELDO-1	23b	0.504	WIRR-2	23a	0.508									
SVB058	BULLER-1	21a	0.662	RIVD-2	21a	0.662	PLINE-3	21a	0.667	ELE23	22	0.667	ELE21	s09	0.676
SVB068	low14a	4	0.674	ELE34	s02	0.680	MP07	4	0.692	TWIN-11	11	0.722	hymus02	11	0.722
SVB076	low10b	11	0.745	BULL-12	11	0.750	RIVD-1	12	0.758	GUTHR-4	5	0.759	MODO-6	4	0.765
SVB077	MODO-6	4	0.762	ELE34	s02	0.769	AUSTB-2	7	0.769	low08	5	0.774	McLART-1	13	0.778
SVB078	HARRY-6	11	0.824	KERO-2	24	0.843	CARAB-3	11	0.846	YAN-21	14	0.852	FL-9	4	0.861
SVB079	SF04	s02	0.700	ELE07	4	0.704	MP11	s02	0.704	ELE29	21c	0.722	BANK-1A	13	0.739
SVB079A	TWIN-11	11	0.721	hymus02	11	0.721	RIVD-1	12	0.733	KOOLJ-1	4	0.750	ELE34	s02	0.750
SVB084	Possum2	16	0.744	TWIN-4	6	0.750	ELLEN-7	6	0.750	CARAB-3	11	0.787	McLART-1	13	0.800
SVB086	brick4	9	0.800	AUSTB-3	11	0.800	Possum1	16	0.810	CARAB-3	11	0.814	hymus01	11	0.824
SVB088	YAN-3	28	0.553	WIRR-2	23a	0.556	WELL-2	21a	0.556	PAGA-4	21a	0.556	WARI-1	28	0.557
SVB091	MODO-6	4	0.727	WATER-1	13	0.733	ELE19	s03	0.739	CARAB-3	11	0.739	MODO-3	11	0.750
SVB092	ELE28	23b	0.520	ELE17	23b	0.525	hurst04	23a	0.531	MP04	23b	0.537			
SVB093	BANK-2	23a	0.521	ELE22	21c	0.524									
SVB094	GUTHR-2	5	0.672	FL-9	4	0.683	MODO-6	4	0.684	ELE26	s02	0.689	MELA-1	4	0.692
SVB098	BULL-12	11	0.721	AUSTB-3	11	0.733	CARAB-3	11	0.750	hymus05	11	0.750	TWIN-11	11	0.756

Appendix 4. Single Site Insertion analysis: relevant portions of dendrograms showing placement of Perth-Darwin National Highway sites

This Appendix gives the results of classifying each of the Perth-Darwin National Highway sites individually with the Gibson *et al* (1994) data. Inserting one new site at a time is an alternate way of assessing the possible floristic community type of such a site compared to an existing classification. The possible floristic community type of a new site is inferred from the way it joins to other sites in the dendrogram used to display the classification.

The Perth-Darwin National Highway sites are highlighted with grey. The column FCT# gives the Gibson *et al* (1994) floristic community type for their sites.

site	FCT#	data
360Q02		
MANEA-2	21a	
FL-4	21a	
KOOLJ-2	21a	
KOOLJ-3	21a	
KOOLJ-4	21a	
360Q03		
GOLF-1	20a	
KOON-1	20a	
KOON-2	20a	
LAND-1	20a	
360Q04		
BULL-3	23a	
WHITE-1	23a	
360Q06		
BANK-2	23a	
hurst03	23a	
MODO-4	23a	
low13b	23a	
BULL-3	23a	
WHITE-1	23a	
YULE-1	23a	
YULE-2	23a	
WARB-1	23a	
WIRR-1	23a	
WIRR-2	23a	
WARB-3	23a	
hurst01	23a	
hurst02	23a	
hurst04	23a	
360Q10		
TWIN-7	21c	
TWIN-8	21c	
YULE-3	21c	

site	FCT#	data
360Q12		
ELE21	s09	
ELE22	21c	
360Q13		
NEER-3	28	
NEER-4	28	
360Q14		
DEJONG-c	21c	
FL-5	21c	
FL-6	21c	
hymus03	21c	
360Q15		
hymus04	21c	
MODO-2	21c	
PLINE-7	21c	
360Q16		
HARRY-1	28	
HARRY-2	28	
HARRY-5	21a	
WELL-2	21a	
PAGA-4	21a	
PAGA-7	21a	
TAM-1	21a	
WELL-1	21a	
360Q17		
hymus03	21c	
HARRY-1	28	
HARRY-2	28	
360Q20		
YAN-21	14	
hymus01	11	
hymus02	11	
MODO-3	11	
360Q21		
TWIN-8	21c	
TWIN-7	21c	
360Q22		
BANK-2	23a	
hurst03	23a	
MODO-4	23a	
low13b	23a	
BULL-3	23a	
WHITE-1	23a	

site	FCT#	data
YULE-1	23a	___ | |
YULE-2	23a	__|_____|____ |
WARB-1	23a	_____ | |
WIRR-1	23a	_____|_____ | |
WIRR-2	23a	_____|___ | |
WARB-3	23a	_____|_____|__|__
360Q23		_____
hymus03	21c	_____|_____
FL-5	21c	_____ |
FL-6	21c	_____|_____ |
THOM-2	24	_____|__|____
360Q24		_____
C71-1	11	_____|_____
AUSTB-4	5	_____ |
AUSTB-6	5	_____|_____ |
GUTHR-2	5	_____ | |
GUTHR-4	5	_____|_____ | |
HARRY-3	5	_____ | | |
MILT-1	5	_____|___|_|_____ |
PLINE-5	5	_____|_|_____
360Q25		_____
ELE21	s09	_____ |
ELE22	21c	_____|_____|_____
360Q26		_____
DEJONG-c	21c	_____|___
FL-5	21c	_____ |
FL-6	21c	_____|_____ |
hymus03	21c	_____|_____|_____
360Q27		_____
TWIN-7	21c	_____ |
TWIN-8	21c	_____|_____|_____
360Q29		_____
MODO-2	21c	_____ |
PLINE-7	21c	_____|_____|_____
360Q32		_____
hymus01	11	_____ |
hymus02	11	_____|____ |
MODO-3	11	_____|_____|_
C71-1	11	_____ |
HARRY-6	11	_____|_____|___
360Q36		_____
SF03	21c	_____|____
ELE04	21a	_____ |

site	FCT#	data
ELE05	s02	
360Q39		
GOLF-1	20a	
KOON-1	20a	
KOON-2	20a	
LAND-1	20a	
C71-1	11	
HARRY-6	11	
SV01		
hymus01	11	
hymus02	11	
MODO-3	11	
FL-5	21c	
FL-6	21c	
hymus03	21c	
SV18		
THOM-2	24	
BANK-1A	13	
ELE19	s03	
SF04	s02	
SV19		
ELE20	s03	
card10	6	
card11	6	
card4	6	
SV33		
SV38		
YULE-3	21c	
TWIN-7	21c	
TWIN-8	21c	
APBF-1	20a	
APBF-2	20a	
M53	20a	
GOLF-1	20a	
SVB001		
KOON-1	20a	
KOON-2	20a	
LAND-1	20a	
C58-2	13	
WATER-1	13	
CAPEL-4	13	
RUAB-3	13	
SVB002		

site	FCT#	data
DEJONG-c	21c	
FL-5	21c	
FL-6	21c	
hymus03	21c	
SVB003		
THOM-2	24	
hymus04	21c	
ELE04	21a	
ELE05	s02	
FL-4	21a	
SF03	21c	
SVB004		
BANK-1A	13	
ELE19	s03	
SF04	s02	
ELE20	s03	
RIVD-1	12	
SVB005		
BANK-1A	13	
ELE19	s03	
SVB006		
ELE06	s02	
ELE40	4	
ELE31	s02	
ELE30	s02	
ELE07	4	
ELE14	4	
ELE26	s02	
ELE34	s02	
MP02	s02	
MP03	4	
MP07	4	
MP11	s02	
KOOLJ-1	4	
MELA-1	4	
SVB007		
ELE07	4	
ELE14	4	
ELE26	s02	
SVB008		
C71-1	11	
HARRY-6	11	
SVB011		
YOON-2	2	

site	FCT#	data
ELE04	21a	
ELE05	s02	
FL-4	21a	
SF03	21c	
SVB013		
GOLF-1	20a	
KOON-1	20a	
KOON-2	20a	
LAND-1	20a	
M53	20a	
SVB016		
MELA-10	22	
WARB-2	22	
WARB-4	22	
MELA-5	22	
MPK02	22	
SF03	21c	
SVB023		
SVB025		
TWIN-7	21c	
TWIN-8	21c	
YULE-3	21c	
ELE02	21c	
ELE11	21a	
ELE15	21a	
ELE25	21c	
ELE27	21c	
ELE29	21c	
ELE21	s09	
ELE22	21c	
MILT-6	21a	
PLINE-3	21a	
SVB026		
BULL-3	23a	
WHITE-1	23a	
SVB030		
WARB-1	23a	
WIRR-1	23a	
WIRR-2	23a	
WARB-3	23a	
DEJONG-c	21c	
FL-5	21c	
FL-6	21c	
hymus03	21c	

site	FCT#	data
hymus04	21c	_____|____
SVB035		_____|____
BULL-3	23a	_____
WHITE-1	23a	_____|_____
SVB036		_____|____
MILT-5	14	_____
SVB040		_____|_
YAN-21	14	_____|_____
MILT-5	14	_____
YAN-21	14	_____|_____
SVB041		_____|_____
HARRY-3	5	_____
SVB042		_____|_____
MODO-2	21c	_____ |
PLINE-7	21c	_____|_____|_
McLART-1	13	_____
PAGA-2	13	_____|_____
MILT-2	13	_____|_____
SVB044		_____ |
WATER-2	13	_____|_____|__
Possum5	17	_____|____
MODO-2	21c	_____
PLINE-7	21c	_____|_____
SVB046		_____|_
AUSTB-4	5	_____
AUSTB-6	5	_____|_____
GUTHR-2	5	_____ |
GUTHR-4	5	_____|_____ |
HARRY-3	5	_____ | |
MILT-1	5	_____|___|_|_____
PLINE-5	5	_____|____
SVB048		_____|___
DEJONG-c	21c	_____
FL-5	21c	_____ |
FL-6	21c	_____|_____ |
hymus03	21c	_____|____|_____
SVB049		_____|__
hymus04	21c	_____|_____
AUSTB-4	5	_____
AUSTB-6	5	_____|_____
GUTHR-2	5	_____ |
GUTHR-4	5	_____|_____ |

site	FCT#	data
HARRY-3	5	
MILT-1	5	
PLINE-5	5	
BULL-5	5	
BULL-7	5	
ELE20	s03	
SVB050		
MILT-5	14	
SVB051		
YAN-21	14	
AUSTB-3	11	
TWIN-11	11	
BULL-12	11	
hymus01	11	
hymus02	11	
MODO-3	11	
hymus05	11	
hymus06	11	
CARAB-3	11	
rowe01	11	
low10b	11	
SVB052		
YAN-21	14	
BANK-2	23a	
hurst03	23a	
MODO-4	23a	
low13b	23a	
YULE-1	23a	
YULE-2	23a	
WAND-1	23a	
BULL-3	23a	
WHITE-1	23a	
SVB054		
low01	21c	
low04	21a	
low06b	21c	
low07	21c	
low06a	21c	
SVB055		
TWIN-8	21c	
AUSTB-4	5	
AUSTB-6	5	
GUTHR-2	5	
GUTHR-4	5	
HARRY-3	5	
MILT-1	5	

site	FCT#	data
SVB056		_____|____
BANK-2	23a	_____
hurst03	23a	_____ |
MODO-4	23a	_____|____ |
low13b	23a	_____|_|__
BULL-3	23a	_____ |
WHITE-1	23a	_____|_____|
YULE-1	23a	___ |
YULE-2	23a	__|_____|____
WARB-1	23a	_____ |
WIRR-1	23a	_____|_____ |
WIRR-2	23a	_____|___ |
WARB-3	23a	_____|_____|__
SVB057		_____|___
hymus01	11	_____
hymus02	11	_____|____
MODO-3	11	_____|_____
SVB077		_____|____
CARAB-3	11	_____
rowe01	11	_____|_____
low10b	11	_____|_____
Possum5	17	_____ |
SVB086		_____|_|___

Appendix 5. Species combinations made to reconcile taxonomic changes and identification difficulties between the Perth-Darwin National Highway survey data and other data

As data from different surveys carried out at different times can have variations in the nomenclature used, it is necessary to correct for such variations as far as is possible, or to treat the data (essentially by combining names) as broader entities to reduce the effect of differences in taxonomic usage.

name	lookup
Acacia longifolia subsp. longifolia	omitted
Acacia pulchella var. glaberrima	Acacia pulchella
Acacia pulchella var. pulchella	Acacia pulchella
Acetosella vulgaris	omitted
Adenanthos cygnorum	Adenanthos cygnorum subsp. cygnorum
Aira caryophyllea	Aira caryophyllea/cupaniana
Aira cupaniana	Aira caryophyllea/cupaniana
Aira praecox	Aira caryophyllea/cupaniana
Allocasuarina sp.	omitted
Anigozanthos ? manglesii	Anigozanthos manglesii subsp. manglesii
Anigozanthos humilis	Anigozanthos humilis subsp. humilis
Anigozanthos viridis subsp. Cataby (S.D. Hopper 1786)	Anigozanthos viridis
Anigozanthos viridis subsp. metallicus	Anigozanthos viridis
Anigozanthos viridis subsp. viridis	Anigozanthos viridis
Asparagus asparagoides	omitted
Astartea aff. fascicularis	Astartea scoparia
Astartea fascicularis	Astartea scoparia
Asteraceae sp.	omitted
Austrostipa campylachne	Austrostipa semibarbata/campylachne
Austrostipa semibarbata	Austrostipa semibarbata/campylachne
Austrostipa sp.	omitted
Avena barbata	Avena barbata/fatua
Banksia dallanneyi var. dallanneyi	Dryandra nivea
Bartsia trixago	Bellardia trixago
Boronia purdieana subsp. purdieana	Boronia purdieana
Boronia ramosa subsp. ramosa	Boronia ramosa subsp. anethifolia
Brachypodium distachyon	omitted
Burchardia sp.	omitted
Caladenia sp.	omitted
Calytrix fraseri forma Ellenbrook	Calytrix fraseri
Cassytha glabella	Cassytha glabella forma dispar
Cassytha sp.	omitted
Casuarina ?equisetifolia	omitted
Cenchrus incertus	omitted
Centella cordifolia	Centella asiatica
Chamaescilla sp.	omitted
Conospermum sp.	omitted
Conospermum stoechadis subsp. sclerophyllum	Conospermum stoechadis
Conospermum stoechadis subsp. stoechadis	Conospermum stoechadis
Conostephium cf. pendulum	Conostephium pendulum
Conostephium sp.	omitted
Conostylis aculeata subsp. aculeata	Conostylis aculeata
Conostylis aculeata subsp. cygnorum	Conostylis aculeata
Conostylis aculeata subsp. preissii	Conostylis aculeata
Conostylis aculeata x candicans	omitted
Conostylis candicans subsp. candicans	Conostylis candicans
Conostylis teretifolia subsp. teretifolia	Conostylis setigera subsp. setigera

name	lookup
Corynotheca micrantha var. elongata	Corynotheca micrantha var. micrantha
Crassula natans var. minus	Crassula natans
Crassula sp.	omitted
Cryptandra arbutiflora var. tubulosa	Cryptandra arbutiflora
Cyperaceae sp.	omitted
Cyperus polystachyos	omitted
Dampiera sp.	omitted
Dasypogon obliquifolius	Dasypogon bromeliifolius
Daviesia striata	Daviesia preissii
Desmocladus asper	Desmocladus flexuosus
Dillwynia laxiflora	Dillwynia dillwynioides
Diuris magnifica	Diuris longifolia
Diuris sp.	omitted
Diuris tinkeri	Diuris longifolia
Drosera erythrorhiza subsp. erythrorhiza	Drosera erythrorhiza
Drosera gigantea subsp. gigantea	Drosera gigantea
Drosera leucoblasta	Drosera leucoblasta/parvula
Drosera macrantha (Swan coastal plain form BJK & NG 228)	Drosera macrantha
Drosera macrantha subsp. macrantha	Drosera macrantha
Drosera parvula	Drosera leucoblasta/parvula
Drosera sp.	omitted
Drosera stolonifera subsp. stolonifera	Drosera stolonifera
Dryandra lindleyana var. lindleyana	Dryandra nivea
Dryandra sessilis var. cygnorum	Dryandra sessilis
Dryandra sessilis var. sessilis	Dryandra sessilis
Ehrharta brevifolia var. cuspidata	omitted
Ehrharta sp.	omitted
Eriochilus dilatatus subsp. dilatatus	Eriochilus dilatatus
Eriochilus dilatatus subsp. multiflorus	Eriochilus dilatatus
Eriochilus dilatatus subsp. undulatus	Eriochilus dilatatus
Eucalyptus marginata subsp. marginata	Eucalyptus marginata
Eucalyptus marginata subsp. thalassica	Eucalyptus marginata
Freesia alba x leichtlinii	Freesia aff. leichtlinii
Genus sp.	omitted
Geranium dissectum	omitted
GNA CAN	omitted
Gnephosis tenuissima	Gnephosis tenuissima - drummondii complex
Haemodorum sp.	omitted
Helichrysum luteoalbum	Helichrysum luteoalbum
Hemiandra linearis	Hemiandra pungens/linearis
Hemiandra pungens	Hemiandra pungens/linearis
Hibbertia mylnei	omitted
Hibbertia pachyrrhiza	Hibbertia rhadinopoda
Holcus lanatus	Holcus setiger
Homeria flaccida	omitted
Hovea trisperma var. grandiflora	Hovea trisperma
Hovea trisperma var. trisperma	Hovea trisperma
Hypochaeris radicata	Hypochaeris glabra
Hypochaeris sp.	Hypochaeris glabra
Isolepis hystrix	omitted
Isolepis prolifera	omitted
Juncus sp.	omitted
Kunzea ericifolia subsp. ericifolia	Kunzea ericifolia
Kunzea glabrescens	Kunzea ericifolia
Laxmannia sp.	omitted

name	lookup
Lepidosperma aff. squamatum	Lepidosperma angustatum/squamatum
Lepidosperma angustatum	Lepidosperma angustatum/squamatum
Lepidosperma apricola	Lepidosperma angustatum/squamatum
Lepidosperma gladiatum x angustatum	omitted
Lepidosperma gracile	Lepidosperma angustatum/squamatum
Lepidosperma leptostachyum	Lepidosperma sp. (Eastern terete BJK & NG 232)
Lepidosperma pubisquameum	Lepidosperma sp. (Eastern terete BJK & NG 232)
Lepidosperma pubisquameum (flat form)	Lepidosperma angustatum/squamatum
Lepidosperma sp.	omitted
Lepidosperma squamatum	Lepidosperma angustatum/squamatum
Lepidosperma squamatum (narrow form)	Lepidosperma angustatum/squamatum
Lepidosperma striatum	Lepidosperma sp. (Eastern terete BJK & NG 232)
Lepidosperma tenue	Lepidosperma sp. (Eastern terete BJK & NG 232)
Leporella sp.	Leporella fimbriata
Leptospermum laevigatum	omitted
Leucaena leucocephala	omitted
Leucopogon striatus	Leucopogon polymorphus
Lomandra sp.	omitted
Lotus angustissimus	Lotus suaveolens
Lotus subbiflorus	Lotus suaveolens
Lupinus cosentinii	omitted
Lyginia imberbis	Lyginia barbata
Lyginia sp.	Lyginia barbata
Lysinema pentapetalum	Lysinema ciliatum
Macrozamia fraseri	Macrozamia riedlei
Macrozamia riedlei	Macrozamia riedlei
Medicago sp.	omitted
Melaleuca amydra	omitted
Melaleuca concreta	Melaleuca uncinata
Melaleuca sp.	omitted
Melaleuca sp. B Perth Flora (F.W. Humphreys)	Melaleuca seriata
Melaleuca viminea subsp. viminea	Melaleuca viminea
Microtis media subsp. media	Microtis media
Microtis sp.	omitted
Millotia tenuifolia var. laevis	Millotia tenuifolia
Millotia tenuifolia var. tenuifolia	Millotia tenuifolia
orchid sp.	omitted
Ornduffia albiflora	Villarsia albiflora
Oxalis purpurea	omitted
Parentucellia sp.	omitted
Patersonia occidentalis var. occidentalis	Patersonia occidentalis
Patersonia occidentalis var. occidentalis	Patersonia occidentalis
Pelargonium sp.	omitted
Pentameris airoides subsp. airoides	Pentameris airoides/pallida
Pentameris pallida	Pentameris airoides/pallida
Pericalymma ellipticum var. ellipticum	Pericalymma ellipticum
Pericalymma ellipticum var. floridum	Pericalymma ellipticum
Phlebocarya pilosissima subsp. pilosissima	Phlebocarya filifolia
Phyllangium aff. paradoxum	Phyllangium paradoxum
Pimelea floribunda	Pimelea suaveolens subsp. suaveolens
Pithocarpa pulchella var. pulchella	Pithocarpa pulchella
Poa poiformis	Poa poiformis/porphyroclados
Poaceae sp.	omitted
Prasophyllum sp.	omitted
Prasophyllum sp. indet. EAG 2033	omitted

name	lookup
Pterostylis aff. nana (1)	Pterostylis aff. nana
Pterostylis aff. nana (2)	Pterostylis aff. nana
Pterostylis aff. sanguinea	Pterostylis sanguinea
Pterostylis aff. vittata	Pterostylis vittata
Pterostylis brevicephala	omitted
Pterostylis sp.	omitted
Pterostylis sp. cauline leaves (N. Gibson & M.N. Lyons 1490)	omitted
Pterostylis sp. clubbed snail orchid (R. Davis 8088)	omitted
Pterostylis sp. short sepals (W. Jackson BJ259)	omitted
Pterostylis spp. (3 or 4) aff. nana	Pterostylis aff. nana
Restio sp.	omitted
Romulea rosea var. australis	Romulea rosea
Romulea rosea var. communis	Romulea rosea
Rubus laudatus	omitted
Rumex crispus	omitted
Rumex sp.	omitted
Schoenus brevisetis	Schoenus aff. brevisetis
Schoenus sp.	omitted
Schoenus variicellae	omitted
Scholtzia aff. involucrata EAG 5500	Scholtzia involucrata
Scholtzia sp.	Scholtzia involucrata
Silene gallica var. gallica	Silene gallica
Siloxerus sp.	omitted
Sparaxis sp.	Sparaxis bulbifera
Sphaerolobium macranthum var. macranthum	Sphaerolobium medium
Stellaria pallida	Stellaria media
Stirlingia sp.	omitted
Stylidium adpressum	Stylidium adpressum/cygnorum
Stylidium aff. pubigerum	omitted
Stylidium androsaceum	Stylidium calcaratum
Stylidium araeophyllum	Stylidium brunonianum
Stylidium brunonianum subsp. brunonianum	Stylidium brunonianum
Stylidium cygnorum	Stylidium adpressum/cygnorum
Stylidium diuroides subsp. diuroides	Stylidium diuroides
Stylidium diuroides subsp. paucifoliatum	Stylidium diuroides
Stylidium junceum subsp. junceum	Stylidium junceum
Stylidium piliferum subsp. piliferum	Stylidium piliferum
Stylidium sp.	omitted
Tetratheca hirsuta (glabrous)	Tetratheca hirsuta
Thelymitra graminea	Thelymitra vulgaris
Thelymitra pauciflora	Thelymitra vulgaris
Thelymitra sp.	omitted
Thysanotus manglesianus	Thysanotus patersonii/manglesianus
Thysanotus patersonii	Thysanotus patersonii/manglesianus
Thysanotus sp.	omitted
Trachymene coerulea subsp. coerulea	Trachymene coerulea
Trifolium campestre var. campestre	Trifolium campestre
Trifolium micranthum	omitted
Utricularia sp.	omitted
Verticordia densiflora var. densiflora	Verticordia densiflora
Vicia benghalensis	omitted
Vulpia myuros forma megalura	Vulpia myuros
Vulpia myuros var. megalura	Vulpia myuros
Vulpia myuros var. myuros	Vulpia myuros
Vulpia sp.	Vulpia myuros

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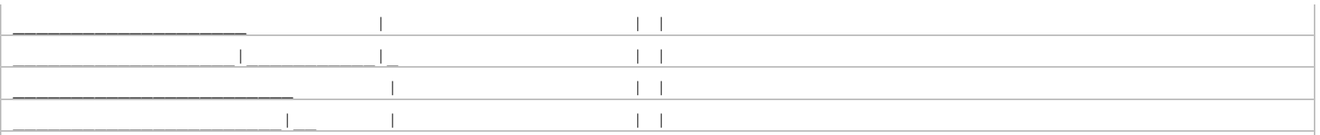
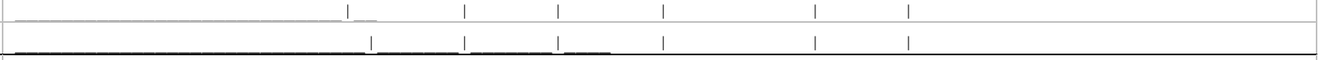
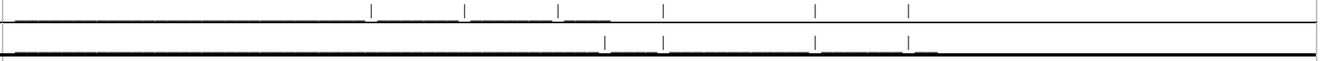
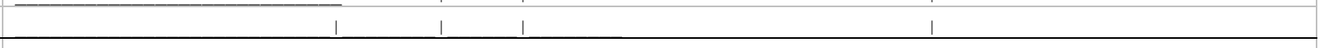
Apndix 6. Classification of the Perth-Darwin National Highway sites with a subregional data set

ID	PROJ	site	comb	gp40	n	w	data
1							12/24/14 16:30:09.33 dend SVB local no weeds Dec 2014
2							0.1300 0.3300 0.5300 0.7300 0.9300 1.1300 1.3300 1.5300 1.7300 1.9300
3							| | | | | | | | | |
4	Pearce	01		1	19	9	
5	SCP	PEARCE-1	6	1	13	10	
6	Pearce	36		1	15	2	
7	Pearce	42		1	23	4	
8	Pearce	06		1	22	12	
9	SCP	rowe01	11	1	10	5	
10	Pearce	11		1	47	10	
11	Pearce	14		1	35	27	
12	SCP	ELLEN-6	3c	1	25	17	
13	SCP	talb1	3c	2	66	5	
14	SCP	talb12	3c	2	59	10	
15	SCP	talb13	3c	2	45	7	
16	Pearce	02		3	28	11	
17	Pearce	03		3	58	11	
18	Pearce	13		3	52	8	
19	Pearce	04		3	30	17	
20	Pearce	12		3	70	20	
21	SCP	PEARCE-2	3c	3	41	10	
22	Pearce	15		3	39	10	
23	SCP	ELLEN-1	8	3	33	12	
24	SCP	ELLEN-5	8	3	33	12	
25	SCP	ELLEN-2	8	3	39	15	
26	SCP	ELLEN-3	8	3	34	14	
27	SCP	ELLEN-4	8	3	21	13	
28	Pearce	10		4	24	21	
29	Pearce	40		4	18	8	
30	SCP	ELLEN-7	6	4	12	11	
31	SCP	BAMBUN-1	7	5	37	15	
32	SCP	BAMBUN-3	7	5	32	10	
33	TG	ELE12	s06	5	28	1	
34	TG	ELE38	s06	5	37	1	
35	TG	ELE39	s06	5	32		
36	TG	ELE13	18	5	19		
37	SCP	TWIN-1	6	5	14	5	
38	SCP	TWIN-2	6	5	24	3	
39	SCP	TWIN-3	6	5	31	12	
40	Pearce	08		6	51	8	
41	Pearce	17		6	40	8	
42	Pearce	31		6	36	13	
43	Pearce	20		6	40	12	

44	Pearce	09		6	57	10	
45	Pearce	29		6	48	11	
46	Pearce	16		6	48	8	
47	Pearce	18		6	71	10	
48	Pearce	19		6	49	7	
49	SCP	talb4	3c	6	36	7	
50	Pearce	27		6	31	7	
51	Pearce	33		6	39	4	
52	Pearce	30		6	11	1	
53	Pearce	34		6	35	6	
54	Pearce	28		6	20	4	
55	Pearce	05		7	8	14	
56	SVB	SVB084	??11	7	6	12	
57	SVB	SVB086	17/11	7	8	6	
58	SCP	Possum1	16	7	5	3	
59	Pearce	07		8	26	4	
60	SCP	BULL-12	11	8	22	3	
61	SCP	AUSTB-3	11	8	19	8	
62	SCP	TWIN-11	11	8	19	4	
63	SCP	brick4	9	8	15	12	
64	SCP	FL-10	12	8	14	3	
65	SCP	CAPEL-6	12	9	30	6	
66	SCP	CAPEL-8	12	9	31	10	
67	SCP	CAPEL-9	12	9	19	7	
68	SCP	FL-7	8	10	14	14	
69	SCP	hymus05	11	10	12	18	
70	SCP	hymus06	11	10	18	14	
71	SCP	C71-1	11	11	48	3	
72	SCP	CARAB-3	11	11	20	10	
73	SCP	HARRY-6	11	11	20	5	
74	SCP	low10b	11	12	8	16	
75	SVB	SVB018	??11	12	4	2	
76	SCP	cool 01	17	13	12	1	
77	SCP	LESCH-6	17	13	10	6	
78	SCP	PAGA-5	17	13	11	1	
79	SCP	cool 09	19b	14	16	1	
80	SCP	PB-1	19a	14	10	8	
81	Pearce	37		15	11	7	
82	SCP	WATER-2	13	15	8		
83	SCP	TWIN-4	6	15	14	9	
84	SCP	McLART-1	13	15	10	3	
85	SCP	PAGA-2	13	15	11	2	
86	SCP	MILT-2	13	15	8	2	
87	SCP	Possum5	17	15	8	7	
88	SCP	BAMBUN-2	15	16	11	5	
89	SCP	CARAB-1	15	16	10	5	
90	SCP	TWIN-10	15	16	7	3	

91	SCP	TWIN-5	15	16	11	8	
92	SCP	C58-2	13	17	37	12	
93	SCP	CAPEL-4	13	17	12		
94	SCP	RUAB-3	13	17	17	1	
95	SCP	WATER-1	13	17	10	4	
96	SCP	AMBR-2	2	18	43		
97	SCP	AMBR-5	2	18	50	2	
98	SCP	YOON-2	2	18	39	5	
99	SCP	AUSTB-5	5	18	40	3	
100	SCP	PAGA-3	5	18	28	2	
101	SCP	low09a	5	18	40	13	
102	SCP	low09b	5	18	32	10	
103	SCP	PAGA-1	5	18	47	6	
104	SCP	MANEA-1	9	18	44	4	
105	SCP	welr 01	9	18	26		
106	SCP	yarl02	9	18	36	3	
107	SCP	AUSTB-4	5	19	26	2	
108	SCP	low08	5	19	30	9	
109	SCP	AUSTB-6	5	19	26	6	
110	SCP	GUTHR-2	5	19	32	7	
111	SCP	GUTHR-4	5	19	26	10	
112	SCP	HARRY-3	5	19	23	2	
113	SVB	SVB094	5	19	27	3	
114	Mt Lawley	ML045	5	19	27	8	
115	Mt Lawley	ML048	5x	19	29	5	
116	SCP	MILT-1	5	19	30	7	
117	SCP	PLINE-5	5	19	18	5	
118	SCP	card10	6	20	21	8	
119	Mt Lawley	ML023		20	16		
120	SCP	AUSTB-2	7	21	29	9	
121	SCP	CARAB-2	7	21	35	11	
122	SCP	BULL-6	7	21	31	7	
123	SCP	BULL-8	7	21	35	7	
124	SCP	BULL-5	5	21	34	5	
125	SCP	BULL-7	5	21	46	8	
126	SCP	CHIDPT-1	24	22	19	14	
127	SCP	MHENRY-1	30a2	22	17	6	
128	SCP	cool 03	24	22	13	12	
129	SCP	TRIG-2	29a	22	14	11	
130	SCP	GARDEN-1	30a1	22	14	6	
131	SCP	MINN-1	25	22	27	22	
132	SCP	PAGA-6	25	22	25	3	
133	SCP	WOODP-1	30a2	23	6	7	
134	TG	ELE09	s05	24	15		
135	TG	ELE36	s05	24	13		
136	TG	ELE10	s05	24	14		

137	TG	ELE35	s05	24	14		
138	TG	ELE37	s17	24	13		
139	SVB	SV08	??6	25	6	12	
140	SVB	SVB031	?6	25	7	13	
141	SVB	360Q20	14	26	7	9	
142	SVB	SVB091	??11	26	7	10	
143	SVB	SVB006	s03	26	7		
144	TG	ELE19	s03	26	7		
145	SCP	BANK-1A	13	26	12		
146	SVB	SV19	s02/s03	26	12	6	
147	Mt Lawley	ML025A	5x	26	9		
148	TG	MP02	s02	26	7		
149	Mt Lawley	ML034A	4x	26	8	1	
150	SVB	SVB053	s02	26	10		
151	SVB	SVB040	14	26	15	2	
152	SVB	SVB045	???12	26	12	2	
153	SVB	SVB041	14	26	11	7	
154	SVB	SVB044	13	26	12	1	
155	SVB	SVB052	14	26	10	3	
156	SCP	MILT-5	14	26	15		
157	SVB	SVB051	14	26	12	5	
158	SVB	360Q24	11	26	20	6	
159	SVB	360Q32	11	26	8	5	
160	SVB	SV01	11	26	10	7	
161	SVB	SVB002	13	26	12	1	
162	SVB	SVB005	12	26	20	4	
163	SVB	SVB007	4/s02	26	13	1	
164	TG	ELE20	s03	26	8		
165	SVB	SVB050	s03	26	11	6	
166	Mt Lawley	ML022A	4x	26	15		
167	Mt Lawley	ML047	12x	26	18	3	
168	Mt Lawley	ML049	13x	26	19	1	
169	SCP	RIVD-1	12	26	7	3	
170	TG	SF04	s02	26	9		
171	SVB	360Q34	11	27	9	12	
172	SVB	SVB076	??11	27	13	15	
173	SVB	SVB098	11	27	11	10	
174	SVB	360Q35	?11	27	8	10	
175	SVB	SVB077	11	27	9	7	
176	SCP	hymus02	11	27	14	10	
177	SCP	MODO-3	11	27	13	3	
178	SCP	YAN-21	14	27	15	3	
179	SVB	360Q37	11	27	8	11	
180	SCP	hymus01	11	27	11	10	
181	SVB	SVB068	11	27	11	2	

182	SVB	SVB079A	?11	27	19	6	
183	TG	ELE34	s02	27	12		
184	SVB	SVB079	s02	27	12		
185	SVB	SVB048	5	27	15	5	
186	SVB	SVB011	2/11	27	12	9	
187	SVB	SVB078	???11	28	6	6	
188	SVB	360Q29	21c	29	39	10	
189	TG	ELE23	22	29	14		
190	SVB	SV11	22	29	26		
191	SVB	SVB042	5	29	14	2	
192	TG	ELE18	22	29	21		
193	Mt Lawley	ML033A	22	29	27	2	
194	Mt Lawley	ML018	22	29	43	4	
195	Mt Lawley	ML033	22	29	51	2	
196	SCP	WARB-4	22	29	47	1	
197	Mt Lawley	ML024A	22	29	36	2	
198	SCP	WARB-2	22	29	36		
199	SCP	MELA-10	22	29	33	1	
200	SCP	MELA-5	22	29	34	4	
201	SCP	MPK02	22	29	33	1	
202	Mt Lawley	ML035A		29	23		
203	SCP	MODO-2	21c	29	30	5	
204	SCP	PLINE-7	21c	29	27	5	
205	SCP	YAN-18	22	29	22	2	
206	SCP	YAN-22	22	29	29	1	
207	Mt Lawley	ML041A	23b	30	15		
208	SCP	PLINE-6	22	30	13		
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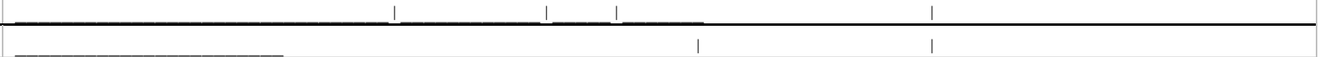
210	SVB	SV38	21c	30	22	4	
211	SVB	360Q30	24	31	15	6	
212	SVB	360Q31	??21c	31	20	7	
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215	TG	ELE14	4	31	21		
216	TG	ELE26	s02	31	16		
217	SVB	SVB008	s02/4	31	13	3	
218	TG	ELE06	s02	31	15		
219	TG	ELE40	4	31	23		
220	TG	ELE31	s02	31	15		
221	TG	ELE30	s02	31	14		
222	TG	ELE32	4	31	21	1	
223	TG	ELE33	4	31	27		
224	SCP	PLINE-4	4	31	21	1	
225	SCP	WHITE-2	4	31	32	5	
226	SCP	KOOLJ-1	4	31	20		

227	SCP	MELA-1	4	31	22	1	
228	TG	MP03	4	31	15		
229	TG	MP07	4	31	13		
230	TG	MP11	s02	31	16		
231	SCP	BANK-1	22	32	43	1	
232	SCP	DEJONG-a	22	32	29		
233	SCP	C58-1	4	32	33	3	
234	SCP	MODO-1	4	32	31	3	
235	SCP	MODO-6	4	32	24	4	
236	SCP	FL-9	4	32	27	8	
237	SCP	GUTHR-1	4	32	44	9	
238	SCP	rowe02	4	32	41	9	
239	SCP	low14a	4	32	28	8	
240	SCP	CAPEL-3	4	32	33	2	
241	Pearce	21		33	54	6	
242	Pearce	24		33	49	13	
243	Pearce	22		33	74	7	
244	SCP	BULL-1	28	33	47	4	
245	SCP	BULL-4	28	33	68	7	
246	SCP	BULL-10	28	33	50	8	
247	SCP	BULL-11	28	33	55	3	
248	SCP	BULL-9	28	33	54	3	
249	TG	5A01	23b	33	47	2	
250	TG	5C02	23b	33	56		
251	TG	5C03	20a	33	49	2	
252	TG	5C04	23b	33	44		
253	TG	5C07	21c	33	33	5	
254	TG	5C06	23b	33	45		
255	SCP	GOLF-1	20a	33	54	6	
256	SCP	KOON-1	20a	33	63	2	
257	SCP	KOON-2	20a	33	62	1	
258	SCP	LAND-1	20a	33	67	4	
259	SCP	SHE-2	28	33	72	6	
260	SCP	SINT-1	23b	33	59	1	
261	SCP	YAN-20	23b	33	65	1	
262	SCP	WATERRD1	28	33	67	3	
263	SCP	NEER-8	28	33	50	11	
264	SCP	YAN-4	28	33	47	9	
265	SCP	talb10	20c	33	75	4	
266	SCP	talb11	20c	33	46	3	
267	SCP	talb3	20c	33	60	3	
268	SCP	talb5	20c	33	55	5	
269	SCP	talb7	20c	33	46	5	
270	SCP	talb8	20c	33	70	3	
271	SCP	talb9	20c	33	66	4	
272	SCP	talb2	20c	33	71	8	
273	SCP	talb6	20c	33	43	6	

274	SCP	YULE-3	21c	33	48	5	
275	Pearce	23		34	36	2	
276	Pearce	38		34	25		
277	Pearce	41		34	26		
278	TG	5C01	s18	35	48	1	
279	TG	5C05	s18	35	36		
280	SVB	360Q02	21a	36	39	8	
281	SVB	360Q36	21c	36	43	8	
282	SVB	SVB025	21c	36	41	10	
283	SVB	SVB021	21a	36	38	4	
284	SVB	360Q06	23a	36	40	6	
285	SVB	SVB020	23a	36	47	7	
286	SVB	SVB029	23b	36	39	8	
287	SVB	SVB023	21c	36	43	9	
288	SVB	SVB028	23b	36	42	9	
289	SCP	PLINE-3	21a	36	32		
290	SVB	SVB026	21a	36	34	4	
291	SVB	360Q13	28	36	23	3	
292	SCP	MILT-6	21a	36	35		
293	Mt Lawley	ML008A	21a	36	39		
294	SVB	SVB055	21c	36	22	9	
295	SVB	SVB058	21a	36	17	1	
296	TG	ELE02	21c	36	42		
297	TG	ELE11	21a	36	31		
298	TG	ELE15	21a	36	30		
299	TG	ELE25	21c	36	23		
300	TG	ELE27	21c	36	26		
301	TG	ELE29	21c	36	25		
302	TG	ELE21	s09	36	21		
303	TG	ELE22	21c	36	28		
304	TG	ELE04	21a	36	31		
305	TG	ELE05	s02	36	35		
306	SCP	TWIN-7	21c	36	39	3	
307	SCP	TWIN-8	21c	36	35	7	
308	SVB	360Q15	21c	36	28	4	
309	Mt Lawley	ML034B	4x	36	18	1	
310	SVB	360Q27	21c	36	38	5	
311	SVB	SVB035	21c	36	24	10	
312	SVB	SVB046	21c	36	27	9	
313	SVB	SVB056	5	36	31	11	
314	SCP	AUSTRA-1	21a	37	48	4	
315	SCP	RIVD-2	21a	37	48	1	
316	SCP	CORON-1	21a	37	51	2	
317	SCP	NINE-2	21a	37	51	3	
318	SCP	CAPEL-1	21b	37	56	2	
319	SCP	GUTHR-6	21a	37	52	4	
320	SCP	REDL-1	21a	37	62	5	

321	SCP	buffer01	21b	37	51	1	
322	SCP	dard02	21b	37	72	7	
323	SCP	CAPEL-2	21b	37	48	3	
324	SCP	RUAB-2	21b	37	45	1	
325	SCP	KOOLJ-2	21a	37	51	2	
326	SCP	BULLER-1	21a	37	45	4	
327	SCP	card7	21a	37	38	4	
328	SCP	BULLER-2	21a	37	53	4	
329	SCP	NINE-1	21a	37	38	2	
330	SCP	BANK-2	23a	37	57	4	
331	Mt Lawley	E002		37	65	8	
332	Mt Lawley	E004		37	78	8	
333	SCP	low13b	23a	37	63	3	
334	SCP	hurst03	23a	37	59	8	
335	SCP	MODO-4	23a	37	58	4	
336	SCP	BULL-3	23a	37	64	6	
337	SCP	WHITE-1	23a	37	52	6	
338	SCP	YULE-1	23a	37	48	8	
339	SCP	YULE-2	23a	37	52	5	
340	SCP	BANK-3	23a	37	65	3	
341	SCP	MODO-5	23a	37	48		
342	SCP	HARRY-4	23a	37	36	6	
343	Mt Lawley	E006		37	58	12	
344	SCP	WAND-1	23a	37	55	2	
345	SCP	hurst02	23a	37	51	15	
346	SCP	hurst04	23a	37	48	6	
347	SCP	BULLER-3	21c	37	49	4	
348	SCP	hurst01	23a	37	56	10	
349	SCP	low01	21c	37	35	2	
350	SCP	low04	21a	37	42	4	
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352	SCP	low07	21c	37	35	6	
353	SCP	low06b	21c	37	42	5	
354	SCP	low10a	21a	37	39	16	
355	SCP	low12a	21a	37	40	8	
356	SCP	low12b	21a	37	43	6	
357	SCP	low13a	21a	37	54	3	
358	SCP	card11	6	37	17	7	
359	SCP	DEJONG-c	21c	37	38	3	
360	SCP	FL-6	21c	37	32	6	
361	SCP	hymus03	21c	37	26	4	
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363	SVB	360Q03	20a	38	61	7	
364	SVB	SVB019	23a	38	51	11	
365	SVB	360Q39	20a	38	46	6	
366	SVB	SVB012	23a	38	63	7	

367	SVB	SVB030	23a	38	51	7	
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369	SVB	360Q26	21c	38	45	5	
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378	SVB	SVB013	21c	38	37	5	
379	SVB	360Q10	21c	38	20	5	
380	SVB	360Q12	21c/s09	38	35	6	
381	SVB	360Q22	23a	38	42	6	
382	SVB	360Q14	21c	38	35	6	
383	SVB	360Q23	21c	38	41	7	
384	SVB	SVB054	23a	38	45	7	
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386	SVB	SVB036	23a	38	45	7	
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391	SVB	360Q25	21c/s09	38	22	5	
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393	SVB	SVB049	21c	38	33	3	
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395	SVB	SVB093	23b	38	51	6	
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400	Mt Lawley	ML002A	23a	38	54	5	
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402	Mt Lawley	ML017A	23a	38	52	2	
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404	SCP	MPK01	23b	38	53	3	
405	SCP	MPK03	23b	38	48	6	
406	SCP	MUCK-1	23b	38	43	1	
407	TG	ELE01	23b	38	41		
408	TG	ELE03	23b	38	47		
409	TG	MP08	23b	38	36		
410	TG	MP10	23b	38	48		
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412	TG	SF03	21c	38	31		

413	SVB	SV05	23b	38	32	7	
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415	SCP	ELDO-1	23b	38	54		
416	SCP	RAAF-1	23b	38	51		
417	SCP	MELA-3	23b	38	61	1	
418	SCP	MILT-8	23b	38	40		
419	SCP	PLINE-2	23b	38	48		
420	SCP	MILT-3	23b	38	41	1	
421	SCP	PLINE-1	23b	38	42		
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425	SCP	MELA-7	23b	38	52	1	
426	SCP	RAAF-2	23b	38	54	1	
427	SCP	RAAF-3	23b	38	67		
428	TG	ELE24	23b	38	42		
429	TG	SF02	23b	38	46		
430	Mt Lawley	ML012A	23b	38	60	3	
431	Mt Lawley	ML037	23b	38	70	4	
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434	SCP	MELA-9	23b	38	54	3	
435	Mt Lawley	ML016A	23b	38	56	5	
436	Mt Lawley	ML046	23a	38	67	8	
437	SCP	WARB-1	23a	38	64	5	
438	SCP	WIRR-1	23a	38	68	8	
439	SCP	WIRR-2	23a	38	63	8	
440	SCP	WARB-3	23a	38	68	5	
441	TG	ELE08	23b	38	46		
442	TG	ELE28	23b	38	31		
443	TG	ELE16	23b	38	50		
444	TG	ELE17	23b	38	36		
445	TG	MP01	23b	38	37		
446	TG	MP06	23b	38	40		
447	TG	MP04	23b	38	38		
448	TG	MP05	23b	38	43		
449	TG	MP09	23b	38	45		
450	TG	SF01	23b	38	39		
451	SCP	BOLD-1	24	39	28	18	
452	SCP	TRIG-5	24	39	29	16	
453	SCP	CLIF-3	26a	39	28	12	
454	SCP	MTB-2	24	39	19	20	
455	SCP	SHE-1	26b	39	44	10	
456	SCP	WABL-2	26b	39	43	10	
457	SCP	YAN-11	26b	39	28	12	

458	SCP	SHE-6	26b	39	28	10	
459	SCP	YAN-5	26b	39	38	12	
460	SCP	C71-3	21a	40	51	5	
461	SCP	MINN-3	25	40	46	8	
462	SCP	NEER-3	28	40	39	6	
463	SCP	YAN-3	28	40	44	4	
464	SCP	CLIF-1	21a	40	60	5	
465	SCP	KEME-2	21a	40	74	2	
466	SCP	CRAMPT-1	21a	40	47	6	
467	SCP	CRAMPT-2	21a	40	56	7	
468	SCP	GUTHR-3	21a	40	54	8	
469	SCP	LYONS-2	25	40	40	11	
470	SCP	YALG-6	26b	40	51	12	
471	SCP	PAGA-8	25	40	35	19	
472	SCP	DEPOT-1	28	40	35	9	
473	SCP	NEER-2	28	40	43	6	
474	SCP	WOODV-2	28	40	29	17	
475	SCP	WOODV-1	28	40	24	20	
476	SCP	NEER-21	28	40	40	13	
477	SCP	NEER-6	28	40	36	12	
478	SCP	NEER-22	28	40	39	15	
479	SCP	NEER-23	28	40	22	14	
480	SCP	NEER-5	28	40	30	10	
481	SCP	HARRY-1	28	40	38	8	
482	SCP	HARRY-2	28	40	54	9	
483	SCP	HARRY-5	21a	40	45	7	
484	SCP	PAGA-4	21a	40	49	4	
485	SCP	WELL-2	21a	40	60	11	
486	SCP	TAM-1	21a	40	34	11	
487	SCP	WELL-1	21a	40	34	14	
488	SCP	KERO-2	24	40	28	14	
489	SCP	THOM-2	24	40	35	11	
490	SCP	KING-2	28	40	41	10	
491	SCP	SHENT-1	28	40	35	11	
492	SVB	SVB088	28	40	46	11	
493	SCP	TRIG-3	28	40	50	14	
494	SCP	WARI-1	28	40	53	23	
495	SCP	WARI-2	28	40	52	9	
496							
497							0.1300 0.3300 0.5300 0.7300 0.9300 1.1300 1.3300 1.5300 1.7300 1.9300

APPENDIX G

Likelihood of potential conservation significant flora occurring within and in close proximity to the study area

Likelihood of Potential Conservation Significant Flora Occurring Within and in Close Proximity to the Study Area

Taxon	Conservation code[1]			Habitat[2]	Flowering period[2]	Suitable Habitat Present	Closest Record (km)	Likelihood of Occurrence in the Project area[3]
	EPBC Act	WC Act	DPAW					
Acacia anomala	VU	VU		Lateritic soils. Slopes	Aug to Sep	No	0.04	Unlikely
Acacia benthamii			2	Sand. Typically on limestone breakaways	Aug to Sep	No	1.2	Unlikely
Acacia drummondii subsp. *affinis*			3	Lateritic gravelly soils	Jul to Aug	No	1.3	Unlikely
Acacia oncinophylla subsp. *oncinophylla*			3	Granitic soils	Aug to Oct	Yes	6.1	Unlikely
Acacia ridleyana			3	Grey or yellow/brown sand, gravelly clay, granitic loam	Aug to Dec	Yes	5.3	Unlikely
Adenanthos cygnorum subsp. *chamaephyton*			3	Grey sand, lateritic gravel	Jul or Sep to Dec or Jan	No	0.8	Unlikely
Andersonia gracilis	EN	VU		White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps	Sep to Nov	Yes	16	Unlikely
Anigozanthos humilis subsp. *chrysanthus*			4	Grey or yellow sand	Jul to Oct	Yes	5.6	Unlikely
Anigozanthos viridis subsp. *terraspectans*	VU	VU		Grey sand, clay loam. Winter-wet depressions	Aug to Sep	Yes	>50	Unlikely
Caladenia huegelii	EN	CR		Grey or brown sand, clay loam	Sep to Oct	Yes	0.03	Likely

Taxon	Conservation code[1]			Habitat[2]	Flowering period[2]	Suitable Habitat Present	Closest Record (km)	Likelihood of Occurrence in the Project area[3]
	EPBC Act	WC Act	DPAW					
Calectasia sp. Pinjar (C. Tauss 557)			1	Deep grey quartz soils. Gentle slopes, above damplands	N/A	No	2.3	Unlikely
Calytrix breviseta subsp. *breviseta*	EN	CR		Sandy clay. Swampy flats	Oct to Nov	Yes	7.3	Unlikely
Centrolepis caespitosa	EN		4	White sand, clay. Salt flats, wet areas	Oct to Dec	Yes	3.9	Possible
Chamaescilla gibsonii			3	Clay to sandy clay. Winter-wet flats, shallow water-filled claypans	Sep	Yes	0.6	Possible
Chamelaucium sp. Gingin (N.G. Marchant 6)	EN	VU		White/yellow sand supporting open low woodland over open scrub	May and Oct to Feb	Yes	9.2	Unlikely
Conospermum densiflorum subsp. *unicephalatum*	EN	EN		Clay soils. Low-lying areas	Sep to Nov	Yes	>50	Unlikely
Conospermum undulatum	VU	VU		Grey or yellow-orange clayey sand	May to Oct	Yes	0.7	Likely
Cyanicula ixioides subsp. *ixioides*			4	Laterite, gravel	Aug to Oct	No	3.8	Unlikely
Cyathochaeta teretifolia			3	Grey sand, sandy clay. Swamps, creek edges	N/A	Yes	0	Likely
Darwinia foetida	CR	EN		Grey-white sand on swampy, seasonally wet sites	Oct to Nov	Yes	0.3	Likely
Darwinia pimelioides			4	Loam, sandy Loam. Granite outcrops	Sep to Oct	No	4.8	Possible
Diuris micrantha	VU	VU		Brown loamy clay. Winter-wet swamps, in shallow water	Sep to Oct	Yes	38	Unlikely
Diuris purdiei	EN	EN		Grey-black sand, moist. Winter-wet swamps	Sep to Oct	Yes	14.5	Unlikely

Taxon	Conservation code[1]			Habitat[2]	Flowering period[2]	Suitable Habitat Present	Closest Record (km)	Likelihood of Occurrence in the Project area[3]
	EPBC Act	WC Act	DPAW					
Drakaea elastica	EN	CR		White or grey sand. Low-lying situations adjoining winter-wet swamps	Oct to Nov	Yes	7	Unlikely
Drakaea micrantha	VU	EN		White-grey sand	Sep to Oct	Yes	25.3	Unlikely
Drosera occidentalis subsp. *occidentalis*			4	Sandy & clayey soils. Swamps & wet depressions	Nov to Dec	Yes	0.04	Likely
Eleocharis keigheryi	VU	VU		Clay, sandy loam. Emergent in freshwater: creeks, claypans	Aug to Nov	Yes	1.9	Possible
Eryngium pinnatifidum subsp. Palustre (G.J. Keighery 13459) PN			3	Winter-wet flats. Brown sandy loam.	Nov	Yes	0	Likely
Eucalyptus ×balanites	EN	CR		Sandy soils with lateritic gravel	Oct to Dec or Jan to Feb	No	4.7	Unlikely
Eucalyptus leprophloia	EN	EN		White or grey sand over laterite. Valley slopes	Aug to Oct	No	>135	Unlikely
Grevillea althoferorum subsp. *fragilis*	EN	CR		Crests, pale brown loamy sand or grey sand	Aug to Nov	Yes	4.2	Possible
Grevillea corrugata	EN	VU		Gravelly loam. Roadsides	?Aug to Sep	Yes	12.3	Unlikely
Grevillea curviloba subsp. *curviloba*	EN	CR		Grey sand. Winter-wet heath	Oct	Yes	0.04	Likely
Grevillea curviloba subsp. *incurva*	EN	EN		Sand, sandy loam. Winter-wet heath	Aug to Sep	Yes	0.02	Likely
Guichenotia tuberculata			3	Sand clay over laterite, sand	Aug to Oct	No	0.04	Possible
Haemodorum loratum			3	Grey or yellow sand, gravel	Nov	Yes	1.9	Possible
Hibbertia helianthemoides			4	Clayey sand over sandstone or loam over quartzite. Hills and scree slopes	Jul or Sep to Oct	No	7.4	Unlikely

Taxon	Conservation code[1]			Habitat[2]	Flowering period[2]	Suitable Habitat Present	Closest Record (km)	Likelihood of Occurrence in the Project area[3]
	EPBC Act	WC Act	DPAW					
Hydrocotyle lemnoides			4	Swamps	Aug to Oct	Yes	0.04	Likely
Hypolaena robusta			4	White sand. Sandplains	Sep to Oct	Yes	0	Likely
Isopogon drummondii			3	White, grey or yellow sand, often over laterite	Feb to Jun	No	5.3	Unlikely
Jacksonia sericea			4	Calcareous & sandy soils	usually Dec or Jan to Feb	No	0.4	Possible
Lepidosperma rostratum	EN	EN		Peaty sand, clay	N/A	Yes	16.6	Unlikely
Leucopogon squarrosus subsp. *trigynus*			2	White, grey sand	N/A	Yes	3.9	Possible
Macarthuria keigheryi	EN	EN		White or grey sand	Sep to Dec or Feb to Mar	Yes	6.7	Unlikely
Oxymyrrhine coronata			4	Yellow sand-clay-gravel over laterite	N/A	No	9.9	Unlikely
Meionectes tenuifolia			3	Granite flats, shallow soil at margins, inundated. Grey clay	N/A	Yes	2.1	Possible
Persoonia rudis			3	White, grey or yellow sand, often over laterite	Sep to Dec or Jan	No	3.6	Possible
Phlebocarya pilosissima subsp. *pilosissima*			3	White or grey sand, lateritic gravel	Aug to Oct	No	0.13	Possible
Platysace ramosissima			3	Sandy soils	Oct to Nov	Yes	0.7	Likely
Poranthera moorokatta			2	White silica sand in open spaces between shrubs	Sep to Oct	Yes	1	Likely

Taxon	Conservation code[1]			Habitat[2]	Flowering period[2]	Suitable Habitat Present	Closest Record (km)	Likelihood of Occurrence in the Project area[3]
	EPBC Act	WC Act	DPAW					
Schoenus capillifolius			3	Brown mud. Claypans	Oct to Nov	Yes	3.4	Possible
Schoenus griffinianus			3	White sand	Sep to Oct	Yes	6.9	Unlikely
Schoenus sp. Bullsbrook (J.J. Alford 915)			2	Grey peaty sand. Low-lying flats	N/A	Yes	3.2	Possible
Schoenus sp. Waroona (G.J. Keighery 12235)			3	Clay or sandy clay. Winter-wet flats	Oct to Nov	Yes	4	Possible
Stachystemon sp. Keysbrook (R. Archer 17/11/99)			1	Grey sand	N/A	Yes	1.5	Possible
Stenanthemum sublineare			2	Littered white sand. Coastal plain	Oct to Dec	No	7.8	Unlikely
Stylidium aceratum			2	Sandy soils. Swamp heathland	Oct to Nov	Yes	3.2	Possible
Stylidium longitubum			3	Sandy clay, clay. Seasonal wetlands	Oct to Dec	Yes	1.3	Possible
Stylidium paludicola ms			3	Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland	Oct to Dec	Yes	1.2	Possible
Stylidium squamellosum			2	Brown to red-brown clay loam. Winter-wet habitats and depressions, open woodland, shrubland	Oct to Nov	Yes	1.3	Possible
Stylidium trudgenii			3	Grey sand, dark grey to black sandy peat. Margins of winter-wet swamps, depressions	N/A	Yes	0.8	Likely
Synaphea grandis			4	Laterite	Oct to Nov	No	2	Possible

Taxon	Conservation code[1]			Habitat[2]	Flowering period[2]	Suitable Habitat Present	Closest Record (km)	Likelihood of Occurrence in the Project area[3]
	EPBC Act	WC Act	DPAW					
Tetraria sp. Chandala (G.J. Keighery 17055)			2	Mound spring, black peat over clay & humic sand	N/A	Yes	4.8	Possible
Thelymitra dedmaniarum	EN	CR		Granite	Nov to Dec or Jan	No	10.3	Unlikely
Thelymitra stellata	EN	EN		Sand, gravel, lateritic loam	Oct to Nov	No	2.8	Possible
Thysanotus glaucus			4	White, grey or yellow sand, sandy gravel	Oct to Dec or Jan to Mar	Yes	6.9	Unlikely
Trichocline sp. Treeton (B.J. Keighery & N. Gibson 564)			2	Sand over limestone, sandy clay over ironstone. Seasonally wet flats	N/A	No	1.6	Possible
Trithuria occidentalis	EN	CR		Edge of shallow, winter-wet claypans in very open shrubland of *Melaleuca lateritia*.	Oct to Nov	Yes	1.9	Possible
Verticordia lindleyi subsp. *lindleyi*			4	Sand, sandy clay. Winter-wet depressions	May or Nov to Dec or Jan	Yes	0.2	likely
Verticordia serrata var. *linearis*			3	White sand, gravel. Open woodland	Sep to Oct	Yes	0.04	Likely

1 Definitions of the conservation codes (Federal and State) are provided in Appendix G.

2 The habitat descriptions and the flowering period were obtained from Florabase© (WAH, 2014).

3 **Likely**: known to occur within 1 km of the project and suitable habitat present.
Possible: suitable habitat present within the project or the nearest known locality is within 5 km of the project.
Unlikely: No known records within 5 km of the project or there is no suitable habitat present within the project.

APPENDIX H

Definitions for State and Federal Conservation Codes

Definitions and Criteria for Commonwealth and State Conservation Codes

1. Federal Conservation Codes

1.1. Flora

Threatened flora may be listed in any one of the following categories as defined in Section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

Section 179 Categories of threatened species

1. A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
2. A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:
    a. It is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
    b. It has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
3. A native species is eligible to be included in the **critically endangered** category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
4. A native species is eligible to be included in the **endangered category** at a particular time if, at that time:
    a. It is not critically endangered; and
    b. It is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
5. A native species is eligible to be included in the **vulnerable** category at a particular time if, at that time:
    a. It is not critically endangered or endangered; and
    b. It is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.
6. A native species is eligible to be included in the **conservation dependent** category at a particular time if, at that time:
    a. The species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
    b. The following subparagraphs are satisfied:
        i. The species is a species of fish;
        ii. The species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
        iii. The plan of management is in force under a law of the Commonwealth or of a State or Territory;
        iv. Cessation of the plan of management would adversely affect the conservation status of the species.

1.2. Ecological Communities

Critically endangered
An ecological community is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

Endangered

An ecological community is eligible to be included in the endangered category at a particular time if, at that time:

A It is not critically endangered; and
B It is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

Vulnerable

An ecological community is eligible to be included in the vulnerable category at a particular time if, at that time:

(a) It is not critically endangered nor endangered; and
(b) It is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.

2. State Conservation Codes

2.1. Flora

T Threatened species

Listed as Specially Protected under the *Wildlife Conservation Act 1950*, (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

- Flora that are extant and considered likely to become extinct, or rare and therefore in need of special protection, are declared to be rare flora.

Species which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such. The assessment of the conservation status of these species is based on their national extent.

Threatened Flora are ranked according to their level of threat using IUCN Red List categories and criteria.

- CR Critically Endangered – considered to be facing an extremely high risk of extinction in the wild.
- EN Endangered – considered to be facing a very high risk of extinction in the wild.
- VU Vulnerable – considered to be facing a high risk of extinction in the wild.

X Presumed extinct species

Listed as Specially Protected under the *Wildlife Conservation Act 1950*, published under Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).

Species which have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such.

P Priority species

Species that maybe threatened or near threatened but are data deficient, have not yet been adequately surveyed to be listed under the Schedules of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened list for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Conservation dependent species that are subject to a specific conservation program are placed in Priority 5.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1: Priority One: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2: Priority Two: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3: Priority Three: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

4: Priority Four: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

5: Priority Five: Conservation Dependent species

Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

2.2. Ecological Communities

Presumed Totally Destroyed (PD)

An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant and either of the following applies (A or B):

A) Records within the last 50 years have not been confirmed despite thorough searches of known or likely habitats or

B) All occurrences recorded within the last 50 years have since been destroyed.

Critically Endangered (CR)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future. This will be determined on the basis of the best available information, by it meeting any one or more of the following criteria (A, B or C):

A) The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% and either or both of the following apply (i or ii):

   i) Geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 10 years);

   ii) Modification throughout its range is continuing such that in the immediate future (within approximately 10 years) the community is unlikely to be capable of being substantially rehabilitated.

B) Current distribution is limited, and one or more of the following apply (i, ii or iii):

i) Geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 10 years);

ii) There are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes;

iii) There may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes.

C) The ecological community exists only as highly modified occurrences that may be capable of being rehabilitated if such work begins in the immediate future (within approximately 10 years).

Endangered (EN)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B, or C):

A) The geographic range, and/or total area occupied, and/or number of discrete occurrences have been reduced by at least 70% since European settlement and either or both of the following apply (i or ii):

i) The estimated geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term future (within approximately 20 years);

ii) Modification throughout its range is continuing such that in the short term future (within approximately 20 years) the community is unlikely to be capable of being substantially restored or rehabilitated.

B) Current distribution is limited, and one or more of the following apply (i, ii or iii):

i) Geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 20 years);

ii) There are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes;

iii) There may be many occurrences but total area is small and all or most occurrences are small and/or isolated and very vulnerable to known threatening processes.

C) The ecological community exists only as very modified occurrences that may be capable of being substantially restored or rehabilitated if such work begins in the short-term future (within approximately 20 years).

Vulnerable (VU)

An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium to long-term future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B or C):

A) The ecological community exists largely as modified occurrences that are likely to be capable of being substantially restored or rehabilitated.

B) The ecological community may already be modified and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations.

C) The ecological community may be still widespread but is believed likely to move into a category of higher threat in the medium to long term future because of existing or impending threatening processes.

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community, and evaluation of conservation status, so that consideration can be given to their declaration as threatened ecological communities. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Priority One: Poorly-known ecological communities

Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Priority Two: Poorly-known ecological communities

Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Priority Three: Poorly known ecological communities

(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:

(ii) Communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;

(iii) Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.

Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.

Priority Four: Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.

(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.

(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.

(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Priority Five: Conservation Dependent ecological communities

Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

APPENDIX I

Introduced Flora Potentially Occuring in the Study Area

Introduced Flora Potentially Occurring in the Study Area

Taxon	Family	Common name	Habit and habitat	Flowering period	WONS (Y/N)	BAM Act 2007	Control Categories (BAM Act, 2007)	Environmental Weed Rating (CALM, 1999)
Sagittaria platyphylla	Alismataceae	Delta Arrowhead	Cormous or rhizomatous, emergent, attached aquatic perennial, herb. In water to 0.8 m deep.	N/A	Y	Declared Pest (s22)	C3 Management, Prohibited, Whole of State	Low
Asparagus aethiopicus	Asparagaceae	Asparagus Fern	Rhizomatous and tuberous, perennial, herb and climber, to 1.5 m high. Grey sand. Coastal dunes.	Mar	Y	Not ranked	Importation with Permit	Not ranked
Asparagus asparagoides	Asparagaceae	Bridal Creeper	Rhizomatous and tuberous, perennial, herb and climber, 1–5 m high. Sand, loam, clay, granite.	Aug to Sep.	Y	Declared Pest (s22)	C3 Management, Prohibited, Whole of State	High
Asparagus declinatus	Asparagaceae	Bridal Veil	Rhizomatous and tuberous, perennial, herb and climber, to 1 m high. Sand over limestone.	Apr to Jun or Aug.	Y	Permitted (s11)	None	Not ranked
Asparagus plumosus	Asparagaceae	Climbing Asparagus-fern	Rhizomatous, perennial, rampant herb and climber, to 5 m high. Grey sand. Steep slopes.	Apr.	Y	Not ranked	Importation with Permit	Not ranked
Chrysanthemoides monilifera	Asteraceae	Bitou Bush	Shrub, 0.8–3 m high. Swampy loam, lateritic sandy clay. Coastal areas, roadsides, waste areas.	Jun to Oct.	Y	Prohibited (s12)	C1 Exclusion, Prohibited, Whole of State	Moderate
Chrysanthemoides monilifera subsp. *monilifera*	Asteraceae	Boneseed	Erect shrub, 0.8–3 m high. Red-brown loam, limestone rubble. Sandplains, coastal areas, roadsides & waste areas.	Jun to Oct.	Y	Prohibited (s12)	C2 Eradication, Prohibited, Whole of State	Moderate

Taxon	Family	Common name	Habit and habitat	Flowering period	WONS (Y/N)	BAM Act 2007	Control Categories (BAM Act, 2007)	Environmental Weed Rating (CALM, 1999)
Anredera cordifolia	Basellaceae	Madeira Vine	Rampant climber, with fleshy leaves. Along creeklines.	Mar to Apr	Y	Permitted (s11)	None	Not ranked
Opuntia spp.	Cactaceae	Prickly Pears	Spreading to erect shrubs, to 2 m high. Sandy soils	N/A	Y	Declared Pest (s22)	C3 Management, Restricted, Whole of state	Not ranked
Genista linifolia	Fabaceae	Flax-leaved Broom	Erect shrub, 0.45–3 m high. Lateritic soils. Roadsides.	Aug to Nov.	Y	Permitted (s11)	None	Low
Genista sp. X *Genista monspessulana*	Fabaceae	Broom	Erect shrub, 1–5 m high, leaves trifoliolate, petiolate, standard more or less glabrous. Loam, lateritic sand, black peaty sand. Edging rivers and roadsides.	Aug or Nov or Jan.	Y	Permitted (s11)	None	Mild
Olea europaea	Oleaceae	Olive	Tree, 1–15 m high.	Oct to Nov.	N	Permitted (s11)	None	Moderate
Pinus radiata	Pinaceae	Radiata Pine	Tree (conifer), 30–40 m high, monoecious; leaves in threes, 8–15 cm long; cones with numerous scales; seeds winged. Near plantations.	Sep to Oct.	N	Permitted (s11)	None	Not ranked
Cenchrus ciliaris	Poaceae	Buffel Grass	Tufted or sometimes stoloniferous perennial, grass-like or herb, 0.2–1.5 m high. White, red or brown sand, stony red loam, black cracking clay.	Feb to Oct.	N	Permitted (s11)	None	High
Urochloa mutica	Poaceae	Para Grass	Stoloniferous, basally decumbent perennial, grass-like or herb, 0.25–1.25 m high. Fl. green, Apr to Jul. Sandstone.	N/A	N	Permitted (s11)	None	Moderate

Taxon	Family	Common name	Habit and habitat	Flowering period	WONS (Y/N)	BAM Act 2007	Control Categories (BAM Act, 2007)	Environmental Weed Rating (CALM, 1999)
Eichhornia crassipes	Pontederiaceae	Water Hyacinth	Free-floating perennial, herb. Freshwater lakes or watercourses.	Jan to May.	Y	Permitted (s11)	None	High
Rubus fruticosus aggregate	Rosaceae	Blackberry	Scrambling, rampant, sprawling shrub, to 4 m high. Grey sand, red-brown gravelly loam, red clay loam, granite, limestone. Hillsides, along river banks and watercourses, in roadside drains.	Nov to Dec or Jan to Feb.	Y	Declared Pest (s22)	C3 Management, C2 Eradication, C1 Exclusion	Moderate
Salix spp. (except *Salix babylonica, S. x calodendron* & *S. x reichardtii*)	Salicaceae	Willows	Weeping tree or shrub, to 10 m high. Black peaty sand over clay. Slope above river.	N/A	Y	Declared Pest (s22)	C3 Management, Prohibited, whole of State	Not ranked
Salvinia molesta	Salviniaceae	Salvinia	Rhizomatous, herb (fern), 0.05–0.2 m high, floating aquatic; leaves in whorls of 3: 2 floating leaves and 1 submerged root-like water-leaf. Still or slow-flowing fresh water ponds and streams.	N/A	Y	Prohibited (s12)	C2 Eradication, Prohibited, Whole of State	Not ranked
Lycium ferocissimum	Solanaceae	African Boxthorn	Intricately branched, spiny shrub, 0.5–2.5(–4) m high. Waste grounds.	Apr to May or Aug to Dec.	Y	Permitted (s11)	None	High
Tamarix aphylla	Tamaricaceae	Athel Pine	Tree, to 12 m high. Along river banks.	Feb or May.	Y	Declared Pest (s22)	C3 Management, Prohibited, Whole of State	Not ranked
Lantana camara	Verbenaceae	Lantana	Scrambling, prickly shrub or climber, to 3(–8) m high. Sandy soils. Moist areas.	Jan to Mar or Jun to Sep.	Y	Declared Pest (s22)	C3 Management, Prohibited, Whole of State	Moderate

APPENDIX J

Flora Sampling Data

FLORA SAMPLING DATA

Site: 360Q02
Described: BL **Date**: 23/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397531mE**;** 6478354mN
Habitat: Plain, very gentle east slope
Soil: Grey black sand
Rock Type: None
Vegetation: *Eucalyptus marginata* subsp. *thalassica* and *Corymbia calophylla* sparse mid woodland over *Allocasuarina fraseriana* sparse low woodland over *Xanthorrhoea preissii* sparse tall shrubland over *Patersonia occidentalis* subsp. *occidentalis* and *Dasypogon bromeliifolius* sparse mid herbland over *Lyginia barbata* sparse mid sedgeland over *Briza maxima* isolated low grasses over *Hypochaeris glabra* isolated low herbs
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 80%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia willdenowiana	+	0.4
Aira cupaniana	+	0.1
Alexgeorgea nitens	+	0.1
Allocasuarina fraseriana	15	7
Arctotheca calendula	+	0.1
Bossiaea eriocarpa	+	0.2
Briza maxima	*1*	0.2
Bromus diandrus	+	0.1
Burchardia congesta	+	0.5
Caladenia flava subsp. *flava*	+	0.1
Calytrix fraseri forma Ellenbrook	+	0.6
Conostylis juncea	+	0.2
Corymbia calophylla	4	10
Dasypogon bromeliifolius	1	0.2
Drosera erythrorhiza	+	0.1
Drosera pallida	+	cr
Ehrharta calycina	+	0.4
Eriochilus dilatatus subsp. *dilatatus*	+	0.1
Eucalyptus marginata subsp. *thalassica*	5	11
Gladiolus caryophyllaceus	+	0.3
Gompholobium tomentosum	+	0.2
Haemodorum spicatum	+	0.5
Hibbertia hypericoides	+	0.2
Hyalosperma cotula	+	0.1
Hypocalymma robustum	+	0.6
Hypochaeris glabra	2	0.1
Hypolaena exsulca	+	0.3
Kennedia prostrata	+	pr
Lepidosperma apricola	+	0.3
Lomandra sericea	+	0.3
Lomandra suaveolens	+	0.4
Lyginia barbata	+	0.6
Lyginia imberbis	6	0.6

Millotia tenuifolia var. *laevis*	+	0.1
Monotaxis occidentalis	+	0.1
Patersonia occidentalis var. *occidentalis*	3	0.7
Phlebocarya ciliata	+	0.2
Phyllangium paradoxum	+	0.1
Pterostylis sanguinea	+	0.1
Pterostylis sp. short sepals (W. Jackson BJ259)	+	0.1
Stylidium androsaceum	+	0.2
Stylidium schoenoides	+	0.3
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.2
Ursinia anthemoides	+	0.2
Wahlenbergia preissii	+	0.1
Xanthorrhoea preissii	6	2.8

Site: 360Q03
Described: BL **Date**: 23/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397515mE; 6478721mN
Habitat: Plain, very gentle SE slope
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia menziesii* and *Banksia attenuata* low woodland over *Calytrix fraseri* Ellenbrook Form, *Stirlingia latifolia* and *Beaufortia elegans* sparse mid shrubland over *Hibbertia hypericoides*, *Leucopogon conostephioides* and *Hibbertia aurea* open low shrubland over *Patersonia occidentalis* subsp. *occidentalis* isolated mid herbs over *Desmocladus flexuosus* sparse low rushland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 70%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia sessilis	+	0.6
Acacia willdenowiana	+	0.3
Aira cupaniana	+	0.1
Alexgeorgea nitens	+	0.1
Allocasuarina humilis	+	1.5
Amphipogon turbinatus	+	0.3
Aotus procumbens	+	
Arnocrinum preissii	+	0.5
Astroloma xerophyllum	+	0.8
Austrostipa compressa	+	0.1
Austrostipa compressa	+	0.1
Banksia attenuata	15	6
Banksia menziesii	25	8
Beaufortia elegans	1	1.5
Bossiaea eriocarpa	+	0.3
Briza maxima +	0.2	NC
Bromus diandrus	+	0.1
Burchardia congesta	+	0.6
Calytrix fraseri forma Ellenbrook	2	1.8
Carpobrotus edulis	+	0.1
Conostephium preissii	+	0.3
Conostephium preissii	+	0.4
Conostylis aculeata subsp. *cygnorum*	+	0.3
Dampiera linearis	+	0.1
Dasypogon bromeliifolius	+	0.3
Daviesia triflora	+	0.4
Desmocladus flexuosus	4	0.2
Ehrharta calycina	+	0.7
Eriochilus dilatatus subsp. *dilatatus*	+	0.1
Eriochilus dilatatus subsp. *dilatatus*	+	0.1
Gladiolus caryophyllaceus	+	0.3
Gompholobium tomentosum	+	0.3
Haemodorum laxum	+	0.5
Hensmania turbinata	+	0.2
Hibbertia aurea	+	0.3
Hibbertia hypericoides	20	0.6
Hibbertia sericosepala	+	0.4
Hibbertia subvaginata	+	0.3

Hyalosperma cotula	+	0.1
Hypochaeris glabra	+	0.1
Hypolaena exsulca	+	0.4
Lepidosperma apricola	+	0.4
Lepidosperma leptostachyum	+	0.3
Lepidosperma pubisquameum (flat form)	+	0.6
Leporella fimbriata	+	0.1
Leucopogon conostephioides	3	0.4
Levenhookia stipitata	+	0.1
Lomandra hermaphrodita	+	0.2
Lomandra preissii	+	0.3
Lomandra suaveolens	+	0.4
Lyginia barbata	+	0.3
Mesomelaena pseudostygia	+	0.5
Patersonia occidentalis var. *occidentalis*	1	0.6
Petrophile linearis	+	0.4
Phlebocarya ciliata	+	0.3
Phyllangium paradoxum	+	0.1
Pimelea sulphurea	+	0.3
Podotheca gnaphalioides	+	0.1
Rytidosperma acerosum	+	0.1
Schoenus curvifolius	+	0.3
Scholtzia aff. involucrata EAG 5500	+	0.3
Stirlingia latifolia	2	1.3
Stylidium androsaceum	+	0.1
Stylidium araeophyllum	+	0.1
Stylidium repens	+	0.1
Stylidium saxifragoides	+	0.2
Thysanotus thyrsoideus	+	0.4
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2

Site: 360Q04

Described: BL **Date**: 23/09/2014 **Type:**Quadrat 10x10 m

MGA Zone: 50 397387mE; 6479169mN

Habitat: Low dune, midslope, gentle SW slope

Soil: Grey sand

Vegetation: *Banksia menziesii* and *Banksia attenuata* open low forest over *Eucalyptus todtiana* isolated mid mallee trees over *Hibbertia hypericoides*, *Calytrix flavescens*, *Scholtzia* aff. involucrata and *Hibbertia subvaginata* open low shrubland over *Patersonia occidentalis* subsp. *occidentalis* sparse mid herbland.

Condition: Excellent

Fire Age: >10 years

Notes: Leaf Litter: 95%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	+	0.1
Alexgeorgea nitens	+	0.1
Banksia attenuata	20	6.5
Banksia menziesii	40	7
Beaufortia elegans	+	0.5
Bossiaea eriocarpa	+	0.2
Briza maxima	+	0.2
Burchardia congesta	+	0.6
Caladenia flava subsp. *flava*	+	0.1
Calytrix flavescens	10	0.3
Calytrix fraseri forma Ellenbrook	+	
Carpobrotus edulis	+	0.1
Cassytha racemosa forma pilosa	+	cr
Conostephium minus	+	0.2
Conostephium preissii	+	0.2
Conostylis juncea	+	0.1
Dampiera linearis	+	0.1
Dasypogon bromeliifolius	+	0.2
Desmocladus flexuosus	+	0.1
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Ehrharta calycina	+	0.1
Eremaea pauciflora var. *pauciflora*	+	0.4
Eucalyptus todtiana	1	6
Gastrolobium linearifolium	+	0.2
Gladiolus caryophyllaceus	+	0.4
Gompholobium scabrum	+	0.6
Gompholobium tomentosum	+	0.1
Hibbertia huegelii	+	0.2
Hibbertia hypericoides	15	0.5
Hibbertia sericosepala	+	0.3
Hibbertia subvaginata	1	0.3
Hypocalymma robustum	+	0.9
Hypochaeris glabra	+	0.1
Hypolaena exsulca	+	0.3
Isolepis marginata	+	0.1
Laxmannia ramosa subsp. *ramosa*	+	0.1
Lepidosperma apricola	+	0.3
Leucopogon conostephioides	+	0.1
Lomandra caespitosa	+	0.2

Lomandra hermaphrodita	+	0.2
Lomandra preissii	+	0.4
Lomandra sericea	+	0.4
Lomandra suaveolens	+	0.3
Lyginia barbata	1	0.1
Medicago sp.	+	0.1
Patersonia occidentalis var. *occidentalis*	20	0.6
Petrophile linearis	+	0.4
Philotheca spicata	+	0.4
Phlebocarya ciliata	+	0.3
Schoenus curvifolius	+	0.3
Scholtzia aff. involucrata EAG 5500	2	0.4
Sonchus oleraceus	+	0.1
Stylidium junceum	+	
Stylidium repens	+	0.1
Stylidium schoenoides	+	0.2
Thelymitra graminea	+	0.2
Thysanotus thyrsoideus	+	0.2
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.2
Ursinia anthemoides	+	0.1
Xanthosia huegelii	+	0.1

Site 360Q06
Described: BL **Date**: 22/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397134mE; 6480487mN
Habitat: Plain, very gentle south slope
Soil: Grey sand
Rock Type: None
Vegetation: *Corymbia calophylla* mid woodland over *Banksia attenuata* and *Banksia menziesii* low woodland over *Xanthorrhoea preissii* sparse mid shrubland over *Hibbertia hypericoides*, *Hypocalymma robustum* and *Hibbertia subvaginata* open low shrubland over *Briza maxima* isolated low grasses
Condition: Excellent
Fire Age: >10 years
Notes Leaf Litter: 60%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Aira cupaniana	+	0.1
Alexgeorgea nitens	+	0.2
Austrostipa compressa	+	0.1
Banksia attenuata	20	9
Banksia menziesii	2	4
Bossiaea eriocarpa	+	0.4
Briza maxima	*2*	0.2
Bromus diandrus	+	0.1
Burchardia congesta	+	0.4
Caladenia flava subsp. *flava*	+	0.1
Calandrinia corrigioloides	+	0.1
Calytrix flavescens	+	0.3
Centrolepis drummondiana	+	0.1
Conostephium preissii	+	0.3
Corymbia calophylla	25	10
Crassula colorata var. *colorata*	+	0.1
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Eriochilus dilatatus subsp. *dilatatus*	+	0.1
Eucalyptus marginata subsp. *thalassica*	+	
Gladiolus caryophyllaceus	+	0.9
Gompholobium tomentosum	+	0.3
Hibbertia hypericoides	30	0.7
Hibbertia subvaginata	1	0.3
Hyalosperma cotula	+	0.1
Hypocalymma robustum	4	0.7
Hypochaeris glabra	+	0.1
Jacksonia floribunda	+	0.9
Leporella fimbriata	+	0.2
Levenhookia stipitata	+	0.1
Lomandra caespitosa	+	0.2
Lomandra sericea	+	0.3
Lomandra suaveolens	+	0.2
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.4
Philotheca spicata	+	0.6
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.1
Pterostylis sanguinea	+	0.2

Pyrorchis nigricans	+	0.1
Quinetia urvillei	+	0.1
Stylidium androsaceum	+	0.1
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.1
Xanthorrhoea preissii	6	1.2
Xanthosia huegelii	+	0.1

Site: 360Q10
Described: CvdB **Date**: 19/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 401596mE; 6485248mN
Habitat: Dune crest, slopping west, upper
Soil: Grey white medium-grained sand
Rock Type: none
Vegetation: *Pinus radiata* sparse low woodland over *Eucalyptus todtiana* isolated mid mallee trees over *Adenanthos cygnorum* subsp. *cygnorum* and *Macrozamia fraseri* sparse tall shrubland over *Eremaea pauciflora* var. *pauciflora*, *Scholtzia* aff. involucrata and *Stirlingia latifolia* sparse mid shrubland
Condition: Degraded
Fire Age: >10 years
Notes: Leaf Litter: 40%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	4	4
Austrostipa compressa	+	0.2
Briza maxima	+	0.2
Burchardia congesta	+	0.2
Caladenia flava subsp. *flava*	+	0.2
Calytrix flavescens	+	0.4
Conostephium preissii	+	0.3
Crassula colorata var. *colorata*	+	0.1
Daviesia triflora	+	0.3
Eremaea pauciflora var. *pauciflora*	5	1
Eucalyptus todtiana	out	5
Gladiolus caryophyllaceus	+	0.4
Hibbertia hypericoides	+	0.2
Hibbertia subvaginata	+	0.2
Hypochaeris glabra	+	0.2
Macrozamia fraseri	1	2
Patersonia occidentalis var. *occidentalis*	+	0.4
Petrophile linearis	+	0.3
Phyllangium paradoxum	+	0.1
Pinus radiata	15	6
Podotheca gnaphalioides	+	0.2
Rubus laudatus	+	0.2
Scholtzia aff. involucrata EAG 5500	6	1.1
Stirlingia latifolia	+	0.4
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.1

Site: 360Q12
Described: CvdB **Date**: 19/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 402017mE; 6485448mN

Habitat: Gentle slope to the South-west, mid to upper slope
Soil: Brown white course grained sand
Rock Type: none
Vegetation: *Eucalyptus todtiana* isolated mid mallee trees over *Banksia attenuata*, *Banksia menziesii* and *Nuytsia floribunda* sparse low woodland over *Eremaea pauciflora* var. *pauciflora* sparse mid shrubland over *Hibbertia hypericoides*, *Hibbertia subvaginata* and *Scholtzia* aff. involucrata sparse low shrublands
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 70%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia huegelii	+	0.3
Acacia pulchella var. glaberrima	+	0.4
Aira praecox	+	0.2
Austrostipa compressa	+	0.2
Banksia attenuata	5	8
Banksia menziesii	1	7
Boronia ramosa subsp. anethifolia	+	0.2
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.2
Burchardia congesta	+	0.3
Caladenia flava subsp. flava	+	0.2
Calytrix flavescens	+	0.3
Carpobrotus edulis	+	0.1
Cassytha pomiformis	+	cr
Conostephium preissii	+	0.3
Daviesia triflora	+	0.5
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	pr
Drosera macrantha	+	cr
Eremaea pauciflora var. pauciflora	5	1.2
Eucalyptus todtiana	1	6
Hibbertia hypericoides	2	0.4
Hibbertia subvaginata	1	0.4
Hypochaeris glabra	+	0.1
Hypolaena robusta	+	0.6
Isolepis marginata	+	0.1
Jacksonia floribunda	+	2.5
Lagenophora huegelii	+	0.2
Levenhookia stipitata	+	0.1
Lyginia barbata	+	0.1
Nuytsia floribunda	+	6
Patersonia occidentalis var. occidentalis	+	0.4
Petrophile linearis	+	0.3
Philotheca spicata	+	0.4
Phyllangium paradoxum	+	0.1
Podotheca chrysantha	+	0.2
Poranthera moorokatta	+	0.05

Scholtzia aff. involucrata EAG 5500	+	0.3
Stylidium rigidulum	+	0.2
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2
Verticordia nitens	+	1.4
Vulpia bromoides	+	0.2

Site: 360Q13
Described: CvdB **Date**: 19/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 402404mE; 6485603mN
Habitat: Gently sloping south-east, mid-slope
Soil: Brown grey organic medium grained sand
Rock Type: None
Vegetation: *Corymbia calophylla* mid woodland over *Banksia attenuata* and *Banksia ilicifolia* sparse low woodland over *Xanthorrhoea preissii* and *Macrozamia fraseri* sparse tall shrubland over *Hibbertia hypericoides* sparse low shrubland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 75%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Banksia attenuata	out	6
Banksia ilicifolia	+	5
Bossiaea eriocarpa	+	0.2
Briza maxima	+	0.2
Burchardia congesta	+	0.2
Caladenia flava subsp. *flava*	+	0.2
Conostylis aculeata subsp. *cygnorum*	+	0.3
Corymbia calophylla	46	15
Daucus glochidiatus	+	0.2
Desmocladus flexuosus	+	0.2
Diuris magnifica	+	0.3
Drosera erythrorhiza	+	pr
Hibbertia hypericoides	+	0.4
Lagenophora huegelii	+	0.2
Levenhookia stipitata	+	cr
Lupinus cosentinii	+	0.3
Macrozamia fraseri	2	2.5
Microlaena stipoides	+	0.4
Patersonia occidentalis var. *occidentalis*	+	0.4
Persoonia saccata	+	0.8
Pterostylis sp. cauline leaves (N. Gibson & M.N. Lyons 1490)	+	0.1
Pterostylis vittata	+	0.1
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Xanthorrhoea preissii	8	3
Zantedeschia aethiopica	+	0.4

Site: 360Q14
Described: CvdB **Date**: 19/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 403115mE; 6485976mN
Habitat: Very gently sloping east, midslope
Soil: Grey, brown medium grained sand
Rock Type: None
Vegetation: *Eucalyptus todtiana* isolated mid mallee trees over *Banksia attenuata* and *Banksia menziesii* sparse low woodland over *Beaufortia elegans*, *Scholtzia* aff. involucrata and *Allocasuarina humilis* sparse mid shrubland over *Eremaea purpurea*, *Hibbertia subvaginata* and *Hibbertia hypericoides* open low shrubland
Condition: Very good
Fire Age: >10 years
Notes: Quadrate is 30 m to the SE from 360's GPS point
Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	0.6
Aira cupaniana	+	0.1
Alexgeorgea nitens	+	0.2
Allocasuarina humilis	out	1.3
Austrostipa compressa	+	0.2
Banksia attenuata	2	5
Banksia menziesii	4	6
Beaufortia elegans	3	2.5
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.2
Burchardia congesta	+	0.5
Caladenia flava subsp. *flava*	+	0.2
Centrolepis drummondiana	+	0.1
Conostylis aculeata subsp. *aculeata*	+	0.2
Conostylis aculeata subsp. *cygnorum*	+	0.3
Daviesia triflora	+	0.4
Drosera erythrorhiza	+	pr
Drosera macrantha	+	cr
Eremaea pauciflora var. *pauciflora*	+	0.5
Eremaea purpurea	20	2
Eucalyptus todtiana	out	6
Gladiolus caryophyllaceus	+	0.5
Gladiolus caryophyllaceus	+	0.3
Hibbertia hypericoides	2	0.4
Hibbertia subvaginata	1	0.4
Isolepis marginata	+	0.1
Lomandra micrantha	+	0.2
Lyginia barbata	+	0.3
Patersonia occidentalis var. *occidentalis*	+	0.4
Petrophile linearis	+	0.3
Philotheca spicata	+	0.4
Phyllangium paradoxum	+	0.1
Podotheca chrysantha	+	0.2
Podotheca gnaphalioides	+	0.2
Pterostylis vittata	+	0.1
Rubus laudatus	+	0.3
Scholtzia aff. involucrata EAG 5500	2	0.9
Stylidium repens	+	0.2

Stylidium rigidulum	+	0.2
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2

Site: 360Q15
Described: CvdB **Date**: 19/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 403155mE; 6486211mN

Habitat: Relatively flat, with a very gentle slope to the east towards a small depression, low

Soil: Organic dark brown grey clayey sand

Rock Type: none

Vegetation: *Corymbia calophylla* and *Melaleuca preissiana* sparse mid woodland over *Banksia attenuata* and *Banksia ilicifolia* sparse low woodland over *Kunzea glabrescens* open tall shrubland

Condition: Very good

Fire Age: >10 years

Notes: Leaf Litter: 70%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia huegelii	+	0.3
Aira cupaniana	+	0.1
Banksia attenuata	4	8
Banksia ilicifolia	7	6
Banksia menziesii	+	5
Briza maxima	+	0.2
Caladenia flava subsp. *flava*	+	0.1
Conostephium preissii	+	0.3
Corymbia calophylla	1	18
Drosera macrantha	+	cr
Eriochilus dilatatus subsp. *undulatus*	+	0.2
Gladiolus caryophyllaceus	+	0.4
Haemodorum spicatum	+	0.3
Hibbertia hypericoides	+	0.3
Hibbertia subvaginata	+	0.3
Hypocalymma angustifolium	+	0.7
Hypochaeris glabra	+	0.1
Isolepis stellata	+	0.1
Kunzea glabrescens	32	4.5
Lagenophora huegelii	+	0.2
Leucopogon propinquus	+	0.4
Lomandra hermaphrodita	+	0.3
Melaleuca preissiana	3	13
Patersonia occidentalis var. *occidentalis*	+	0.4
Petrophile linearis	+	0.1
Philotheca spicata	+	0.5
Phyllangium paradoxum	+	0.1
Pterostylis sp. short sepals (W. Jackson BJ259)	+	0.2
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2
Wahlenbergia preissii	+	0.1
Xanthosia huegelii	+	0.2

Site: 360Q16
Described: BL **Date**: 19/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 402963mE; 6485777mN
Habitat: Plain, very gentle West slope
Soil: Grey sand
Rock Type: None
Vegetation: *Melaleuca preissiana* and *Banksia attenuata* low woodland over *Macrozamia fraseri* isolated tall shrubs over *Eremaea purpurea* isolated mid shrubs over *Hibbertia hypericoides* and *Bossiaea eriocarpa* sparse low shrubland over *Ursinia anthemoides* and *Hypochaeris glabra* sparse low herbland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 15%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *pulchella*	+	1.2
Aira cupaniana	+	0.1
Arctotheca calendula	+	0.2
Banksia attenuata	10	5
Banksia menziesii	+	2
Bossiaea eriocarpa	1	0.7
Briza maxima	+	0.2
Briza minor	+	0.2
Burchardia congesta	+	0.4
Caladenia flava subsp. *flava*	+	0.2
Calandrinia corrigioloides	+	0.1
Conostephium preissii	+	0.6
Conostylis aculeata subsp. *cygnorum*	+	0.3
Crassula colorata var. *colorata*	+	0.1
Desmocladus flexuosus	+	0.1
Drosera erythrorhiza	+	0.1
Ehrharta calycina	+	0.3
Eremaea purpurea	2	1.1
Gladiolus caryophyllaceus	+	0.6
Gompholobium tomentosum	+	0.5
Hibbertia hypericoides	7	0.6
Hibbertia subvaginata	+	0.4
Hypochaeris glabra	3	0.2
Isolepis marginata	+	0.1
Lagenophora huegelii	+	0.2
Lysimachia arvensis	+	0.1
Macrozamia fraseri	1	2.2
Melaleuca preissiana	30	7
Millotia myosotidifolia	+	0.1
Moraea flaccida	+	0.5
Patersonia occidentalis var. *occidentalis*	+	0.3
Persoonia saccata	+	1
Petrophile linearis	+	0.6
Podotheca gnaphalioides	+	0.1
Pterostylis sp. cauline leaves (N. Gibson & M.N. Lyons 1490)	+	0.1
Romulea rosea	+	0.1
Rytidosperma acerosum	+	0.2

Siloxerus humifusus	+	0.1
Sonchus oleraceus	+	0.2
Sowerbaea laxiflora	+	0.2
Stylidium androsaceum	+	0.1
Stylidium rigidulum	+	0.2
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	3	0.4
Vulpia bromoides	+	0.1
Wahlenbergia preissii	+	0.2

Site: 360Q17
Described: BL **Date**: 19/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 402786mE; 6485743mN
Habitat: Lower slope of a dune, gentle SE slope
Soil: Grey black sand
Rock Type: None
Vegetation: *Eucalyptus marginata* subsp. *thalassica* mid woodland over *Banksia attenuata* and *Banksia menziesii* sparse low woodland over *Hibbertia hypericoides* and *Xanthorrhoea preissii* low shrubland over *Patersonia occidentalis* var. *occidentalis* isolated low herbs
Condition: Pristine
Fire Age: >10 years
Notes: Leaf Litter: 60%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *pulchella*	+	0.5
Acacia sessilis	+	
Acacia willdenowiana	+	0.3
Aira cupaniana	+	0.1
Anigozanthos humilis subsp. *humilis*	+	0.1
Austrostipa compressa	+	0.2
Banksia attenuata	8	9
Banksia menziesii	2	4
Bossiaea eriocarpa	+	0.4
Briza maxima	+	0.2
Bromus diandrus	+	0.1
Burchardia congesta	+	0.6
Caladenia flava subsp. *flava*	+	0.2
Centrolepis drummondiana	+	0.1
Conostephium preissii	+	0.4
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Eriochilus dilatatus subsp. *dilatatus*	+	0.1
Eucalyptus marginata subsp. *thalassica*	40	15
Gastrolobium linearifolium	+	0.2
Gladiolus caryophyllaceus	+	0.3
Hibbertia huegelii	+	0.2
Hibbertia hypericoides	60	0.6
Hibbertia stellaris	+	0.1
Hibbertia subvaginata	+	0.1
Hypochaeris glabra	+	0.2
Isolepis marginata	+	0.1
Lagenophora huegelii	+	0.2
Lepidosperma pubisquameum (flat form)	+	0.4
Leptomeria pauciflora	+	
Lomandra caespitosa	+	0.2
Lomandra hermaphrodita	+	0.2
Lomandra suaveolens	+	0.3
Lyginia barbata	+	0.3
Macrozamia fraseri	+	0.2
Opercularia vaginata	+	
Patersonia occidentalis var. *occidentalis*	1	0.6
Petrophile linearis	+	0.4

Philotheca spicata	+	0.8
Podotheca chrysantha	+	0.1
Podotheca gnaphalioides	+	0.1
Quinetia urvillei	+	0.1
Rytidosperma acerosum	+	0.3
Scholtzia aff. involucrata EAG 5500	+	1.3
Sonchus oleraceus	+	0.1
Stylidium androsaceum	+	0.2
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.3
Wahlenbergia preissii	+	0.1
Xanthorrhoea preissii	3	0.9

Site: 360Q20
Described: CvdB **Date**: 23/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 400155mE; 6484217mN
Habitat: Dampland, low
Soil: Dark brown sandy clay, peat?
Rock Type: none
Vegetation: *Eucalyptus rudis* subsp. *rudis* and *Pinus pinaster* (outside) mid woodland over *Melaleuca preissiana* isolated low trees over *Astartea scoparia* open mid shrubland over *Schoenus caespititius* isolated mid sedges over *Briza maxima* isolated low grasses
Condition: Very good
Fire Age: > 10 years

SPECIES LIST:

Name	Cover (%)	Height (m)
Aira cupaniana	+	0.1
Aira cupaniana	+	0.1
Aira praecox	+	0.2
Astartea scoparia	24	1.6
Briza maxima	+	0.3
Briza minor	+	0.2
Eucalyptus rudis subsp. *rudis*	35	12
Eutaxia virgata	+	0.7
Hypochaeris glabra	+	0.1
Jacksonia furcellata	+	0.8
Lotus subbiflorus	+	0.1
Lysimachia arvensis	+	0.3
Melaleuca preissiana	out	8
Melaleuca teretifolia	+	0.4
Pinus pinaster	+	0.4
Schoenus caespititius	+	0.5
Ursinia anthemoides	+	0.1

Site: 360Q21
Described: CvdB **Date**: 23/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 400377mE; 6484640mN
Habitat: Relatively flat, mid slope
Soil: white grey brown medium grained sand
Rock Type: None
Vegetation: *Banksia attenuata* and *Banksia menziesii* sparse low woodland over *Xanthorrhoea preissii* and *Macrozamia fraseri* sparse mid shrubland over *Eremaea pauciflora* var. *pauciflora, Hibbertia hypericoides* and *Astroloma xerophyllum* sparse low shrubland over *Lyginia barbata* sparse low sedgeland
Veg Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 50%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	0.7
Alexgeorgea nitens	+	0.1
Amphipogon turbinatus	+	0.3
Astroloma xerophyllum	+	0.5
Austrostipa compressa	+	0.2
Banksia attenuata	2	3
Banksia menziesii	7	7
Bossiaea eriocarpa	+	0.2
Briza maxima	+	0.2
Burchardia congesta	+	0.2
Calytrix flavescens	+	0.3
Conostephium preissii	+	0.3
Conostylis aculeata subsp. *cygnorum*	+	0.3
Dampiera linearis	+	0.3
Dasypogon bromeliifolius	+	0.5
Daviesia triflora	+	0.4
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	pr
Ehrharta calycina	+	0.2
Eremaea pauciflora var. *pauciflora*	1	0.6
Gastrolobium capitatum	+	0.4
Gladiolus caryophyllaceus	+	0.6
Gompholobium tomentosum	+	0.3
Haemodorum sparsiflorum	+	0.5
Hibbertia huegelii	+	0.4
Hibbertia hypericoides	+	0.5
Hibbertia subvaginata	+	0.4
Hypochaeris glabra	+	pr
Lagenophora huegelii	+	0.2
Lomandra micrantha	+	0.4
Lyginia barbata	10	0.4
Lyginia barbata	3	0.4
Macrozamia fraseri	out	2.2
Melaleuca seriata	+	cr
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.3
Podotheca chrysantha	+	0.2
Podotheca gnaphalioides	+	0.2
Rubus laudatus	+	0.2

Schoenus curvifolius	+	0.2
Scholtzia aff. involucrata EAG 5500	+	0.4
Stylidium saxifragoides	+	0.3
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.1
Verticordia nitens	+	1.3
Xanthorrhoea preissii	5	1.2
Xanthosia huegelii	+	0.1

Site: 360Q22
Described: CvdB **Date**: 22/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 400720mE; 6484715mN
Habitat: Dune slope, western aspect, moderately sloping, mid to upper slope
Soil: Grey brown medium grained sand
Rock Type: none
Vegetation: *Eucalyptus todtiana* sparse mid mallee trees over *Banksia attenuata* and *Banksia menziesii* sparse low woodland over *Verticordia nitens* isolated mid shrubs over *Eremaea pauciflora* var. *pauciflora*, *Scholtzia* aff. involucrata and *Hibbertia hypericoides* open low shrubland over *Lyginia barbata* isolated mid sedges over *Desmocladus flexuosus* sparse low rushland
Condition: Excellent - very good
Fire Age: >10 years
Notes: Leaf Litter: 15%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Alexgeorgea nitens	+	0.1
Astroloma xerophyllum	+	0.4
Austrostipa compressa	+	0.2
Banksia attenuata	5	7
Banksia menziesii	7	6
Boronia purdieana subsp. *purdieana*	+	0.2
Boronia ramosa subsp. *anethifolia*	+	0.2
Bossiaea eriocarpa	+	0.2
Briza maxima	+	0.4
Burchardia congesta	+	0.2
Caladenia flava subsp. *flava*	+	0.2
Calytrix flavescens	+	0.3
Conostephium preissii	+	0.3
Crassula colorata var. *colorata*	+	0.1
Dasypogon bromeliifolius	+	0.4
Daviesia triflora	+	0.4
Desmocladus flexuosus	2	0.3
Drosera erythrorhiza	+	pr
Ehrharta calycina	+	0.3
Eremaea pauciflora var. *pauciflora*	20	0.6
Eucalyptus todtiana	8	6
Gladiolus caryophyllaceus	+	0.7
Gladiolus caryophyllaceus	+	0.2
Gompholobium tomentosum	+	0.8
Hibbertia hypericoides	+	0.4
Hibbertia subvaginata	+	0.4
Hovea pungens	+	0.3
Hypochaeris glabra	+	0.1
Lagenophora huegelii	+	0.1
Laxmannia squarrosa	+	0.3
Lechenaultia floribunda	+	0.3
Leucopogon sprengelioides	+	0.3
Lomandra hermaphrodita	+	0.4
Lomandra preissii	+	0.3
Lyginia barbata	1	0.4
Lyginia barbata	+	0.2
Patersonia occidentalis var. *occidentalis*	1	0.5
Petrophile linearis	+	0.2
Philotheca spicata	+	1.6

Phyllangium paradoxum	+	0.1
Podotheca chrysantha	+	0.2
Pterostylis sp. clubbed snail orchid (R. Davis 8088)	+	0.1
Pterostylis vittata	+	0.1
Rubus laudatus	+	0.3
Scholtzia aff. involucrata EAG 5500	17	0.4
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2
Verticordia nitens	+	1.2

Site: 360Q23
Described: CvdB **Date**: 22/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 400797mE; 6484295mN
Habitat: Dune slope near crest, moderately sloping west
Soil: White grey medium grained sand
Rock Type: none

Vegetation: *Eucalyptus todtiana* sparse mid mallee trees over *Banksia attenuata*, *Banksia menziesii* and *Nuytsia floribunda* sparse low woodland over *Adenanthos cygnorum* and *Macrozamia fraseri* sparse tall shrubland over *Verticordia nitens*, *Jacksonia floribunda* and *Petrophile linearis* isolated mid shrubs over *Eremaea pauciflora* var. *pauciflora* and *Lechenaultia floribunda* sparse low shrubland over *Patersonia occidentalis* subsp. *occidentalis* sparse low herbland

Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 60%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	12	4
Aira cupaniana	+	0.1
Alexgeorgea nitens	2	0.4
Banksia attenuata	out	
Banksia menziesii	out	
Beaufortia elegans	+	0.2
Boronia purdieana subsp. *purdieana*	+	0.8
Bossiaea eriocarpa	+	0.5
Briza maxima	+	0.2
Burchardia congesta	+	0.4
Caladenia flava subsp. *flava*	+	0.2
Conostephium preissii	+	0.2
Conostylis aculeata subsp. *cygnorum*	+	0.4
Dampiera linearis	+	0.3
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	pr
Drosera macrantha	+	cr
Ehrharta calycina	+	0.2
Eremaea pauciflora var. *pauciflora*	+	0.5
Eucalyptus todtiana	40	5.5
Gladiolus caryophyllaceus	+	0.6
Gladiolus caryophyllaceus	+	0.2
Gompholobium tomentosum	+	0.7
Haemodorum sp.	+	0.4
Hibbertia hypericoides	+	0.3
Hibbertia subvaginata	+	0.3
Hovea pungens	+	0.3
Hypochaeris glabra	+	0.1
Jacksonia floribunda	+	1.2
Lechenaultia floribunda	+	0.3
Lepidosperma pubisquameum (flat form)	+	0.3
Lyginia barbata	3	0.4
Macrozamia fraseri	out	
Millotia myosotidifolia	+	0.1
Nuytsia floribunda	out	6
Patersonia occidentalis var. *occidentalis*	3	0.6
Petrophile linearis	+	1.3

Philotheca spicata	+	0.4
Phyllangium paradoxum	+	0.1
Podotheca chrysantha	+	0.2
Rubus laudatus	+	0.2
Schoenus curvifolius	+	0.3
Scholtzia aff. involucrata EAG 5500	+	0.3
Stylidium brunonianum	+	0.2
Stylidium repens	+	0.1
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2
Verticordia nitens	+	1

Site: 360Q24
Described: CvdB **Date**: 18/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 403335mE; 6487007mN
Habitat: Lower wetland slope, very gently sloping east
Soil: Dark brown, grey medium - grained clayey sand
Rock Type: None
Vegetation: *Melaleuca preissiana* and *Corymbia calophylla* sparse mid woodland over *Astartea scoparia* and *Hypocalymma angustifolium* open mid shrubland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 60%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Aira praecox	+	0.2
Aotus gracillima	+	0.2
Astartea scoparia	25	2
Caladenia flava subsp. *flava*	+	0.1
Cassytha glabella	+	cr
Corymbia calophylla	1	17
Drosera glanduligera	+	0.1
Hibbertia racemosa	+	0.3
Homalosciadium homalocarpum	+	0.1
Hypocalymma angustifolium	5	0.6
Hypochaeris glabra	+	0.4
Lagenophora huegelii	+	0.2
Lepidosperma longitudinale	+	0.4
Lepidosperma striatum	+	0.3
Leucopogon australis	+	0.4
Lysimachia arvensis	+	0.1
Melaleuca preissiana	2	18
Microlaena stipoides	+	0.3
Moraea flaccida	+	0.3
Nuytsia floribunda	+	6
Patersonia occidentalis var. *occidentalis*	+	0.4
Poaceae sp.	+	0.1
Pterostylis sp. clubbed snail orchid (R. Davis 8088)	+	0.1
Pterostylis vittata	+	0.1
Siloxerus humifusus	+	0.1
Sonchus oleraceus	+	0.2
Stellaria pallida	+	0.1
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2

Site: 360Q25
Described: BL **Date:** 18/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 403241mE; 6486353mN
Habitat: Plain, very gentle NE slope
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia attenuata* and *Banksia menziesii* low woodland over *Macrozamia fraseri* and *Eremaea pauciflora* var. *pauciflora* sparse mid shrubland over *Hibbertia hypericoides* and *Hibbertia subvaginata* sparse low shrubland over *Ursinia anthemoides* and *Hypochaeris glabra* sparse low herbland over *Ehrharta longiflora* isolated low grasses
Condition: Good
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *pulchella*	+	0.2
Austrostipa compressa	+	0.2
Banksia attenuata	25	8
Banksia menziesii	10	6
Bossiaea eriocarpa	+	0.3
Burchardia congesta	+	0.6
Caladenia flava subsp. *flava*	+	0.2
Calandrinia corrigioloides	+	
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Ehrharta calycina	+	0.2
Ehrharta longiflora	1	0.3
Eremaea pauciflora var. *pauciflora*	2	1.6
Gladiolus caryophyllaceus	+	0.4
Haemodorum spicatum	+	0.4
Hibbertia hypericoides	6	0.7
Hibbertia subvaginata	1	0.4
Hypochaeris glabra	5	0.2
Lagenophora huegelii	+	0.2
Macrozamia fraseri	2	1.8
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.3
Podotheca gnaphalioides	+	0.2
Pterostylis sp. cauline leaves (N. Gibson & M.N. Lyons 1490)	+	0.1
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	5	0.4
Watsonia meriana var. *meriana*	+	1.3

Site: 360Q26
Described: BL **Date**: 18/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 403461mE; 6487255mN
Habitat: Crest of dune, gentle slope aspect WNW
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia attenuata* sparse low woodland over *Scholtzia* aff. involucrata and *Acacia pulchella* var. *pulchella* sparse tall shrubland over *Eremaea pauciflora* var. *pauciflora* sparse mid shrubland over *Hibbertia hypericoides* isolated low shrubs over *Lyginia barbata* isolated low sedges
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 15%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *pulchella*	+	2
Adenanthos cygnorum subsp. *cygnorum*	+	0.1
Alexgeorgea nitens	+	0.1
Anigozanthos humilis subsp. *humilis*	+	0.2
Arnocrinum preissii	+	0.4
Astroloma xerophyllum	+	0.5
Austrostipa compressa	+	0.2
Banksia attenuata	6	5
Banksia menziesii	+	0.3
Bossiaea eriocarpa	+	0.4
Briza maxima	+	0.2
Burchardia congesta	+	0.7
Calandrinia liniflora	+	0.1
Calytrix angulata	+	
Calytrix flavescens	+	0.3
Calytrix sapphirina	+	0.3
Carpobrotus edulis	+	0.1
Conostephium preissii	+	0.3
Conostylis aculeata subsp. *cygnorum*	+	0.2
Crassula colorata var. *colorata*	+	0.1
Daviesia triflora	+	0.5
Desmocladus flexuosus	+	0.3
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Eremaea pauciflora var. *pauciflora*	15	1.2
Gladiolus caryophyllaceus	+	0.5
Gompholobium tomentosum	+	0.4
Gonocarpus pithyoides	+	0.1
Hibbertia hypericoides	1	0.5
Hibbertia subvaginata	+	0.3
Hypochaeris glabra	+	0.1
Isolepis marginata	+	0.1
Laxmannia squarrosa	+	0.1
Lomandra hermaphrodita	+	0.2
Lomandra suaveolens	+	0.3
Lyginia barbata	1	0.3

Paracaleana nigrita	+	0.1
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.4
Philotheca spicata	+	0.5
Phyllangium paradoxum	+	0.1
Podotheca chrysantha	+	0.1
Podotheca gnaphalioides	+	0.1
Pyrorchis nigricans	+	
Scholtzia aff. involucrata EAG 5500	6	2.5
Stirlingia latifolia	+	0.6
Stylidium repens	+	0.1
Stylidium rigidulum	+	0.1
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2
Wahlenbergia preissii	+	0.1

Site: 360Q27
Described: BL **Date**: 18/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 403278mE; 6486737mN
Habitat: Plain on the edge of dampland, very gentle slope SE
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia attenuata*, *Banksia menziesii* and *Banksia ilicifolia* low woodland over *Xanthorrhoea preissii* and *Xanthorrhoea brunonis* sparse mid shrubland over *Hibbertia subvaginata* and *Petrophile linearis* sparse low shrubland
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 75%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Austrostipa compressa	+	0.2
Banksia attenuata	5	9
Banksia ilicifolia	10	9
Banksia menziesii	20	8
Briza maxima	+	0.2
Burchardia congesta	+	0.2
Caladenia flava subsp. *flava*	+	0.2
Conostephium preissii	+	0.4
Drosera gigantea	+	0.2
Ehrharta calycina	+	0.2
Eucalyptus rudis subsp. *rudis*	+	1
Gastrolobium linearifolium	+	
Gladiolus caryophyllaceus	+	0.3
Gompholobium tomentosum	+	0.1
Goodenia pulchella	+	0.1
Hibbertia racemosa	+	0.3
Hibbertia subvaginata	8	0.4
Hypochaeris glabra	1	0.1
Lagenophora huegelii	+	0.2
Lepidosperma longitudinale	+	0.5
Lepidosperma pubisquameum (flat form)	+	0.3
Lomandra caespitosa	+	0.2
Lomandra hermaphrodita	+	0.2
Lomandra preissii	+	cr
Lomandra suaveolens	+	0.4
Macrozamia fraseri	+	0.2
Pericalymma ellipticum var. *floridum*	+	0.4
Petrophile linearis	1	0.3
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.2
Rytidosperma acerosum	+	0.2
Scholtzia aff. involucrata EAG 5500	+	0.2
Siloxerus humifusus	+	0.1
Stylidium androsaceum	+	0.1
Stylidium araeophyllum	+	0.3
Stylidium dichotomum	+	0.1
Thysanotus sp.	+	0.2

Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.4
Ursinia anthemoides	+	0.2
Xanthorrhoea brunonis	1	1.1
Xanthorrhoea preissii	6	1.1
Xanthosia huegelii	+	0.1

Site: 360Q28
Described: BL **Date**: 17/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 403524mE; 6487598mN
Habitat: Upper slope of sand dune, aspect N
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia menziesii* and *Banksia attenuata* low woodland over *Scholtzia* aff. involucrata isolated clumps of tall shrubs over *Beaufortia elegans* and *Macrozamia fraseri* sparse mid shrubland over *Eremaea pauciflora* var. *pauciflora*, *Hibbertia subvaginata* and *Stirlingia latifolia* sparse low shrubland over *Desmocladus flexuosus* isolated low rushes
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 25%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	+	0.1
Alexgeorgea nitens	+	0.1
Anigozanthos humilis subsp. *humilis*	+	0.2
Arctotheca calendula	+	0.1
Arnocrinum preissii	+	0.6
Astroloma xerophyllum	+	0.3
Austrostipa compressa	+	0.2
Austrostipa macalpinei	+	0.2
Banksia attenuata	5	4
Banksia menziesii	20	6
Beaufortia elegans	2	1.6
Bossiaea eriocarpa	+	0.3
Bromus diandrus	+	0.2
Burchardia congesta	+	0.4
Caladenia flava subsp. *flava*	+	0.1
Calytrix flavescens	+	0.3
Calytrix sapphirina	+	0.4
Carpobrotus edulis	+	0.1
Conospermum incurvum	out	
Conostephium preissii	+	0.6
Conostylis aculeata subsp. *cygnorum*	+	0.3
Conostylis juncea	+	0.2
Crassula colorata var. *colorata*	+	0.1
Croninia kingiana	out	
Dasypogon bromeliifolius	+	0.3
Desmocladus flexuosus	1	0.2
Drosera erythrorhiza	+	0.1
Drosera pallida	+	cr
Ehrharta calycina	+	0.2
Eremaea pauciflora var. *pauciflora*	15	0.9
Gladiolus caryophyllaceus	+	0.7
Gompholobium tomentosum	+	0.3
Gonocarpus pithyoides	+	0.1
Haemodorum spicatum	out	
Hibbertia sericosepala	+	0.4
Hibbertia subvaginata	1	0.6
Hypochaeris glabra	+	0.1
Isolepis marginata	+	0.1
Jacksonia floribunda	out	

Leporella fimbriata	+	0.1
Leucopogon conostephioides	+	0.3
Lomandra caespitosa	+	0.4
Lomandra hermaphrodita	+	0.2
Lyginia barbata	+	0.3
Macrozamia fraseri	1	1.4
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.3
Philotheca spicata	1	0.5
Podotheca chrysantha	out	
Podotheca gnaphalioides	+	0.2
Regelia inops	out	
Schoenus curvifolius	+	0.3
Scholtzia aff. involucrata EAG 5500	2	2.3
Stirlingia latifolia	+	0.7
Stylidium repens	+	0.1
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2
Verticordia nitens	out	
Wahlenbergia capensis	+	0.1

Site: 360Q29
Described: CvdB **Date**: 23/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 400594mE; 6484374mN

Habitat: Relatively flat dampland, low
Soil: Brown grey medium grained sand with some organic material
Rock Type: None
Vegetation: *Banksia attenuata*, *Banksia menziesii* and *Melaleuca preissiana* sparse low woodland over *Adenanthos cygnorum* subsp. *cygnorum*, *Regelia inops* and *Banksia ilicifolia* sparse tall shrubland over *Verticordia nitens* and *Astroloma xerophyllum* isolated mid shrubs over *Hibbertia subvaginata* and *Hypocalymma angustifolium* isolated low shrubs
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 40%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	12	4
Aira cupaniana	+	0.1
Aira praecox	+	0.1
Amperea simulans	+	0.1
Astroloma xerophyllum	+	0.5
Austrostipa compressa	+	0.2
Banksia attenuata	2	7
Banksia ilicifolia	+	4
Banksia menziesii	4	6
Boronia ramosa subsp. *anethifolia*	+	0.2
Briza maxima	+	0.3
Caladenia flava subsp. *flava*	+	0.2
Carpobrotus edulis	+	0.1
Centrolepis drummondiana	+	0.1
Dasypogon bromeliifolius	+	0.4
Drosera macrantha	+	cr
Gladiolus caryophyllaceus	+	0.6
Gompholobium tomentosum	+	0.3
Hensmania turbinata	+	0.2
Hibbertia subvaginata	+	0.3
Hypocalymma angustifolium	+	0.6
Hypochaeris glabra	+	0.1
Hypolaena robusta	+	0.1
Isolepis marginata	+	0.1
Lepidosperma pubisquameum (flat form)	+	0.3
Leucopogon australis	+	0.3
Leucopogon squarrosus	+	0.2
Lomandra hermaphrodita	+	0.2
Lyginia barbata	+	0.4
Lysinema pentapetalum	+	0.5
Macarthuria apetala	+	0.2
Melaleuca preissiana	out	7
Paracaleana nigrita	+	pr
Patersonia occidentalis var. *occidentalis*	+	0.4
Persoonia saccata	+	0.6
Petrophile linearis	+	0.3
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.1
Regelia inops	2	2.1

Solanum nigrum	+	0.2
Sonchus oleraceus	+	0.1
Stylidium diuroides subsp. *paucifoliatum*	+	0.2
Stylidium repens	+	0.1
Stylidium saxifragoides	+	0.3
Thysanotus thyrsoideus	+	0.4
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.1
Ursinia anthemoides	+	0.1
Verticordia nitens	+	1
Vulpia bromoides	+	0.1
Xanthosia huegelii	+	0.2

Site: 360Q30
Described: CvdB **Date**: 22/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 400559mE; 6484520mN
Habitat: Relatively flat, low
Soil: White brown course grained sand
Rock Type: None
Vegetation: *Eucalyptus marginata* subsp. *thalassica* isolated mid trees over *Melaleuca preissiana* isolated low trees over *Xanthorrhoea preissii* open mid shrubland over *Dasypogon bromeliifolius* and *Patersonia occidentalis* subsp. *occidentalis* sparse low herbland over *Ehrharta calycina* and *Briza maxima* isolated low grasses
Condition: Good
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Beaufortia elegans	+	0.2
Briza maxima	+	0.3
Burchardia congesta	+	0.1
Caladenia flava subsp. *flava*	+	0.2
Dasypogon bromeliifolius	+	0.5
Ehrharta calycina	+	0.3
Eucalyptus marginata subsp. *thalassica*	+	9
Gladiolus caryophyllaceus	+	0.6
Gompholobium scabrum	+	0.7
Hypocalymma angustifolium	+	0.9
Hypochaeris glabra	+	0.2
Lomandra hermaphrodita	+	0.3
Lomandra micrantha	+	0.2
Melaleuca preissiana	+	7
Patersonia occidentalis var. *occidentalis*	+	0.5
Podotheca gnaphalioides	+	0.2
Regelia inops	+	1.8
Sonchus oleraceus	+	0.2
Thysanotus manglesianus	+	0.1
Ursinia anthemoides	+	0.1
Xanthorrhoea preissii	+	1.2

Site: 360Q31
Described: CvdB **Date**: 22/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 400613mE; 6484554mN
Habitat: Plain/ Dampland
Soil: Grey brown sandy loam
Rock Type: None
Vegetation: *Eucalyptus marginata* subsp. *thalassica* isolated mid trees over *Banksia attenuata*, *Banksia ilicifolia* and *Melaleuca preissiana* open low forest over *Xanthorrhoea preissii*, *Hypocalymma angustifolium* and *Astroloma xerophyllum* sparse mid shrubland over *Dasypogon bromeliifolius* sparse low herbland over *Ehrharta longiflora* and *Briza maxima* isolated low grasses
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 70%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Astroloma xerophyllum	+	0.5
Austrostipa compressa	1	0.2
Banksia attenuata	40	8
Banksia ilicifolia	1	7
Briza maxima	+	0.4
Burchardia congesta	+	0.3
Caladenia flava subsp. *flava*	+	0.2
Dasypogon bromeliifolius	3	0.4
Drosera macrantha	+	cr
Ehrharta longiflora	+	0.2
Eremaea pauciflora var. *pauciflora*	+	0.4
Eucalyptus marginata subsp. *thalassica*	out	11
Gladiolus caryophyllaceus	+	0.7
Gladiolus caryophyllaceus	+	0.1
Hyalosperma cotula	+	0.1
Hypocalymma angustifolium	2	1.3
Hypochaeris glabra	+	0.2
Leucopogon sprengelioides	+	0.4
Lupinus cosentinii	+	0.3
Melaleuca preissiana	+	4
Patersonia occidentalis var. *occidentalis*	+	0.4
Podotheca gnaphalioides	+	0.2
Sonchus oleraceus	+	0.2
Stylidium saxifragoides	+	0.1
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.1
Ursinia anthemoides	+	0.1
Watsonia meriana var. *meriana*	+	0.8
Xanthorrhoea preissii	6	1.2

Site: 360Q32
Described: BL **Date:** 17/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 403502**mE;** 6487882**mN**

Habitat: Wetland, slope west, low
Soil: Black sandy clay
Rock Type: None
Vegetation: *Melaleuca preissiana* mid woodland over *Banksia littoralis* sparse low woodland over *Lepidosperma striatum* closed tall sedgeland
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 30%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acetosella vulgaris	+	0.2
Astartea scoparia	+	0.6
Banksia littoralis	9	6
Centella asiatica	+	0.1
Hypochaeris glabra	+	0.2
Lepidosperma striatum	80	1.2
Lolium rigidum	+	0.4
Lotus subbiflorus	+	0.2
Melaleuca preissiana	30	10
Poaceae sp.	+	0.2
Podotheca gnaphalioides	+	0.2
Sonchus oleraceus	+	0.1
Trachymene pilosa	+	0.2

Site: 360Q34
Described: CvdB **Date**: 16/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 403075mE; 6498910mN
Habitat: Flat palusplain, low/flat
Soil: Dark brown moist sandy clay
Rock Type: none
Vegetation: *Eucalyptus rudis* subsp. *rudis* sparse mid woodland over *Astartea scoparia* open tall shrubland over *Zantedeschia aethiopica* and *Stellaria pallida* isolated mid herbs over *Holcus lanatus* isolated low grasses over *Desmocladus flexuosus* isolated low rushes
Condition: Good
Fire Age: >10 years
Notes: Leaf Litter: 50%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Aotus gracillima	+	1.4
Aphelia cyperoides	+	0.1
Aphelia cyperoides	+	0.1
Astartea scoparia	40	4.5
Briza maxima	+	0.4
Desmocladus flexuosus	1	0.3
Eucalyptus rudis subsp. *rudis*	18	14
Holcus lanatus	1	0.3
Hypochaeris radicata	+	0.1
Isolepis stellata	+	0.1
Lotus subbiflorus	+	0.2
Microlaena stipoides	+	0.1
Ornithopus compressus	+	0.2
Poa annua	+	0.2
Podotheca gnaphalioides	+	0.2
Pterostylis sp. clubbed snail orchid (R. Davis 8088)	+	0.2
Romulea rosea	+	0.1
Solanum nigrum	+	0.4
Sonchus oleraceus	1	0.2
Stellaria pallida	+	0.2
Trifolium sp.	+	0.2
Vulpia bromoides	+	0.3
Zantedeschia aethiopica	1	1.2

Site: 360Q35
Described: BL **Date**: 16/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 403120mE; 6499096mN
Habitat: Wetland periphery, very gentle S slope
Soil: Black clayey sand
Rock Type: None
Vegetation: *Kunzea glabrescens* tall shrubland over *Astartea scoparia* isolated mid shrubs over *Bromus diandrus*, *Vulpia bromoides* and *Holcus lanatus* low grassland over *Lotus subbiflorus*, *Hypochaeris glabra* and *Romulea rosea* var. *communis* open low herbland
Condition: Poor
Fire Age: >10 years
Notes: Leaf Litter: <2%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia salignaout	out	NC
Acetosella vulgaris	+	0.3
Aphelia cyperoides	+	0.1
Arctotheca calendula	+	0.2
Astartea scoparia	1	1.5
Bromus diandrus	50	0.2
Caladenia flava subsp. *flava*	+	0.1
Dielsia stenostachya	1	0.2
Drosera glanduligera	+	0.1
Holcus lanatus	1	0.4
Hypochaeris glabra	5	0.1
Isolepis stellata	+	0.1
Kunzea glabrescens	75	4
Lotus subbiflorus	25	0.2
Poa annua	+	0.1
Romulea rosea var. *communis*	3	0.2
Vulpia bromoides	5	0.1
Zantedeschia aethiopica	+	0.2

Site: 360Q36
Described: BL **Date**: 22/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397172mE; 6479645mN
Habitat: Plain, very gentle east slope
Soil: Grey black sand
Rock Type: None
Vegetation: *Corymbia calophylla* open mid forest over *Xanthorrhoea preissii* open mid shrubland over *Patersonia occidentalis* subsp. *occidentalis* isolated mid herbs over *Briza maxima* sparse low grassland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 75%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Aira cupaniana	+	0.1
Alexgeorgea nitens	+	0.1
Austrostipa compressa	+	0.1
Beaufortia elegans	+	0.1
Bossiaea eriocarpa	+	0.3
Briza maxima	5	0.2
Burchardia congesta	+	0.4
Caladenia discoidea	+	0.1
Caladenia flava subsp. *flava*	+	0.2
Calytrix flavescens	+	0.3
Centrolepis drummondiana	+	0.1
Corymbia calophylla	70	10
Dasypogon bromeliifolius	+	0.3
Desmocladus fasciculatus	+	0.1
Drosera erythrorhiza	+	0.1
Drosera pallida	+	cr
Ehrharta calycina	+	0.6
Ehrharta longiflora	+	0.3
Eriochilus dilatatus subsp. *dilatatus*	+	0.1
Gladiolus caryophyllaceus	+	0.5
Gompholobium tomentosum	+	0.1
Hibbertia hypericoides	+	0.4
Hyalosperma cotula	+	0.1
Hypocalymma robustum	+	0.3
Hypochaeris glabra	1	0.2
Isolepis marginata	+	0.1
Kennedia prostrata	+	cr
Lepidosperma apricola	+	0.4
Lomandra hermaphrodita	+	0.2
Lomandra sericea	+	0.4
Lomandra suaveolens	+	0.3
Lyginia barbata	+	0.2
Millotia tenuifolia var. *laevis*	+	0.1
Nuytsia floribunda	+	1
Patersonia occidentalis var. *occidentalis*	1	0.7
Philotheca spicata	+	0.3
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.2
Pterostylis sanguinea	+	0.1

Pterostylis sp. cauline leaves (N. Gibson & M.N. Lyons 1490)	+	0.1
Pyrorchis nigricans	+	0.1
Quinetia urvillei	+	0.1
Rhodanthe citrina	+	0.1
Stylidium androsaceum	+	0.1
Stylidium schoenoides	+	0.2
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.3
Ursinia anthemoides	+	0.3
Wahlenbergia preissii	+	0.1
Waitzia suaveolens var. *suaveolens*	+	
Xanthorrhoea preissii	25	2.2

Site: 360Q37
Described: BL **Date**: 25/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 404008mE; 6492592mN
Habitat: Dampland, very gentle SE slope, low
Soil: Grey black sand
Rock Type: None
Vegetation: *Corymbia calophylla* mid woodland over *Melaleuca preissiana* sparse low woodland over *Dielsia stenostachya* closed mid rushland over *Briza maxima* isolated low grasses over *Hypochaeris glabra* isolated low herbs
Condition: Degraded
Fire Age: >10 years
Notes: Leaf Litter: 80%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Astartea scoparia	+	1.5
Briza maxima	3	0.2
Corymbia calophylla	30	15
Dielsia stenostachya	90	0.5
Hesperantha falcata	+	out
Hypochaeris glabra	2	0.1
Juncus pallidus	+	1
Leucaena leucocephala	+	out
Lobelia anceps	+	0.4
Lotus subbiflorus	+	0.2
Medicago sp.	+	0.2
Melaleuca preissiana	4	6
Microtis media subsp. *media*	+	0.3
Ornithopus compressus	+	0.1
Pterostylis sp. short sepals (W. Jackson BJ259)	+	0.1
Romulea rosea var. *australis*	+	0.2
Sonchus oleraceus	+	0.1
Thelymitra vulgaris	+	0.3
Trifolium subterraneum	+	0.2
Ursinia anthemoides	+	0.3
Zantedeschia aethiopica	+	0.2

Site: 360Q39
Described: CvdB **Date**: 24/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397511mE; 6478115mN
Habitat: Small dual rise, running NW to SE, relatively flat on top, upper
Soil: Grey brown medium grained sand
Rock Type: None
Vegetation: *Eucalyptus marginata* subsp. *thalassica*, *Banksia attenuata* and *Banksia menziesii* sparse low woodland over *Adenanthos cygnorum* subsp. *cygnorum* sparse tall shrubland over *Allocasuarina humilis* and *Verticordia nitens* isolated mid shrubs over *Astroloma xerophyllum*, *Calytrix fraseri* and *Beaufortia elegans* sparse low shrubland
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 30%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	0.6
Acacia sessilis	+	0.4
Adenanthos cygnorum subsp. *cygnorum*	5	4
Alexgeorgea nitens	+	0.2
Allocasuarina humilis	1	1.5
Amphipogon turbinatus	+	0.2
Astroloma xerophyllum	2	0.4
Banksia attenuata	+	0.1
Banksia menziesii	1	6
Beaufortia elegans	+	0.6
Bossiaea eriocarpa	+	0.2
Briza maxima	+	0.2
Burchardia congesta	+	0.2
Caladenia flava subsp. *flava*	+	0.2
Calytrix flavescens	+	0.3
Calytrix fraseri	1	0.3
Conostephium preissii	+	0.2
Crassula colorata var. *colorata*	+	0.1
Dampiera linearis	+	0.3
Dasypogon bromeliifolius	+	0.4
Daviesia triflora	+	0.3
Desmocladus flexuosus	+	0.2
Drosera barbigera	+	pr
Drosera macrantha	+	cr
Ehrharta calycina	+	0.2
Eucalyptus marginata subsp. *thalassica*	out	7
Gladiolus caryophyllaceus	+	0.2
Gladiolus caryophyllaceus	+	0.5
Gompholobium tomentosum	+	0.2
Hibbertia huegelii	+	0.3
Hibbertia hypericoides	+	0.4
Hibbertia subvaginata	+	0.3
Hyalosperma cotula	+	0.1
Hypocalymma robustum	+	0.2
Hypochaeris glabra	+	0.2
Leucopogon conostephioides	+	0.3
Lomandra hermaphrodita	+	0.2
Lomandra micrantha	+	0.3
Lyginia barbata	+	0.3

Lyginia barbata	+	0.3
Lysinema pentapetalum	+	0.6
Mesomelaena pseudostygia	+	0.3
Millotia tenuifolia var. *laevis*	+	0.1
Nuytsia floribunda	+	1.1
Petrophile linearis	+	0.2
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.2
Stirlingia latifolia	+	0.4
Stylidium repens	+	0.1
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.1
Verticordia nitens	+	0.8
Vulpia myuros forma megalura	+	0.1

Site: SVB001
Described: CvdB **Date:** 25/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 395865mE; 6473711mN
Habitat: Very gently with a southerly aspect
Soil: Grey brown medium grained sand
Rock Type: None

Vegetation: *Eucalyptus marginata* and *Eucalyptus todtiana* sparse mid mallee trees over *Banksia attenuata*, *Banksia menziesii* and *Nuytsia floribunda* sparse low woodland over *Stirlingia latifolia* isolated mid shrubs over *Hibbertia hypericoides* and *Daviesia triflora* sparse low shrubland over *Mesomelaena pseudostygia* isolated low sedges over *Alexgeorgea nitens* isolated low rushes
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 60%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	0.7
Aira cupaniana	+	0.2
Alexgeorgea nitens	1	0.1
Austrostipa compressa	+	0.1
Banksia attenuata	3	7
Banksia menziesii	2	7
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.2
Burchardia congesta	+	0.2
Caladenia flava subsp. *flava*	+	0.2
Caladenia longicauda subsp. *calcigena*	+	0.3
Calandrinia corrigioloides	+	0.1
Calytrix angulata	+	0.5
Calytrix flavescens	+	0.3
Calytrix fraseri	+	0.6
Conostephium preissii	+	0.2
Conostylis aculeata subsp. *cygnorum*	+	0.3
Conostylis setigera subsp. *setigera*	+	0.2
Corynotheca micrantha var. *elongata*	+	0.3
Dampiera linearis	+	0.2
Dasypogon bromeliifolius	+	0.4
Daviesia triflora	+	0.5
Diuris magnifica	+	0.3
Drosera macrantha	+	cr
Ehrharta calycina	+	0.4
Eucalyptus marginata subsp. *thalassica*	12	8
Eucalyptus todtiana	out	6
Gastrolobium capitatum	+	0.4
Gladiolus caryophyllaceus	+	0.4
Gompholobium tomentosum	+	0.2
Heliophila pusilla	+	0.4
Hibbertia huegelii	+	0.3
Hibbertia hypericoides	2	0.5
Hybanthus calycinus	+	0.3
Hypochaeris glabra	+	0.3
Laxmannia squarrosa	+	0.2
Lepidosperma pubisquameum (flat form)	+	0.3
Leucopogon conostephioides	+	0.3

Lomandra integra	+	0.2
Lyginia barbata	+	0.4
Mesomelaena pseudostygia	+	0.6
Nuytsia floribunda	out	8
Opercularia vaginata	+	0.2
Patersonia occidentalis var. *occidentalis*	+	0.4
Petrophile linearis	+	0.4
Philotheca spicata	+	0.2
Podotheca angustifolia	+	0.1
Pterostylis vittata	+	0.1
Romulea rosea	+	0.2
Stirlingia latifolia	+	1.5
Stylidium androsaceum	+	0.1
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.1

Site: SVB002
Described: BL **Date**: 24/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397066mE; 6474059mN

Habitat: Dampland, very gentle west slope, low
Soil: Grey black peaty sand
Rock Type: None
Vegetation: *Astartea scoparia*, *Melaleuca lateritia* and *Eutaxia virgata* closed mid shrubland over *Lepidosperma striatum* sparse tall sedgeland
Condition: Pristine
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	1
Astartea scoparia	9	2
Astartea scoparia	85	1.8
Baumea articulata	+	1.1
Centella asiatica	+	0.1
Eutaxia virgata	3	1.2
Hakea varia	+	
Hypochaeris glabra	+	0.1
Lepidosperma striatum	15	1.2
Lobelia anceps	+	0.3
Meeboldina decipiens subsp. *decipiens*	+	1.2
Meeboldina scariosa	+	1.2
Melaleuca lateritia	4	1.8
Thysanotus multiflorus	+	0.3

Site: SVB003
Described: BL **Date**: 24/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397269mE; 6474141mN
Habitat: Undulating plain, gentle south slope, lowerslope
Soil: Grey sand
Rock Type:
Vegetation: *Banksia menziesii*, *Banksia ilicifolia* and *Nuytsia floribunda* sparse low woodland over *Eremaea pauciflora* var. *pauciflora* and *Xanthorrhoea preissii* sparse low shrubland over *Ehrharta calycina* and *Avena barbata* sparse mid grassland over *Ursinia anthemoides*, *Hypochaeris glabra* and *Phlebocarya ciliata* sparse low herbland
Condition: Good
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	1	1.3
Alexgeorgea nitens	+	0.1
Arnocrinum preissii	+	0.3
Avena barbata	3	0.8
Banksia ilicifolia	4	7
Banksia menziesii	8	5
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.3
Bromus diandrus	+	0.1
Burchardia congesta	+	0.6
Caladenia flava subsp. *flava*	+	0.2
Calytrix fraseri forma Ellenbrook	+	1.1
Conostylis juncea	+	0.2
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Ehrharta calycina	10	1
Eremaea pauciflora var. *pauciflora*	15	0.7
Gladiolus caryophyllaceus	+	0.9
Gompholobium tomentosum	+	0.5
Hibbertia hypericoides	+	0.3
Hovea pungens	+	0.4
Hypochaeris glabra	1	0.1
Leucopogon conostephioides	+	0.4
Lyginia barbata	+	0.5
Microtis media subsp. *media*	+	0.4
Nuytsia floribunda	2	5
Opercularia vaginata	+	0.3
Petrophile linearis	+	0.3
Phlebocarya ciliata	1	0.5
Romulea rosea	+	0.4
Schoenus curvifolius	+	0.4
Sonchus oleraceus	+	0.2
Stylidium repens	+	0.1
Thysanotus manglesianus	+	cr
Trachymene pilosa	+	0.2
Ursinia anthemoides	3	0.3
Xanthorrhoea preissii	3	0.9

Site: SVB004
Described: CvdB **Date**: 24/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397708mE: 6474066mN
Habitat: Relatively flat, low
Soil: Grey brown sandy clay
Rock Type: None
Vegetation: *Banksia attenuata* isolated low trees over *Eucalyptus todtiana* isolated low mallee trees over *Melaleuca seriata*, *Eremaea pauciflora* var. *pauciflora* and *Xanthorrhoea preissii* sparse low shrubland over *Phlebocarya ciliata* open low herbland
Condition: Very good - excellent
Fire Age: >10 years
Notes: Leaf Litter: 25%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	0.6
Adenanthos obovatus	+	0.6
Aira cupaniana	+	0.1
Banksia attenuata	+	1
Bossiaea eriocarpa	+	0.3
Calandrinia corrigioloides	+	0.1
Calytrix flavescens	+	0.2
Centrolepis drummondiana	+	0.1
Crassula colorata var. colorata	+	0.1
Dampiera linearis	+	0.3
Dasypogon bromeliifolius	+	0.4
Diuris sp.	+	0.2
Eremaea pauciflora var. *pauciflora*	+	0.7
Eucalyptus todtiana	2	6
Hibbertia subvaginata	+	0.3
Hovea trisperma var. trisperma	+	0.3
Hypocalymma angustifolium	+	0.2
Hypochaeris glabra	+	0.3
Hypolaena exsulca	+	0.3
Jacksonia floribunda	+	2
Lechenaultia floribunda	+	0.3
Leucopogon polymorphus	+	0.4
Lomandra integra	+	0.4
Lomandra sericea	1	0.4
Melaleuca seriata	14	0.7
Patersonia occidentalis var. *occidentalis*	+	0.5
Philotheca spicata	+	0.6
Phlebocarya ciliata	35	0.4
Podotheca gnaphalioides	+	0.1
Sonchus oleraceus	+	0.1
Stylidium saxifragoides	+	0.2
Trachymene pilosa	+	0.1
Urospermum picroides	+	0.2
Xanthorrhoea preissii	4	2

Site: SVB005
Described: BL **Date**: 24/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397567mE; 6474327mN

Habitat: Dampland, very gentle south slope, low
Soil: Grey black peaty sand
Rock Type: None
Vegetation: *Astartea scoparia*, *Melaleuca lateritia*, *Eutaxia virgata* and *Calothamnus lateralis* closed mid shrubland over *Lepidosperma striatum* and *Lepidosperma longitudinale* sparse tall sedgeland over *Meeboldina tephrina*, *Hypolaena exsulca* and *Meeboldina decipiens* subsp. *decipiens* ms sparse tall rushland
Condition: Excellent
Fire Age: >5 years
Notes: Leaf Litter: 10%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	
Astartea scoparia	5	1.9
Astartea scoparia	85	1.6
Baumea articulata	+	0.8
Calothamnus lateralis	1	1
Cassytha glabella	+	pr
Centella asiatica	+	0.1
Eutaxia virgata	2	1.2
Goodenia pulchella	+	0.1
Hakea varia	+	
Hypochaeris glabra	+	0.1
Hypolaena exsulca	1	1
Lepidosperma longitudinale	2	1.1
Lepidosperma striatum	15	1.2
Meeboldina decipiens subsp. *decipiens*	1	1.1
Meeboldina scariosa	+	1
Meeboldina tephrina	4	1
Melaleuca lateritia	4	1
Melaleuca preissiana	+	
Pelargonium capitatum	+	0.1
Sonchus oleraceus	+	0.1
Thelymitra graminea	+	0.3
Thysanotus multiflorus	+	0.3
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2

Site: SVB006
Described: CvdB **Date**: 25/09/2014 **Type:** Relevés
MGA Zone: 50 397564mE; 6474531mN
Habitat: Wetland
Soil: Black grey sandy clay
Rock Type: None
Vegetation: *Melaleuca preissiana* isolated low trees over *Astartea scoparia*, *Melaleuca teretifolia* and *Melaleuca lateritia* closed tall shrubland over *Lepidosperma longitudinale* sparse mid sedgeland
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Astartea scoparia	75	2.1
Eutaxia virgata	+	1.2
Lepidosperma longitudinale	20	0.9
Meeboldina scariosa	+	0.9
Melaleuca lateritia	1	1.8
Melaleuca preissiana	1	9
Melaleuca teretifolia	1	2.4

Site: SVB007
Described: CvdB **Date**: 24/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397739mE; 6474564mN
Habitat: Wetland, low
Soil: Black, dark brown clayey sand
Rock Type: None
Vegetation: *Melaleuca preissiana* sparse low woodland over *Pericalymma crassipes*, *Hypocalymma angustifolium* and *Xanthorrhoea preissii* open tall shrubland over *Lepidosperma striatum* and *Lepidosperma longitudinale* tall sedgeland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 10%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *glaberrima*	+	1
Aotus gracillima	+	1.4
Calothamnus lateralis	+	1.5
Cassytha pomiformis	+	CR
Cyathochaeta teretifolia	+	0.6
Drosera gigantea	+	0.6
Eutaxia virgata	+	0.4
Hakea varia	+	1
Hypocalymma angustifolium	2	1.2
Hypolaena exsulca	+	0.6
Lepidosperma striatum	50	1.1
Lolium rigidum	2	0.9
Melaleuca preissiana	2	5
Pericalymma crassipes	26	2
Xanthorrhoea preissii	14	2.2

Site: SVB008
Described: CvdB **Date**: 24/09/2014 **Type**: Relevés
MGA Zone: 50 397819mE; 6474467mN

Habitat: Dampland
Soil: Grey brown medium grained sand
Rock Type: None
Vegetation: *Corymbia calophylla* isolated mid trees over *Melaleuca preissiana* isolated low trees over *Xanthorrhoea preissii* sparse mid shrubland over *Dasypogon bromeliifolius* and *Phlebocarya ciliata* sparse low herbland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: <2%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name
Austrostipa compressa
Banksia ilicifolia
Briza minor
Corymbia calophylla
Dampiera linearis
Dasypogon bromeliifolius
Diuris longifolia
Gladiolus caryophyllaceus
Hybanthus calycinus
Hypocalymma angustifolium
Jacksonia furcellata
Melaleuca preissiana
Phlebocarya ciliata
Ursinia anthemoides
Wahlenbergia tumidifructa
Xanthorrhoea preissii

Site: SVB008A
Described: CvdB **Date**: 24/09/2014 **Type:** Relevés
MGA Zone: 50 397816mE; 6474519mN

Habitat: Dampland, low
Soil: Black grey sandy clay
Rock Type: None
Vegetation: *Melaleuca preissiana* isolated low trees over *Xanthorrhoea preissii* sparse mid shrubland over *Lepidosperma longitudinale* sparse mid sedgeland
Condition: Very good
Fire Age: <6 months
Notes: Leaf Litter: <2%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Hypocalymma angustifolium	+	0.3
Kennedia prostrata	+	CR
Lepidosperma longitudinale	2	0.4
Melaleuca preissiana	+	12
Wurmbea dioica	+	0.2
Xanthorrhoea preissii	2	1.6

Site: SVB009
Described: BL **Date**: 24/09/2014 **Type:** Relevés
MGA Zone: 50 397474mE; 6475138mN
Habitat: Plain, very gentle south slope, low
Soil: Grey sand
Rock Type: None
Vegetation: *Melaleuca preissiana* and *Acacia longifolia* subsp. *longifolia* sparse low woodland over *Xanthorrhoea preissii* sparse mid shrubland over *Bromus diandrus*, *Ehrharta calycina* and *Avena barbata* tall grassland over *Ursinia anthemoides, Hypochaeris glabra* and *Urospermum picroides* sparse low herbland
Condition: Degraded
Fire Age: >5 years
Notes: Leaf Litter: 5%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia longifolia subsp. *longifolia*	3	4
Avena barbata	2	0.8
Bromus diandrus	70	0.2
Ehrharta calycina	5	1
Gladiolus caryophyllaceus	1	1
Hypochaeris glabra	1	0.1
Lyginia imberbis	+	0.6
Melaleuca preissiana	5	4.5
Nuytsia floribunda	1	4
Patersonia occidentalis var. *occidentalis*	+	0.5
Urospermum picroides	1	0.3
Ursinia anthemoides	5	0.3
Xanthorrhoea preissii	20	1.9

Site: SVB010
Described: BL **Date**: 24/09/2014 **Type:** Relevés
MGA Zone: 50 397746mE; 6475089mN
Habitat: Wetland, very gentle west slope, low
Soil: Grey black sand
Rock Type: None
Vegetation: *Eucalyptus rudis* subsp. *rudis* and *Melaleuca preissiana* sparse low woodland over *Acacia longifolia* subsp. *longifolia* closed tall shrubland over *Astartea scoparia* sparse mid shrubland over *Lepidosperma longitudinale* isolated tall sedges over *Hypolaena exsulca* isolated tall rushes over *Briza maxima* and *Bromus diandrus* isolated low grasses
Condition: Degraded
Fire Age: >5 years
Notes: Leaf Litter: 100%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia longifolia subsp. *longifolia*	95	3.5
Astartea scoparia	15	1.3
Briza maxima	2	0.3
Bromus diandrus	1	0.3
Eucalyptus rudis subsp. *rudis*	5	8
Hypolaena exsulca	1	1.1
Lepidosperma longitudinale	2	1.1
Lobelia anceps	+	0.3
Melaleuca preissiana	2	4.5
Sonchus oleraceus	+	0.2
Urospermum picroides	+	0.2

Site: SVB011
Described: BL **Date**: 24/09/2014 **Type:**Quadrat 10x10 m
MGA Zone: 50 397503mE; 6475322mN
Habitat: Dampland, very gentle east slope, low
Soil: Grey black peaty sand
Rock Type: None
Vegetation: *Melaleuca preissiana* low woodland over *Acacia longifolia* subsp. *longifolia* sparse tall shrubland over *Hypocalymma angustifolium* and *Astartea scoparia* mid shrubland over *Cyathochaeta avenacea* open mid sedgeland
Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 15%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia longifolia subsp. *longifolia*	15	2.3
Acacia pulchella var. *pulchella*	+	0.3
Acacia stenoptera	+	0.3
Aira cupaniana	+	0.1
Astartea scoparia	2	1.4
Briza maxima	1	0.3
Briza minor	1	0.1
Burchardia congesta	+	0.3
Chamaescilla versicolor	+	0.2
Cyathochaeta avenacea	40	0.8
Ehrharta calycina	+	0.7
Gladiolus caryophyllaceus	+	0.5
Hypocalymma angustifolium	50	1.2
Hypochaeris glabra	+	0.1
Juncus pallidus	+	1
Lobelia anceps	+	0.3
Lotus subbiflorus	+	0.1
Melaleuca preissiana	40	6
Pterostylis sanguinea	+	0.2
Schoenus efoliatus	+	0.4
Sonchus oleraceus	+	0.2
Xanthorrhoea preissii	1	0.8

Site: SVB012
Described by: BL **Date**: 24/09/201 **Type:** Quadrat 10x10 m
MGA Zone: 50 397794mE; 6475334mN
Habitat: Dune, moderate south slope, upperslope
Soil: Grey sand
Rock Type: None

Vegetation: *Banksia menziesii* and *Banksia attenuata* sparse low woodland over *Allocasuarina humilis*, *Jacksonia floribunda* sparse tall shrubland over *Hibbertia hypericoides*, *Eremaea pauciflora* var. *pauciflora*, *Conostephium preissii* and *Leucopogon conostephioides* open low shrubland over *Dasypogon bromeliifolius* isolated mid herbs over *Briza maxima* and *Ehrharta calycina* sparse mid grassland over *Alexgeorgea nitens* and *Lyginia barbata* sparse low rushland

Condition: Very good
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia pulchella var. *pulchella*	+	0.4
Acacia sessilis	+	0.3
Adenanthos cygnorum subsp. *cygnorum*	+	0.1
Alexgeorgea nitens	5	0.2
Allocasuarina humilis	12	2.1
Amphipogon turbinatus	+	0.3
Anigozanthos humilis subsp. *humilis*	+	0.3
Astroloma xerophyllum	+	0.4
Austrostipa compressa	+	0.2
Banksia attenuata	17	6
Banksia menziesii	3	6
Bossiaea eriocarpa	+	0.4
Briza maxima	3	0.3
Bromus diandrus	+	0.1
Burchardia congesta	+	0.4
Calectasia narragara	out	
Calytrix flavescens	+	0.2
Calytrix fraseri forma Ellenbrook	+	
Cassytha racemosa forma pilosa	+	cr
Conostephium preissii	1	0.6
Conostylis aculeata subsp. *cygnorum*	+	0.3
Cryptandra nutans	+	0.2
Dampiera linearis	+	0.2
Dasypogon bromeliifolius	2	0.3
Daviesia triflora	+	0.4
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Drosera pallida	+	cr
Ehrharta calycina	1	0.7
Eremaea pauciflora var. *pauciflora*	3	0.3
Eucalyptus todtiana	+	
Gladiolus caryophyllaceus	+	1.1
Gompholobium tomentosum	+	0.3
Haemodorum spicatum	+	0.6
Heliophila pusilla	+	0.3
Hensmania turbinata	+	0.3

Hibbertia huegelii	+	0.3
Hibbertia hypericoides	15	0.6
Hibbertia subvaginata	+	0.3
Hovea trisperma var. *trisperma*	+	0.3
Jacksonia floribunda	1	2
Laxmannia squarrosa	+	0.1
Lepidosperma leptostachyum	+	0.6
Leucopogon conostephioides	2	0.4
Lomandra hermaphrodita	+	0.2
Lomandra preissii	+	0.4
Lomandra sericea	+	0.4
Lyginia barbata	1	0.6
Lyginia imberbis	+	0.6
Macrozamia fraseri	+	0.6
Mesomelaena pseudostygia	+	0.4
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.3
Philotheca spicata	+	1
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.1
Scaevola repens var. repens	out	
Scaevola repens var. repens	+	0.1
Schoenus clandestinus	out	
Schoenus curvifolius	+	0.2
Scholtzia aff. involucrata EAG 5500	+	0.4
Stirlingia latifolia	+	1
Stylidium cygnorum	+	0.1
Stylidium repens	+	0.1
Synaphea spinulosa subsp. *spinulosa*	out	
Thysanotus thyrsoideus	+	0.4
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.3
Wahlenbergia capensis	+	0.1
Xanthosia huegelii	+	0.1

Site: SVB013
Described: CvdB **Date**: 24/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397783mE; 6475728mN
Habitat: South facing aspect of small dunal rise, mid to upper
Soil: Grey medium grained sand
Rock Type: None
Vegetation: *Eucalyptus todtiana* isolated mid mallee trees over *Banksia menziesii*, *Banksia attenuata* and *Nuytsia floribunda* sparse low woodland over *Hibbertia hypericoides* and *Eremaea pauciflora* var. *pauciflora* sparse low shrubland over *Alexgeorgea nitens* sparse low rushland
Condition: Excellent - very good
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia sessilis	+	0.3
Aira cupaniana	+	0.3
Alexgeorgea nitens	4	0.1
Austrostipa compressa	+	0.3
Austrostipa compressa	+	0.3
Banksia menziesii	2	6
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.2
Caladenia flava subsp. *flava*	+	0.2
Conostephium preissii	+	0.1
Conostylis juncea	+	0.2
Dampiera linearis	+	0.3
Dasypogon bromeliifolius	+	0.4
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	pr
Drosera macrantha	+	cr
Ehrharta calycina	+	1.2
Eremaea pauciflora var. *pauciflora*	7	0.4
Eucalyptus todtiana	6	5
Gladiolus caryophyllaceus	+	0.6
Gompholobium scabrum	+	0.4
Gompholobium tomentosum	+	0.7
Hibbertia huegelii	+	0.3
Hibbertia hypericoides	3	0.4
Hovea pungens	+	0.2
Hypolaena exsulca	+	0.4
Jacksonia floribunda	+	1.3
Leucopogon conostephioides	+	0.4
Lomandra preissii	+	0.4
Lomandra sericea	+	0.4
Lyginia barbata	1	0.4
Nuytsia floribunda	out	6
Opercularia vaginata	+	0.3
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.3
Philotheca spicata	+	1
Schoenus curvifolius	+	0.3
Scholtzia aff. involucrata EAG 5500	+	0.4
Stirlingia latifolia	+	0.4

Stylidium repens	+	0.1
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.1

Site: SVB014
Described: CvdB **Date**: 24/09/2014 **Type**: Relevés
MGA Zone: 50 397658mE; 6475972mN
Vegetation: *Melaleuca preissiana* isolated low trees over *Xanthorrhoea preissii* mid shrubland over *Ehrharta calycina* sparse mid grassland
Condition: Good

SPECIES LIST:

Name
Melaleuca preissiana
Xanthorrhoea preissii

Site: SVB014A
Described: CvdB **Date**: 24/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397647mE; 6475785mN
Habitat: Small dunal rise, on southern aspect, upper
Soil: Grey medium grained sand
Rock Type: None

Vegetation: *Eucalyptus todtiana* isolated mallee trees over *Banksia menziesii* sparse tall shrubland over *Allocasuarina humilis* and *Jacksonia floribunda* sparse mid shrubland over *Hibbertia hypericoides* and *Calytrix flavescens* sparse low shrubland over *Schoenus efoliatus* sparse low sedgeland and *Alexgeorgea nitens* sparse low rushland

Condition: Very good - excellent
Fire Age: >10 years
Notes: Leaf Litter: 30%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia sessilis	+	0.3
Alexgeorgea nitens	3	0.1
Allocasuarina humilis	4	1.3
Amphipogon turbinatus	+	0.3
Arnocrinum preissii	+	0.4
Astroloma xerophyllum	+	0.4
Banksia menziesii	2	3
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.3
Calectasia narragara	+	0.3
Calytrix flavescens	1	0.4
Cassytha pomiformis	+	cr
Comesperma calymega	+	0.3
Conostephium preissii	+	0.2
Conostylis setigera subsp. *setigera*	+	0.2
Dasypogon bromeliifolius	+	0.3
Daviesia triflora	+	0.4
Drosera macrantha	+	cr
Ehrharta calycina	+	0.3
Eucalyptus todtiana	out	4
Gladiolus caryophyllaceus	+	0.5
Haemodorum laxum	+	0.5
Haemodorum simplex	+	0.6
Hemiandra linearis	+	0.3
Hibbertia aurea	+	0.2
Hibbertia huegelii	+	0.2
Hibbertia hypericoides	3	0.3
Hibbertia subvaginata	+	0.4
Hypolaena exsulca	+	0.3
Jacksonia floribunda	+	1.9
Lepidosperma leptostachyum	+	0.5
Lomandra hermaphrodita	+	0.4
Lomandra sericea	+	0.4
Lyginia barbata	+	0.4
Lyginia barbata	+	0.4
Macarthuria australis	+	0.4
Mesomelaena pseudostygia	+	0.4
Mesomelaena pseudostygia	+	0.3
Patersonia occidentalis var. *occidentalis*	+	0.5

Petrophile linearis	+	0.3
Philotheca spicata	+	1
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.4
Rubus laudatus	+	0.2
Scaevola repens var. *repens*	+	0.1
Schoenus efoliatus	1	0.4
Stirlingia latifolia	+	0.5
Stylidium cygnorum	+	0.1
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.1
Ursinia anthemoides	+	0.1
Xanthorrhoea preissii	+	1

Site: SVB015
Described: CvdB **Date**: 24/09/2014 **Type:** Relevés
MGA Zone: 50 397553mE; 6476821mN

Habitat: Drainage line, low
Soil: grey brown sandy loam, organic?
Rock Type: None
Vegetation: *Melaleuca preissiana* sparse low woodland over *Xanthorrhoea preissii* sparse mid shrubland over *Ehrharta calycina* and *Briza maxima* sparse low grassland
Condition: Degraded - completely degraded
Fire Age: >10 years
Notes: Leaf Litter: 40%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Briza maxima	8	0.3
Dasypogon bromeliifolius	+	0.3
Ehrharta calycina	12	0.4
Gladiolus caryophyllaceus	+	0.6
Hakea varia	+	1.6
Melaleuca preissiana	7	10
Xanthorrhoea preissii	6	1.6

Site: SVB015A
Described: CvdB **Date**: 24/09/2014 **Type:** Relevés
MGA Zone: 50 397547mE; 6476854mN
Habitat: gentle slope to the south into drainage line, mid-slope
Vegetation: *Corymbia calophylla* isolated clumps of mid trees over *Xanthorrhoea preissii* sparse mid shrubland over *Ehrharta calycina* and *Briza maxima* sparse low grassland
Condition: Degraded
Fire Age: >10 years

SPECIES LIST:

Name	Cover
Briza maxima	8
Corymbia calophylla	+
Ehrharta calycina	12
Xanthorrhoea preissii	2

Site: SVB016
Described: BL **Date**: 25/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 398383mE; 6474225mN
Habitat: Undulating plain, gentle east slope, midslope
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia menziesii*, *Nuytsia floribunda* and *Allocasuarina fraseriana* low woodland over *Allocasuarina humilis* open mid shrubland over *Eremaea pauciflora* var. *pauciflora*, *Hibbertia hypericoides*, *Gompholobium tomentosum* and *Melaleuca seriata* open low shrubland over *Mesomelaena pseudostygia* and *Lyginia barbata* sparse low sedgeland
Condition: Very godd
Fire Age: >10 years
Notes: Leaf Litter: 50%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia willdenowiana	+	0.3
Alexgeorgea nitens	1	0.2
Allocasuarina fraseriana	3	6
Allocasuarina humilis	25	1.7
Amphipogon turbinatus	+	0.2
Anigozanthos humilis subsp. *humilis*	+	0.2
Banksia menziesii	25	5
Bossiaea eriocarpa	+	0.4
Briza maxima	1	0.2
Bromus diandrus	+	0.1
Burchardia congesta	+	0.6
Caladenia flava subsp. *flava*	+	0.2
Conostephium preissii	+	0.5
Conostylis aculeata subsp. *cygnorum*	+	0.3
Conostylis teretifolia subsp. *teretifolia*	+	0.1
Daviesia triflora	+	0.5
Desmocladus flexuosus	+	0.2
Drosera macrantha	+	cr
Ehrharta calycina	1	0.8
Eremaea pauciflora var. *pauciflora*	3	0.8
Gladiolus caryophyllaceus	+	0.6
Gompholobium tomentosum	2	0.7
Haemodorum laxum	+	0.4
Heliophila pusilla	+	0.2
Hibbertia huegelii	+	0.2
Hibbertia hypericoides	20	0.8
Hypochaeris glabra	+	0.1
Jacksonia floribunda	+	1
Lepidosperma apricola	+	0.4
Lomandra hermaphrodita	+	0.2
Lomandra preissii	+	0.5
Lomandra sericea	+	0.4
Lyginia barbata	2	0.5
Melaleuca seriata	2	0.8
Mesomelaena pseudostygia	2	0.5
Nuytsia floribunda	4	5.5
Patersonia occidentalis var. *occidentalis*	1	0.5
Petrophile linearis	+	0.6
Romulea rosea	+	0.2

Scholtzia aff. involucrata EAG 5500	1	0.4
Stirlingia latifolia	+	1
Stylidium repens	+	0.1
Thysanotus manglesianus	+	cr
Thysanotus sparteus	+	1.2
Urospermum picroides	+	0.1
Ursinia anthemoides	1	0.3
Wahlenbergia capensis	+	0.1

Site: SVB017
Described: BL **Date**: 25/09/2014 **Type:** Relevés
MGA Zone: 50 400032mE; 6474422mN
Habitat: Plain, very gentle east slope
Soil: Grey sand
Rock Type: None
Vegetation: *Corymbia calophylla* and *Eucalyptus rudis* subsp. *rudis* isolated clumps of low trees over *Jacksonia furcellata* sparse tall shrubland over *Xanthorrhoea preissii* and *Hypocalymma angustifolium* sparse mid shrubland over *Ehrharta calycina*, *Bromus diandrus* and *Ehrharta longiflora* closed mid grassland
Condition: Completely degraded
Fire Age: >10 years
Notes: Leaf Litter: 70%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Bromus diandrus	2	0.6
Carpobrotus edulis	2	0.3
Chamaecytisus palmensis	1	2.5
Corymbia calophylla	3	9
Ehrharta calycina	90	0.9
Ehrharta longiflora	3	0.5
Eucalyptus rudis subsp. *rudis*	2	8
Hypocalymma angustifolium	2	1
Jacksonia furcellata	5	4
Ricinus communis	2	3
Romulea rosea	2	0.4
Xanthorrhoea preissii	2	1.6

Site: SVB018
Described: BL **Date**: 25/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 400341mE; 6474340mN
Habitat: Floodplain, very gentle east slope, low
Soil: Grey black sand
Rock Type: None
Vegetation: *Eucalyptus rudis* subsp. *rudis* open mid forest over *Pteridium esculentum* subsp. *esculentum* tall herbland with *Hardenbergia comptoniana* over *Opercularia hispidula* isolated low herbs
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 100%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Briza maxima	+	0.2
Eucalyptus rudis subsp. *rudis*	60	20
Hardenbergia comptoniana	8	cr
Hesperantha falcata	+	0.3
Lepidosperma longitudinale	+	1
Opercularia hispidula	2	0.4
Pteridium esculentum subsp. *esculentum*	60	1.8
Trifolium micranthum	+	0.1

Site: SVB019
Described: BL **Date**: 23/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397312mE; 6478177mN
Habitat: Undulating plain, lowerslope, gentle SW slope
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia attenuata* and *Banksia menziesii* sparse low woodland over *Xanthorrhoea preissii*, *Calytrix fraseri* Ellenbrook Form and *Verticordia nitens* open mid shrubland over *Hibbertia hypericoides* and *Leucopogon conostephioides* sparse low shrubland over *Patersonia occidentalis* subsp. *occidentalis* isolated mid herbs
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 50%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia willdenowiana	+	0.4
Aira cupaniana	+	0.1
Alexgeorgea nitens	+	0.1
Amphipogon turbinatus	+	0.4
Anigozanthos humilis subsp. *humilis*	+	0.3
Arctotheca calendula	+	0.2
Astroloma xerophyllum	+	0.4
Austrostipa compressa	+	0.2
Austrostipa compressa	+	0.1
Banksia attenuata	7	6
Banksia menziesii	3	6
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.2
Briza minor	+	0.1
Bromus diandrus	+	0.1
Burchardia congesta	+	0.5
Caladenia flava subsp. *flava*	+	0.1
Calandrinia corrigioloides	+	0.1
Calytrix angulata	+	0.3
Calytrix fraseri forma Ellenbrook	10	1.5
Centrolepis drummondiana	+	0.1
Conostephium preissii	+	0.3
Crassula colorata var. *colorata*	+	0.1
Dampiera linearis	+	0.1
Dasypogon bromeliifolius	+	0.3
Daviesia triflora	+	0.4
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	0.1
Drosera pallida	+	cr
Gladiolus caryophyllaceus	+	0.5
Gompholobium tomentosum	+	0.2
Hibbertia aurea	+	0.4
Hibbertia hypericoides	10	0.6
Hibbertia subvaginata	+	0.2
Hyalosperma cotula	+	0.1
Hypochaeris glabra	+	0.1
Leporella fimbriata	+	0.1

Leucopogon conostephioides	5	0.4
Levenhookia stipitata	+	0.1
Lomandra caespitosa	+	0.2
Lomandra hermaphrodita	+	0.1
Lyginia barbata	+	0.5
Millotia tenuifolia var. *laevis*	+	0.1
Patersonia occidentalis var. *occidentalis*	1	0.5
Petrophile linearis	+	0.3
Philotheca spicata	+	0.4
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.1
Quinetia urvillei	+	0.1
Sonchus oleraceus	+	0.1
Stirlingia latifolia	+	0.6
Stylidium androsaceum	+	0.2
Stylidium repens	+	0.1
Stylidium saxifragoides	+	0.2
Thysanotus thyrsoideus	+	0.3
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.1
Verticordia nitens	1	1.2
Vulpia bromoides	+	0.1
Wahlenbergia capensis	+	0.1
Wahlenbergia preissii	+	0.1
Xanthorrhoea preissii	10	1.9

Site: SVB020
Described: BL **Date**: 23/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397321mE; 6478441mN
Habitat: Plain, very gently SE slope
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia menziesii*, *Allocasuarina fraseriana* and *Nuytsia floribunda* isolated low trees over *Xanthorrhoea preissii* sparse tall shrubland over *Verticordia nitens* sparse mid shrubland over *Eremaea pauciflora* var. *pauciflora* and *Scholtzia* aff. involucrata sparse low shrubland over *Patersonia occidentalis* subsp. *occidentalis* and *Dasypogon bromeliifolius* sparse mid herbland over *Lyginia barbata* sparse mid sedgeland
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 10%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Aira cupaniana	+	0.1
Alexgeorgea nitens	+	0.1
Allocasuarina fraseriana	1	4
Arnocrinum preissii	+	0.4
Austrostipa compressa	+	0.2
Banksia menziesii	1	2
Bossiaea eriocarpa	+	0.2
Bromus diandrus	+	0.1
Caladenia flava subsp. *flava*	+	0.1
Calytrix flavescens	+	0.3
Centrolepis drummondiana	+	0.1
Crassula colorata var. *colorata*	+	0.1
Dampiera linearis	+	0.2
Dasypogon bromeliifolius	1	0.3
Eremaea pauciflora var. *pauciflora*	8	0.9
Gladiolus caryophyllaceus	+	0.5
Gompholobium tomentosum	+	0.3
Haemodorum spicatum	+	0.4
Hibbertia hypericoides	+	0.2
Hibbertia subvaginata	+	0.3
Hyalosperma cotula	+	0.1
Hypocalymma robustum	+	0.4
Hypochaeris glabra	+	0.2
Hypolaena exsulca	+	0.3
Isolepis marginata	+	0.1
Laxmannia ramosa subsp. *ramosa*	+	0.1
Lepidosperma apricola	+	0.3
Leucopogon conostephioides	+	0.5
Leucopogon polymorphus	+	0.3
Lomandra caespitosa	+	0.2
Lomandra hermaphrodita	+	0.2
Lomandra sericea	+	0.3
Lyginia barbata	6	0.6
Millotia tenuifolia var. *laevis*	+	0.1
Nuytsia floribunda	+	4
Patersonia occidentalis var. *occidentalis*	6	0.6
Pentaschistis airoides	+	0.1

Petrophile linearis	+	0.3
Phlebocarya ciliata	+	0.4
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.2
Prasophyllum parvifolium	+	0.4
Schoenus curvifolius	+	0.2
Scholtzia aff. involucrata EAG 5500	2	0.4
Stylidium androsaceum	+	0.2
Stylidium araeophyllum	+	0.1
Stylidium repens	+	0.1
Stylidium saxifragoides	+	0.2
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.3
Verticordia nitens	5	1.5
Wahlenbergia capensis	+	0.1
Wahlenbergia preissii	+	0.1
Xanthorrhoea preissii	5	2.5

Site: SVB021
Described: BL **Date**: 23/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397322mE; 6478846mN
Habitat: plain, very gentle SE slope
Soil: Grey sand
Rock Type: None
Vegetation: *Corymbia calophylla* and *Eucalyptus marginata* subsp. *thalassica* sparse mid woodland over *Banksia menziesii* and *Allocasuarina fraseriana* sparse low woodland over *Xanthorrhoea preissii* sparse mid shrubland over *Patersonia occidentalis* subsp. *occidentalis*, *Dasypogon bromeliifolius* and *Phlebocarya ciliata* open mid herbland
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 80%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Acacia stenoptera	+	0.3
Acacia willdenowiana	+	0.3
Alexgeorgea nitens	+	0.1
Allocasuarina fraseriana	2	5
Banksia menziesii	2	5
Burchardia congesta	+	0.7
Caladenia flava subsp. *flava*	+	0.2
Conostephium preissii	+	0.5
Conostylis juncea	+	0.2
Corymbia calophylla	8	17
Dampiera linearis	+	0.3
Dasypogon bromeliifolius	3	0.4
Diuris tinkeri	+	0.2
Drosera erythrorhiza	+	0.1
Drosera pallida	+	cr
Eriochilus dilatatus subsp. *dilatatus*	+	0.1
Eucalyptus marginata subsp. *thalassica*	2	4
Gladiolus caryophyllaceus	+	1
Hibbertia hypericoides	+	0.5
Hibbertia subvaginata	+	0.3
Hypocalymma robustum	+	0.8
Hypochaeris glabra	+	0.1
Hypolaena exsulca	+	0.3
Laxmannia ramosa subsp. *ramosa*	+	0.2
Lepidosperma apricola	+	0.3
Lomandra hermaphrodita	+	0.2
Lomandra preissii	+	0.4
Lomandra sericea	+	0.4
Lyginia barbata	+	0.5
Opercularia vaginata	+	
Patersonia occidentalis var. *occidentalis*	40	0.7
Phlebocarya ciliata	1	0.3
Pterostylis sanguinea	+	0.3
Pterostylis sp. cauline leaves (N. Gibson & M.N. Lyons 1490)	+	0.1
Scaevola repens var. *repens*	+	0.3
Sonchus oleraceus	+	0.1
Stylidium androsaceum	+	0.2
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.3

Ursinia anthemoides	+	0.2
Wahlenbergia preissii	+	0.1
Xanthorrhoea preissii	4	1.6

Site: SVB022
Described: BL **Date**: 23/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397451mE; 6478983mN
Habitat: Plain, very gentle west slope
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia attenuata*, *Banksia menziesii*, *Banksia ilicifolia* and *Allocasuarina fraseriana* low woodland over *Xanthorrhoea preissii* sparse mid shrubland over *Scholtzia* aff. involucrata, *Eremaea pauciflora* var. *pauciflora*, *Hibbertia hypericoides* and *Calytrix flavescens* sparse low shrubland over *Patersonia occidentalis* subsp. *occidentalis* open mid herbland
Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 75%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Alexgeorgea nitens	+	0.1
Allocasuarina fraseriana	1	4
Austrostipa compressa	+	0.1
Banksia attenuata	15	5
Banksia ilicifolia	1	4
Banksia menziesii	20	6
Bossiaea eriocarpa	+	0.4
Burchardia congesta	+	0.4
Caladenia flava subsp. *flava*	+	0.1
Calytrix flavescens	1	0.3
Conostephium preissii	+	0.3
Dampiera linearis	+	0.1
Dasypogon bromeliifolius	+	0.2
Drosera erythrorhiza	+	0.1
Drosera pallida	+	pr
Eremaea pauciflora var. *pauciflora*	2	0.8
Gastrolobium linearifolium	+	0.2
Gladiolus caryophyllaceus	+	0.3
Gompholobium confertum	+	0.2
Hibbertia aurea	+	0.3
Hibbertia huegelii	+	0.4
Hibbertia hypericoides	1	0.6
Hibbertia sericosepala	+	0.3
Hibbertia subvaginata	+	0.4
Hovea trisperma var. *trisperma*	+	0.3
Hyalosperma cotula	+	0.1
Hypocalymma robustum	+	0.7
Hypochaeris glabra	+	0.1
Jacksonia floribunda	+	1.2
Lepidosperma apricola	+	0.3
Lepidosperma apricola	+	
Leporella fimbriata	+	0.1
Leucopogon conostephioides	+	0.2
Leucopogon conostephioides	+	0.5
Lomandra caespitosa	+	0.2
Lomandra caespitosa	+	0.1
Lomandra hermaphrodita	+	0.2
Lomandra nigricans	+	0.3
Lomandra preissii	+	0.3

Lomandra sericea	+	0.3
Lyginia barbata	+	0.3
Patersonia occidentalis var. *occidentalis*	25	0.6
Petrophile linearis	+	0.5
Philotheca spicata	+	0.5
Phlebocarya ciliata	+	0.3
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.1
Schoenus curvifolius	+	0.3
Scholtzia aff. involucrata EAG 5500	5	0.7
Stylidium saxifragoides	+	0.3
Trachymene pilosa	+	0.1
Tricoryne elatior	+	0.3
Tricoryne elatior	+	0.3
Ursinia anthemoides	+	0.1
Wahlenbergia preissii	+	0.1
Xanthorrhoea gracilis	+	0.4
Xanthorrhoea preissii	5	1.8
Xanthosia huegelii	+	0.1

Site: SVB023
Described: BL **Date**: 23/09/2014 **Type:** Quadrat 10x10 m
MGA Zone: 50 397478mE; 6478534mN
Habitat: Plain, very gentle south slope
Soil: Grey sand
Rock Type: None

Vegetation: *Corymbia calophylla* isolated mid trees over *Calytrix fraseri* Ellenbrook Form, *Verticordia nitens* and *Xanthorrhoea preissii* open mid shrubland over *Eremaea asterocarpa* subsp. *asterocarpa*, *Scholtzia* aff. involucrata and *Leucopogon conostephioides* sparse low shrubland over *Patersonia occidentalis* subsp. *occidentalis* and *Dasypogon bromeliifolius* open mid herbland over *Lyginia barbata* and *Lyginia imberbis* isolated low sedges

Condition: Excellent
Fire Age: >10 years
Notes: Leaf Litter: 20%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	+	0.1
Aira cupaniana	+	0.2
Alexgeorgea nitens	+	0.2
Amphipogon turbinatus	+	0.2
Austrostipa compressa	+	0.3
Austrostipa compressa	+	0.1
Bossiaea eriocarpa	+	0.3
Briza maxima	+	0.3
Bromus diandrus	+	0.1
Burchardia congesta	+	0.6
Caladenia flava subsp. *flava*	+	0.1
Calytrix flavescens	+	0.2
Calytrix fraseri forma Ellenbrook	20	1.6
Corymbia calophylla	3	20
Dasypogon bromeliifolius	2	0.2
Daviesia physodes	+	
Drosera erythrorhiza	+	0.1
Drosera pallida	+	cr
Ehrharta calycina	+	0.5
Eremaea asterocarpa subsp. *asterocarpa*	3	0.8
Gladiolus caryophyllaceus	+	0.6
Gompholobium scabrum	+	0.6
Hibbertia subvaginata	+	0.3
Hyalosperma cotula	+	0.1
Hypocalymma robustum	+	0.2
Hypochaeris glabra	+	0.1
Isolepis marginata	+	0.1
Lechenaultia floribunda	+	0.3
Lepidosperma apricola	+	0.3
Leucopogon conostephioides	1	0.5
Lomandra hermaphrodita	+	0.1
Lomandra sericea	+	0.3
Lyginia barbata	1	0.5
Lyginia imberbis	1	0.5
Patersonia occidentalis var. *occidentalis*	20	0.6
Pentaschistis airoides	+	0.1
Philotheca spicata	+	0.5

Phlebocarya ciliata	+	0.3
Phyllangium paradoxum	+	0.1
Podotheca gnaphalioides	+	0.1
Regelia ciliata	+	
Schoenus curvifolius	+	0.3
Scholtzia aff. involucrata EAG 5500	2	0.6
Stylidium androsaceum	+	0.1
Stylidium repens	+	0.1
Thysanotus thyrsoideus	+	0.4
Trachymene pilosa	+	0.1
Ursinia anthemoides	+	0.2
Verticordia nitens	3	1.4
Wahlenbergia capensis	+	0.1
Wahlenbergia preissii	+	0.1
Xanthorrhoea preissii	3	1.5

Site: SVB024
Described: BL **Date**: 22/09/2014 **Type**: Quadrat 10x10 m
MGA Zone: 50 397233mE; 6479291mN
Habitat: Crest of dune, gentle SE slope, low
Soil: Grey sand
Rock Type: None
Vegetation: *Banksia attenuata* and *Banksia menziesii* low woodland over *Adenanthos cygnorum* subsp. *cygnorum* sparse tall shrubland over *Beaufortia elegans* and *Allocasuarina humilis* mid shrubland over *Scholtzia* aff. involucrata, *Calytrix flavescens*, *Calytrix angulata* and *Calytrix fraseri* sparse low shrubland
Condition: Pristine
Fire Age: >10 years
Notes: Leaf Litter: 70%
Rock size: N/A
Exposed rock: 0%
Rock Cover: 0%

SPECIES LIST:

Name	Cover (%)	Height (m)
Adenanthos cygnorum subsp. *cygnorum*	20	3.2
Alexgeorgea nitens	+	0.1
Allocasuarina humilis	4	1.3
Amphipogon turbinatus	+	0.4
Amphipogon turbinatus	+	0.3
Arnocrinum preissii	+	0.5
Astroloma xerophyllum	+	0.9
Austrostipa compressa	+	0.1
Banksia attenuata	2	5
Banksia menziesii	30	6
Beaufortia elegans	50	1.4
Boronia ramosa subsp. *anethifolia*	+	0.3
Bossiaea eriocarpa	+	0.4
Burchardia congesta	+	0.5
Calytrix angulata	2	0.4
Calytrix flavescens	2	0.3
Calytrix fraseri	2	0.2
Calytrix fraseri	+	0.4
Daviesia triflora	+	0.8
Desmocladus flexuosus	+	0.2
Drosera erythrorhiza	+	0.1
Drosera macrantha	+	cr
Eucalyptus todtiana	+	
Gladiolus caryophyllaceus	+	0.6
Hemiandra linearis	+	0.3
Hibbertia hypericoides	+	0.4
Hibbertia subvaginata	+	0.3
Jacksonia floribunda	+	0.6
Laxmannia squarrosa	+	0.3
Leptospermum spinescens	+	0.6
Leucopogon conostephioides	+	0.3
Leucopogon polymorphus	+	
Lomandra hermaphrodita	+	0.2
Lomandra sericea	+	0.3
Lomandra suaveolens	+	0.5
Lyginia imberbis	+	0.7
Lysinema pentapetalum	+	
Patersonia occidentalis var. *occidentalis*	+	0.5
Petrophile linearis	+	0.3