Vegetation and Flora of the Mt Pleasant Mining Area, Kalgoorlie West Operations

A REPORT PREPARED FOR PLACER DOME INC.

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April 2005

Table of Contents

1. Introduction

Over recent years it has become increasingly important for mining companies to have accurate information on the plant species and vegetation found across their lease areas. In particular, new clearing legislation introduced in 2004, as amendments to the Environmental Protection Act 1986, make it illegal to clear native vegetation without a permit (unless exempt for various reasons). Permits are granted to clear vegetation for either a specific locality or for a number of places over a specified area and time range as long as there are no likely significant environmental impacts. Such impacts include those on biodiversity, with particular attention paid to protecting rare and/or threatened plant species and plant communities. Knowledge of vegetation patterns over mining lease areas is not only important to obtain clearing permits, but should also help in planning and environmental decision making in general and lead to better informed land management. Placer Dome has conducted numerous vegetation surveys over selected areas in the past, but has never conducted surveys over the entire lease area. Placer Dome initiated research into vegetation patterns of lease areas in January 2005 to enable mapping of vegetation units over large scale areas to be completed.

Although it is becoming standard practice in impact assessment to identify plant communities and assess their conservation significance based on rarity, threats and other attributes in a similar way of thinking to that done for species, it is important to appreciate differences between species and communities. Plant communities, unlike most species (accepting that some species boundaries are also not clear cut) are rarely discrete entities and usually have continuous variation in terms of species composition (or floristics) as well as spatially (gradual transitions common). This reflects the widely accepted view that plant species primarily respond individually to key environmental factors (moisture, nutrients, temperature etc) rather than being controlled by interactions with other species. Classification procedures attempt to divide this continuous variation into discrete types but these should really be viewed as abstract entities used to help us describe and understand vegetation patterns. Where the physical environment is highly sorted and strongly patterned, such as is generally the case in the Goldfields, distinct vegetation units with reasonable clear boundaries can sometimes be observed in the field. However even where discrete patches of a particular vegetation type can be identified (such as similar vegetation of a certain landform or land unit), each patch will be different, to some degree, to the others. With increasing distance apart, it is more likely that patches will vary due to chance events and environmental differences linked to climatic gradients and other factors. In this respect, assessment of significance at a regional scale is somewhat flawed as regional differences within broad types of vegetation are to be expected. Therefore it is not unexpected for the salmon gum woodland of broad valley systems in the central Goldfields to be floristically different, at least to some degree, from those in the eastern or southern Goldfields.

Another critical issue in vegetation assessment relates to choosing an appropriate scale and level of abstraction. Typically vegetation can be classified as a hierarchy with broad vegetation types dividable into several subtypes, which further divide into many smaller vegetation units and so on. With each level in the hierarchy the differences in terms of species become more subtle until differences between each site or patch of vegetation are revealed. The most appropriate point to cut this hierarchy is always a contentious issue and difficult decision. The more vegetation units that are defined by the classification (or in other words a lower cut-off of the hierarchy) the less distinct they will be in terms of floristics (i.e. plant species composition). Also, the more units and the greater likelihood that some of them will be found to be restricted in distribution within the region.

Mt Pleasant is an active mine area to the west of the Paddington operations of Placer Dome and forms an integral part of the operations of the company. The Mount Pleasant area has been subject to relatively intensive mining activity for the last 100 years, however large scale open pit mining operations have occurred since the late 1980's. The area has also been operated as a Pastoral station during this time and has historically been heavily grazed. Purchase of the Black Flag Pastoral station in the late 1990's and subsequent reduction in stocking numbers has significantly reduced grazing pressure.

This report describes plant communities and flora for the Mt Pleasant active mining area. The boundaries of this area are shown in Fig. 1. The area is approximately 90 km^2 in size and represents the largest active mining area in the district.

The specific objectives of this research were to:

1) Survey flora of Mt Pleasant mining area;
2) Delineate, describe and map plant communities for the Mt Pleasant mining area;
3) Assess the conservation significance of plant communities and species found in the Mt Pleasant mining area

This information will be used in future planning within the Mt Pleasant area and will assist in the assessment of the significance of the vegetation.

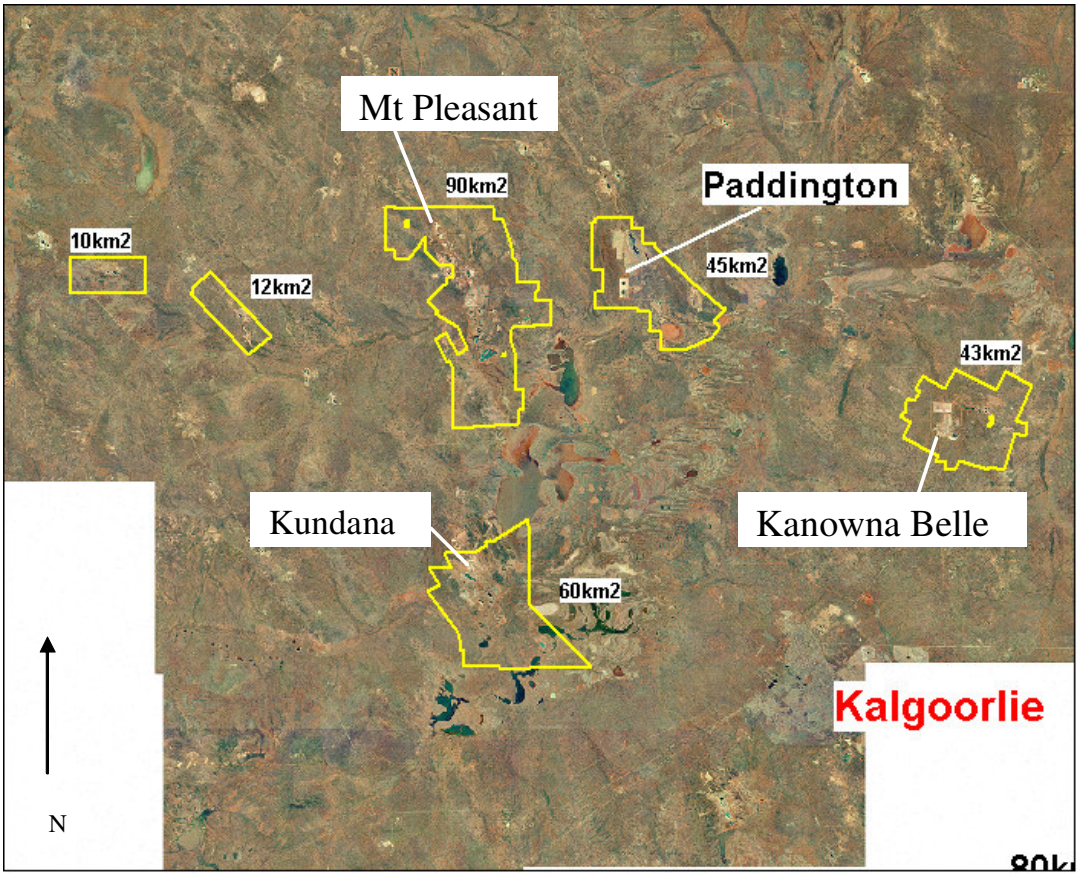

Figure 1. Aerial photograph of Kalgoorlie Operations showing active mining areas at which ground truthing of vegetation communities was conducted.

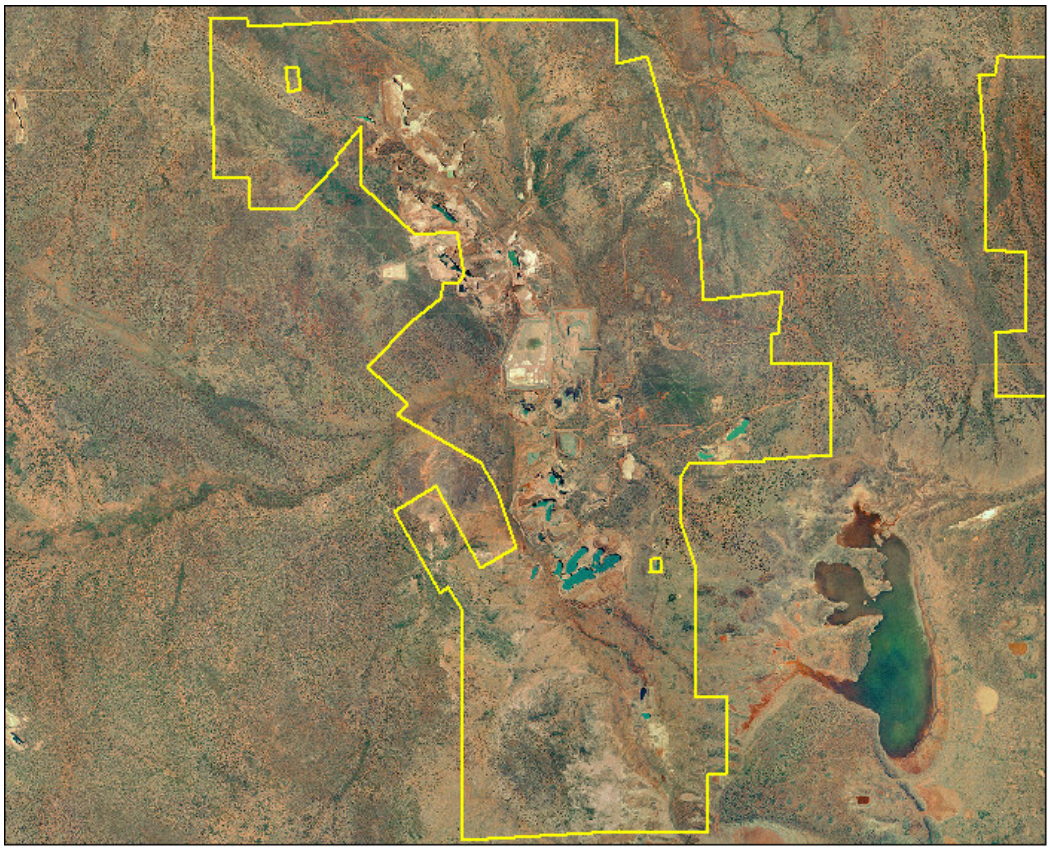

Figure 2. Aerial photograph of Mt Pleasant mining area showing boundaries of study area. Paddington mine area boundary lies to the east.

2. Methods

The sampling strategy revolved around stratification of the study area by "land units" which were units of surface geology/topography classified and mapped for Placer Dome by a consultant geomorphologist and available in digital format via a GIS. Most of the land units are grouped by related landforms; for instance units Da1, Da2 and Da3 are types of drainage lines, but differing in stream size and order.

As plant communities respond to environmental factors such as moisture, soil type and pH and nutrients, it was anticipated that vegetation patterns would to some degree reflect the underlying land units. Provided the relationship between the land units and vegetation types proved to be strong and clear, the land unit map could be used a predictive tool for areas in which field work was not conducted.

During fieldwork conducted in 2005, 10 out of the 23 land units within the Mt Pleasant study area were sampled twice, with the remainder sampled once (leading to a total of 33 study sites in the Mt Pleasant area). Ground truthing was also carried out at the Paddington, Kundana and Kanowna Belle areas leading a total of 94 study sites over the Kalgoorlie lease area.

Sampling within each land unit was based on the relevè method where no formal plot boundaries are established, but rather vegetation is measured and sampled over a representative area of the land unit. This was deemed appropriate given the open woodland structure of much of the study area. Care was taken not to cross land unit boundaries and generally the area surveyed did not exceed 50 x 50 m. Within each relevè, the average % ground cover of each plant species was estimated and converted to a scale from 0 to 5, where:

+ = <1% cover: uncommon across sampling area
1 = approx. 1 % cover over sampling area
2 = 2-5% cover
3 = 6-10% cover
4 = 11-19% cover
5 = >20% cover

Where species couldn't be positively identified in the field they were collected for identification using available keys and floras. In this study, field measurements and identification was performed by the Placer Dome environmental team, with collected specimens identified/confirmed by Eddie van Etten based on available floras/keys and his herbarium collection of species collected from other active mine areas of the Kalgoorlie lease area.

In addition to cover of each species, the following were measured or described at each relevè/plot: soil structure; surface stone cover and stone size range; AGR position using a GPS; and notes on vegetation condition and structure/physiognomy. Soils (top 5 cm) were collected and analysed for pH and conductivity. Again field data was collected by Placer Dome with lab analysis performed by E van Etten at ECU.

Data Analysis

A site x site similarity matrix was constructed using the Bray Curtis similarity measure which compares pairs of sites in terms of species present and, in this case, their cover score (0.1 to 5). Numerical clustering procedures (within PRIMER statistical package) were used on this similarity matrix to produce classification dendrograms – both employed a group averaging procedure where sites joined together were averaged before comparing to other sites/groups. The first classification was produced using actual similarity measures, with the second using rank similarities. An ordination was also performed on the similarity matrix using a multidimensional scaling (MDS) procedure (again within PRIMER). MDS attempts to graphically display the similarities between sites as relative distances in, this case, two dimensional plots.

3. Results

Flora

A total of 94 taxa were collected from the 33 sites at Mt Pleasant. Due to lack of flowering/fruiting material on most samples collected, a small number were not fully identified to species rank. As sampling occurred during a dry period, almost no annual or other short lived species were collected.

A complete species list is provided in Appendix 3.

Of those species identified to species or lower taxonomic rank, none were found to be classified as DRF or Priority Flora by CALM. The following taxa however are of interest:

1) *Eremophila pustulata* (warty eremophila) was several years ago a P3 taxa, but is now assessed as “not threatened” by CALM and has been collected many times in a 100 km radius around Kalgoorlie;
2) *Eremophila parvifolia* subsp. *auricampa* found in the study area is not threatened, although the closely related *Eremophila parvifolia* subsp. parviflora is a P4 taxa found further south near Esperance;

Voucher specimens of each taxa will be lodged in the ECU (Joondalup) Herbarium. Extra samples of unknown or unconfirmed taxa, as well as interesting taxa or specimens with intact flowering and/or fruiting parts, will be sent to WA State Herbarium to contribute to their collection. The authority for common names and taxonomic nomenclature is WA Herbarium online database known as Florabase (www.calm.wa.gov.au/florabase) as of March 2004.

Several species collected show complex variation patterns and can be difficult to tell apart from related taxa. Others need more taxonomic work to clarify their status. Some taxonomic issues of note include:

- *Acacia burkittii* (common in upland areas) was preferred to *A. acuminata* subsp. *burkittii* in line with Florabase and Wattle: Acacias of Australia CD-ROM, although a slightly different variety with longer, broader phyllodes which resembles *A. acuminata* (narrow phyllode variant) ms was occasionally found on heavier soil. This variant is normally found south of Kalgoorlie, whilst A. burkittii is generally distributed north and west of Kalgoorlie.

- *Acacia masliniana* resembles several other terete leaved *Acacia* spp. (including *A. eremophila, A.densiflora* and *A. rigens* - all found in the region) and without fruiting/flowering samples it is difficult to confirm identification.

- *Halosarcia halocnemoides* is a complex species with many known subspecies and varieties; the need for taxonomic revision has been warranted for some time (Datson 2004). In this study the common samphire shrub of heavy alkaline soil (often growing with salmon gum) was identified as *Halosarcia halocnemoides* subsp. *halocnemoide*s, a widespread species of saline areas across Australia, although lack of fruiting material made identification difficult. Another low shrub form, but with thick, gnarled trunks, was found in saltmarsh area around saltlakes – this was identified as *Halosarcia halocnemoides* form 'a' after specimens collected at Lake Austin by the author and confirmed by the samphire expert Dr Paul Wilson. Datson (2004) refers to this taxa as *Halosarcia halocnemoides* aff. subsp. *halocnemoides.*

- There are two species of eucalypts commonly known as blackbutt north of Kalgoorlie. At Mt Pleasant, *Eucalyptus clelandii* is found – this species has smaller fruits and buds than the other blackbutt species (*E. lesouefii*). However some intermediate forms occur to the east of the study area suggesting possible introgressive hybrdisation between these two species. A study of variation patterns within and between these two species in the Goldfields region would be of scientific interest.

Vegetation Classification

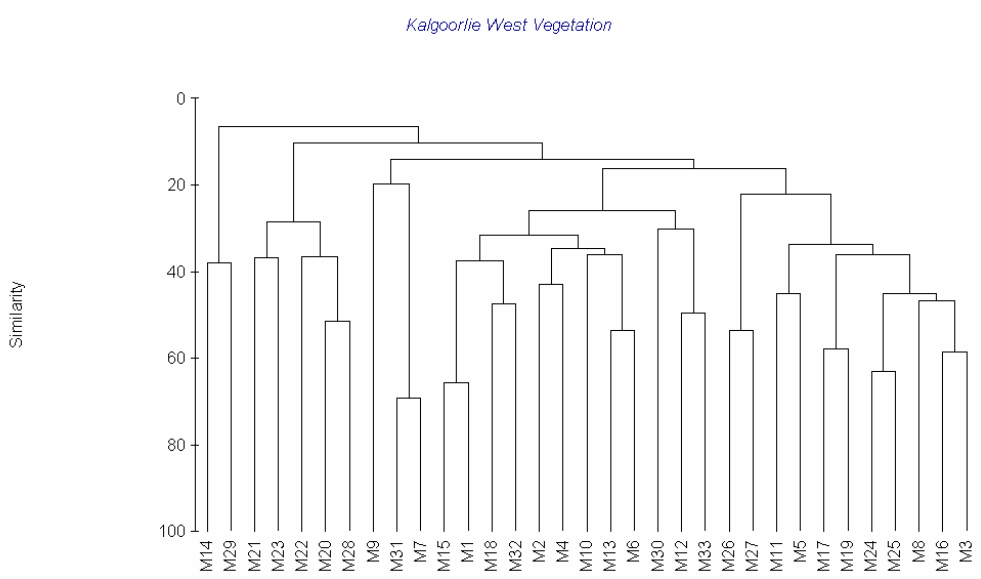

Figure 4: Classification of sites based on actual Bray-Curtis similarities between sites of floristic data (cover score of each species) using a group averaging technique.

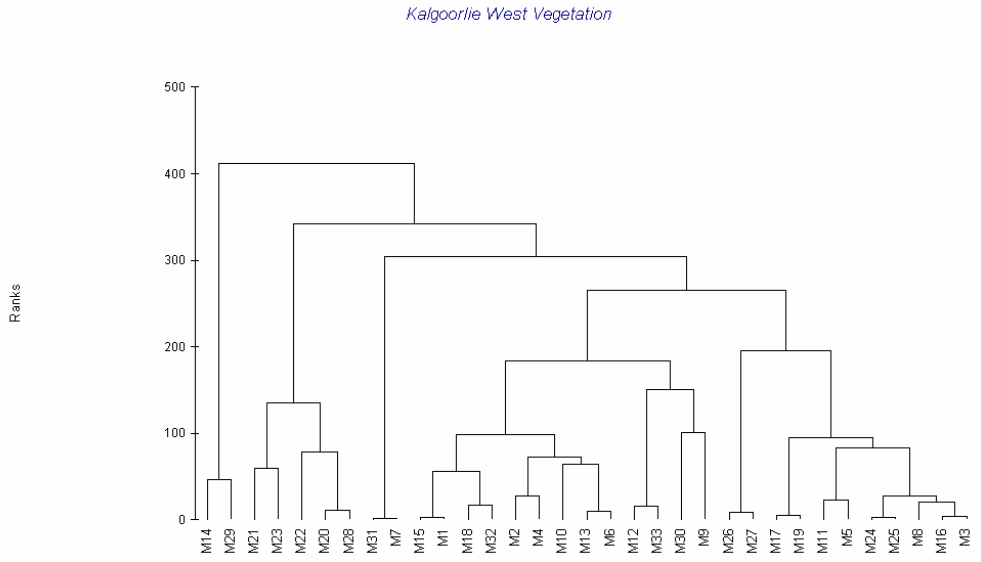

Figure 5: Classification of sites based on ranked similarities between sites of floristic data (cover score of each species) using a group averaging technique.

The two classifications (Fig.s 4 & 5) show similar grouping of sites. At 30% level of similarity approximately 6 main groups of sites are identifiable (Fig.4): i) sites M14 & M29; ii) M20-23 & M28; iii) M7 & M31; iv) M26 & M27; v) M11, M5, M17, M19, M24, M25, M8, M16 & M3; and vi) remaining sites. Very similar groups are revealed at the 200 rank level (Figure 5), although some sites (eg M9) were placed in different groups.

Vegetation Ordination

The ordination (Fig. 6) showed generally continuous floristic variation across the study area with the exception of some outlying sites which demonstrated some degree of floristic uniqueness compared to other sites (eg M29 and M14). Generally sites on drainage lines and flats were reasonable separate from others at the right side of the ordination (Fig. 6) with sites on hill tops and upper slopes towards the right of the ordination. Salmon gum woodlands occurring on lower slopes formed a cluster of sites between these two groups which suggest that the general floristic gradient running from left to right across the ordination space is linked to a topo-sequence from hill top to valley floor/drainage line. Two sites of blackbutt woodland (M31 & M7) are reasonable distinct at the top of ordination.

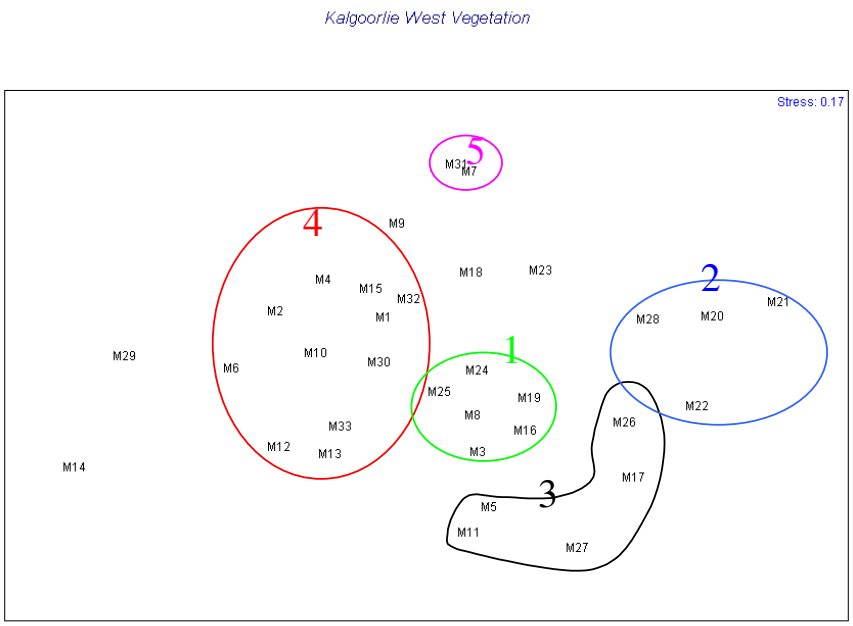

Figure 6. MDS ordination of sites based on rank Bray Curtis similarities between sites. Distinct groups corresponding to plant communities described below are delineated.

Vegetation Description

Interpretation of the main groupings and patterns revealed in both the classifications and ordination confirmed five floristic groups, hereafter called plant communities and described below:

Community 1: Open woodland of *Eucalyptus salmonophloia* with understorey of mixed chenopod shrubs.
Landforms: Lower slopes near floodplains on deep sandy loams
Sites: M25 (DvS); M24 (Dp3); M19 (Eo/c); M16 (Dpw2); M8 (Fp3); M3 (Rp3)
Description: Cover of salmon gum (*Eucalyptus salmonophloia*) varies from 15% to less than 5%. There are also occasional clumps of *E. transcontinentalis* and *E. salubris* trees and scattered *Casuarina pauper*. Common understorey shrubs include *Maireana sedifolia, Atriplex vesicaria, Atriplex nummularia* and *Halosarcia halocnemoides* subsp. *halocnemoides* . These shrubs together may cover up to 30% of the land surface, and which of these shrub species dominates changes from site to site seemingly in response to edaphic factors. Other common shrubs include *M. georgei Olearia incana*, *Cratystylis subspinescens, Senna artemisioides* subsp. f*ilifolia* and *Eremophila scoparia*.

Community 2: Mixed *Halosarcia* low shrubland with *Eremophila miniata – Acacia masliniana* open shrubland
Landforms: Margins, flats and small dunes around salt lakes
Sites: M28 (Ddw); M20 (Ep2); M21 (Ep3); M22 (DdS)
Description: Essentially a complex mosaic of vegetation patches controlled by interactions between microtopography and saline groundwater discharge. Lower flats closer to the saltlakes and drainage lines of the southern part of the study area have heavier/more saline topsoils and are comprised of samphire shrublands of *Halosarcia doleformis* and *H. indica* subsp. *bidens* (on lowest areas), whilst *Halosarcia halocnemoides* form 'a' and *Halosarcia halocnemoides* subsp. *halocnemoides* occur on the slightly higher ground of the salt marshes with other low shrubs such as *Frankenia pauciflora*, *Cratystylis subspinescens* and *Maireana glomerifolia*. On yet higher sandy rises *Eremophila miniata and Acacia masliniana* shrubs dominate.

Community 3 : Low open shrubland of *Maireana pyramidata - Cratystylis subspinescens – Atriplex* spp.
Landforms: Large, open drainage lines
Sites: M27 (Da2); M26 (Rp3); M17 (Da3); M11 (Da2); M5 (Dp3);
Description: This community is dominated by *Maireana pyramidata* and *Cratystylis subspinescens,* with species of *Atriplex vesicaria, Atriplex nummularia* and *Atriplex bunburyana* less common. Tree and tall shrubs are largely absent, although *Acacia jennerae, Eremophila longifolia, Acacia* aff. *acuminata, Eucalyptus griffithsii* and *Pittosporum phylliraeoides* occur on sandy rises occasionally found along the drainage lines.

Community 4: Mixed *Acacia* spp – *Eremophila* spp. - *Dodonaea lobulata* shrubland with emergent *Casuarina pauper*.
Landforms: Hill tops and rocky upper slopes and dissected plains
Sites: M32 (Fh2); M30 (Rh3); M18 (Es) ; M15 (Fh2); M13 (Rh2); M10 (Fp2); M12 (Ep3) M6 (Eo1); M4 (Eo2); M2 (Eo1); M1 (DhS)
Description: This is the most widespread community at Mt Pleasant and is somewhat variable from place to place in terms of dominant species. Common dominant shrub species include *Dodonaea lobulata, Acacia burkittii, Eremophila oldfieldii subsp. augustifolia, Acacia aneura var. aneura, Acacia ramulosa var. ramulosa, Ptilotus obovatus* and *Eremophila granitica. Casuarina pauper* is the most widespread tree species*. Eucalyptus* spp are generally sparse and include mallees such as *E. ebbanoensis, E.grasbyi* and *E. griffithsii*, with *E. celestroides* subsp. *celestroides* common at base of breakaways, scarps and steeper slopes

Community 5: Woodland of *Eucalyptus clelandii* with broombush understorey
Landforms: Dissected, residual plateau with ironstone gravels
Sites: M7 (DvS); M31 (Fp3)
Description: Sometimes dense woodland dominated by *Eucalyptus clelandii* (Cleland's Blackbutt) of 15-35% cover with *E. celestroides* subsp. c*elestroides* as a common associate species. Broombush understorey quite sparse especially where trees are dense and dominated by *Eremophila scoparia* and *Senna artemisioides subsp. filifolia, Eremophila oldfieldii* subsp. *augustifolia, Eremophila oppositifolia* subsp. *augustifolia* and *Dodonaea lobulata* (all 1-2% cover). Open layer of low shrubs of *Olearia muelleri* together with sparse *Maireana* spp. & *Atriplex.*

Some sites were not included within one of the five defined plant communities as they did not clearly and consistently group with other sites. These include the outliers M14 and M29. The first of these was a dense stand of *Acacia burkittii* and *A. aneura* which seems to be a local variation of community 4. M29 however is dominated by spinifex (*Triodia scariosa*) and *Allocasuarina* helmsii, two species not found at other sites, but is otherwise similar to community 4 sites. Obviously more sampling is required to distinguish if this is a new, distinct community or another local variant within community 4. M9 is floristically intermediate between communities 4 and 5 – this is a drainage line site but has raised sandy areas with similar shrubs species to both these communities. M23 is a scarp community with a covering of quartz stones and very alkaline topsoil which seemingly contributes to an understorey similar to the saltmarsh and salt flats of community 2.

Species richness of study sites varied from 2 to 29 and averaged 16.9 species (see Appendix 2). The richest community in terms of species was community 4 (average of 21) followed by community 1. These levels of richness are generally low to medium compared to other communities / areas of W.A.

Vegetation Mapping

As expected, the fieldwork and subsequent analysis showed that the plant communities generally reflected the underlying land units. However, the relationships between the land units and plant communities were not completely consistent. In some cases different areas of the same land unit had different plant communities. The differences between the plant communities on the same land unit may be influenced by climatic differences between the sites, the stochastic nature of plant species distribution and chance events such as fire. The table below sets out the general relationships observed between land units and the plant communities described above.

Community	Short Description	Land Units
1	Salmon Gum woodland with chenopod u/storey of lower slopes	Da3; DvS; Rp3; Dpw2;
2	Saltmarsh and saline flat shrubland	Ep2, Ep3; DdS; Ddw;
3	Chenopod – *Cratystylis* shrubland of drainage lines	Da1, Da2; Dp3; Eo/c
4	Mixed Acacia - Dodonaea - Eremophila shrubland on hill tops and upper slopes	Eo1, Eo2; Es; Rp2; Rh2, Rh3; Fp2; Fh2; DhS
5	Blackbutt woodland with broombush u/storey	Fp3

A map of the plant communities in the Mt Pleasant area based on the links between communities and land units shown in the table above is shown at Figure 7. In terms of spatial distribution, plant community 4 is the most widespread around the Mt Pleasant area, with community 5 being the least common. Each community, including comm.. 5, was found in numerous patches across the landscape. None of them appear to be locally restricted in distribution in the Mt Pleasant vicinity.

Of these relationships, community 3 seems to have weakest link to the mapped land units. Major drainage lines vary substantially in terms of floristics; they can have salmon gum woodland on heavier soils (similar to community 1) through to Acacia thickets on sandy rises (similar to community 4) through to saltmarsh vegetation on saline areas closer to saltlakes (similar to community 2). However based on results here and observations elsewhere, community 2 is the best generalised link.

A key difference to other active mining areas studied in the region is vegetation on dissected plateaux with ironstone gravels (i.e. units such as Fp2, Fp3, Fh2, Dp2). Elsewhere these generally have Blackbutt woodland (often with *E. celestroides* as a co-dominant). At Mt Pleasant these seem to have been replaced by the mixed species and often dense shrubland of community 4 on such land units.

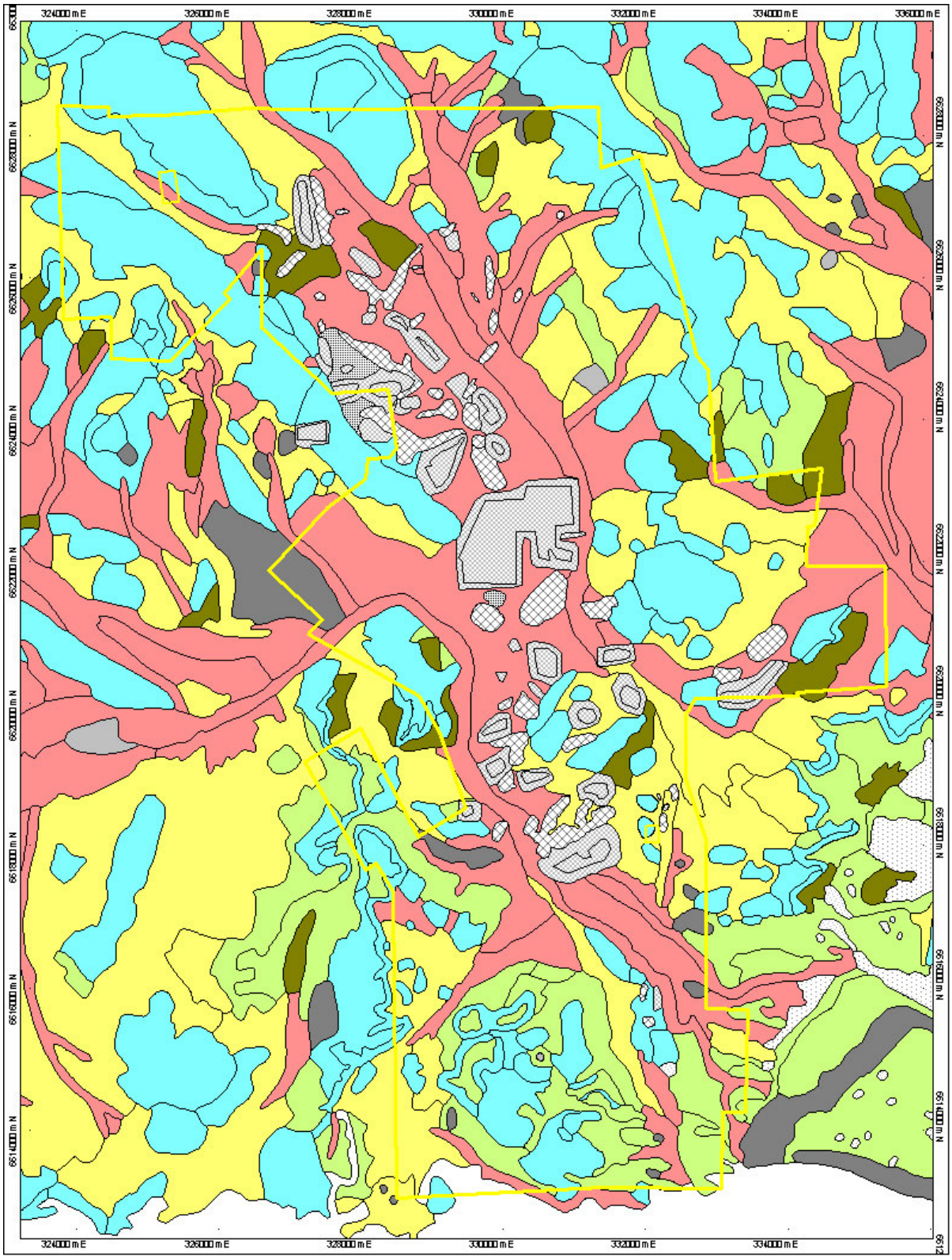

Figure 7. Predicted vegetation map based on generalised links between plant communities and land units. Color codes: Community 1 = Yellow; Com 2 = Green; Com 3 = Red (pink); Com 4 = Blue; Com 5 = khaki

4. Discussion & Conclusions

Conservation Significance of Plant Communities

The significance of the five plant communities found in the Mt Pleasant area was assessed by firstly comparing them to those described in the region by other researchers and, secondly, by comparing the floristics of communities to other plots surveyed by the authors in nearby active mining areas of Kanowna Belle, Kundana and Paddington (Figure 1).

Other studies within or adjoining the central goldfields have found similar communities to those described in this study. Beard (1975) mapped the vegetation of the study area and surrounds as mainly *Acacia aneura – Casuarina pauper* (syn. *cristata*) low woodlands and *Eucalyptus salmonophloia – E. lesouefii* woodlands, with *C. pauper* over saltbush around major saltlakes. This survey and mapping was conducted at a very broad 1: 1,000,000 scale, so it is likely that his classification would contain amalgamations of several communities determined at finer scales (such as this study). For instance he seems to amalgamate blackbutt (*E.lesouefii*, although *E.clelandii* for Mt Pleasant-Paddington area) and salmon gum woodlands. Also several types of saltmarsh/chenopod communities are joined into one. In his synopsis of vegetation studies, Beard (1990) describes in detail the typical vegetation toposequences of the greenstone belts and intervening valley systems around Kalgoorlie, which includes blackbutt woodland with broombush understorey on mid slopes (although mixed with other eucalypts). Such toposequences described by Beard are very similar to the vegetation patterns and floristics described in this study.

CALM studies of the greenstone and ironstone ranges of the eastern Goldfields (eg Gibson & Lyons 2001) also show similar types of communities with similar associations to landform as this study, although some differences in common species associated with communities is not surprising given the 100 km or so separation of the studies. Similarly the extensive and thorough rangeland survey of the northern-eastern goldfields found many of the same dominant species on land units corresponding to those of this study (Pringle et al. 1994).

Therefore, although detailed vegetation studies of the Mt Pleasant area are lacking, regional-scale studies and studies in adjoining districts indicate that the plant communities found at Mt Pleasant are widespread and common throughout the area.

The ordination at Figure 8 shows Mt Pleasant sites in relation to sites surveyed at three other active mining areas in the vicinity. Distance between sites in the ordination space is proportion to floristic similarity. Given this, the vast majority of sites are within the overall floristic variability found across the Kalgoorlie West operations. Indeed the same communities are generally found across each of these areas. However several Mt Pleasant sites are outliers and therefore are somewhat distinctive in terms of their composition of

plant species. These include site M14 and M29 which were discussed previously and deemed likely to be local variations of community 4 (although the vegetation of the type M29 needs further study). M7 and M31 are somewhat distinct, probably because the density and dominance of *E. clelandii* was far greater than at blackbutt woodlands of the other areas. Similarly the classification of all sites (Fig. 9) demonstrates that Mt Pleasant sites do not form distinctive floristic groupings and tend to be mixed with sites from other areas which suggests that there are no distinctive communities at Mt Pleasant.

Floristic comparisons to other nearby studies therefore show that Mt Pleasant communities, as defined in this study, are commonly found at other areas within the Placer Dome lease area.

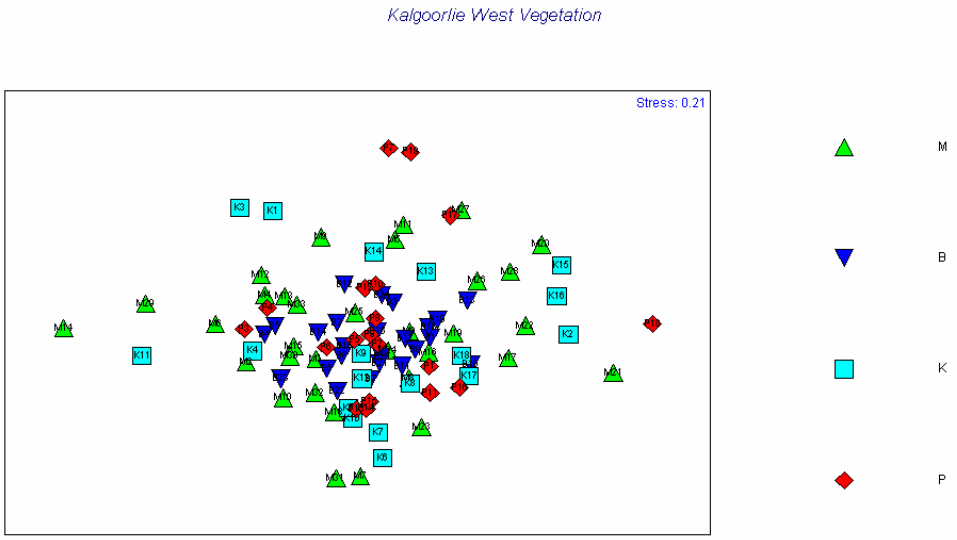

Figure 8. Ordination of all sites from four active mining areas showing Mt Pleasant (M) sites relative to those from Kanowna Belle (B), Kundana (K) and Paddington (P)

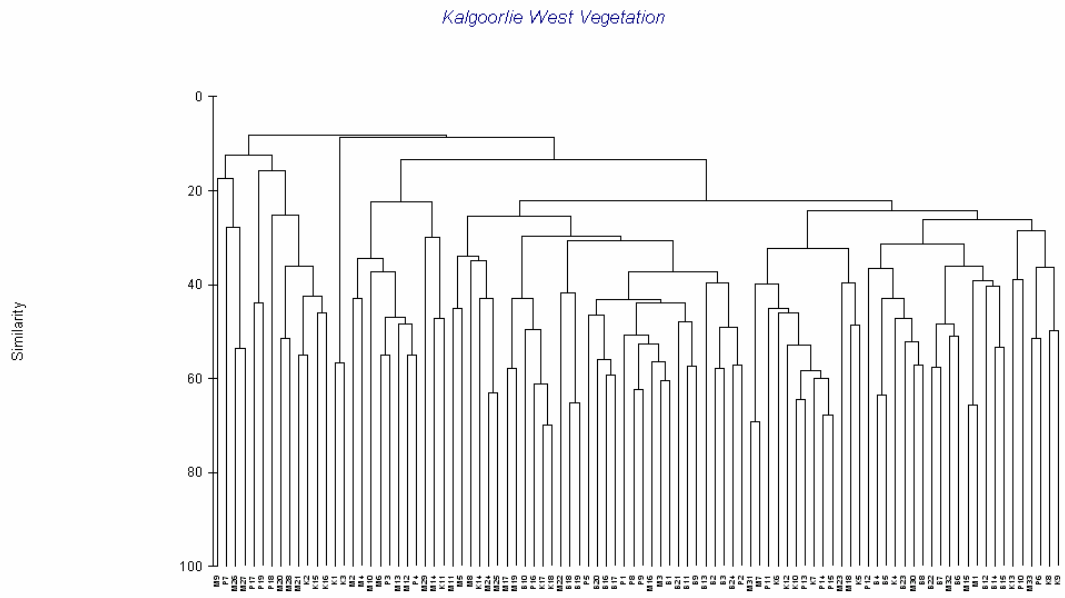

Figure 9. Classification of sites from four active mining areas showing Mt Pleasant (M) sites relative to those from Kanowna Belle (B), Kundana (K) and Paddington (P)

Vegetation Condition

Notes taken on the condition of vegetation at each site generally indicate that vegetation condition is good to excellent across the study area. At many sites, but particular in sites located low in the topographic profile (such as communities 1-3), impacts of tree cutting and grazing are evident, but generally small in scale and low in intensity. Where cutting has occurred in the past (usually for purposes of building fences or mine-shaft support) the woodland structure appears to be intact with regeneration evident to at least replace trees cut at most sites. Grazing impacts generally appear to be slight to moderate as evident from the lack of 'increaser' species recorded in plots across the study area. The density of livestock has decreased dramatically in recent years due to destocking practices of the mining company. Almost no weed species were recorded during the Mt Pleasant survey. This is not surprising given the lack of rain in the months before the fieldwork. Indeed the dried remnants of several exotic annual species, including *Salsola tragus, Medicago* spp. and thistles, were observed especially along drainage lines.

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Appendices

Appendix 1: Site Data

SITE	LANDFORM	SPECIES	COVER (1-5)
Site M1	DhS		
		Acacia aneura var. aneura	<1
		Dodonaea lobulata	4
		Olearia muelleri	1
		Ptilotus obovatus	5
		Maireana georgei	1
		Maireana triptera	1
		Eremophila scoparia	2
		Exocarpus aphyllus	1
		Eremophila latrobei subsp. glabra	3
		Eremophila oldfieldii subsp. augustifolia	2
		Senna artemisioides subsp. filifolia	2
		Acacia tetragonophylla	<1
		Acacia erinacea	1
		Atriplex vesicaria	<1
		Casuarina pauper	5
		Atriplex nummularia	2
		Santalum spicatum	1
		Eucalyptus clelandii	1
		Eucalyptus ebbanoensis	<1
		Scaevola spinescens	1
		Eremophila maculata subsp. maculata	<1
		Eremophila interstans	<1
M2	Eo1		
		Acacia aneura var. aneura	2
		Dodonaea lobulata	4
		Olearia muelleri	<1
		Eremophila latrobei subsp. glabra	<1
		Eremophila interstans	<1
		Senna artemisioides subsp. filifolia	1
		Acacia tetragonophylla	<1
		Acacia erinacea	1
		Acacia ramulosa var. ramulosa	<1
		Casuarina pauper	1
		Eucalyptus griffithsii	1
		Eucalyptus ebbanoensis	2
		Scaevola spinescens	<1
		Eremophila maculata subsp. maculata	<1
		Acacia quadrimarginea	<1
		Triodia scariosa	1
M3	Rp3		
		Maireana sedifolia	3
		Eremophila scoparia	2
		Atriplex vesicaria	2
		Atriplex bunburyana	2
		Cratystylis subspinescens	1
		Casuarina pauper	1
		Atriplex nummularia	4
		Ptilotus obovatus	<1
		Olearia muelleri	<1
		Scaevola spinescens	<1
		Eremophila oldfieldii subsp. augustifolia	<1
		Eucalyptus salmonophloia	4
		Eucalyptus salubris	2
		Eucalyptus transcontinentalis	2
		Maireana georgei	<1
		Maireana glomerifolia	<1
		Senna glutinosa	<1
		Senna artemisioides subsp. filifolia	1
M4	Eo2		
		Brachychiton gregorii	<1
		Dodonaea lobulata	5
		Eremophila latrobei subsp. glabra	1
		Eremophila interstans	1

		Senna artemisioides subsp. filifolia	<1	
		Acacia tetragonophylla	<1	
		Acacia ramulosa var. ramulosa		5
		Casuarina pauper		2
		Eucalyptus griffithsii	<1	
		Eucalyptus grasbyi	<1	
		Eremophila maculata subsp. maculata	<1	
		Triodia scariosa	<1	
		Eremophila oldfieldii subsp. augustifolia		2
		Solanum lasiophyllum	<1	
		Ptilotus obovatus	<1	
		Rhagodia drummondii	<1	
		Maireana sedifolia	<1	
		Atriplex nummularia	<1	
		Maireana triptera	<1	
		Olearia muelleri	<1	
		Frankenia interioris var. interioris	<1	
		Unknown MP4	<1	
M5	Dp3			
		Maireana pyramidata		5
		Maireana sedifolia		1
		Rhagodia drummondii		2
		Atriplex nummularia		2
		Eremophila interstans		1
		Eremophila scoparia		1
		Atriplex bunburyana		2
		Marsdenia australis	<1	
		Exocarpus aphyllus	<1	
		Alectryon oleifolius subsp. canescens	<1	
		Atriplex stiputata	<1	
		Solanum lasiophyllum	<1	
		Acacia jennerae	<1	
		Eucalyptus griffithsii	<1	
		Eucalyptus salmonophloia	<1	
		Eremophila longifolia	<1	
M6	Eo1			
		Solanum lasiophyllum	<1	
		Eremophila oldfieldii subsp. augustifolia		4
		Eremophila ionantha	<1	
		Acacia aneura var. aneura		5
		Acacia burkittii		4
		Dodonaea lobulata		4
		Olearia muelleri	<1	
		Eremophila granitica		3
		Acacia tetragonophylla	<1	
		Acacia ramulosa var. ramulosa	<1	
		Casuarina pauper		1
		Eucalyptus griffithsii	<1	
		Scaevola spinescens		2
		Ptilotus obovatus	<1	
		Exocarpus aphyllus	<1	
		Santalum spicatum	<1	
		Acacia ramulosa var. ramulosa	<1	
M7	DvS			
		Acacia erinacea	<1	
		Senna artemisioides subsp. filifolia	<1	
		Eucalyptus clelandii		5
		Atriplex nummularia	<1	
		Maireana pentatropis	<1	
		Eremophila scoparia	<1	
		Atriplex bunburyana	<1	
		Maireana triptera	<1	
		Eremophila latrobei subsp. glabra	<1	
		Eremophila interstans	<1	
		Maireana georgei	<1	
		Scaevola spinescens	<1	
		Eucalyptus celestroides subsp. celestroides	<1	
M8	Fp3			
		Eremophila scoparia		4
		Eremophila interstans		2
		Atriplex bunburyana		2

		Maireana triptera		1
		Maireana georgei	<1	
		Rhagodia drummondii	<1	
		Atriplex nummularia		2
		Atriplex vesicaria		1
		Solanum lasiophyllum	<1	
		Olearia muelleri	<1	
		Santalum acuminatum	<1	
		Exocarpus aphyllus	<1	
		Eucalyptus salmonophloia		2
		Eucalyptus celestroides subsp. celestroides	<1	
		Eucalyptus transcontinentalis		1
		Santalum spicatum	<1	
		Senna artemisioides subsp. filifolia	<1	
		Casuarina pauper	<1	
		Eucalyptus clelandii		1
		Eucalyptus salubris	<1	
M9	Da1			
		Eremophila scoparia	<1	
		Eremophila interstans	<1	
		Maireana triptera	<1	
		Acacia tetragonophylla	<1	
		Ptilotus obovatus	<1	
		Senna artemisioides subsp. filifolia	<1	
		Eremophila latrobei subsp. glabra	<1	
		Eucalyptus grasbyi		2
		Acacia jennerae		1
		Eremophila longifolia		2
		Acacia aff. acuminata		2
		Atriplex bunburyana	<1	
		Brachychiton gregorii	<1	
		Exocarpus aphyllus	<1	
		Eucalyptus griffithsii		2
		Alectryon oleifolius subsp. canescens	<1	
		Pittosporum phylliraeoides	<1	
		Santalum spicatum		2
		Eucalyptus celestroides subsp. celestroides		1
		Acacia erinacea	<1	
		Swainsona ?formosa	<1	
		Atriplex nummularia		1
		Halgania andromedifolia	<1	
M10	Fp2			
		Dodonaea lobulata		4
		Senna artemisioides subsp. filifolia		3
		Eremophila interstans		4
		Eremophila scoparia		1
		Acacia burkittii		3
		Atriplex nummularia		1
		Exocarpus aphyllus	<1	
		Eucalyptus grasbyi		4
		Olearia muelleri	<1	
		Scaevola spinescens	<1	
		Acacia aneura var. aneura		2
		Eucalyptus salmonophloia		1
		Eucalyptus celestroides subsp. celestroides		2
		Eucalyptus clelandii		1
		Triodia scariosa	<1	
M11	Da2			
		Senna artemisioides subsp. filifolia		1
		Acacia jennerae		3
		Eremophila longifolia		1
		Acacia aff. acuminata		3
		Atriplex bunburyana		2
		Exocarpus aphyllus	<1	
		Eucalyptus griffithsii	<1	
		Pittosporum phylliraeoides	<1	
		Santalum spicatum		1
		Atriplex nummularia		5
		Atriplex vesicaria		4
		Maireana pyramidata		4
		Eucalyptus salmonophloia	<1	
		Eucalyptus salubris	<1	

M12	Ep3			
		Acacia ramulosa var. ramulosa		3
		Acacia aneura var. aneura		3
		Acacia burkittii		5
		Grevillea acacioides		2
		Eremophila granitica		3
		Atriplex nummularia	<1	
		Eucalyptus grasbyi		2
		Eucalyptus griffithsii	<1	
		Acacia hemiteles		1
		Acacia jennerae		1
		Senna artemisioides subsp. filifolia		2
		Atriplex bunburyana		1
		Acacia tetragonophylla		1
		Ptilotus obovatus	<1	
		Casuarina pauper	<1	
		Maireana sedifolia	<1	
		Olearia muelleri	<1	
		Scaevola spinescens	<1	
		Santalum spicatum	<1	
		Rhagodia drummondii	<1	
		Eremophila maculata subsp. maculata	<1	
		Atriplex vesicaria	<1	
M13	Rh2			
		Eremophila granitica		3
		Atriplex nummularia		2
		Atriplex bunburyana		2
		Acacia tetragonophylla	<1	
		Casuarina pauper		4
		Maireana sedifolia		4
		Olearia muelleri	<1	
		Santalum spicatum	<1	
		Acacia aneura var. aneura		1
		Acacia burkittii		4
		Dodonaea lobulata		4
		Atriplex vesicaria		1
		Alectryon oleifolius subsp. canescens	<1	
M14	Rp2			
		Acacia aneura var. aneura		4
		Acacia burkittii		6
M15	Fh2			
		Dodonaea lobulata		3
		Olearia muelleri		2
		Ptilotus obovatus		3
		Maireana georgei		1
		Maireana triptera		2
		Eremophila oldfieldii subsp. augustifolia		2
		Senna artemisioides subsp. filifolia	<1	
		Acacia tetragonophylla	<1	
		Acacia erinacea		1
		Casuarina pauper		5
		Atriplex nummularia		2
		Eucalyptus clelandii		1
		Scaevola spinescens	<1	
		Eremophila maculata subsp. maculata		2
		Eremophila oppositifolia subsp. augustifolia		2
		Maireana sedifolia	<1	
		Alectryon oleifolius subsp. canescens		1
		Dodonaea viscosa	<1	
		Eremophila granitica	<1	
		Solanum lasiophyllum	<1	
		Maireana pyramidata	<1	
		Maireana pentatropis	<1	
M16	DpW2			
		Eucalyptus salmonophloia		3
		Eremophila scoparia		2
		Atriplex vesicaria		3
		Dodonaea lobulata	<1	
		Olearia muelleri		2

		Senna artemisioides subsp. filifolia		1
		Atriplex nummularia		2
		Eremophila maculata subsp. maculata		
		Maireana sedifolia		3
		Solanum lasiophyllum	<1	
		Eremophila parvifolia subsp. auricampa	<1	
		Santalum acuminatum	<1	
		Halosarcia halocnemoides subsp. halocnemoides		2
		Olearia incana ms	<1	
M17	Da3			
		Eucalyptus salmonophloia		4
		Eremophila scoparia		1
		Atriplex vesicaria		5
		Olearia muelleri	<1	
		Halosarcia halocnemoides subsp. halocnemoides		5
		Maireana pyramidata		2
		Frankenia interioris var. interioris	<1	
M18	Es			
		Exocarpus aphyllus	<1	
		Ptilotus obovatus		1
		Eremophila oldfieldii subsp. augustifolia	<1	
		Senna artemisioides subsp. filifolia	<1	
		Acacia erinacea		2
		Casuarina pauper		2
		Eremophila maculata subsp. maculata		1
		Eremophila scoparia	<1	
		Atriplex vesicaria	<1	
		Dodonaea lobulata		3
		Olearia muelleri		1
		Eremophila parvifolia subsp. auricampa		1
		Halosarcia halocnemoides subsp. halocnemoides		2
		Olearia incana ms	<1	
		Frankenia interioris var. interioris	<1	
		Eucalyptus celestroides subsp. celestroides		5
		Eucalyptus clelandii		1
M19	Eo/C			
		Ptilotus obovatus	<1	
		Eremophila scoparia	<1	
		Olearia muelleri		1
		Senna artemisioides subsp. filifolia		1
		Atriplex nummularia		5
		Eremophila scoparia		
		Maireana pyramidata		2
		Frankenia interioris var. interioris	<1	
		Casuarina pauper		1
		Atriplex vesicaria		5
		Halosarcia halocnemoides subsp. halocnemoides		4
		Eremophila latrobei subsp. glabra	<1	
		Maireana glomerifolia	<1	
		Eucalyptus salmonophloia	<1	
		Eucalyptus clelandii		1
		Atriplex bunburyana		2
		Maireana triptera	<1	
		Rhagodia drummondii	<1	
		Disphyma crassifolium	<1	
M20	Ep2			
		Disphyma crassifolium		2
		Acacia eremophila subsp. variabilis		4
		Cratystylis subspinescens		3
		Casuarina pauper	<1	
		Triodia scariosa	<1	
		Roycea aff. divaricata	<1	
		Dodonaea viscosa		2
		Gunniopsis quadrifida		1
		Eremophila miniata		3
		Frankenia pauciflora		2
		Frankenia sp. (small leaves)		
		Pittosporum phylliraeoides		1
		Acacia colletioides	<1	
		Atriplex hymenotheca		2
		Rhagodia drummondii	<1	

		Atriplex stiputata	<1	
		Solanum lasiophyllum	<1	
		Maireana glomerifolia		3
		Halosarcia halocnemoides subsp. halocnemoides		2
		Halosarcia halocnemoides form 'a'		1
		Acacia erinacea	<1	
		Allocasuarina acutivalvis		1
		Marsdenia australis	<1	
		Exocarpus aphyllus	<1	
M21	Ep3			
		Disphyma crassifolium		2
		Roycea aff. divaricata	<1	
		Frankenia pauciflora		2
		Atriplex hymenotheca		2
		Maireana glomerifolia		2
		Halosarcia halocnemoides subsp. halocnemoides		3
		Halosarcia doleformis		1
		Eremophila scoparia	<1	
		Halosarcia indica subsp. bidens		1
		Halosarcia halocnemoides form 'a'	<1	
M22	DdS			
		Atriplex nummularia	<1	
		Atriplex vesicaria		2
		Maireana glomerifolia	<1	
		Disphyma crassifolium		2
		Cratystylis subspinescens		5
		Roycea aff. divaricata	<1	
		Dodonaea viscosa		2
		Gunniopsis quadrifida		1
		Frankenia pauciflora		3
		Solanum lasiophyllum	<1	
		Halosarcia halocnemoides subsp. halocnemoides		1
		Eremophila scoparia		2
M23	Es			
		Exocarpus aphyllus	<1	
		Eremophila oldfieldii subsp. augustifolia	<1	
		Acacia erinacea	<1	
		Casuarina pauper		1
		Eremophila maculata subsp. maculata		1
		Eremophila scoparia		1
		Dodonaea lobulata		1
		Olearia muelleri	<1	
		Halosarcia halocnemoides subsp. halocnemoides		3
		Frankenia pauciflora	<1	
		Eucalyptus celestroides subsp. celestroides		1
		Eucalyptus clelandii		2
		Disphyma crassifolium		1
		Maireana glomerifolia		1
		Eremophila oppositifolia subsp. augustifolia		1
		Melaleuca lateriflolia subsp lateriflolia		3
		Melaleuca uncinata		2
		Ptilotus helichrysoides	<1	
		Scaevola spinescens	<1	
		Halosarcia indica subsp. bidens		1
		Atriplex nummularia	<1	
		Eucalyptus salubris	<1	
		Eucalyptus transcontinentalis	<1	
M24	Dp3			
		Casuarina pauper		2
		Eucalyptus salmonophloia		1
		Eucalyptus clelandii		3
		Atriplex nummularia		4
		Olearia muelleri	<1	
		Maireana georgei	<1	
		Senna artemisioides subsp. filifolia		1
		Eremophila scoparia		1
		Eremophila maculata subsp. maculata	<1	
		Maireana sedifolia		2
		Solanum lasiophyllum	<1	
		Atriplex bunburyana		2
		Maireana triptera		1

		Maireana pyramidata	<1	
		Halosarcia halocnemoides subsp. halocnemoides		1
		Pittosporum phylliraeoides	<1	
		Maireana pentatropis	<1	
		Acacia hemiteles	<1	
		Cratystylis conocephala	<1	
		Cratystylis subspinescens	<1	
		Unknown MP24	<1	
		Olearia incana ms	<1	
		Scaevola spinescens	<1	
		Alectryon oleifolius subsp. canescens	<1	
		Ptilotus obovatus	<1	
M25	DvS			
		Atriplex nummularia		5
		Casuarina pauper		3
		Eucalyptus salmonophloia		2
		Olearia muelleri	<1	
		Maireana georgei	<1	
		Senna artemisioides subsp. filifolia		1
		Eremophila scoparia	<1	
		Eremophila maculata subsp. maculata	<1	
		Maireana sedifolia		1
		Solanum lasiophyllum	<1	
		Atriplex bunburyana		1
		Maireana pyramidata	<1	
		Cratystylis conocephala	<1	
		Cratystylis subspinescens	<1	
		Olearia incana ms	<1	
		Scaevola spinescens	<1	
		Alectryon oleifolius subsp. canescens	<1	
		Ptilotus obovatus	<1	
		Eremophila oldfieldii subsp. augustifolia	<1	
		Eremophila longifolia		1
		Eremophila oppositifolia subsp. augustifolia	<1	
		Exocarpus aphyllus	<1	
		Eremophila parvifolia subsp. auricampa	<1	
		Acacia eremophila subsp. variabilis	<1	
		Eremophila latrobei subsp. glabra	<1	
		Acacia erinacea	<1	
		Santalum spicatum	<1	
		Dodonaea lobulata	<1	
		Eremophila interstans	<1	
M26	Rp3			
		Maireana pyramidata		2
		Atriplex vesicaria		1
		Acacia tetragonophylla		2
		Cratystylis subspinescens		3
		Frankenia pauciflora	<1	
		Pittosporum phylliraeoides	<1	
		Halosarcia halocnemoides subsp. halocnemoides		2
		Maireana georgei	<1	
		Exocarpus aphyllus	<1	
		Eremophila scoparia		1
		Eremophila latrobei subsp. glabra		1
		Rhagodia drummondii		1
		Alectryon oleifolius subsp. canescens	<1	
M27				
		Disphyma crassifolium	<1	
		Maireana glomerifolia	<1	
		Atriplex bunburyana		3
		Cratystylis subspinescens		3
		Olearia incana ms		
		Santalum spicatum	<1	
		Maireana pyramidata		3
		Atriplex vesicaria		1
		Acacia tetragonophylla		3
		Pittosporum phylliraeoides		1
		Exocarpus aphyllus	<1	
		Eremophila scoparia	<1	
		Rhagodia drummondii		2
		Muehlenbeckia florulenta	<1	
		Santalum spicatum	<1	

		Acacia jennerae		4
		Hakea preisii	<1	
		Lycium australe	<1	
M28	Ddw			
		Disphyma crassifolium	<1	
		Acacia eremophila subsp. variabilis		3
		Cratystylis subspinescens		2
		Gunniopsis quadrifida	<1	
		Eremophila miniata		4
		Frankenia pauciflora	<1	
		Pittosporum phylliraeoides	<1	
		Rhagodia drummondii	<1	
		Solanum lasiophyllum	<1	
		Maireana glomerifolia	<1	
		Halosarcia halocnemoides subsp. halocnemoides		3
		Marsdenia australis	<1	
		Acacia kalgoorliensis		2
		Senna sp.	<1	
		Eremophila scoparia	<1	
		Senna artemisioides subsp. filifolia	<1	
		Acacia tetragonophylla	<1	
		Maireana sedifolia	<1	
		Olearia muelleri	<1	
		Exocarpus aphyllus	<1	
M29	Eo2			
		Triodia scariosa		4
		Allocasuarina helmsii		3
		Acacia aneura var. aneura		2
		Acacia burkittii		3
		Eucalyptus ebbanoensis		2
		Sida sp	<1	
		Solanum orbiculatum		1
		Dodonaea lobulata	<1	
		Eremophila oldfieldii subsp. augustifolia	<1	
		Senna artemisioides subsp. filifolia	<1	
M30	Rh3			
		Exocarpus aphyllus		1
		Senna artemisioides subsp. filifolia		1
		Acacia hemiteles	<1	
		Atriplex nummularia		2
		Eucalyptus griffithsii		3
		Acacia tetragonophylla		1
		Santalum spicatum	<1	
		Eremophila oldfieldii subsp. augustifolia	<1	
		Acacia erinacea		2
		Eremophila interstans		2
		Eremophila maculata subsp. maculata	<1	
		Casuarina pauper		1
		Dodonaea lobulata	<1	
		Olearia muelleri	<1	
		Unknown M30	<1	
M31	Fp3			
		Senna artemisioides subsp. filifolia	<1	
		Eremophila pustulata	<1	
		Eremophila scoparia	<1	
		Eucalyptus clelandii		5
		Unknown M30	<1	
		Acacia hemiteles	<1	
		Acacia erinacea		1
		Eremophila interstans		1
		Exocarpus aphyllus	<1	
		Eremophila oldfieldii subsp. augustifolia	<1	
		Eremophila oppositifolia subsp. augustifolia	<1	
		Scaevola spinescens	<1	
		Hakea sp.	<1	
		Eucalyptus celestroides subsp. celestroides		1
M32	Fh2			
		Senna artemisioides subsp. filifolia		1
		Eremophila pustulata	<1	
		Eremophila scoparia		1

		Acacia hemiteles	<1	
		Acacia erinacea		1
		Exocarpus aphyllus	<1	
		Scaevola spinescens		1
		Eucalyptus celestroides subsp. celestroides		3
		Dodonaea lobulata		2
		Olearia muelleri	<1	
		Casuarina pauper		1
		Acacia kalgoorliensis	<1	
		Acacia eremophila subsp. variabilis	<1	
		Atriplex nummularia		1
		Eucalyptus clelandii		1
		Eucalyptus transcontinentalis		2
		Acacia burkittii		1
		Eremophila latrobei subsp. glabra		1
M33	Da1			
		Eremophila maculata subsp. maculata		1
		Senna artemisioides subsp. filifolia		2
		Acacia hemiteles		1
		Casuarina pauper		3
		Atriplex nummularia		2
		Eremophila maculata subsp. brevifolia	<1	
		Rhagodia drummondii	<1	
		Acacia tetragonophylla		1
		Acacia ramulosa var. linophylla		1
		Grevillea acacioides		2
		Acacia aneura var. aneura		3
		Exocarpus aphyllus	<1	
		Eucalyptus griffithsii		1
		Maireana georgei	<1	
		Dodonaea lobulata	<1	
		Acacia jennerae		1
		Atriplex bunburyana	<1	
		Eucalyptus salmonophloia	<1	
		Eucalyptus salubris	<1	

Appendix 2: Species Diversity of Each Site

Site	S	N	d	J'	H'(loge)	1-Lambda'
M10	15	78	3.21	0.7497	2.03	0.8537
M11	14	83	2.946	0.6932	1.829	0.8162
M12	22	69	4.958	0.6497	2.008	0.8192
M13	13	83	2.713	0.7552	1.937	0.8464
M14	2	52	0.2531	0.8905	0.6172	0.4344
M15	22	72	4.912	0.7027	2.172	0.8401
M16	12	44	2.9	0.7961	1.978	0.8632
M17	7	71	1.407	0.6735	1.311	0.7095
M18	17	52	4.055	0.6056	1.716	0.7301
M19	18	79	3.892	0.5715	1.652	0.7619
M2	16	30	4.419	0.5755	1.596	0.6932
M20	24	69	5.432	0.7435	2.363	0.8902
M21	10	27	2.722	0.7797	1.795	0.8332
M22	12	52	2.779	0.66	1.64	0.7328
M23	23	36	6.139	0.7147	2.241	0.8674
M24	25	44	6.361	0.6199	1.995	0.8125
M25	29	44	7.39	0.4484	1.51	0.6428
M26	13	26	3.705	0.7236	1.856	0.8279
M27	16	59	3.682	0.6894	1.911	0.8413
M28	20	44	5.036	0.5569	1.668	0.78
M29	10	43	2.387	0.696	1.603	0.7785
M3	18	65	4.077	0.7228	2.089	0.8517
M30	15	26	4.312	0.6988	1.892	0.8309
M31	14	29	3.861	0.2546	0.6718	0.2622
M32	18	27	5.181	0.7516	2.172	0.8598
M33	19	37	4.992	0.723	2.129	0.8639
M4	22	62	5.096	0.4489	1.388	0.6725
M5	16	41	4.042	0.5004	1.388	0.6108
M6	16	88	3.351	0.6428	1.782	0.8163
M7	13	26	3.674	0.1169	0.2998	9.288E-2
M8	20	37	5.258	0.6303	1.888	0.7857
M9	23	25	6.878	0.7042	2.208	0.8981
M1	22	100	4.564	0.6899	2.132	0.8412

Appendix 3: Species List

Acacia aff. *acuminata*
Acacia acuminata (long phyllode variant) ms
Acacia aneura var. *aneura*
Acacia burkittii
Acacia colletioides
Acacia erinacea
Acacia hemiteles
Acacia jennerae
Acacia kalgoorliensis
Acacia masliniana
Acacia quadrimarginea
Acacia ramulosa var. *linophylla*
Acacia ramulosa var. *ramulosa*
Acacia tetragonophylla
Alectryon oleifolius subsp. *canescens*
Allocasuarina acutivalvis
Allocasuarina helmsii
Atriplex bunburyana
Atriplex hymenotheca
Atriplex nummularia
Atriplex stiputata
Atriplex vesicaria
Brachychiton gregorii
Casuarina pauper
Cratystylis conocephala
Cratystylis subspinescens
Disphyma crassifolium
Dodonaea lobulata
Dodonaea viscosa
Eremophila granitica
Eremophila interstans
Eremophila ionantha
Eremophila latrobei subsp. *glabra*
Eremophila longifolia
Eremophila maculata subsp. *brevifolia*
Eremophila maculata subsp. *maculata*
Eremophila miniata
Eremophila oldfieldii subsp. *augustifolia*
Eremophila oppositifolia subsp. *augustifolia*
Eremophila parvifolia subsp. *auricampa*
Eremophila pustulata
Eremophila scoparia
Eucalyptus celestroides subsp. *celestroides*
Eucalyptus clelandii
Eucalyptus ebbanoensis
Eucalyptus grasbyi
Eucalyptus griffithsii

Eucalyptus salmonophloia
Eucalyptus salubris
Eucalyptus transcontinentalis
Exocarpus aphyllus
Frankenia interioris var. *interioris*
Frankenia pauciflora
Frankenia sp. *(small leaves)*
Grevillea acacioides
Gunniopsis quadrifida
Hakea preisii
Hakea sp.
Halgania andromedifolia
Halosarcia doleformis
Halosarcia halocnemoides form 'a'
Halosarcia halocnemoides subsp. *halocnemoides*
Halosarcia indica subsp. *bidens*
Lycium australe
Maireana georgei
Maireana glomerifolia
Maireana pentatropis
Maireana pyramidata
Maireana sedifolia
Maireana triptera
Marsdenia australis
Melaleuca lateriflolia subsp. *lateriflolia*
Melaleuca uncinata
Muehlenbeckia florulenta
Olearia incana ms
Olearia muelleri
Pittosporum phylliraeoides
Ptilotus helichrysoides
Ptilotus obovatus
Rhagodia drummondii
Roycea aff. *divaricata*
Santalum acuminatum
Santalum spicatum
Scaevola spinescens
Senna artemisioides subsp. *filifolia*
Senna glutinosa
Senna sp.
Sida sp.
Solanum lasiophyllum
Solanum orbiculatum
Swainsona ?formosa
Triodia scariosa
Unknown M30
Unknown MP24
Unknown MP4