

**FLORA AND VEGETATION SURVEY OF PROPOSED MINING
AREAS AND A TAILINGS STORAGE FACILITY AT THE
MONARCH MINING, DAVYHURST OPERATION**



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EXECUTIVE SUMMARY

G&G Environmental Pty Ltd was commissioned by Monarch Gold Mining Company Ltd to undertake flora and vegetation surveys of proposed mining pits at Iguana (M16/262 and L16/77), Riverina (M30/60, M30/84, M30/98, M30/178), Coronation (M30/039, M30/072), Wahalla North (E30/330), Palmerston, Camperdown & Moering (M240/352, M240/633, M240/3748) and a site adjacent the current tailings dam within the Davyhurst Gold Mine in the shire of Menzies, Western Australia. The main objectives of the survey included providing maps and an inventory of plant communities present, and to search for significant flora species and locally or regionally significant plant associations.

Searches of the DEC, EPBC and NLWRA databases were conducted for declared rare flora, priority flora, threatened ecological communities and ecological communities at risk prior to undertaking the field survey. The location of significant flora and vegetation communities were mapped to determine their proximity to the proposed mine areas. A review of previous reports was also undertaken to determine vegetation associations, species and significant flora previously identified within other leases of the Davyhurst operation.

Preliminary vegetation boundaries were selected from satellite imagery to be 'ground-truthed' in the subsequent field survey. During the on-ground survey, conducted during September 2007, plant communities were characterised by detailed description of the vegetation in 20 x 20m plots and GPS recordings of changes in the vegetation within each of the tenements. The tenements were searched for rare and priority flora identified by the database searches. Vegetation associations were mapped utilising Map Info Professional version 8.1.

Search of the databases identified 32 significant species comprised of rare, P1, P2, P3 and P4 species within the vicinity of the proposed mining areas but no TEC's or regionally significant communities were identified. Previous vegetation surveys of Davyhurst tenements identified 207 taxa from 44 families and 74 genera as well as seven weed species. Four priority species were previously recorded, including, *Eremophila* sp. Mt Jackson P1, *Calytrix creswellii* P1, *Micromyrtus papillosa* P1, and *Grevillea georgeana* P3. A total of 33 vegetation associations had been described including *Eucalyptus* woodlands, *Acacia* thickets and a *Allocasuarina* woodland. No DRF, TEC or regionally significant communities have been documented.

During the current survey G&G Environmental identified 116 taxa comprising 28 families and 49 genera, and no weed species. The most prominent families included the Myrtaceae, Chenopodiaceae, Mimosaceae, Myoporaceae and Proteaceae. Some 47 species not previously recorded in the reviewed vegetation surveys were located. Almost half of the newly identified species were recorded at the unique yellow sandplain habitat of the Iguana site including a P1 species, *Calytrix creswellii*. A total of 14 vegetation associations were mapped including *Eucalyptus* woodlands, *Acacia* thickets, a *Allocasuarina* woodland, a mixed woodland in a minor creek and a low shrubland in rehabilitated areas of the Iguana pit. No DRF, TEC or regionally significant communities were identified. The *Eucalyptus* associations in particular were widespread in the areas surveyed and closely resemble previously described communities. The vegetation association at the Iguana site may be considered locally significant due to the presence of the P1 species, *Calytrix creswellii*.

CONTENTS

INTRODUCTION.....	1
Site Description	1
Physical Environment.....	2
IBRA Region.....	3
Areas of Conservation Value Within the Region	4
METHODS	
Background Research.....	6
Reconnaissance.....	8
Survey Limitations	9
RESULTS.....	9
Background Research.....	9
Review of Past Surveys	9
Database Searches	19
Field Survey	19
Flora	19
Vegetation Associations	23
Individual Site Assessments	25
REFERENCES	30
APPENDIX A - Vegetation classifications of Muir (1977).	32
APPENDIX B - Vegetation Condition Scale of Keighery, (1994).....	33
APPENDIX C - Distribution of Flora Between Vegetation Associations	34
APPENDIX D - Species List for the September 2007 Survey	37
APPENDIX E - Photographic Survey of Vegetation Associations	40
APPENDIX F - Maps of Vegetation Associations.....	54
APPENDIX G - Results of Search of DEC Databases	60
APPENDIX H -The Results of EPBC Protected Matters Search Tool.....	76

LIST OF TABLES

Table 1: Definition of rare and priority flora.

Table 2: Threatened Ecological Community classifications (English 2003).

Table 3: List of taxa recorded in previous surveys conducted for tenements of the Davyhurst operation.

Table 4: Summary of vegetation associations described in previous flora surveys conducted for tenements of the Davyhurst operation.

Table 5: Summary of the results of the search of the DEC DRF and Priority database, . 21st September 2007 for the Davyhurst area, search co-ordinates 29^o 30' - 30^o 43' S and 120^o 13' - 121^o 10.5' E (GDA94).

Table 6: Comparison of flora details collected in both the current and previous flora surveys of the Davyhurst tenements.

LIST OF FIGURES

Figure 1: A locality of the Davyhurst Gold Mine tenements: Riverina, Coronation, Wahalla, Palmerston (combination of Palmerston, Camperdown and Moering) and Iguana.

Figure 2: Average monthly rainfall data for Menzies (BOM, 2007 Menzies weather station number 012052).

Figure 3: Location of the Murchison bioregion.

Figure 4: Location of priority flora identified by the DEC database search.

Figure 5: Approximate location of the area surveyed in September 2007 (red pentagon) in relation to populations of *Calytrix creswellii* as mapped by Shepherdson (2000a). Original map source - Shepherdson (2000a).

INTRODUCTION

The Monarch Gold Mining Company Ltd (Monarch), Davyhurst Gold Mine (Davyhurst) is located approximately 130 km north of the township of Kalgoorlie within the Shire of Menzies. The Company plans to commence mining activities within the Davyhurst Gold Mine, utilizing a combination of existing pits and expansion of mines within its tenements.

G&G Environmental Pty Ltd was commissioned by Monarch Gold Mining Company Ltd in September 2007 to conduct a flora survey and vegetation assessment of the following Davyhurst tenements and an expansion of the existing tailing storage facility:

- Iguana (M16/262 and L16/77);
- Riverina (M30/60, M30/84, M30/98, M30/178);
- Coronation (M30/039, M30/072);
- Walhalla North (E30/330);
- Palmerston, Camperdown and Moering (M240/352, M240/633, M240/3748); and
- a site adjacent the current tailings dam where it is proposed that a second cell shall be constructed.

A level 1 survey was conducted in accordance with the EPA guidance statement No. 51 “Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia” (EPA, 2004) and comprises background research followed by a comprehensive survey.

The survey and subsequent report are required for a mining proposal to be submitted to the Department of Industry and Resources (DoIR).

This report presents the results of the survey and includes:

- identification of the vascular plant species present in the proposed mining and tailing storage facility;
- results of the DEC database searches of plants of conservation significance (DRF, Priority, geographically restricted, endemic, limits of range, sub-species, variants, etc.);
- a map of plant communities present within each tenement;
- result of the on ground search of the mining tenements for the DRF and priority flora identified; and
- a brief review of the local and regional significance of the plant communities recorded.

SITE DESCRIPTION

The Davyhurst Gold Mine tenements occur on vacant crown land and are located within the Shire of Menzies, Western Australia, between Kalgoorlie-Boulder and the town of Menzies (Figure 1). Mining at Davyhurst commenced in 1898 following discovery of gold in 1897 and progressed until late 2005 when operations ceased. All existing tenements have remained in a care and maintenance status until Monarch Gold Mining Company Ltd acquired the mine in January 2006.



Figure 1: A locality of the Davyhurst Gold Mine tenements: Riverina, Coronation, Wahalla, Palmerston (combination of Palmerston, Camperdown and Moering) and Iguana.

Physical Environment

Davyhurst lies in the northern part of the Yilgarn Craton and has an arid climate, with annual average rainfall of 250mm (recorded since 1896). Rainfall is unreliable and most years can expect a dry spell of four to six months. Summers are hot and dry with maximum average temperature of 35 °C in January. Winters are mild with cool nights with maximum average temperature of 17 °C in July (BOM, 2007 Menzies weather station number 012052).

The mean monthly rainfall ranges between 15.8mm and 32.5mm in summer (between December and February), and 19.7 and 28.5mm in winter (between June and August). Over the last 12 months, between August 2006 and August 2007, the monthly summer rainfall was above average and the monthly winter rainfall was well below average (Figure 2).

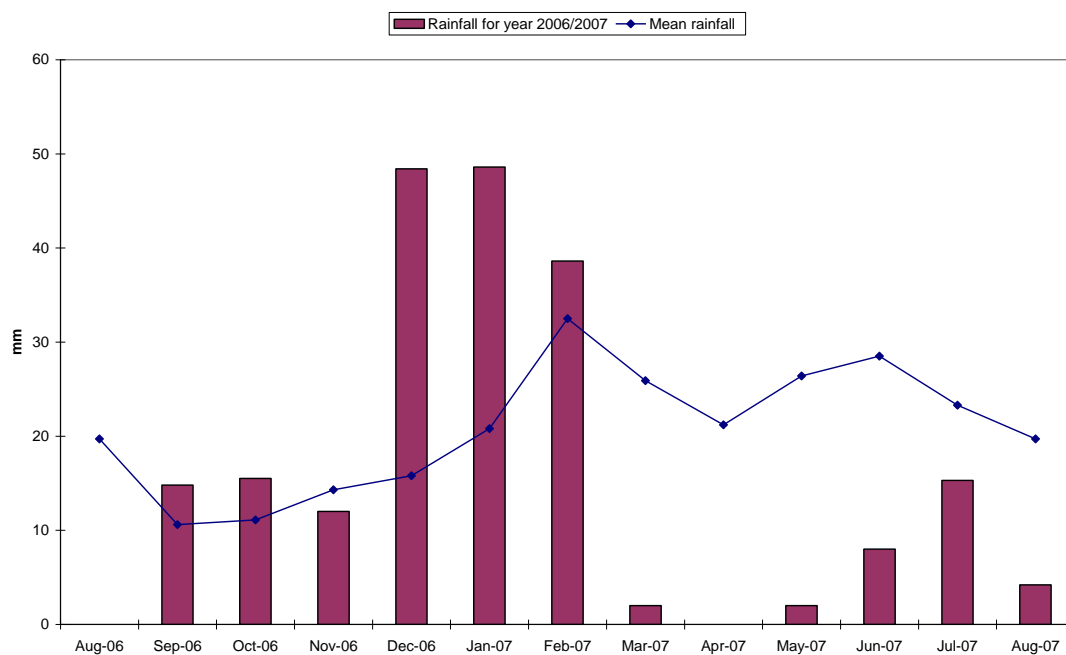


Figure 2: Average monthly rainfall data for Menzies (BOM, 2007 Menzies weather station number 012052).

IBRA Region

The Interim Biogeographic Regionalisation for Australia (IBRA) divides the Australian continent into 85 bioregions and 404 sub-regions based on major geomorphic features (DEH 2005). The Davyhurst mining tenements occur within south-eastern corner of the Murchison bioregion (MUR1 – Eastern Murchison subregion) close to the border of the Coolgardie bioregion that extends from Kalgoorlie south beyond Norseman (Figure 3, IBRA, version 5.1).

Two subregions are recognised within Murchison bioregion: The Eastern Murchison (MUR1) comprising the northern parts of the Yilgarn Craton including 'Southern Cross' and 'Eastern Goldfields' Terranes; and The Western Murchison (MUR2) encompassing the 'Murchison' Terranes part of the Yilgarn Craton (Cowan 2001; NLWRA 2002).

MUR1 is 7,847,996 ha in size and is characterised by extensive areas of elevated red desert sandplains with internal drainage, salt lake systems and broad plains of red-brown soils and breakaway complexes. Vegetation is dominated by Mulga woodlands and is often rich in ephemerals, hummock grasslands, saltbush shrublands and *Halosarcia* shrublands. On the south, the subregion borders with the Coolgardie bioregion of a rich inter-zone between mulga/spinifex and the eucalypt environment (Environment Australia 2000).

Prior to the latest division of bioregions, IBRA version 5.1, Beard (1990) described the area as the northern boundary of the Coolgardie Botanical District characterised by dry eucalyptus woodlands which borders with Austin Botanical District (Murchison Region) of Mulga communities. The Davyhurst area comprises the Kunanalling vegetation system characterised by a range of Mallee Eucalypts, Spinifex communities and thickets of *Acacia*, *Allocasuarina* and *Grevillea* species on the gently undulating sandplains with *Acacia-Eremophila* thickets on ironstone ridges. *Eucalyptus* woodlands have been found within the system occupying mid-slope loams with low chenopods (*Atriplex*, *Maireana* and *Scerolaena* species) occurring on often saline bottomlands (Mattiske 2005).

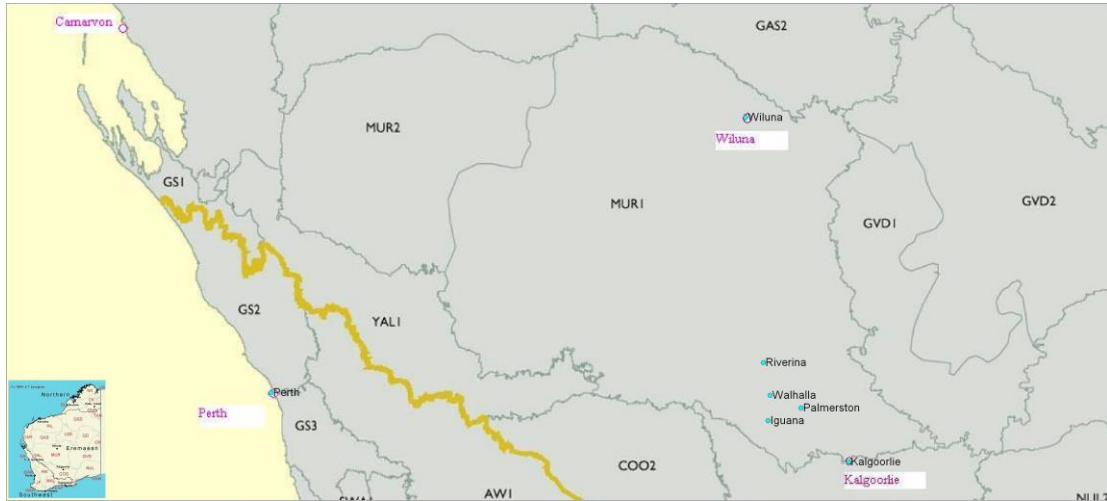


Figure 3: Location of the Murchison bioregion.

Areas of conservation value within the Region

Both subregions in the Murchison are assigned continental landscape stress class 3 as assessed by the Landscape Health report (1 is most stressed, 6 is least stressed), based on the level of environmental degradation and the area of land held in reserve. The majority of land degradation has been attributed to grazing of native pastures, feral animals (goats, foxes, cats and rabbits) and mining. The nearest conservation area to Davyhurst is Goongarrie National Park (which has minimal management facilities) located approximately 20 km west (NLWRA 2002).

There are 6 wetlands of national importance within the Murchison bioregion, all of which are lakes: Lake Ballard, Lake Barlee, Lake Marmion, Wooleen Lake, Breberle Lake and Anneen Lake. No ecosystems are listed as threatened but 60 vegetation associations have been assigned a high priority to reserve. Lake Ballard (located approximately 35km north of Riverina tenement) and Lake Marmion (located more than 50km north-east of Davyhurst) have been assigned as the Important Wetlands of Australia with major threatening process listed as grazing pressure and in need of significant intervention for recovery (NLWRA 2002).

The only wetland of subregional significance is found in MUR2 (Mungawolagudgi Claypan on Muggon Station). It is an intermittent freshwater lake and contains significant *Melaleuca uncinata* shrublands and vegetation types associated with dunes.

Special values within the Murchison bioregion include calcrete aquifers with endemic faunas of aquatic invertebrates (eg Lake Way system, Jundee, Lorna Glen, Cunyu, Austin Downs and Killara Station). There are 41 vegetation associations (hummock grasslands, succulent steppe or low woodlands) with diverse, wide ranging species of flora and fauna. Refugia which provide significant breeding area for water birds include Lake Barlee (intermittent salt lake), Wooleen Lake (floodplain lake and associated marshes) and Anneen Lake (large saline brackish lake and marsh with numerous islands and peninsulas).

Rare and Priority Flora, Threatened Ecological Communities, and Regionally or Locally Significant Communities

Rare flora species are gazetted under subsection 2 of Section 23F of the Wildlife Conservation Act (1950) and are protected against any damage by law. Priority flora are under consideration for declaration as rare flora but require further surveys or monitoring. Priority and rare flora are defined under the Wildlife Conservation Act, 1950 (table 1).

Selected plant communities have been listed as "Threatened Ecological Communities" (TEC's) under the EPBC Act (1999). In Western Australia, the Department of Environment and Conservation (DEC) describe four categories of TEC's (Table 2).

Table 1: Definition of rare and priority flora.

Code	Definition
R	Declared rare flora - Extant taxa Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection and have been gazetted as such.
P1	Priority One - Poorly Known Taxa Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2	Priority Two - Poorly Known Taxa Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under threat (not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but urgently need further survey.
P3	Priority Three - Poorly Known Taxa Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (not currently endangered), either due to the number of known populations (generally >5) or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora', but need further survey.
P4	Priority Four - Rare Taxa Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia) are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

Table 2: Threatened Ecological Community classifications (English 2003).

TEC Classification	Status	Definition
Presumed totally destroyed	X	Community is unlikely to be able to be rehabilitated.
Critically endangered	R	There are immediate threats throughout its range.
Endangered	E	Threatened throughout most of its range in the near future.
Vulnerable	V	Vulnerable to threatening processes/may move into higher threat category.

Regionally or Locally Significant Communities

Plant taxon may be considered locally or regionally significant for numerous reasons (EPA 2004) including:

- a keystone role in a particular habitat for threatened species, or supporting large populations representing a significant proportion of the local regional population of a species;
- relic status;
- being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- the presence of restricted subspecies, varieties or naturally occurring hybrids;
- local endemism/a restricted distribution; and
- being poorly reserved.

Plant communities or assemblages may also be considered locally or regionally significant for similar numerous reasons (EPA 2004) including:

- scarcity;
- unusual species;
- novel combinations of species;
- a role as a refuge;
- a role as a key habitat for threatened species or large populations representing a significant proportion of the local to regional total population of a species;
- being representative of the range of a unit (particularly, a good local and/or regional example of a unit in "prime" habitat, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range; and
- a restricted distribution.

METHODS

BACKGROUND RESEARCH

Searches of the Department of Environment and Conservation (DEC) threatened ecological communities (TEC's), rare and priority flora databases were undertaken for the co-ordinates 29° 30' - 30° 43' S and 120° 13' - 121° 10.5' E (GDA94) to encompass all of the areas to be surveyed.

A search of the *Environment Protection and Biodiversity Conservation (EPBC)* Protected Matters Search Tool and the *National Land and Water Resources Audit (NLWRA)* databases for Threatened Ecological Community (TEC) and at risk ecological community information was conducted for the Shire of Menzies.

A review of the following documents was also undertaken to determine what vegetation associations, species and significant flora had previously been identified from flora surveys conducted on leases of the Davyhurst operation.

- BSD Consultants (1997) *Consolidated Gold NL Flora Survey of the Davyhurst Area*. Report prepared for Consolidated Gold NL by BSD Consulting Pty Ltd, January 1997.
- Shepherdson, (1999) *Recommendations for the Management of Calytrix creswelli on the Lady Ida Project*. Report prepared for Kanowna Mine Ltd. by Shepherdson Environmental Services.
- Shepherdson (2000a) *Initial Findings of the Calytrix creswellii Regeneration Study*. Report prepared for Ida Gold Pty. Ltd. by Shepherdson Environmental Services.
- Shepherdson (2000b) *Flora of the Davyhurst Area*. Report prepared for Croesus Mining N.L. by Shepherdson Environmental Services.
- Matiske (2002) *Flora and Vegetation Survey Proposed Mining Areas Tuatara, Chameleon, Two Gums and Salmon Gums – Davyhurst*. Report prepared for Croesus Mining N.L. by Matiske Consulting Pty Ltd, August 2002;
- Rally Revegetation and Environmental Services (2004) *Callion (M30/103) Flora and Fauna Survey*. Report prepared for Croesus Mining N.L. by Rally Revegetation and Environmental Services, February 2004;
- Rally Revegetation and Environmental Services (2005) *Flora and Fauna Survey Proposed Mining Areas Davyhurst Region*. Report prepared for Croesus Mining N.L. by Rally Revegetation and Environmental Services, June 2005;
- Matiske (2005) *Flora and Vegetation Survey of Proposed Mining Areas at Federal Flag, Mt banjo and Macedon (M30/63)*. Report prepared for Croesus Mining N.L. by Matiske Consulting Pty Ltd, August 2005; and
- Outback Ecology (2007). Davyhurst Gold Mine, Flora Survey of: Salmon Gums (M16/220); Two Gums (M16/268), Federal Flag (M30/63), Wahalla (M30/63), Golden Eagle (M30/005); Makai (M30/044, M30/132, M30/073 and M30/042), Sand King (M24/352 and M24/039), Missouri (M24/290) and Lady Bountiful (M24/862), Report prepared for Monarch Gold Mining Company Ltd.

The locations of DRF and priority flora identified in past surveys and/or from the database searches were mapped in relation to the areas to be surveyed.

Google Earth images of the survey areas were examined and the location of apparent changes in vegetation noted and recorded on GPS for later ground-proofing in the field.

RECONNAISSANCE

The field survey was conducted by Dr Grace Wells and Dr Grant Wells from 24-28th September 2007.

The main objectives of the survey included:

- Collection and identification of the vascular plant species present in the proposed mining areas and tailing storage facility;
- Search for and describe any plants of conservation significance (DRF, Priority, geographically restricted, endemic, limits of range, sub-species, variants, etc.);
- Define and map plant communities present and their condition; and
- Review the local and regional significance of plant communities recorded.

To define the plant communities present the following data was collected from 20m x 20m quadrats:

1. Location

The coordinates of the quadrat were recorded in GDA94 projection utilising a hand-held GPS;

2. Description of vegetation

A broad description utilising the structural formation and height classes based on Muir (1977) (Appendix A);

3. Vegetation condition

A broad assessment of the vegetation condition utilising the scale of Keighery (1994) (Appendix B);

4. Habitat

A brief description of landform and habitat;

5. Soil

A broad description of surface soil type and rocks;

6. Disturbance History

A brief description of any observed disturbance including an estimate of time since last fire, weed invasions, soil disturbance and animal grazing;

7. Foliage Cover

A visual estimate of the percentage foliage cover of every species in the quadrat;

8. Colour Photograph

A colour photograph of the vegetation within each quadrat; and

9. Species List

The name of every species present in the quadrat was recorded.

Where species were located that were unknown to the staff conducting the survey a specimen was collected and pressed for later identification. All such specimens were verified at the state herbarium.

Proposed pit, waste-dump and roads sites within each of the areas mapped were traversed in a series of 50m transects to search for DRF and Priority flora.

Boundaries between vegetation associations were recorded on a GPS during the transect survey to facilitate mapping of vegetation. The vegetation associations were subsequently mapped utilising MapInfo Professional version 8.1 by plotting boundaries visible from Google Earth, and points recorded by GPS during the field survey.

SURVEY LIMITATIONS

In general, vegetation surveys should be undertaken following the season when most rain falls in the bioregion (EPA 2004). The survey area in this instance occurs in the Eremaean province where rainfall is sporadic and bimodal with rainfall peaks in both winter and summer, the latter the result of infrequent but heavy falls from cyclonic events.

There had been below average rainfall for 6 months preceding the survey (Figure 2) and this may have restricted the numbers of species present. For example, it was noted in the field that there were virtually no annual species present, most notable was the lack of annual Poaceae or Asteraceae species.

The system of mapping the vegetation from a series of selected point locations invariably means that some species present in the area are not recorded as they do not occur in those areas selected for quadrat sampling. Although species lists were supplemented by sightings of species outside of the quadrats, particularly during transect searches, it is likely that some species present were not recorded.

The survey was conducted at a time when the majority of potential DRF and priority flora of the region are recorded as flowering or fruiting.

RESULTS

BACKGROUND RESEARCH

Review of Past Surveys

Flora

A total of 207 taxa (including species, subspecies and varieties) were recorded in vegetation surveys previously conducted on leases of the Davyhurst project (table 3). Of these taxa, 16 are identified to only genus level.

The species recorded comprised 44 families and 74 genera and seven exotic/weed species.

Table 3: List of taxa recorded in previous surveys conducted for tenements of the Davyhurst operation.

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004	Mattiske 2002	Sheperdson 2000	BSD 1997
Cupressaceae	<i>Callitris</i>	<i>tuberculata</i>					x		
Poaceae	<i>Austrostipa</i>	<i>nitida</i>						x	
	<i>Austrostipa</i>	<i>platychaeta</i>		x	x				
	<i>Austrostipa</i>	sp.							x
	<i>Eragrostis</i>	<i>dielsii</i>						x	
	<i>Eragrostis</i>	<i>eriopoda</i>							x
	<i>Hordeum</i> *	<i>leporinum</i>						x	
	<i>Triodia</i>	<i>basedowii</i>						x	
	<i>Triodia</i>	<i>scariosa</i>					x		
	<i>Triodia</i>	sp.		x					
Phormiaceae	<i>Dianella</i>	<i>revoluta</i>	var. <i>divaricata</i>				x		
Casuarinaceae	<i>Allocasuarina</i>	<i>acutivalvis</i>	subsp. <i>acutivalvis</i>				x		
	<i>Allocasuarina</i>	<i>campestris</i>					x		
	<i>Allocasuarina</i>	<i>eriochlamys</i>	subsp. <i>eriochlamys</i>	x					
	<i>Allocasuarina</i>	<i>huegeliana</i>					x		
	<i>Casuarina</i>	<i>cristata</i>							x
	<i>Casuarina</i>	<i>obesa</i>		x					
	<i>Casuarina</i>	<i>pauper</i>			x	x			
Proteaceae	<i>Grevillea</i>	<i>acuaria</i>					x		
	<i>Grevillea</i>	<i>berryana</i>						x	
	<i>Grevillea</i>	<i>georgeana</i> P3					x		
	<i>Grevillea</i>	<i>haplantha</i>	subsp. <i>haplantha</i>				x		
	<i>Grevillea</i>	<i>nematophylla</i>	subsp. <i>nematophylla</i>	x	x		x		
	<i>Grevillea</i>	<i>oligomera</i>		x	x	x	x		
	<i>Grevillea</i>	sp. 1		x					
	<i>Hakea</i>	<i>francisiana</i>					x		

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004	Mattiske 2002	Sheperdson 2000	BSD 1997
Proteaceae	<i>Hakea</i>	<i>preissii</i>				X			
	<i>Hakea</i>	<i>recurva</i>					X		
	<i>Hakea</i>	<i>recurva</i>	subsp. <i>recurva</i>	X					
Santalaceae	<i>Amyema</i>	<i>miquelii</i>					X		
	<i>Exocarpus</i>	<i>aphyllus</i>		X	X		X	X	
	<i>Santalum</i>	<i>spicatum</i>		X	X		X	X	X
Loranthaceae	<i>Lysiana</i>	<i>casuarinae</i>			X				
Chenopodiaceae	<i>Atriplex</i>	<i>bunburyana</i>		X		X			
	<i>Atriplex</i>	<i>hymenotheca</i>			X				
	<i>Atriplex</i>	<i>nummularia</i>		X	X	X			X
	<i>Atriplex</i>	<i>nummularia</i>	subsp. <i>spathulata</i>				X		
	<i>Atriplex</i>	<i>vesicaria</i>		X		X			X
	<i>Atriplex</i>	<i>vesicaria</i>	subsp. <i>appendiculata</i>				X		
	<i>Maireana</i>	<i>georgei</i>		X					
	<i>Chenopodium</i>	<i>curvispicatum</i>					X		
	<i>Dissocarpus</i>	<i>paradoxus</i>				X			
	<i>Enchylaena</i>	<i>tomentosa</i>	var. <i>tomentosa</i>	X	X	X			
	<i>Eriochiton</i>	<i>sclerolaenoide</i> <i>s</i>			X				
	<i>Maireana</i>	<i>pyramidata</i>		X	X	X	X		X
	<i>Maireana</i>	<i>sedifolia</i>			X	X			
	<i>Maireana</i>	sp.		X					
	<i>Maireana</i>	sp.			X				
	<i>Maireana</i>	sp.					X		
	<i>Maireana</i>	<i>tomentosa</i>		X					
	<i>Maireana</i>	<i>trichoptera</i>			X				
	<i>Maireana</i>	<i>triptera</i>		X	X	X			X
	<i>Malacocera</i> ?	<i>tricornis</i>			X				

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004	Mattiske 2002	Sheperdson 2000	BSD 1997
Chenopodiaceae	<i>Rhagodia</i>	<i>drummondii</i>			x				
	<i>Rhagodia</i>	<i>eremaea</i>							x
	<i>Sclerolaena</i>	<i>bicornis</i>					x		
	<i>Sclerolaena</i>	<i>cuneata</i>			x				
	<i>Sclerolaena</i>	<i>densiflora</i>				x			
	<i>Sclerolaena</i>	<i>diacantha</i>		x	x				
	<i>Sclerolaena</i>	<i>drummondii</i>			x				
	<i>Sclerolaena</i>	<i>obliquicuspis</i>			x				
	<i>Sclerolaena</i>	sp.							x
Amaranthaceae	<i>Ptilotus</i>	<i>obovatus</i>		x		x			x
	<i>Ptilotus</i>	<i>obovatus</i>	var. <i>obovatus</i>		x		x		
	<i>Ptilotus</i>	<i>exaltatus</i>		x	x				
Pittosporaceae	<i>Marianthus</i>	<i>bicolor</i>					x		
	<i>Pittosporum</i>	<i>angustifolium</i>			x				
	<i>Pittosporum</i>	<i>phylliraeoides</i>				x			
Mimosaceae	<i>Acacia</i>	<i>acuminata</i>		x		x	x	x	x
	<i>Acacia</i>	<i>andrewsii</i>					x		
	<i>Acacia</i>	<i>aneura</i>				x		x	x
	<i>Acacia</i>	<i>aneura</i>	var. <i>fuliginea</i>	x					
	<i>Acacia</i>	<i>aneura</i>	var. <i>aneura</i>	x	x				
	<i>Acacia</i>	<i>aneura</i>	var. <i>argentea</i>	x	x				
	<i>Acacia</i>	<i>ayersiana</i>					x		
	<i>Acacia</i>	<i>burkittii</i>		x	x		x		
	<i>Acacia</i>	<i>craspedocarpa</i>				x			
	<i>Acacia</i>	<i>collettioides</i>		x	x	x		x	
	<i>Acacia</i>	<i>craspedocarpa</i>		x					
	<i>Acacia</i>	<i>erinaceae</i>		x	x		x		
<i>Acacia</i>	<i>hemiteles</i>		x	x	x	x	x		
<i>Acacia</i>	<i>jennerae</i>				x				

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004	Mattiske 2002	Sheperdson 2000	BSD 1997
Mimosaceae	<i>Acacia</i>	<i>ligulata</i>		x			x		x
	<i>Acacia</i>	<i>linophylla</i>							x
	<i>Acacia</i>	<i>minyura</i>			x				
	<i>Acacia</i>	<i>prainii</i>					x		
	<i>Acacia</i>	<i>ramulosa</i>	var. <i>ramulosa</i>	x	x		x	x	
	<i>Acacia</i>	<i>resinmarginea</i>					x		
	<i>Acacia</i>	<i>siberica</i>		x					
	<i>Acacia</i>	<i>sibina</i>					x		
	<i>Acacia</i>	<i>steadmanii</i>	subsp. <i>steadmanii</i>		x				
	<i>Acacia</i>	<i>stowardii</i>			x		x		
	<i>Acacia</i>	sp. 1		x					
	<i>Acacia</i>	sp. 2		x					
	<i>Acacia</i>	sp. 3		x					
	<i>Acacia</i>	<i>tetragonophylla</i>			x	x	x	x	x
	<i>Acacia</i>	<i>warramaba</i>			x				
Caesalpinaceae	<i>Senna</i>	<i>artemisioides</i>	subsp. x <i>artemisioides</i>		x				
	<i>Senna</i>	<i>artemisioides</i>	subsp. <i>filifolia</i>	x	x	x	x		
Papilionaceae	<i>Medicago</i> *	<i>minima</i>			x			x	
	<i>Swainsona</i>	<i>canescens</i>		x					
	<i>Swainsona</i>	<i>formosa</i>				x			
	<i>Templetonia</i>	<i>egena</i>							x
Papilionaceae	<i>Templetonia</i>	<i>sulcate</i>				x			
Rutaceae	<i>Drummondita</i>	<i>bassellii</i>					x		
	<i>Eriostem</i>	<i>brucei</i>	subsp. <i>brucei</i>					x	
	<i>Phebalium</i>	<i>tuberculosum</i>					x		
	<i>Philotheca</i>	<i>brucei</i>	subsp. <i>brucei</i>						
	<i>Philotheca</i>	<i>pachyphylla</i>				x	x		

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004	Mattiske 2002	Sheperdson 2000	BSD 1997
Euphorbiaceae	<i>Beyeria</i>	<i>brevifolia</i>	var. <i>robustior</i>				x		
Geraniaceae	<i>Erodium</i>	<i>crinitum</i>						x	
	<i>Erodium</i>	<i>cygnorum</i>			x				
Zygophyllaceae	<i>Zygophyllum</i>	<i>aurantiacum</i>						x	
	<i>Zygophyllum</i>	<i>eremaeum</i>						x	
Zygophyllaceae	<i>Zygophyllum</i>	<i>ovatum</i>			x				
	<i>Zygophyllum</i>	sp.		x					
Sapindaceae	<i>Dodonaea</i>	<i>adenopfera</i>						x	
	<i>Dodonaea</i>	<i>amblyophylla</i>					x		
	<i>Dodonaeae</i>	<i>lobulata</i>		x	x	x	x	x	x
	<i>Dodonaea</i>	<i>rigida</i>			x			x	
	<i>Dodonaeae</i>	<i>viscosa</i>				x		x	
	<i>Dodonaeae</i>	<i>viscosa</i>	subsp. <i>angustissima</i>	x					
Frankeniaceae	<i>Frankenia</i>	<i>desertorum</i>			x				
	<i>Frankenia</i>	sp.				x			
Thymeleaceae	<i>Pimelia</i>	<i>microcephala</i>	subsp. <i>microcephala</i>		x				
Rhamnaceae	<i>Cryptandra</i>	<i>apetala</i>	var. <i>apetala</i>	x			x		
	<i>Cryptandra</i>	<i>graniticola</i>					x		
	<i>Cryptandra</i> ?	<i>micrantha</i>					x		
Dilleniaceae	<i>Hibbertia</i>	<i>exasperata</i>					x		
Violcaea	<i>Hybanthus</i>	<i>floribundus</i>					x		
Malvaceae	<i>Lavatera</i>	<i>plebeia</i>						x	
	<i>Sida</i>	<i>calyxhymenia</i>						x	
	<i>Sida</i>	sp.		x					
Sterculiaceae	<i>Brachychiton</i>	<i>gregorii</i>		x		x			
	<i>Keraudrenia</i>	<i>nephrosperma</i>						x	
	<i>Thomasia</i>	sp.						x	

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004	Mattiske 2002	Sheperdson 2000	BSD 1997
Myrtaceae	<i>Baeckea</i>	<i>ochropetala</i>					x		
	<i>Calothamnus</i>	<i>gilesii</i>					x		
	<i>Eucalyptus</i>	<i>campaspe</i>		x					
	<i>Eucalyptus</i>	<i>celastroides</i>						x	
	<i>Eucalyptus</i>	<i>celastroides</i>	subsp. <i>celastroides</i>	x		x	x		
	<i>Eucalyptus</i>	<i>celastroides</i>	subsp. <i>virella</i>				x		
	<i>Eucalyptus</i>	<i>ceratocorys</i>					x		
	<i>Eucalyptus</i>	<i>clelandii</i>			x		x		
	<i>Eucalyptus</i>	<i>corrugata</i>					x		
	<i>Eucalyptus</i>	<i>eremicola</i>					x		
	<i>Eucalyptus</i>	<i>griffithsii</i>		x	x	x		x	
	<i>Eucalyptus</i>	<i>kochii</i>	subsp. <i>plenissima</i>				x		
	<i>Eucalyptus</i>	<i>lesouefii</i>				x			
	<i>Eucalyptus</i>	<i>longicornis</i>			x				
	<i>Eucalyptus</i>	<i>loxophleba</i>	subsp. <i>lissophloia</i>				x		
	<i>Eucalyptus</i>	<i>oleosa</i>	subsp. <i>oleosa</i>	x					
	<i>Eucalyptus</i>	<i>ravida</i>			x		x		
	<i>Eucalyptus</i>	<i>rigidula</i>					x		
	<i>Eucalyptus</i>	<i>salmonophloia</i>		x	x	x	x	x	x
	<i>Eucalyptus</i>	<i>salubris</i>		x	x	x	x	x	
	<i>Eucalyptus</i>	<i>salubris</i>	var. <i>glauca</i>					x	
	<i>Eucalyptus</i>	<i>transcontinent alis</i>			x		x	x	
	<i>Eucalyptus</i>	<i>transcontinent alis</i>	subsp. <i>transcontinentalis</i>			x			
	<i>Eucalyptus</i>	<i>ylgarnensis</i>			x				
	<i>Melaleuca</i>	<i>cordata</i>					x		
	<i>Melaleuca</i>	<i>uncinata</i>					x		
	<i>Micromyrtus</i>	<i>papillosa</i>					x		

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004	Mattiske 2002	Sheperdson 2000	BSD 1997
Primulaceae	<i>Anagallis</i> *	<i>arvensis</i>	var. <i>caerulea</i>		x			x	
Haloragaceae	<i>Glischrocaryo</i> <i>n</i>	<i>aureum</i>					x		
Apocynaceae	<i>Alyxia</i>	<i>buxifolia</i>			x		x		
Asclepiadaceae	<i>Marsdenia</i>	<i>australis</i>		x	x				
	<i>Rhyncharrhen</i> <i>a</i>	<i>linearis</i>			x				
Lamiaceae	<i>Prostanthera</i>	<i>althoferi</i>	subsp. <i>althoferi</i>		x				
	<i>Prostanthera</i>	<i>grylloana</i>		x					
	<i>Prostanthera</i>	sp.							x
Solanaceae	<i>Nicotinia</i> *	<i>glauca</i>		x				x	
Solonaceae	<i>Solanum</i>	<i>hoplopetalum</i>				x			
	<i>Solanum</i>	<i>lasiophyllum</i>		x	x	x		x	x
Myoporaceae	<i>Eremophila</i>	<i>alternifolia</i>			x				x
	<i>Eremophila</i>	<i>clarkei</i>							x
	<i>Eremophila</i>	<i>decipiens</i>					x		x
	<i>Eremophila</i>	<i>decipiens</i>	subsp. <i>decipiens</i>		x	x			
	<i>Eremophila</i>	<i>gilesii</i>					x		
	<i>Eremophila</i>	<i>granitica</i>			x				
	<i>Eremophila</i>	<i>interstans</i>	subsp. <i>virgata</i>	x	x				
	<i>Eremophila</i>	<i>ionantha</i>		x	x		x		x
	<i>Eremophila</i>	<i>latrobei</i>	subsp. <i>latrobei</i>		x				
	<i>Eremophila</i>	<i>latrobei</i>		x					x
	<i>Eremophila</i>	<i>longifolia</i>			x				x
	<i>Eremophila</i>	<i>oldfieldii</i>		x					x
	<i>Eremophila</i>	<i>oldfieldii</i>	subsp. <i>angustifolia</i>		x				
	<i>Eremophila</i>	<i>oppositifolia</i>				x			x
	<i>Eremophila</i>	<i>oppositifolia</i>	subsp. <i>angustifolia</i>	x			x		

Family	Genus	Species	Variety	Outback 2007	Mattiske 2005	Rally 2004		Sheperdson 2000		BSD 1997
							Mattiske 2002			
Myoporaceae	<i>Eremophila</i>	<i>scoparia</i>		x	x	x	x			x
	<i>Eremophila</i>	sp.		x						
	<i>Eremophila</i>	sp.	(aff. <i>coacta</i>)		x					
	<i>Eremophila</i>	sp. Mt Jackson P1					x			
Polygonaceae	<i>Acetosa</i> *	<i>vesicaria</i>							x	
	<i>Rumex</i> *	sp.							x	
Rubiaceae	<i>Psydrax</i>	<i>suaveleons</i>			x					
Cucurbitaceae	<i>Citrullus</i>	<i>lanatus</i>				x				
	<i>Cucumis</i> *	<i>myriocarpus</i>		x						x
Goodeniaceae	<i>Goodenia</i>	sp.							x	
	<i>Scaveola</i>	<i>spinescens</i>		x	x		x	x	x	x
Asteraceae	<i>Brachyscome</i>	<i>ciliocarpa</i>		x						
Asteraceae	<i>Cephalopterum</i>	<i>drummondii</i>			x					
	<i>Cratystylis</i>	<i>conocephala</i>				x				
	<i>Cratystylis</i>	<i>subspinescens</i>			x					
Asteraceae	<i>Olearia</i>	<i>muelleri</i>		x	x	x	x			x
	<i>Olearia</i>	<i>pimeleodies</i>			x		x			
	<i>Rhodanthe</i>	<i>chlorocephala</i>	subsp. <i>rosea</i>		x					

The most prominent families recorded included the Chenopodiaceae (29 taxa), Mimosaceae (29 taxa), Myrtaceae (27 taxa), Myoporaceae (19 taxa), Proteaceae (11 taxa), Poaceae (9 taxa), Casuarinaceae (9 taxa) and Asteraceae (7 taxa). Taxa from these families represent almost 68% of all plants recorded.

DRF and Priority Flora

There have been changes to the status of number of species recorded for the Davyhurst tenements from either field surveys or searches of DEC databases.

A search of DEC database by BSD (1997) identified *Goodenia pusilliflora* (P1) as occurring within the survey area. This species is currently listed as non-threatened on Florabase. A second priority species *Alyxia tetanifolia* (P1) was also recorded in the database search. This species is currently listed as a priority 3 species on Florabase.

A priority 3 species *Eremophila pustulata* was recorded during a field survey by Shepherdson (2000b) of the Giles pit. This species was listed as non-threatened on Florabase at the time of the current survey.

Conversely, *Micromyrtus papillosa* was recorded in a field survey by Mattiske (2002) at Two Gums. At the time of the survey the species was considered non-threatened, this species is currently listed as a priority 1 species on Florabase but was not recorded at the Two Gums site in a more recent survey (Outback 2007).

Two priority species were recorded during field surveys by Mattiske (2002) *Grevillea georgeana* (P3) and *Eremophila* sp. Mt Jackson (P1), the status of these species remains unchanged according to Florabase. Only a single plant of *Eremophila* sp. Mt Jackson was recorded and was described to be in poor health (Mattiske 2002). This species was not recorded during a survey of an adjacent area by Outback (2007). *Grevillea georgeana* was recorded as dominant in two vegetation associations described by Mattiske (2002) that occurred at the Tuatara, Chameleon and Two Gums tenements. No plants of the species were recorded at Two Gums in a more recent survey (Outback 2007).

A priority 1 species, *Calytrix creswellii* has been recorded at several locations at the Iguana tenement (Shepherdson 1999, 2000a). It is estimated that in excess of 500 000 plants of this species may occur in 75ha area of natural vegetation in the vicinity of the old Iguana open pit (Shepherdson 2000a). This species was listed as priority 1 on Florabase at the time of the current survey

In summary, at the time of the September 2007 survey, four current priority species had been recorded on tenements of the Davyhurst project:

- *Eremophila* sp. Mt Jackson P1 at Two Gums
- *Calytrix creswellii* P1 at Iguana
- *Micromyrtus papillosa* P1 at Tuatara, Chameleon and Two Gums
- *Grevillea georgeana* P3 at Tuatara, Chameleon and Two Gums

Vegetation Associations

A total of 33 vegetation associations have been described for tenements of the Davyhurst project comprised of 29 *Eucalyptus* woodlands, three *Acacia* thickets and one *Allocasuarina* woodland (table 4).

None of the associations described are TEC's as listed under the EPBC Act (1999) and no regionally significant communities have been recorded (BSD 1997, Shepherdson 2000, Rally 2005, Matiske 2002, 2005, Outback 2007).

Matiske (2002) identified three locally significant vegetation associations on the premise that priority flora were recorded in the associations, an *Allocasuarina* woodland (DA1) and two *Eucalyptus* woodlands (DE2 and DE6).

Database Searches

The search of the DEC DRF and priority species database identified 32 significant species comprised of one rare, eight P1, fourteen P2, eleven P3 and four P4 species (table 5) occurring within the search area (Figure 4).

No TEC's were identified on the DEC database in the vicinity of the search area.

FIELD SURVEY

Flora

A total of 116 taxa (including species, subspecies and varieties) were recorded during the field survey conducted in September 2007 by G&G Environmental (Appendix C). Of these species six have been identified accurately to genus level. The taxa comprised 28 families and 49 genera, and no exotic/weed species were recorded.

The most prominent families recorded included the Myrtaceae (21 taxa), Chenopodiaceae (19 taxa), Mimosaceae (16 taxa), Myoporaceae (12 taxa) and Proteaceae (9 taxa). Taxa from these families totalled 65% of all plants recorded.

These results are comparable to the findings of previous flora surveys for the Davyhurst project (table 6).

Of the 116 taxa recorded in the current survey, 47 were not previously recorded in the vegetation surveys reviewed. Almost half of the currently identified species (23 taxa) were recorded at the Iguana site. The Iguana site occurs within yellow sandplain system which is a markedly different habitat from the localities surveyed in the past reports (reviewed for this study) and this explains the high number of new species identified at this site.

Combining the species list of previous surveys with the current survey provides a total of 254 taxa (22 identified to genus level), from 46 families and 87 genera occurring on tenements of the Davyhurst operation.

Table 4: Summary of vegetation associations described in previous flora surveys conducted for tenements of the Davyhurst operation.

Year	Area Surveyed	Consultant	Vegetation Associations Described
1996	Not Specified	BSD Consultants Pty Ltd	3 <i>Eucalyptus salmonophloia</i> woodlands
2000	Giles Pit, M30/75 & E30/116	Shepherdson Environmental Services	1 <i>Eucalyptus</i> woodland. 1 <i>Acacia</i> shrubland
2002	Tuatar, Chameleon, Two Gums and Salmon Gums	Mattiske Consulting Pty Ltd	7 <i>Eucalyptus</i> woodlands 1 <i>Allocasuarina</i> woodland
2004	Callion M30/103	Rally Revegetation and Environmental Services	6 <i>Eucalyptus</i> woodlands
2005	Mt Banjo and Macedon M30/63	Mattiske Consulting Pty Ltd	5 <i>Eucalyptus</i> woodlands
2007	Salmon Gums (M16/220); Two Gums (M16/268); Federal Flag (M30/63); Walhalla (M30/63); Golden Eagle (M30/005); Makai (M30/044, M30/132, M30/073 and M30/042); Sand King (M24/352 and M24/039); Missouri (M24/290); and Lady Bountiful (M24/862)	Outback Ecology Services	6 <i>Eucalyptus</i> woodlands 1 <i>Acacia</i> thicket 1 <i>Grevillea nematophylla</i> subsp. <i>nematophylla</i> and <i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i> low forest

Table5 : Summary of the results of the search of the DEC DRF and Priority database, . 21st September 2007 for the Davyhurst area, search co-ordinates 29° 30' - 30° 43' S and 120° 13' - 121° 10.5' E (GDA94).

Species	Status
<i>Acacia eremophila</i> var. <i>variabilis</i>	P3
<i>Alyxia tetanifolia</i>	P3
<i>Austrostipa blackii</i>	P3
<i>Baeckea</i> sp. Jaurdi Station	P2
<i>Calytrix creswellii</i>	P1
<i>Elachanthus pusillus</i>	P2
<i>Elatine macrocalyx</i>	P3
<i>Eremophila mirabilis</i>	P2
<i>Eremophila</i> sp. Mt Jackson	P1
<i>Eucalyptus crucis</i> subsp. <i>crucis</i>	DRF
<i>Eucalyptus jutsonii</i> subsp. <i>jutsonii</i>	P2
<i>Euromyrtus leptospermoides</i>	P3
<i>Gnephosis</i> sp. Norseman	P1
<i>Gompholobium cinereum</i>	P3
<i>Grevillea ercitoloba</i>	P4
<i>Grevillea secunda</i>	P2
<i>Grevillea subterlineata</i>	P3
<i>Gunniopsis propinqua</i>	P3
<i>Homalocalyx grandiflorus</i>	P1
<i>Lepidobolus deserti</i>	P4
<i>Lissanthe scabra</i>	P2
<i>Malleostemon</i> sp. Adelong	P2
<i>Mirbelia</i> sp. Helena and Aurora Range	P3
<i>Newcastelia insignis</i>	P2
<i>Persoonia leucopogon</i>	P1
<i>Philotheca coateana</i>	P3
<i>Philotheca deserti</i> subsp. <i>brevifolia</i>	P1
<i>Rumex crystallinus</i>	P2
<i>Sowerbaea multicaulis</i>	P4
<i>Stylidium choreanthum</i>	P2
<i>Thryptomene eremaea</i>	P2
<i>Thysanotus brachyantherus</i>	P2

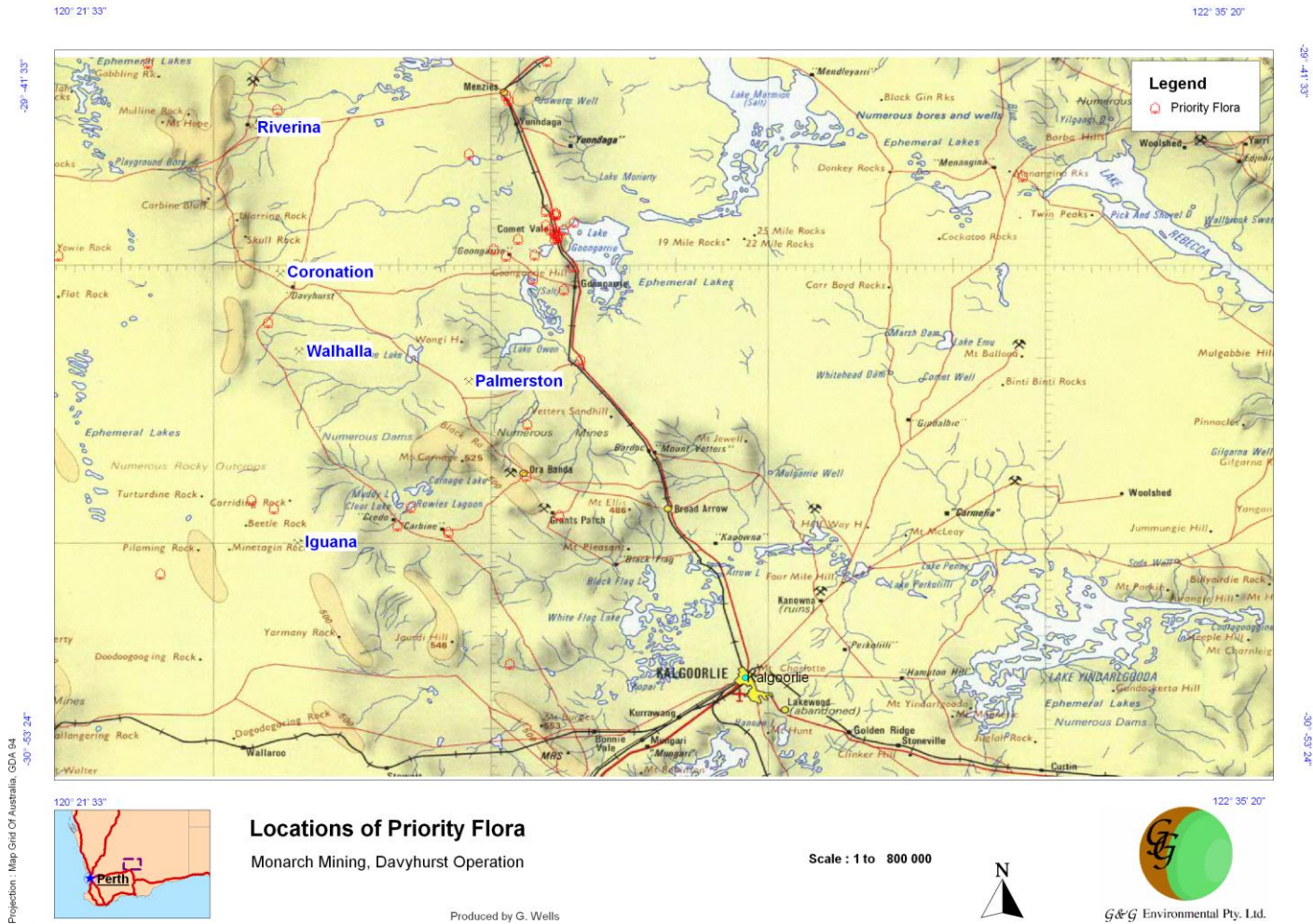


Figure 4: Location of priority flora identified by the DEC database search.

Table 6: Comparison of flora details collected in both the current and previous flora surveys of the Davyhurst tenements.

Survey	No. Sites	Flora details	Dominant Families
Mattiske 2002	4	83 taxa 25 families 38 genera	Myrtaceae (18 taxa), Mimosaceae (13 taxa), Proteaceae (7 taxa), Myoporaceae (6 taxa) and Chenopodiaceae (6 taxa).
Mattiske 2005	3	78 taxa 26 families 39 genera	Chenopodiaceae (16 taxa), Mimosaceae (12 taxa), Myoporaceae (10 taxa) and Myrtaceae (8 taxa).
Outback 2007	7	66 taxa 22 families 31 genera	Mimosaceae (15 taxa), Chenopodiaceae (10 taxa), Myoporaceae (7 taxa) and Myrtaceae (6 taxa).
G&G 2007	6	116 taxa 28 families 49 genera	Myrtaceae (21 taxa), Chenopodiaceae (19 taxa), Mimosaceae (16 taxa), Myoporaceae (12 taxa) and Proteaceae (9 taxa).

During the current survey a priority 1 species, *Calytrix creswellii* was recorded in disturbed/rehabilitated areas of the Iguana pit and the adjacent undisturbed bushland.

Previous surveys for *Calytrix creswellii* at the Iguana site (Shepherdson 1999 & 2000) have identified large numbers of plants in numerous populations over an extensive area surrounding the pit and waste-dump. The surveys identified that the species is a common volunteer to disturbed sites which corresponds with its presence in the rehabilitated areas of the Iguana pit.

Disturbance to the vegetation across the entire area of the current survey would impact on the known *C. creswellii* populations in the area (Figure 5).

Vegetation Associations

A total of 14 vegetation associations were recorded across the sites surveyed including nine *Eucalyptus* woodlands, two *Acacia* thickets, one *Allocasuarina* woodland, one mixed woodland in the riparian zone of a minor creek and one low shrubland in rehabilitated areas of the Iguana pit. Photographs of each of these associations are provided in Appendix E.

Eucalypt woodlands, *Acacia* thickets and *Allocasuarina* woodlands have been recorded in previous surveys conducted for the Davyhurst project. No association has previously been described that is similar in composition to the creekline vegetation described in the current survey.

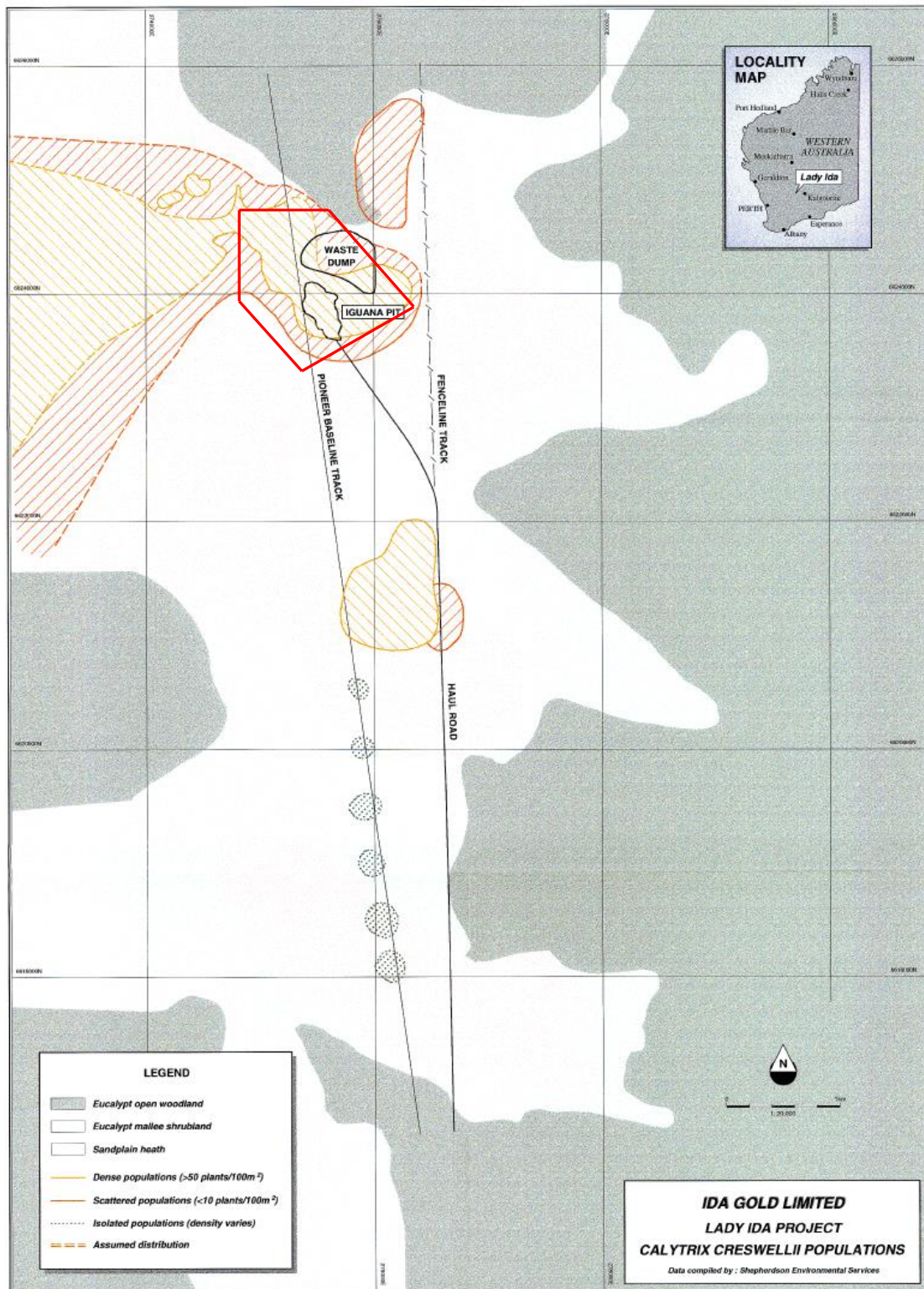


Figure 5: Approximate location of the area surveyed in September 2007 (red pentagon) in relation to populations of *Calytrix creswellii* as mapped by Shepherdson (2000a). Original map source - Shepherdson (2000a).

However, this association was comprised of species common to the Murchison region and the majority of the species were also recorded in other areas surveyed.

None of the vegetation communities identified during the survey are considered regionally significant. The *Eucalyptus* units in particular were widespread in the areas surveyed and closely resemble communities described by Mattiske (2002 & 2005) and Outback (2007) for other tenements of the Davyhurst project.

The vegetation association at the Iguana site, including rehabilitated areas may be considered locally significant due to the presence of the priority one species *Calytrix creswellii*.

Individual site Assessments

Maps of the vegetation associations of each area are provided in Appendix F.

Iguana (M16/262 and L16/77)

The survey area for the Iguana site included the Iguana pit and associated waste-dump as well as surrounding natural vegetation. Two vegetation associations were recorded in the survey area at the Iguana tenement.

E8

An open shrub mallee of *Eucalyptus brachycorys* and *Eucalyptus leptopoda* subsp. *leptopoda* over a heath A of *Casuarina corniculata*, *Acacia resinimarginea* and *Melaleuca cordata* over a *Triodia* hummock grassland.

E8d

An open dwarf scrub D of *Calytrix creswellii*, *Calytrix strigosa* and *Grevillea teretifolia* over an open *Triodia* hummock grassland.

The latter association was recorded in disturbed/rehabilitated areas surrounding the Iguana pit and waste dump. Due to the large decrease in species richness (5 spp. cf 28spp.) and lack of prominent taxa in comparison to the adjacent undisturbed, the vegetation condition of this association was recorded as degraded.

The condition of the E8 association was recorded as excellent with disturbance limited to a few vehicle access tracks into the Iguana pit.

The priority one species *Calytrix creswellii* was recorded in both associations.

Riverina (M30/60, M30/84, M30/98, M30/178)

The survey area at the Riverina site included historic mining infrastructure as well as natural bushland. The site is also bordered by a station homestead and associated facilities. Two vegetation associations and a series of completely degraded areas were recorded at the Riverina site:

E3

An open low woodland A of mixed Eucalypts with *Allocasuarina eriochlamys* subsp. *eriochlamys* over an open scrub to thicket of *Acacia* species (*A. burkittii* prominent) and *Senna artemisioides* subsp. *filifolia* over a dwarf scrub D of mixed chenopods and *Ptilotus obovatus* var. *obovatus*.

E7

An open woodland of *Eucalyptus griffithsii* and *Eucalyptus clellandii* over a low scrub B of *Senna artemisioides* subsp. *filifolia* and *Eremophila scoparia* over an open dwarf scrub D of *Ptilotus obovatus* var. *obovatus*.

The E7 association was restricted to the slopes and crest of a low rolling hill with the remaining area of flat plains inhabited by the E3 association.

The condition of the E7 association ranged from excellent to good with the major disturbance in the area attributed to historical mining. Condition of the E3 association ranged from excellent to good with disturbance attributable to mining and exploration activities as well as intensive grazing of domestic stock in paddocks adjacent a nearby homestead.

A number of areas were mapped as completely degraded and included historic tailings facilities, mine shafts, processing areas and a currently uninhabited mine camp where the natural vegetation has been completely cleared.

Coronation (M30/039, M30/072)

The Coronation site comprised virtually all natural vegetation with some evidence of past mining/exploration and agricultural activities, most notable, one small dam.

A total of six vegetation units were recorded and mapped for the proposed mine area and access road to the site:

Ac1

Emergent *Brachychiton gregorii* trees over an *Acacia burkittii*, *Acacia tetragonophylla* and *Senna artemisioides* heath over an open dwarf scrub D of *Ptilotus obovatus* var. *obovatus* and *Solanum lasiophyllum*.

C1

A low woodland A of *Pittosporum angustifolium* and *Santalum acuminatum* over a heath A of *Acacia quadrimarginea*, *Eremophila scoparia* and *Atriplex nummularia* over a dwarf scrub D of chenopods.

E1

Open low woodland of mixed Eucalypts with *Eucalyptus clellandii* and *E. griffithsii* prominent over a low heath to scrub of *Acacia* and *Eremophila* species over an open dwarf scrub C with *Olearia muellerii*, *Ptilotus obovatus* var. *obovatus* and *Scaevola spinescens* prominent.

E2

An open tall *Eucalyptus slamonophloia* woodland over a low woodland A of *Eucalyptus salubris* over an open low scrub B of mixed *Eremophila* shrubs over an open dwarf D shrubland of chenopods.

E4

A low woodland A of *Eucalyptus celastroides* subsp. *virella* over a low scrub B of *Acacia erinacea*, *Eremophila oppositifolia* subsp. *angustifolia* and *Eremophila scoparia* over an open dwarf scrub D of chenopods.

E5

An open low woodland A of *Eucalyptus clellandii* and *Eucalyptus celastroides* subsp. *virella* over an open low scrub B of *Eremophila oppositifolia* subsp. *angustifolia* and *Acacia erinacea* over an open dwarf scrub D of *Eremophila* sp.

The vegetation association AC1 inhabited the slope and crest of a rocky ridge and was in a pristine condition.

The C1 association occurred along the banks of a minor creek and condition varied to completely degraded where vehicle tracks and exploration diggings crossed the creek to Excellent where little disturbance was evident.

The E1 and E4 associations occurred primarily on flat plains and condition varied from small areas that were totally degraded (cleared tracks, dam, mine shafts) to very good/excellent where disturbances were limited to some exploration drilling and historic logging (most probably to provide timber for dwellings and to shore-up mine shafts).

The E2 and E5 associations occurred on the rocky slopes and crests of low lying hills. Vegetation condition ranged from degraded (vehicle tracks, exploration drill pads) to pristine.

Wahalla North (E30/330)

The area surveyed at Wahalla consisted of natural vegetation surrounding an operational pit. Four vegetation associations were mapped for the survey area:

A11

A woodland of *Allocasuarina eriochlamys* subsp. *eriochlamys* over a scrub of *Acacia burkittii* over an open dwarf scrub C of *Scaevola spinescens* and *Olearia muellerii*.

E1

Open low woodland of mixed Eucalypts with *Eucalyptus clellandii* and *E. griffithsii* prominent over a low heath to scrub of *Acacia* and *Eremophila* species over an open dwarf scrub C with *Olearia muellerii*, *Ptilotus obovatus* var. *obovatus* and *Scaevola spinescens* prominent.

E2

An open tall *Eucalyptus slamonophloia* woodland over a low woodland A of *Eucalyptus salubris* over an open low scrub B of mixed *Eremophila* shrubs over an open dwarf D shrubland of chenopods.

E9

An open low woodland of mixed Eucalypts and *Acacia aneura* over an *Acacia acuminata* and *Acacia burkittii* scrub over a dwarf scrub D of predominantly *Olearia muelleri*.

Two sites within the survey area were classed as completely degraded, the operational pit and associated facilities and a historic digging, possibly a borrow pit for roadworks.

The A11 association occurred along a defined drainage line. The condition of the A11 association varied from completely degraded where it intersected the access road to the operational pit to pristine in the remaining area.

The E1, E2 and E9 associations occurred on flat plains and condition varied from degraded (recent exploration drilling, vehicle tracks) to excellent where disturbance was limited to evidence of historic logging and faint traces of old exploration grid-lines.

Palmerston, Camperdown & Moering (M240/352, M240/633, M240/3748)

The areas surveyed for the Palmerston, Camperdown and Moering site included natural vegetation adjacent to and interspersed between open pits, waste-dumps and an abandonment bund of the defunct Siberia mining operation.

Two vegetation associations were recorded at the site:

E6

A low woodland of *Eucalyptus oleosa* subsp. *oleosa* and *Eucalyptus griffithsii* with *Allocasuarina eriochlamys* subsp. *eriochlamys* over a scrub of *Eremophila interstans* subsp. *interstans* over a low scrub B of *Eremophila scoparia*, *Scaevola spinescens* and *Acacia hemiteles*.

Ac2

A mixed *Acacia* thicket with emergent *Grevillea berryana* trees and *Eucalyptus leptopoda* subsp. *leptopoda* mallees over an open low scrub C of *Dodonaea lobulata*, *Scaevola spinescens* and *Senna artemisioides* subsp. *filifolia*.

The condition of both vegetation associations ranged from excellent to degraded with disturbances at the site attributable to both past mining activities and recent exploration drilling and included vehicle tracks, cleared areas (adjacent waste-dumps, pits and bunding) and exploration drill holes and pads.

TSF Cell

This site comprised vegetation adjacent to the extant Davyhurst processing plant and tailings storage facility.

The site contained two vegetation associations and a completely degraded area. The area classed as completely degraded had been cleared and piping and other materials, seemingly from the aged tailings facility, had been dumped there some time in the past.

Two vegetation associations were present:

E1

Open low woodland of mixed Eucalypts with *Eucalyptus clelandii* and *E. griffithsii* prominent over a low heath to scrub of *Acacia* and *Eremophila* species over an open dwarf scrub C with *Olearia muellerii*, *Ptilotus obovatus* var. *obovatus* and *Scaevola spinescens* prominent.

E2

An open tall *Eucalyptus slamonophloia* woodland over a low woodland A of *Eucalyptus salubris* over an open low scrub B of mixed *Eremophila* shrubs over an open dwarf D shrubland of chenopods.

The condition of both vegetation units varied from very good to pristine with the little disturbance observed (outside of the degraded area) restricted to old vehicle tracks, typically covered by plant regrowth.

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APPENDIX A - VEGETATION CLASSIFICATIONS OF MUIR (1977).

LIFE FORM/HEIGHT CLASS	CANOPY COVER			
	DENSE 70% - 100%	MID DENSE 30% - 70%	SPARSE 10% - 30%	VERY SPARSE 2% - 10%
Trees > 30m Trees 15 – 30m Trees 5 – 15m Trees < 5m	Dense Tall Forest Dense Forest Dense Low Forest A Dense Low Forest B	Tall Forest Forest Low Forest A Low Forest B	Tall Woodland Woodland Low woodland A Low Woodland B	Open Tall Woodland Open Woodland Open Low Woodland A Open Low Woodland B
Mallee Tree Form Mallee Shrub Form	Dense Tree Mallee Dense Shrub Mallee	Tree Mallee Shrub Mallee	Open Tree Mallee Open Shrub Mallee	Very Open Tree Mallee Very Open Shrub Mallee
Shrubs > 2m Shrubs 1.5 – 2m Shrubs 1 – 1.5m Shrubs 0.5 – 1m Shrubs 0 – 0.5m	Dense Thicket Dense Heath A Dense Heath B Dense Low Heath C Dense Low Heath D	Thicket Heath A Heath B Low Heath C Low Heath D	Scrub Low Scrub A Low Scrub B Dwarf Scrub C Dwarf Scrub D	Open Scrub Open Low Scrub A Open Low Scrub B Open Dwarf Scrub C Open Dwarf Scrub D
Mat Plants Hummock Grass Bunch grass >0.5m Bunch grass < 0.5m Herbaceous spp.	Dense Mat Plants Dense Hummock Grass Dense Tall Grass Dense Low Grass Dense Herbs	Mat Plants Mid-dense Hummock Grass Tall Grass Low Gras Herbs	Open Mat Plants Hummock Grass Open Tall Grass Open Low Grass Open Herbs	Very Open Mat Plants Open Hummock Grass Very Open Tall Grass Very Open Low Grass Very Open Herbs
Sedges > 0.5m Sedges < 0.5m	Dense Tall Sedges Dense Low Sedges	Tall Sedges Low Sedges	Open Tall Sedges Open Low Sedges	Very Open Tall Sedges Very Open Low Sedges
Ferns Mosses, liverworts	Dense ferns Dense Mosses	Ferns Mosses	Open Ferns Open Mosses	Very Open Ferns Very Open Mosses

**APPENDIX B - VEGETATION CONDITION SCALE OF
KEIGHERY, (1994).**

Code	Description
Pristine	<i>Pristine or nearly so. No obvious signs of disturbance.</i>
Excellent	<i>Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.</i>
Very Good	<i>Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.</i>
Good	<i>Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.</i>
Degraded	<i>Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.</i>
Completely Degraded	<i>The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.</i>

**APPENDIX C - DISTRIBUTION OF FLORA BETWEEN
VEGETATION ASSOCIATIONS RECORDED AT THE
DAVYHURST TENEMENTS SEPTEMBER 2007**

SPECIES	E1	E2	E3	E4	E5	E6	E7	E8	E8d	E9	C1	Ac1	Ac2	All
<i>Acacia acuminata</i>			X							X			X	
<i>Acacia aneura</i>	X		X							X			X	
<i>Acacia aneura</i> var. <i>aneura</i>										X				
<i>Acacia aneura</i> var. <i>fuliginea</i>	X													
<i>Acacia ayersiana</i>	X									X				
<i>Acacia burkittii</i>	X		X	X	X	X				X		X	X	X
<i>Acacia erinacea</i>	X		X	X	X		X							
<i>Acacia hemiteles</i>						X							X	
<i>Acacia jennerae</i>	X		X								X		X	
<i>Acacia ligulata</i>						X								
<i>Acacia murrayana</i>			X										X	
<i>Acacia neurophylla</i> subsp. <i>erugata</i>								X						
<i>Acacia prainii</i>			X											
<i>Acacia resinimarginea</i>								X						
<i>Acacia</i> sp.						X								
<i>Acacia tetragonophylla</i>	X	X	X							X		X	X	
<i>Alectryon oleifolius</i> subsp. <i>canescens</i>			X											
<i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i>	X		X		X	X	X				X			X
<i>Atriplex nummularia</i>	X	X		X	X						X			X
<i>Atriplex vesicaria</i> subsp. <i>appendiculata</i>		X		X							X			
<i>Atriplex vesicaria</i> subsp. <i>incompta</i>	X													
<i>Banksia elderiana</i>								X						
<i>Brachychiton gregorii</i>												X		
<i>Callitris canescens</i>								X						
<i>Calothammus aridus</i>								X						
<i>Calothammus</i> sp.								X						
<i>Calytrix creswellii</i> P1								X	X					
<i>Calytrix strigosa</i>								X	X					
<i>Casuarina corniculata</i>								X						
<i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>								X						
<i>Cratystylis subspinescens</i>		X												
<i>Dissocarpus paradoxus</i>		X												
<i>Dodonaea amblyophylla</i>								X						
<i>Dodonaea lobulata</i>	X		X	X	X		X					X	X	X
<i>Dodonaea rigida</i>										X				
<i>Enchylaena tomentosa</i>			X											
<i>Eremophila decipiens</i>	X		X		X		X							
<i>Eremophila georgei</i>												X		
<i>Eremophila granitica</i>	X									X				
<i>Eremophila interstans</i> subsp. <i>interstans</i>	X	X				X								
<i>Eremophila latrobei</i>					X									
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	X											X	X	
<i>Eremophila longifolia</i>	X										X			
<i>Eremophila oldfieldii</i>	X		X				X							X
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	X			X	X									
<i>Eremophila platycalyx</i> subsp. <i>platycalyx</i>				X										
<i>Eremophila pustulata</i>					X									
<i>Eremophila scoparia</i>	X	X	X	X	X	X	X				X			X
<i>Eremophila</i> sp.					X									

SPECIES	E1	E2	E3	E4	E5	E6	E7	E8	E8d	E9	C1	Ac1	Ac2	All
<i>Eucalyptus brachycorys</i>								X						
<i>Eucalyptus campaspe</i>	X													
<i>Eucalyptus celastroides</i> subsp. <i>virella</i>				X	X									
<i>Eucalyptus clellandii</i>	X		X		X		X							
<i>Eucalyptus ewartiana</i>												X		
<i>Eucalyptus griffithsii</i>	X		X			X	X			X				
<i>Eucalyptus leptopoda</i> subsp. <i>leptopoda</i>								X					X	
<i>Eucalyptus longicornis</i>	X													
<i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i>	X													
<i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>						X				X				
<i>Eucalyptus platycorys</i>								X						
<i>Eucalyptus salmonophloia</i>	X	X												
<i>Eucalyptus salubris</i>		X	X							X				
<i>Exocarpos aphyllus</i>	X		X		X	X								
<i>Frankenia fecunda</i>	X	X												
<i>Frankenia magnifica</i>		X												
<i>Grevillea acuaria</i>						X								
<i>Grevillea berryana</i>	X					X							X	
<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>								X						
<i>Grevillea teretifolia</i>									X					
<i>Hakea scoparia</i> subsp. <i>scoparia</i>								X						
<i>Halgania cyanea</i> var. <i>Allambi Stn</i>								X						
<i>Hybanthus floribunda</i>												X		
<i>Leptosema aculeatum</i>								X						
<i>Maireana georgei</i>		X	X											X
<i>Maireana lanosa</i>				X										
<i>Maireana pentatropis</i>			X	X										
<i>Maireana pyramidata</i>		X												
<i>Maireana sedifolia</i>		X												
<i>Maireana tomentosa</i>	X													
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>		X												
<i>Maireana trichoptera</i>			X											
<i>Maireana triptera</i>	X	X		X	X						X			X
<i>Marsdenia australis</i>	X													
<i>Melaleuca cordata</i>								X						
<i>Melaleuca uncinata</i>										X				
<i>Mirbelia trichocalyx</i>								X						
<i>Olearia muellerii</i>	X	X	X		X	X				X				X
<i>Petrophile seminuda</i>								X						
<i>Petrophile stricta</i>								X						
<i>Pimelea angustifolia</i>								X						
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>		X			X						X			
<i>Pimelea trichostachya</i>								X						
<i>Pittosporum angustifolium</i>	X										X			
<i>Pityrodia lepidota</i>								X						
<i>Psydrax suaveolens</i>			X								X			
<i>Ptilotus obovatus</i> var. <i>obovatus</i>	X	X	X	X	X	X	X			X	X	X	X	X
<i>Rhagodia spinescens</i>	X		X											
<i>Santalum acuminatum</i>			X								X			
<i>Santalum spicatum</i>	X				X									X
<i>Scaevola spinescens</i>	X		X	X	X	X	X						X	X
<i>Sclerolaena brevifolia</i>											X			
<i>Sclerolaena cornishiana</i>	X	X	X	X										
<i>Sclerolaena cuneata</i>		X	X	X	X									
<i>Sclerolaena densiflora</i>	X													
<i>Senna artemisioides</i>												X		
<i>Senna artemisioides</i> subsp. <i>filifolia</i>	X	X	X		X	X	X			X			X	

SPECIES	E1	E2	E3	E4	E5	E6	E7	E8	E8d	E9	C1	Ac1	Ac2	All
<i>Senna pleurocarpa</i>						X								
<i>Solanum lasiophyllum</i>	X		X								X	X	X	
<i>Stenopetalum sphaerocarpum</i>								X						
<i>Templetonia sulcata</i>	X													
<i>Thryptomene ? urceolaris</i>								X						
<i>Thysanotus patersonii</i>										X				
<i>Triodia sp.</i>						X							X	
<i>Triodia sp.2</i>								X	X					
<i>Verticordia forrestii</i>									X					
<i>Westringia cephalantha</i>						X								

**APPENDIX D - SPECIES LIST FOR THE SEPTEMBER 2007 SURVEY OF
THE DAVYHURST TENEMENTS**

FAMILY	TAXA
AMARANTHACEAE	<i>Ptilotus obovatus</i> subsp. <i>obovatus</i>
ANTHERICACEAE	<i>Thysanotus patersonii</i>
ASCLEPIADACEAE	<i>Marsdenia australis</i>
ASTERACEAE	<i>Cratystylis subspinescens</i> <i>Olearia muellerii</i>
BRASSICACEAE	<i>Stenopetalum sphaerocarpum</i>
CAESALPINIACEAE	<i>Senna artemisioides</i> <i>Senna artemisioides</i> subsp. <i>filifolia</i> <i>Senna pleurocarpa</i>
CASUARINACEAE	<i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i> <i>Casuarina corniculata</i>
CHENOPODIACEAE	<i>Atriplex nummularia</i> <i>Atriplex vesicaria</i> subsp. <i>appendiculata</i> <i>Atriplex vesicaria</i> subsp. <i>Incompta</i> <i>Dissocarpus paradoxus</i> <i>Enchylaena tomentosa</i> <i>Maireana georgei</i> <i>Maireana lanosa</i> <i>Maireana pentatropis</i> <i>Maireana pyramidata</i> <i>Maireana sedifolia</i> <i>Maireana tomentosa</i> <i>Maireana tomentosa</i> subsp. <i>tomentosa</i> <i>Maireana trichoptera</i> <i>Maireana triptera</i> <i>Rhagodia spinescens</i> <i>Sclerolaena brevifolia</i> <i>Sclerolaena cornishiana</i> <i>Sclerolaena cuneata</i> <i>Sclerolaena densiflora</i>
CUPPRESSACEAE	<i>Callitris canescens</i>
FRANKENIACEAE	<i>Frankenia fecunda</i> <i>Frankenia magnifica</i>
GOODENIACEAE	<i>Scaevola spinescens</i>
HALORAGACEAE	<i>Halgania cyanea</i> var. <i>Allambi Stn</i>
LAMIACEAE	<i>Westringia cephalantha</i> <i>Pityrodia lepidota</i>
MIMOSACEAE	<i>Acacia acuminata</i> <i>Acacia aneura</i> <i>Acacia aneura</i> var. <i>aneura</i> <i>Acacia aneura</i> var. <i>fuliginea</i> <i>Acacia ayersiana</i> <i>Acacia burkittii</i> <i>Acacia erinacea</i> <i>Acacia hemiteles</i> <i>Acacia jennerae</i> <i>Acacia ligulata</i> <i>Acacia murrayana</i> <i>Acacia neurophylla</i> subsp. <i>erugata</i>

FAMILY	TAXA
MIMOSACEAE	<i>Acacia prainii</i> <i>Acacia resinimarginea</i> <i>Acacia sp.</i> <i>Acacia tetragonophylla</i>
MYOPORACEAE	<i>Eremophila decipiens</i> <i>Eremophila georgei</i> <i>Eremophila granitica</i> <i>Eremophila interstans</i> subsp. <i>interstans</i> <i>Eremophila latrobei</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Eremophila longifolia</i> <i>Eremophila oldfieldii</i> <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> <i>Eremophila pustulata</i> <i>Eremophila scoparia</i> <i>Eremophila sp.</i>
MYRTACEAE	<i>Calothamnus aridus</i> <i>Calothamnus sp.</i> <i>Calytrix creswellii</i> P1 <i>Calytrix strigosa</i> <i>Eucalyptus brachycorys</i> <i>Eucalyptus campaspe</i> <i>Eucalyptus celastroides</i> subsp. <i>virella</i> <i>Eucalyptus clellandii</i> <i>Eucalyptus ewartiana</i> <i>Eucalyptus griffithsii</i> <i>Eucalyptus leptopoda</i> subsp. <i>leptopoda</i> <i>Eucalyptus longicornis</i> <i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i> <i>Eucalyptus platycorys</i> <i>Eucalyptus salmonophloia</i> <i>Eucalyptus salubris</i> <i>Melaleuca cordata</i> <i>Melaleuca uncinata</i> <i>Thryptomene ? urceolaris</i> <i>Verticordia forrestii</i>
PAPILIONACEAE	<i>Leptosema aculeatum</i> <i>Mirbelia trichocalyx</i> <i>Templetonia sulcata</i>
PITTOSPORACEAE	<i>Pittosporum angustifolium</i>
POACEAE	<i>Triodia sp.</i> <i>Triodia sp.2</i>
PROTEACEAE	<i>Banksia elderiana</i> <i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i> <i>Grevillea acuaria</i> <i>Grevillea berryana</i> <i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i> <i>Grevillea teretifolia</i> <i>Hakea scoparai</i> subsp. <i>scoparia</i> <i>Petrophile seminuda</i> <i>Petrophile stricta</i>

FAMILY	TAXA
RUBIACEAE	<i>Psydrax suaveolens</i>
SANTALACEAE	<i>Exocarpos aphyllus</i>
SANTALACEAE	<i>Santalum acuminatum</i>
	<i>Santalum spicatum</i>
SAPINDACEAE	<i>Alectryon oleifolius</i> subsp. <i>canescens</i>
	<i>Dodonaea amblyophylla</i>
	<i>Dodonaea lobulata</i>
	<i>Dodonaea rigida</i>
SOLANACEAE	<i>Solanum lasiophyllum</i>
STERCULIACEAE	<i>Brachychiton gregorii</i>
THYMELEACEAE	<i>Pimelea angustifolia</i>
	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>
	<i>Pimelea trichostachya</i>
VIOLACEAE	<i>Hybanthus floribunda</i>

APPENDIX E - PHOTOGRAPHIC SURVEY OF VEGETATION ASSOCIATIONS



E1 Open low woodland of mixed Eucalypts with *Eucalyptus clelandii* and *E. griffithsii* prominent over a low heath to scrub of *Acacia* and *Eremophila* species over an open dwarf scrub C with *Olearia muellerii*, *Ptilotus obovatus* var. *obovatus* and *Scaevola spinescens* prominent.



E2

An open tall *Eucalyptus slamonophloia* woodland over a low woodland A of *Eucalyptus salubris* over an open low scrub B of mixed *Eremophila* shrubs over an open dwarf D shrubland of chenopods.



E3

An open low woodland A of mixed Eucalypts with *Allocasuarina eriochlamys* subsp. *eriochlamys* over an open scrub to thicket of *Acacia* species (*A. burkittii* prominent) and *Senna artemisioides* subsp. *filifolia* over a dwarf scrub D of mixed chenopods and *Ptilotus obovatus* var. *obovatus*.



E4

A low woodland A of *Eucalyptus celastroides* subsp. *virella* over a low scrub B of *Acacia erinacea*, *Eremophila oppositifolia* subsp. *angustifolia* and *Eremophila scoparia* over an open dwarf scrub D of chenopods.



E5

An open low woodland A of *Eucalyptus clelandii* and *Eucalyptus celastroides* subsp. *virella* over an open low scrub B of *Eremophila oppositifolia* subsp. *angustifolia* and *Acacia erinacea* over an open dwarf scrub D of *Eremophila* sp.



E6

A low woodland of *Eucalyptus oleosa* subsp. *oleosa* and *Eucalyptus griffithsii* with *Allocasuarina eriochlamys* subsp. *eriochlamys* over a scrub of *Eremophila interstans* subsp. *interstans* over a low scrub B of *Eremophila scoparia*, *Scaevola spinescens* and *Acacia hemiteles*.



E7

An open woodland of *Eucalyptus griffithsii* and *Eucalyptus clellandii* over a low scrub B of *Senna artemisioides* subsp. *filifolia* and *Eremophila scoparia* over an open dwarf scrub D of *Ptilotus obovatus* var. *obovatus*.



E8

An open shrub mallee of *Eucalyptus brachycorys* and *Eucalyptus leptopoda* subsp. *leptopoda* over a heath A of *Casuarina corniculata*, *Acacia resinimarginea* and *Melaleuca cordata* over a *Triodia* hummock grassland.



E8d

An open dwarf scrub D of *Calytrix creswellii*, *Calytrix strigosa* and *Grevillea teretifolia* over an open *Triodia* hummock grassland.



E9

An open low woodland of mixed Eucalypts and *Acacia aneura* over an *Acacia acuminata* and *Acacia burkittii* scrub over a dwarf scrub D of predominantly *Olearia muelleri*.



C1

A low woodland A of *Pittosporum angustifolium* and *Santalum acuminatum* over a heath A of *Acacia quadrimarginea*, *Eremophila scoparia* and *Atriplex nummularia* over a dwarf scrub D of chenopods.



Ac1

Emergent *Brachychiton gregorii* trees over an *Acacia burkittii*, *Acacia tetragonophylla* and *Senna artemisioides* heath over an open dwarf scrub D of *Ptilotus obovatus* var. *obovatus* and *Solanum lasiophyllum*.



Ac2

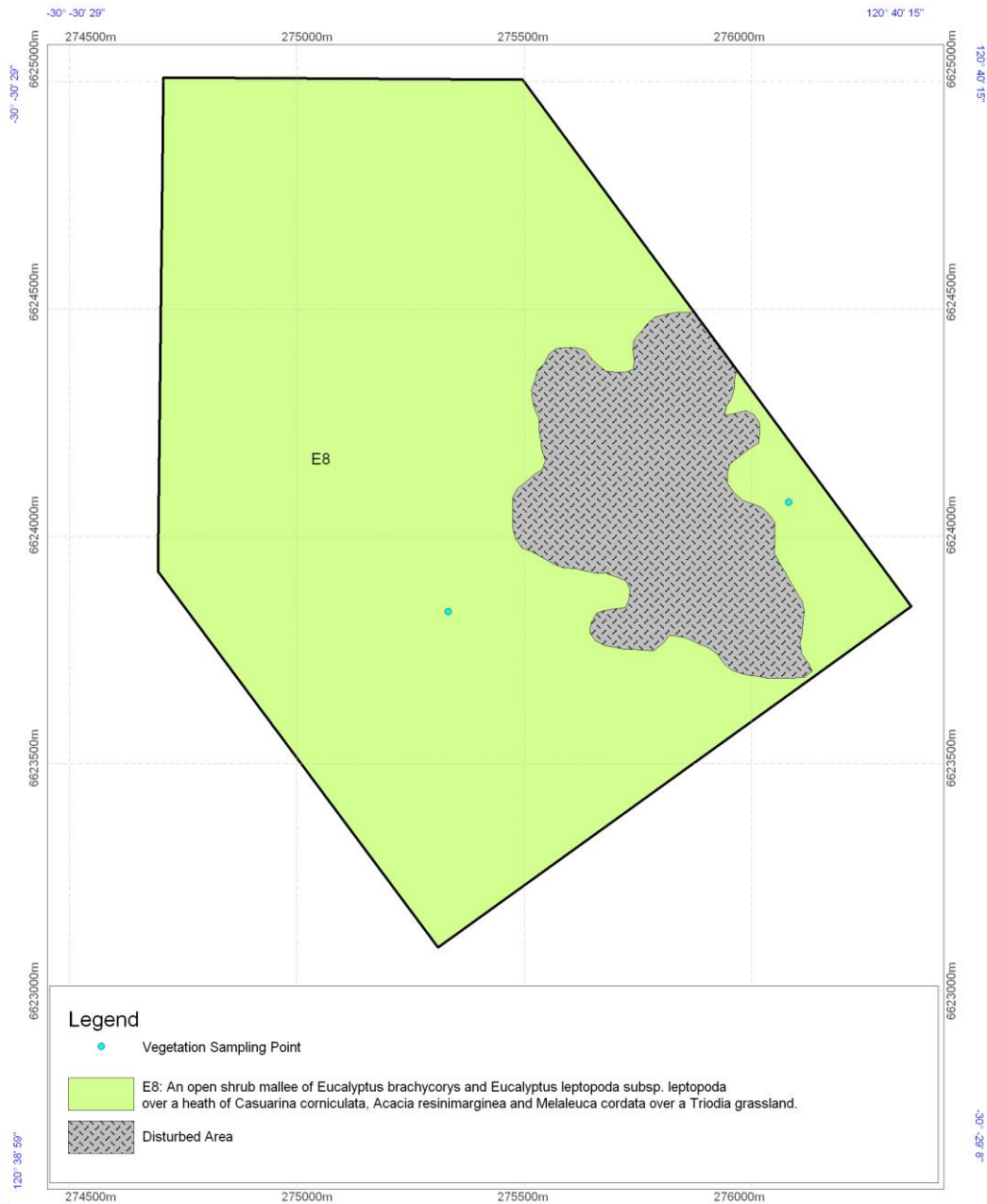
A mixed *Acacia* thicket with emergent *Grevillea berryana* trees and *Eucalyptus leptopoda* subsp. *leptopoda* mallees over an open low scrub C of *Dodonaea lobulata*, *Scaevola spinescens* and *Senna artemisioides* subsp. *filifolia*.



A11

A woodland of *Allocasuarina eriochlamys* subsp. *eriochlamys* over a scrub of *Acacia burkittii* over an open dwarf scrub C of *Scaevola spinescens* and *Olearia muellerii*.

APPENDIX F - MAPS OF VEGETATION ASSOCIATIONS



Projection: Map Grid Of Australia, GDA 94



Vegetation Map

Proposed Iguana Pit,
Monarch Mining, Davyhurst Operation

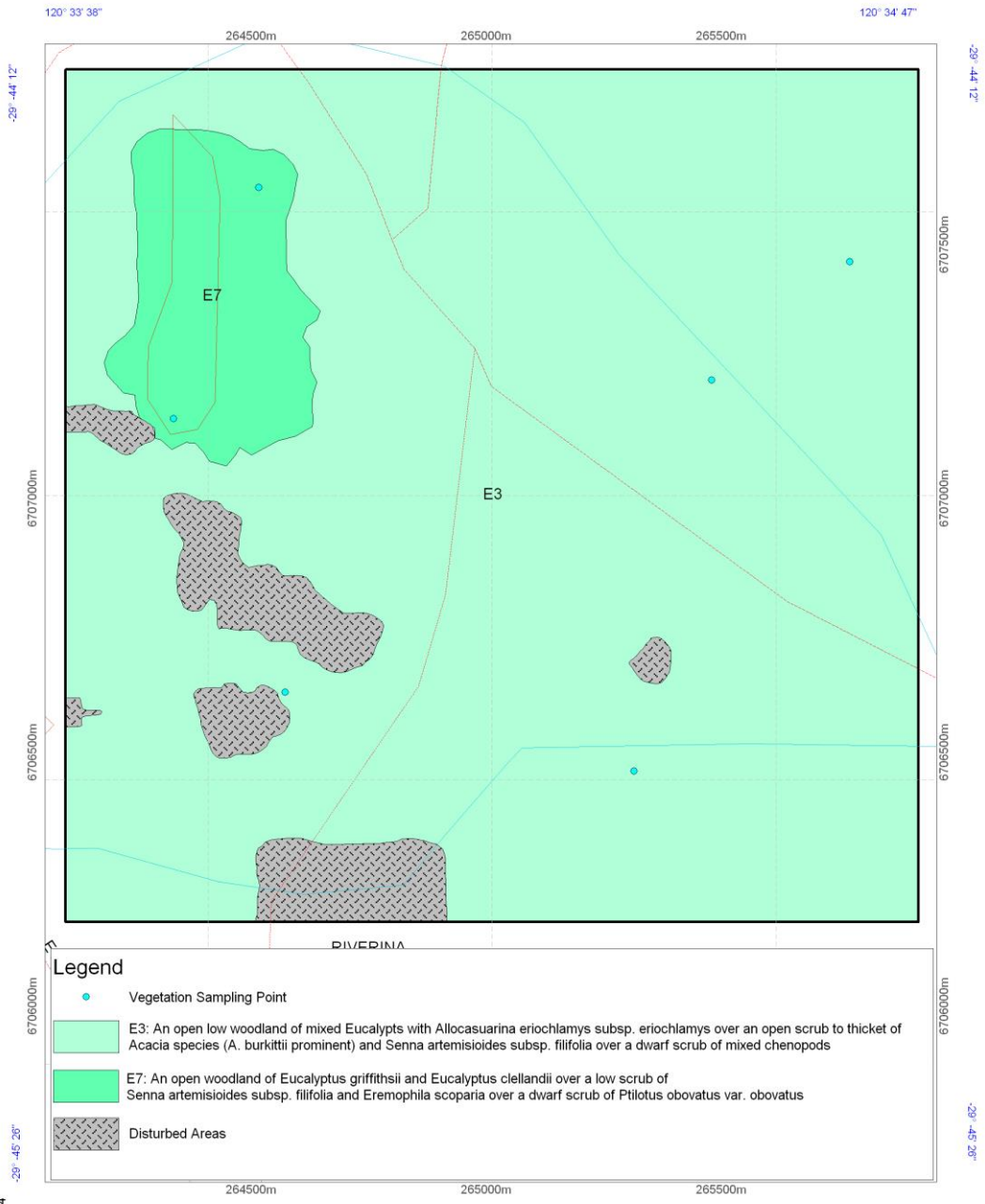
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Produced by G. Wells

Scale : 1:10 000



G&G Environmental Pty. Ltd.



Legend

- Vegetation Sampling Point
- E3: An open low woodland of mixed Eucalypts with *Allocasuarina eriochlamys* subsp. *eriochlamys* over an open scrub to thicket of *Acacia* species (*A. burkittii* prominent) and *Senna artemisioides* subsp. *filifolia* over a dwarf scrub of mixed chenopods
- E7: An open woodland of *Eucalyptus griffithsii* and *Eucalyptus clellandii* over a low scrub of *Senna artemisioides* subsp. *filifolia* and *Eremophila scoparia* over a dwarf scrub of *Ptilotus obovatus* var. *obovatus*
- Disturbed Areas

Projection: Map Grid Of Australia, GDA 94



Vegetation Map

Proposed Riverina Pit, Monarch Mining, Davyhurst

Scale : 1: 10 000

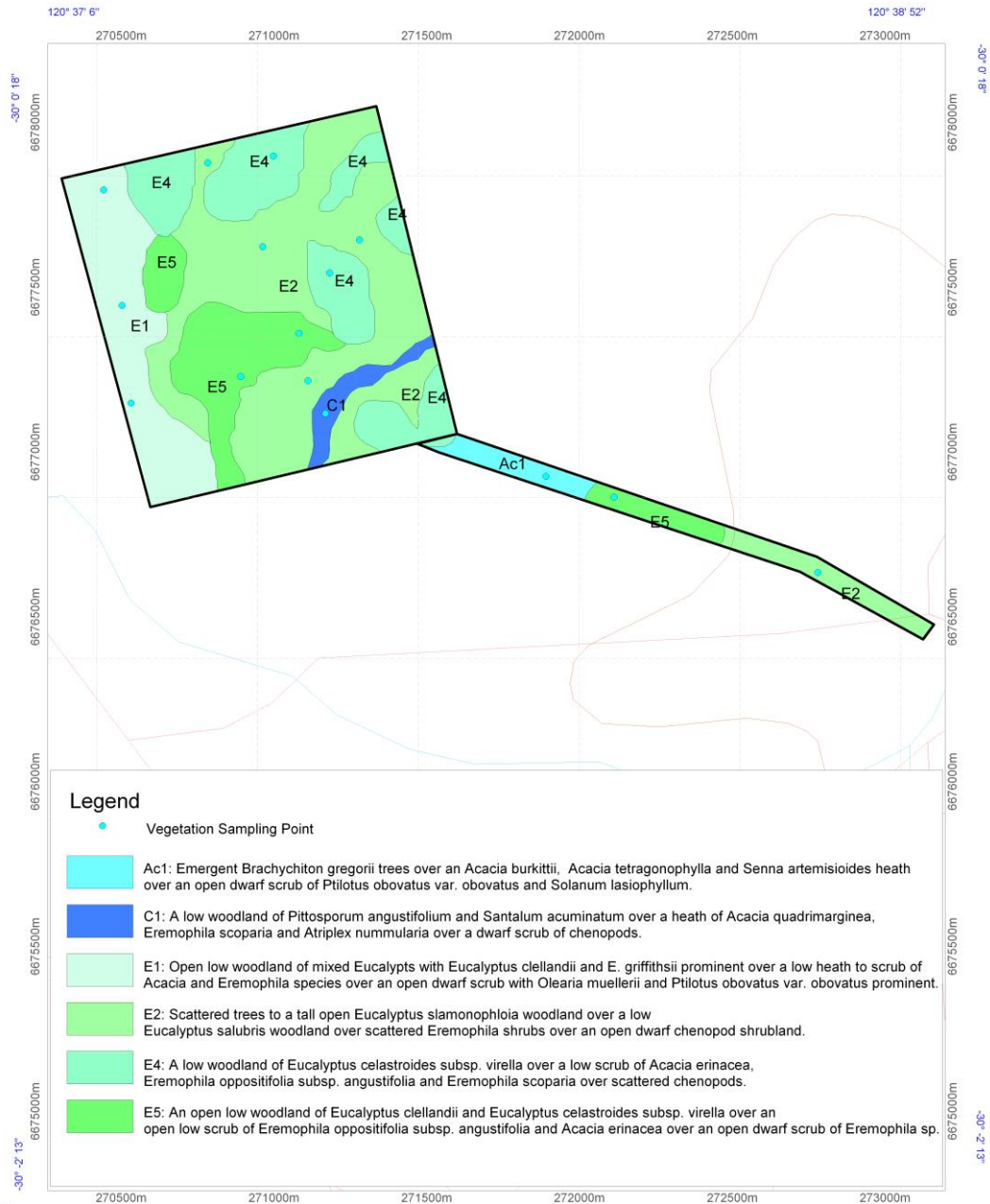


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Produced by G. Wells



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Projection : Map Grid Of Australia, GDA 94



Vegetation Map

Proposed Coronation Pit,
Monarch Mining, Davyhurst Operation

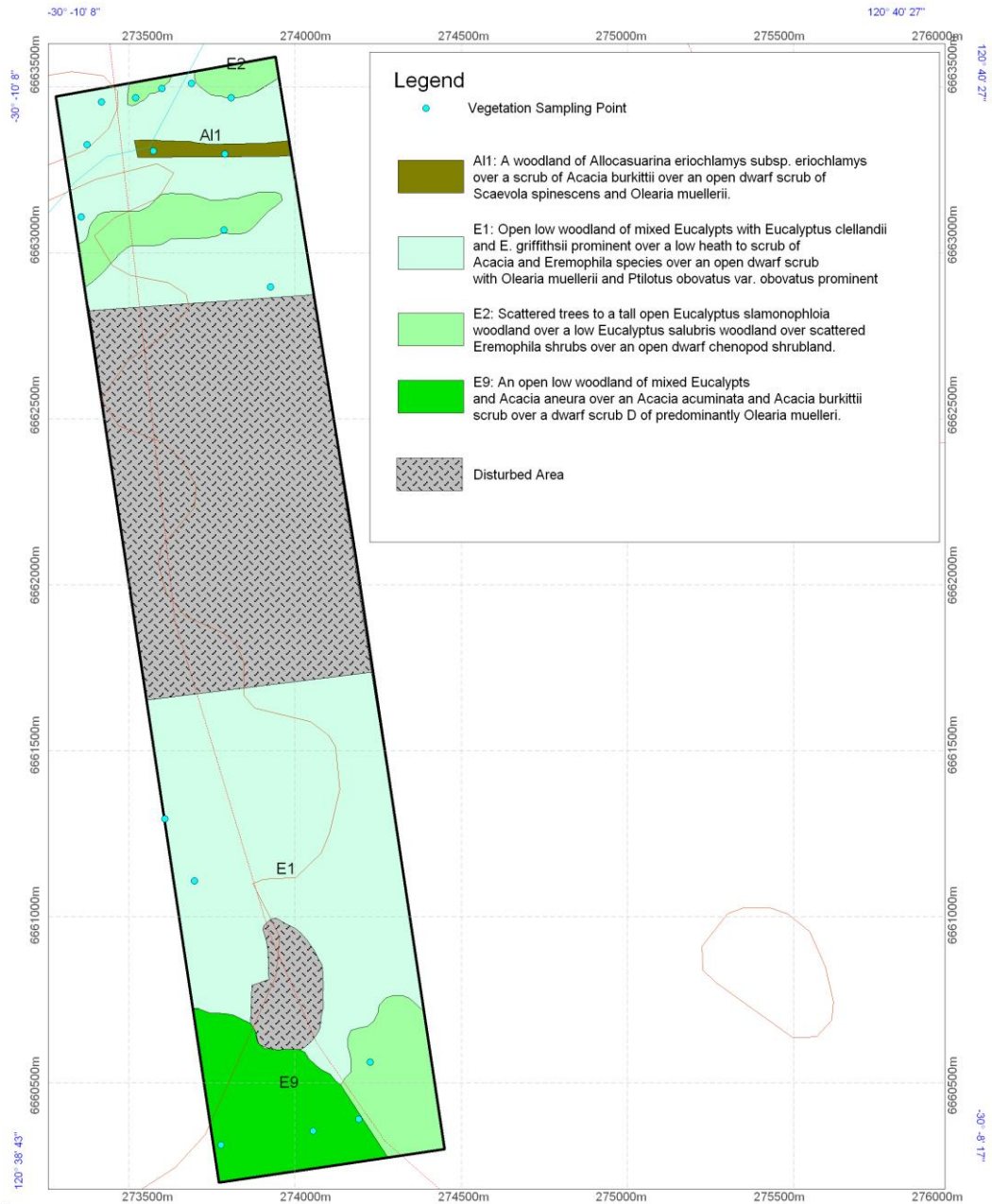
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Scale : 1:15 500



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Projection : Map Grid Of Australia, GDA 94



Vegetation Map

Proposed Expansion of Wahalla Pit, Monarch Mining, Davyhurst Operation

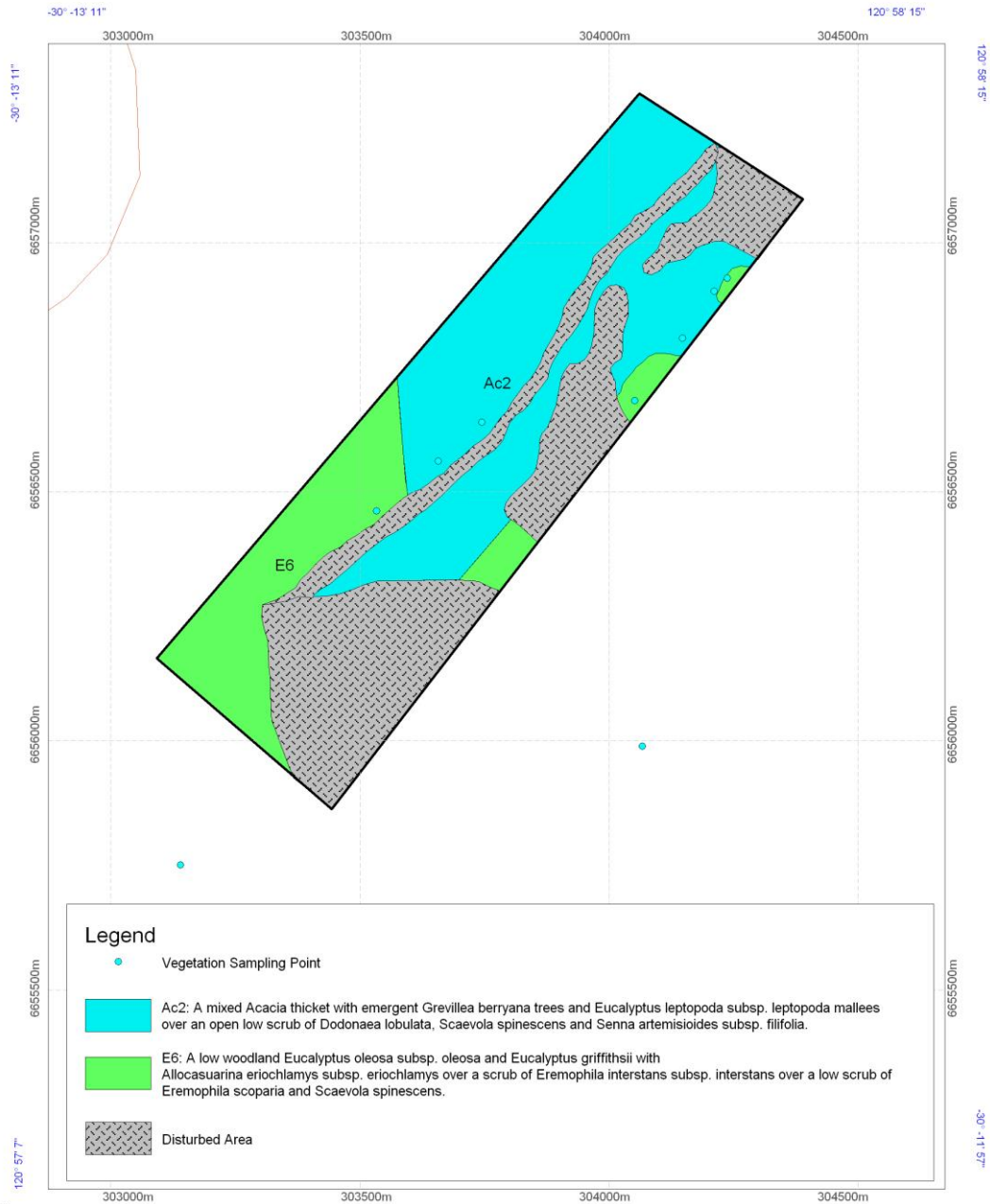
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Scale : 1:15 000



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Legend

- Vegetation Sampling Point
- Ac2: A mixed Acacia thicket with emergent *Grevillea berryana* trees and *Eucalyptus leptopoda* subsp. *leptopoda* mallees over an open low scrub of *Dodonaea lobulata*, *Scaevola spinescens* and *Senna artemisioides* subsp. *filifolia*.
- E6: A low woodland *Eucalyptus oleosa* subsp. *oleosa* and *Eucalyptus griffithsii* with *Allocasuarina eriochlamys* subsp. *eriochlamys* over a scrub of *Eremophila interstans* subsp. *interstans* over a low scrub of *Eremophila scoparia* and *Scaevola spinescens*.
- Disturbed Area

Projection: Map Grid Of Australia, GDA 94



Vegetation Map

Proposed Palmerston, Camperdown and Moering Pits, Monarch Mining, Davyhurst Operation

Scale : 1:10 000

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Projection: Map Grid Of Australia, GDA 94



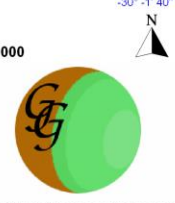
Vegetation Map

Proposed Expansion of Tailings Storage Facility,
Monarch Mining, Davyhurst Operation

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Scale : 1:10 000



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APPENDIX G - RESULTS OF SEARCH OF DEC DATABASES

DEC DRF and Priority Search. Request of 21st September 2007 for information on rare flora in the Davyhurst area. The search co-ordinates used were 29° 30' - 30° 43' S and 120° 13' - 121° 10.5' E (GDA94).

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

Page 1

DECLARED RARE AND PRIORITY FLORA LIST

21 December 2006

SPECIES / TAXON	CONS CODE	CALM REGION	DISTRIBUTION	FLOWER PERIOD
Austrostipa blackii	3	GLD,WB	Merredin, Dalwallinu, Jaurdi, Widgiemooltha, eastern States, Tutanning Nature Reserve	
Baeckea sp. Jaurdi Station (LW Sage & F Hort 2229)	2	GLD	Jaurdi Station	Oct
Elachanthus pusillus	2	SC,GLD	Orchid Rock, Cocklebiddy, Kalgoorlie, Jaurdi Stn	Oct
Eremophila mirabilis ms	2	GLD,MW	Niagara, Morapoi, Kookynie, Woolgorong, Menzies	Aug-Sep
Eucalyptus jutsonii subsp. jutsonii	4	GLD	Comet Vale, Binti Binti Rocks, Menzies, Jeedamya Stn	Nov
Gnephosis sp. Norseman (KR Newbey 8096)	1	GLD,SC	Jaurdi Stn, Norseman	Sep,Oct
Gunniopsis propinqua	3	GLD	Laverton, Mt Margaret, Lake Carnegie, Windidda, Mt Eureka, Mt James, Menzies	Aug-Sep
Lissanthe scabra	2	GLD,WB	Jaurdi Stn, Marvel Loch, Southern Cross, Frog Rock Nature Reserve	Aug,Sep
Mirbelia sp. Helena and Aurora Range (BJ	3	GLD	Helena and Aurora Range, Jaurdi Stn,	Sep

Lepschi 2003)			Coorara Soak, Mt Manning, Corby, Koolanooka Hills	
<i>Persoonia leucopogon</i>	1	GLD	Between Coolgardie & Laverton, Comet Vale (Menzies)	-
<i>Philotheca coateana</i>	3	GLD,MW	Menzies, Gidgee, Cashmere Downs, Walling Rock	Aug-Oct
<i>Philotheca deserti</i> subsp. <i>brevifolia</i>	1	GLD	Menzies	
<i>Rumex crystallinus</i>	2	MW,GLD, *	Lyndon River, Carnarvon, Rowles Lagoon, All other States	
<i>Stylidium choreanthum</i>	2	WB,GLD	Helena & Aurora Range, Ghooli, Southern Cross, Kambalda, Koolyanobbing, Jaurdi Station	Sep-Oct
<i>Thryptomene eremaea</i>	2	GLD	Menzies, Queen Victoria Spring, Comet Vale, Edjudina Station, Kirgella Rocks	Jul-Sep

WAHERB SPECIMEN DATABASE
GENERAL ENQUIRY

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3
Coll.: C.A. Gardner 13473 Date: 06 09 1961 (PERTH 00667773)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min Sec S LONG 121 Deg 7 Min Sec E
Frutex erectus, 1-1.3 met. alt. Sand. Eucalyptus.
Previous det.: *Acacia eremophila* W.Fitzg. var. *variabilis* Maiden & Blakely

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3 TYPE STATUS: ILE
Coll.: Jutson J.T. s.n. * Date: 10 1916 (PERTH 00838284)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Acacia eremophila* W.Fitzg. var. *variabilis* Maiden & Blakely

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3 TYPE STATUS: SYN
Coll.: Jutson J.T. s.n. * Date: 27 11 1916 (PERTH 01017519)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Acacia eremophila* Maiden & Blakely var. *variabilis*

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3
Coll.: N. Pratt s.n. Date: 1975 (PERTH 00700541)
LOCALITY 20 miles S of Menzies WA
LAT 29 Deg 58 Min 51.000 Sec S LONG 121 Deg 1 Min 42.000 Sec E
10-15 ft maximum height.
Previous det.: *Acacia eremophila* W.Fitzg. var. *variabilis* Maiden & Blakely

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3 TYPE STATUS: PLE
Coll.: Jutson J.T. 208 Date: 11 11 1916 (PERTH 00751057)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Acacia eremophila* W.Fitzg. var. *variabilis* Maiden & Blakely

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3 TYPE STATUS: PLE
Coll.: Jutson J.T. 91 Date: 12 1916 (PERTH 00751030)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Acacia eremophila* W.Fitzg. var. *variabilis* Maiden & Blakely

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3 TYPE STATUS: PLE
Coll.: Jutson J.T. 91 Date: 12 1916 (PERTH 01017535)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Acacia eremophila* Maiden & Blakely var. *variabilis*

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3 TYPE STATUS: PLE
Coll.: Jutson J.T. 208A Date: 27 11 1916 (PERTH 01017950)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Acacia eremophila* Maiden & Blakely var. *variabilis*

Acacia eremophila
var. *variabilis* Maiden & Blakely (Mimosaceae)
CONSERVATION STATUS:P3 TYPE STATUS: PLE
Coll.: Jutson J.T. 208A Date: 27 11 1916 (PERTH 00751049)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Acacia eremophila* W.Fitzg. var. *variabilis* Maiden & Blakely

Alyxia tetanifolia
Cranfield (Apocynaceae)
CONSERVATION STATUS:P3
Coll.: R.J. Cranfield 9380 Date: 03 11 1994 (PERTH 04069765)
LOCALITY 2 km W of Menzies road on road to Daveyhurst mine WA
LAT 30 Deg 2 Min 30.000 Sec S LONG 121 Deg 8 Min 0.000 Sec E
Erect compact pungent shrub 120 x 100 cm, flowers cream, fruits beaded. Red clayey sand.
Open scrub *A. buxifolia* association. Abundance: rare

Alyxia tetanifolia
Cranfield (Apocynaceae)
CONSERVATION STATUS:P3
Coll.: A. Chapman et al. 5 Date: 08 11 1996 (PERTH 04831659)
LOCALITY Goongarrie Station, WA
LAT 30 Deg 1 Min 19.000 Sec S LONG 121 Deg 4 Min 39.000 Sec E
Erect shrub to 1.7 m high. Red/brown loamy sand over granite.
Shrubland, *Casuarina pauper*, *Eremophila miniata*, *Dodonaea viscosa*. Abundance:
occasional.

Calytrix creswellii
B.D.Jacks. (Myrtaceae)
CONSERVATION STATUS:P1
Coll.: B. Ryan BR 774 Date: 06 12 2000 (PERTH 05825903)
LOCALITY 45 km W of Ora Banda, ca 20 km W of Credo Station homestead, WA
LAT 30 Deg 26 Min 3.800 Sec S LONG 120 Deg 36 Min 41.100 Sec E
Perennial low shrub. Dry red sand (deep) over clay, with occasional granite outcropping and
pebbles. Flat. Sand dune.
Hummock grassland heath of *Triodia basedowii* with closed shrubland of *Acacia*
scleroclada, *Allocasuarina corniculata*, *Grevillea acacioides*, *G. paradoxa*,
Melaleuca uncinata and *Myrtaceae* spp. with emergent *Eucalyptus ?leptophylla*.
Associated species: *Persoonia coriacea*, *Callitris glaucophylla*, *Banksia*
elderiana, *Euromyrtus maidenii*, *Hemigenia brachyphylla*, *Philothea brucei*
subsp. *brucei*, *Prostanthera grylloana*, *Melaleuca cordata*, *Calytrix birdii*. Condition of
population: moderate.

Elatine macrocalyx
Albr. (Elatinaceae)
CONSERVATION STATUS:P3
Coll.: G.J. Keighery 14142 Date: 05 11 1995 (PERTH 04614895)
LOCALITY Goongarrie Station, 21 km NNE of homestead, WA
LAT 29 Deg 57 Min Sec S LONG 121 Deg 3 Min Sec E
Clumped annual herb, fruits pink, flowers green, inconspicuous.
In shallow water and edge of claypan. Red clay over granite. Herbland.

Previous det.: *Elatine macrocalyx* Albr.

Eremophila sp. Mt Jackson (G.J. Keighery 4372)
PN (Myoporaceae)
CONSERVATION STATUS:P1
Coll.: E. Reid s.n. Date: 04 11 2005 (PERTH 07308868)
LOCALITY Ora Banda WA
LAT 30 Deg 22 Min 37.500 Sec S LONG 121 Deg 3 Min 55.800 Sec E
Rocky outcrop. *Eucalyptus flavida*. *Alyxia buxifolia*.

Eremophila sp. Mt Jackson (G.J. Keighery 4372)
PN (Myoporaceae)
CONSERVATION STATUS:P1
Coll.: E. Reid s.n. Date: 04 11 2005 (PERTH 07308876)
LOCALITY Grants Patch Mine WA
LAT 30 Deg 26 Min 52.400 Sec S LONG 121 Deg 7 Min 29.900 Sec E
Casuarina, *Eucalyptus griffithsii*, *Eucalyptus celastroides*, *Eucalyptus clelandii*, *Acacia oswaldii*.

Eremophila sp. Mt Jackson (G.J. Keighery 4372)
PN (Myoporaceae)
CONSERVATION STATUS:P1
Coll.: H. Pringle HP 2224 Date: 04 11 1988 (PERTH 03856631)
LOCALITY Credo Station WA
LAT 30 Deg 27 Min 59.000 Sec S LONG 120 Deg 49 Min 59.000 Sec E
Erect compact shrub 1 m. Flowers small white with ventral groove. Leaves terete, glandular with recurved tips.
Brown calcareous loam. Basalt. Sloping gibber plain (saline). Open scrub, *Maireana sedifolia*.
Abundance: frequent.
Previous det.: *Eremophila paisleyi* F.Muell. subsp. *paisleyi*

Eremophila sp. Mt Jackson (G.J. Keighery 4372)
PN (Myoporaceae)
CONSERVATION STATUS:P1
Coll.: R.T. Schuh, G. Cassis and R. Silveira 40 Date: 18 11 1999 (PERTH 05612624)
LOCALITY L1999-11, 57 km S of Menzies, WA
LAT 30 Deg 10 Min 5.000 Sec S LONG 121 Deg 9 Min 47.000 Sec E
Host No. 40.
Previous det.: *Eremophila* sp.

Eucalyptus crucis
Maiden subsp. *crucis* (Myrtaceae)
CONSERVATION STATUS:R
Coll.: J.H. Frank s.n. Date: 17 04 1929 (PERTH 1040529)
LOCALITY 50 miles W of Ora Banda WA
LAT 30 Deg 6 Min Sec S LONG 120 Deg 36 Min Sec E
Mallee 12 ft high. Sandy lake country.
Previous det.: *Eucalyptus crucis* Maiden subsp. *crucis*

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: K. Hill, L. Johnson, D. Blaxell & M.I. KH 541 Date: 04 11 1983 (PERTH 1035703)
LOCALITY 29.8 km S of Menzies on Highway WA
LAT 29 Deg 56 Min Sec S LONG 121 Deg 7 Min Sec E
Mallee to 4 m high. Short rough stocking, creamy-white flowers. On undulating red sandhills.
Dense mallee scrub.
Previous det.: *Symphyomyrtus jutsonii*
Frequency:locally frequent.

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner s.n. Date: 09 1927 (PERTH 1034642)
LOCALITY Comet Vale, between Kalgoorlie and Leonora WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner s.n. Date: 09 1927 (PERTH 1034677)
LOCALITY Comet Vale, between Kalgoorlie and Leonora WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Mallee, 6 - 8 ft, erect.
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner s.n. Date: (PERTH 1035215)
LOCALITY NE of Bardoc, 30 miles N of Kalgoorlie WA
LAT 30 Deg 17 Min Sec S LONG 121 Deg 4 Min Sec E
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 2163 Date: 17 09 1927 (PERTH 1034650)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Mallee 8-10 ft tall; leaves lustrous. Red sand on hills.
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 7966 Date: 19 10 1945 (PERTH 1034693)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Frutex 3-4 met alt. In arenosis fruticalis.
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: S.G.M. Carr & P.G. Wilson PGW4067 Date: 09 03 1966 (PERTH 1035207)
LOCALITY 101 km N of Kalgoorlie WA
LAT 29 Deg 54 Min Sec S LONG 121 Deg 6 Min Sec E
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: L. Sweedman 6360 Date: 14 03 2004 (PERTH 07054270)
LOCALITY Comet Vale WA
LAT 29 Deg 57 Min 0.000 Sec S LONG 121 Deg 7 Min 0.000 Sec E
Tree to 5 m. Linear leaves. Flat. Yellow sand. With *Pandanus spiralis*.
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner s.n. Date: 09 1927 (PERTH 1035169)
LOCALITY Comet Vale, between Kalgoorlie and Leonora WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: G.E. Brockway s.n. Date: 17 09 1946 (PERTH 1035193)
LOCALITY Comet Vale N of Kalgoorlie WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: M. French 1012 Date: 26 09 1999 (PERTH 05526663)
LOCALITY 1.5 km W of Menzies-Kalgoorlie Road, W of Comet Vale on Goongarrie homestead road, WA
LAT 29 Deg 56 Min 34.300 Sec S LONG 121 Deg 7 Min 12.200 Sec E
Mallee 6 m high. Rough, loose stringy bark to 2 m. Linear glossy green leaves. Red sandy loam.
Spinifex. Associated with *Eucalyptus concinna*.
Previous det.: *Eucalyptus jutsonii* Maiden
Frequency:sparse.

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 13859 Date: 14 12 1961 (PERTH 1035657)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Arbor parva vel mallee usque 7 met. altus; folia laete viridia; filamentis albis. In arenosis dunosis.
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 13460 Date: 06 09 1961 (PERTH 1034685)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
arbor usque 8 met. altus ramis +/- erectis. in arenosis dunosis.
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: G.M. Chippendale 368 Date: 22 03 1968 (PERTH 1035126)
LOCALITY 0.5 miles N of Comet Vale (deserted) WA
LAT 29 Deg 55 Min 30.000 Sec S LONG 121 Deg 6 Min Sec E
Tree 15', bark rough fibrous grey to 7', smooth grey to brown above, few flowers creamy. Red sand.
E. oldfieldii, *E. leptopoda*, *E. rigidula*, *Triodia* sp., *Casuarina* sp. Infrequent.
Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii
Maiden (Myrtaceae)
CONSERVATION STATUS:P2

Coll.: J.R. Connors & D. Nicolle JRC 1055 Date: 24 07 1999 (PERTH 05946662)

LOCALITY ca 26 km S of Menzies towards Kalgoorlie WA

LAT 29 Deg 54 Min 20.000 Sec S LONG 121 Deg 7 Min 9.000 Sec E

Mallee ca 4 m high with long fibrous strips of grey rough bark to the small branches. Leaves flat, concolorous, glossy green with moderate to dense broken reticulation and intersectional oil glands.

On top of small low hill with deep red sand.

Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii

Maiden (Myrtaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 7966 Date: 19 10 1945 (PERTH 1035118)

LOCALITY Comet Vale WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E

Mallee 6 - 12 ft high. Bark pink, more or less smooth. Leaves light green, lustrous. Red sand.

Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii

Maiden (Myrtaceae)

CONSERVATION STATUS:P2

Coll.: G.M. Chippendale 129 Date: 09 03 1967 (PERTH 1035142)

LOCALITY 0.4 miles N of Comet Vale (old town) WA

LAT 29 Deg 56 Min Sec S LONG 121 Deg 6 Min 30.000 Sec E

Mallee 18', bark rough grey to 6' then smooth grey above stripping to light grey-brown. Red sand.

Common.

Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii

Maiden (Myrtaceae)

CONSERVATION STATUS:P2

Coll.: G.M. Chippendale 284 Date: 12 08 1967 (PERTH 1035150)

LOCALITY 0.4 miles N of Comet Vale WA

LAT 29 Deg 56 Min Sec S LONG 121 Deg 6 Min 30.000 Sec E

Tree 12' - 15', trunk rough grey to 5' then stripping above to smooth grey- brown. Red sand.

Associated with *Triodia* sp. Infrequent.

Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii

Maiden (Myrtaceae)

CONSERVATION STATUS:P2

Coll.: M.I.H. Brooker 2455 Date: 12 02 1970 (PERTH 1035223)

LOCALITY 19 miles S of Menzies WA

LAT 30 Deg 0 Min Sec S LONG 121 Deg 9 Min Sec E

Mallee, 6 m tall, grey fibrous bark to 3 m., smooth grey pink above. Low sandhill.

Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii

Maiden (Myrtaceae)

CONSERVATION STATUS:P2

Coll.: M.I.H. Brooker 2036 Date: 14 08 1969 (PERTH 1035134)

LOCALITY 19 miles S of Menzies, WA

LAT 30 Deg 0 Min Sec S LONG 121 Deg 9 Min Sec E

Mallee 4 m tall. Rough bark to 2 m. Sandhill.

Previous det.: *Eucalyptus jutsonii* Maiden

Eucalyptus jutsonii

Maiden (Myrtaceae)

CONSERVATION STATUS:P2

Coll.: D. Nicolle 548 Date: 06 10 1993 (PERTH 05665973)

LOCALITY Between Goongarrie and Menzies on Highway, WA
LAT 29 Deg 54 Min 26.000 Sec S LONG 121 Deg 7 Min 0.000 Sec E
Mallee 5 m tall. Crown dense. Bark rough grey over brown. Leaves glossy dark green. On red sand dune.
With *Eucalyptus oldfieldii* and *E. rigidula*.

Euryomyrtus leptospermoides
(C.A.Gardner) Trudgen (Myrtaceae)
CONSERVATION STATUS:P3
Coll.: D.J. Edinger 5289 Date: 10 08 2005 (PERTH 07284845)
LOCALITY Quadrat GS23, in Adelong Dunes, 17 km NW of homestead as the crow flies, Goongarrie Station, 106 km NNW of Kalgoorlie WA
LAT 29 Deg 50 Min 15.000 Sec S LONG 120 Deg 57 Min 36.200 Sec E
Sub shrub to 1m. In red sand.
Frequency:one only in plot.

Gnephosis sp. Norseman (K.R. Newbey 8096)
PN (Asteraceae)
CONSERVATION STATUS:P1
Coll.: J. Williams 23 Date: 04 10 2005 (PERTH 07308329)
LOCALITY 9.6 km E of Credo and 38 km W of Broad Arrow WA
LAT 30 Deg 28 Min 41.400 Sec S LONG 120 Deg 55 Min 29.500 Sec E
Gimlet woodland (*Eucalyptus ravidia*) with *Atriplex nummularia*, *A. stipitata*,
Maireana sedifolia, *Eremophila interstans* ssp. *interstans*, *Swainsona canescens*, *Exocarpos aphyllus*.
Frequency:4 plants.

Gompholobium cinereum
Chappill ms (Papilionaceae)
CONSERVATION STATUS:P3
Coll.: G. Barrett s.n. Date: 17 10 1993 (PERTH 04222822)
LOCALITY c. 14 km NNW of Mount Burges, via Coolgardie WA
LAT 30 Deg 42 Min 55.000 Sec S LONG 121 Deg 2 Min 8.000 Sec E
Spreading dwarf shrub 20 cm high. Terminal purple flowers. Gentle undulations, yellow sand over laterite.
Shrubland, disturbed roadside.
Previous det.: *Gompholobium asperulum* (S.Moore) Crisp
Frequency:frequent.

Grevillea erectiloba
F.Muell. (Proteaceae)
CONSERVATION STATUS:P4
Coll.: B. Smith 2081 Date: 28 10 1980 (PERTH 1089358)
LOCALITY 1.6 miles S of Menzies Road WA
LAT 29 Deg 42 Min 0.000 Sec S LONG 121 Deg 2 Min 0.000 Sec E
Previous det.: *Grevillea* sp.

Grevillea erectiloba
F.Muell. (Proteaceae)
CONSERVATION STATUS:P4
Coll.: B. Smith 2077 Date: 28 10 1980 (PERTH 1089331)
LOCALITY 1.6 miles S of Menzies Road WA
LAT 29 Deg 42 Min 0.000 Sec S LONG 121 Deg 2 Min 0.000 Sec E
Previous det.: *Grevillea* sp.

Grevillea secunda
McGill. (Proteaceae)
CONSERVATION STATUS:P2
Coll.: R.J. Cranfield 7583 Date: 22 09 1988 (PERTH 1846590)
LOCALITY Doney Lagoon, Adelong Station WA
LAT 29 Deg 38 Min Sec S LONG 120 Deg 23 Min Sec E

Erect compact shrub 50 cm high, flowers red. Red sand dune. Open scrub.
Previous det.: *Grevillea nana* C. Gardner
Frequency: frequent.

Grevillea subterlineata
Makinson (Proteaceae)
CONSERVATION STATUS: P3
Coll.: D.J. Pearson 86 Date: 18 09 1986 (PERTH 1843230)
LOCALITY Lake Ballard, 20 km NNW of Menzies WA
LAT 29 Deg 32 Min Sec S LONG 121 Deg 9 Min Sec E
Island in salt lake. White sand over limestone.
Previous det.: *Grevillea striata* R. Br.

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS: P1
Coll.: C.A. Gardner 11108 Date: 03 11 1953 (PERTH 02150433)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Wehlia grandiflora* C.A. Gardner

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS: P1
Coll.: C.A. Gardner s.n. Date: 03 11 1953 (PERTH 01835319)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Wehlia grandiflora*

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS: P1
Coll.: C.A. Gardner 11108 Date: 03 11 1953 (PERTH 02200023)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Wehlia* sp.

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS: P1
Coll.: B.J. Lepschi & L.A. Craven 4385 Date: 27 10 2000 (PERTH 06772285)
LOCALITY Comet Vale, ca 30 km S of Menzies on road to Kalgoorlie WA
LAT 29 Deg 54 Min 12.000 Sec S LONG 121 Deg 7 Min 7.000 Sec E
Rounded shrub to 70 cm. Petals pink, ageing deeper pink with dark red-orange base; filaments white, ageing pink.
Red sand on slope of sand ridge. Acacia sp./Myrtaceae shrubland.
Frequency: uncommon.

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS: P1
Coll.: G.J. Keighery 9654 Date: 16 10 1987 (PERTH 03314111)
LOCALITY 2.5 km NE of Comet Vale WA
LAT 29 Deg 56 Min Sec S LONG 121 Deg 8 Min Sec E
Low spreading shrub 20/40 cm x 40/60 cm. Flowers purple. Dune. Yellow-red sand over sand.
Acacia low shrubland.
Abundance: common.
Previous det.: *Wehlia thryptomenoides* F. Muell.

Homalocalyx grandiflorus

(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS:P1
Coll.: R. Schuh & G. Cassis 96-18 Date: 25 10 1996 (PERTH 05099935)
LOCALITY 28 km S of Menzies, 3.5 km E of highway, WA
LAT 29 Deg 55 Min 9.000 Sec S LONG 121 Deg 9 Min 5.000 Sec E
Host No. 58

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS:P1 TYPE STATUS: HOL
Coll.: C.A. Gardner 13879 Date: 14 12 1961 (PERTH 01624636)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Frutex 1 - 2 met. altus; ramis patulis petala purpurea. In arenosis dunosis.
Previous det.: Wehlia grandiflora C. Gardner

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS:P1
Coll.: D.J. Edinger 5273 Date: 09 08 2005 (PERTH 07284756)
LOCALITY Quadrat GS5, 5 km W of homestead, Goongarrie Station, 106 km NNW of Kalgoorlie
WA
LAT 29 Deg 58 Min 5.000 Sec S LONG 121 Deg 0 Min 23.100 Sec E
Shrub to 1 m, sterile. Red sand. Priority 1
Frequency:one only.

Homalocalyx grandiflorus
(C.A.Gardner) Craven (Myrtaceae)
CONSERVATION STATUS:P1
Coll.: B. Ryan BR 826 Date: 07 12 2000 (PERTH 07400187)
LOCALITY Ca 25 km W of Credo Station, N of Coogardie WA
LAT 30 Deg 26 Min 8.800 Sec S LONG 120 Deg 36 Min 35.900 Sec E
Small shrub. Deep sand over clay. Hummock grassland with closed shrubland. Associated
vegetation: Triodia
basedowii, Acacia scleroclada, Allocasuarina corniculata, Grevillea acacioides, Grevillea paradoxa,
Melaleuca uncinata.

Lepidobolus deserti
Gilg (Restionaceae)
CONSERVATION STATUS:P4
Coll.: M. Cowan s.n. Date: 10 04 2001 (PERTH 06145914)
LOCALITY Site 1, Goongarrie Station, 106 km NNW of Kalgoorlie WA
LAT 29 Deg 56 Min 39.700 Sec S LONG 121 Deg 7 Min 20.500 Sec E
Rhizomatous, caespitose, sedge-like perennial herb to 0.45 m high. On sand.

Lepidobolus deserti
Gilg (Restionaceae)
CONSERVATION STATUS:P4
Coll.: R.D. Royce 4382 Date: 23 09 1953 (PERTH 1096281)
LOCALITY Comet Vale, N of Kalgoorlie. WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Female of 4283. Caespitose. In red sandy soil.

Lepidobolus deserti
Gilg (Restionaceae)
CONSERVATION STATUS:P4
Coll.: R.D. Royce 4383 Date: 23 09 1953 (PERTH 1096273)
LOCALITY Comet Vale, N of Kalgoorlie. WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 7 Min Sec E
Male of 4382. Caespitose. In red sandy soil.

Malleostemon sp. Adelong (G.J. Keighery 11825)
PN (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: G.J. Keighery 11825 Date: 24 10 1989 (PERTH 03979326)
LOCALITY V.C.L. [vacant crown land] SSW Adelong Station WA
LAT 29 Deg 47 Min 48.000 Sec S LONG 120 Deg 57 Min 43.000 Sec E
Low spreading shrub 10-30 cm x 40-50 cm, flowers white. Interdunal. Red sand.
Eucalyptus burracoppinensis/E. ceratocorys mallee over shrubland. Abundance:
uncommon.
Previous det.: Baeckea sp.

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: A.V. Milewski AVM 206 Date: (PERTH 1619381)
LOCALITY 2.5 km NE of Comet Vale townsite and 2 km NW of edge of Lake Goongarrie WA
LAT 29 Deg 56 Min Sec S LONG 121 Deg 8 Min Sec E
Deep, loose, siliceous, aeolian sand. Acacia aff. coolgardiensis - Triodia scariosa. Scrub over
Open
Hummock Grass (Muir code: Si.Hr). W.A. Museum faunal study site GGR1-2.

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693992)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: Newcastelia insignis E. Pritzel

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: E. Pritzel 131 Date: 10 1901 (PERTH 01607820)
LOCALITY Near Menzies WA
LAT 29 Deg 41 Min 29.000 Sec S LONG 121 Deg 1 Min 42.000 Sec E
Flowers villous-yellow. In arenosis.
Previous det.: Newcastelia insignis E. Pritzel

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02694026)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Small 18 - 20 inch tall, corolla lilac or white. Red sand.
Previous det.: Newcastelia insignis E. Pritzel

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 7959 Date: 19 10 1945 (PERTH 02693895)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
In red sand. On heath.
Previous det.: Newcastelia insignis E. Pritzel

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2

Coll.: C.A. Gardner 2159 Date: 17 09 1927 (PERTH 02693879)
LOCALITY NE of Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Heads yellow, corolla white. Red sandhills (N side). On heaths.
Checked in C.A. Gardner's collecting book no. 8. M.A. Lewington, 28/06/2005.
Previous det.: *Newcastelia insignis* E. Pritzel

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2

Coll.: C.A. Gardner 2159 Date: 17 09 1927 (PERTH 02693860)
LOCALITY (N side) NE of Comet Vale, Coolgardie district WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Spreading rigid shrub 2-3 ft high. Heads yellow, corolla white. Red drift sand.
Checked in C.A. Gardner's collecting book no. 8. M.A. Lewington, 28/06/2005.
Previous det.: *Newcastelia insignis* E. Pritzel

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: W.E. Blackall & C.A. Gardner [CAG 2159] Date: 09 1927 (PERTH 02693917)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Probably same gathering as Gardner 2159. M.A. Lewington, 28/06/2005.
Previous det.: *Newcastelia insignis* E. Pritzel

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: W.E. Blackall & C.A. Gardner [CAG 2159] Date: 09 1927 (PERTH 02693801)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Probably same gathering as Gardner 2159. M.A. Lewington, 28/06/2005.

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693763)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: Dr Diels and Pritzel 480 Date: 10 1901 (PERTH 01607839)
LOCALITY Goldfields, S of Menzies WA
LAT 29 Deg 41 Min 29.000 Sec S LONG 121 Deg 1 Min 42.000 Sec E

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693828)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis
E.Pritz. (Lamiaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 01869736)
LOCALITY Comet Vale WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693755)

LOCALITY Comet Vale WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693771)

LOCALITY Comet Vale WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693852)

LOCALITY Comet Vale WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693836)

LOCALITY Comet Vale WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02694042)

LOCALITY [Comet Vale] WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: R.J. Cranfield 7590 Date: 22 09 1988 (PERTH 02693887)

LOCALITY Doney Lagoon, Adalong Station WA

LAT 29 Deg 38 Min Sec S LONG 120 Deg 23 Min Sec E

Erect open shrub 31 cm high. Flowers white. Buds golden yellow. Red sand dune. In open scrub.

Frequency:frequent.

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02694018)

LOCALITY [Comet Vale] WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Newcastelia insignis

E.Pritz. (Lamiaceae)

CONSERVATION STATUS:P2

Coll.: C.A. Gardner 11104 Date: 03 11 1953 (PERTH 02693844)

LOCALITY Comet Vale WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Persoonia leucopogon
S.Moore (Proteaceae)
CONSERVATION STATUS:P1
Coll.: R. Davis RD 580 Date: 20 04 1996 (PERTH 4456033)
LOCALITY 7 km N of Comet Vale WA
LAT 29 Deg 55 Min 20.300 Sec S LONG 121 Deg 7 Min 22.200 Sec E
Decumbant shrub, 50 cm high, 1 m wide, flowers yellow. Hill, brown clayey sand. Woodland.
Abundance: occasional
Previous det.: *Persoonia pertinax* aff.

Philotheca coateana
Paul G.Wilson (Rutaceae)
CONSERVATION STATUS:P3
Coll.: D.J. Edinger 1279 Date: 03 04 1999 (PERTH 05302986)
LOCALITY 5 km E of Goongarrie Homestead, 93 km NNW of Kalgoorlie, WA
LAT 29 Deg 58 Min 44.300 Sec S LONG 121 Deg 4 Min 48.200 Sec E
Shrub to 1 m, flowers pale pink. On breakaway above Mosquito Lake. With ?*Dodonaea* and *Olearia*.

Philotheca coateana
Paul G.Wilson (Rutaceae)
CONSERVATION STATUS:P3
Coll.: W.E. Blackall & C.A. Gardner s.n. Date: 09 1927 (PERTH 00911631)
LOCALITY near Menzies, 55 m N of Kalgoorlie WA
LAT 29 Deg 41 Min 29.000 Sec S LONG 121 Deg 1 Min 42.000 Sec E
Previous det.: *Eriostemon tomentellus* Diels

Rumex crystallinus
Lange (Polygonaceae)
CONSERVATION STATUS:P2
Coll.: G. Barrett s.n. Date: 07 11 1993 (PERTH 04222660)
LOCALITY Rowles Lagoon WA
LAT 30 Deg 26 Min 0.000 Sec S LONG 120 Deg 51 Min 24.000 Sec E
Herb 1 m high. Moist soil near water. Ti-tree thicket. Abundance: occasional
Previous det.: *Rumex pulcher* L. subsp. *pulcher*

Sowerbaea multicaulis
E.Pritz. (Anthericaceae)
CONSERVATION STATUS:P4 TYPE STATUS: PLE *
Coll.: E. Pritzel 851 Date: 10 1900 (PERTH 01292536)
LOCALITY Comet Vale WA
LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E
Previous det.: *Sowerbaea multicaulis* E. Pritzel

Thryptomene eremaea
Rye & Trudgen (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: C.A. Gardner 2154 Date: 16 09 1927 (PERTH 02187876)
LOCALITY 6 miles N of Menzies WA
LAT 29 Deg 37 Min 48.000 Sec S LONG 121 Deg 6 Min 8.000 Sec E
Shrub 4-5 ft, flowers pale pink. Red sand.
Previous det.: *Thryptomene* sp. Queen Victoria Springs (D.J. Pearson)

Thryptomene eremaea
Rye & Trudgen (Myrtaceae)
CONSERVATION STATUS:P2
Coll.: W.E. Blackall & C.A. Gardner s.n. Date: 09 1927 (PERTH 02187868)
LOCALITY Near Menzies, between Kalgoorlie and Leonora WA
LAT 29 Deg 41 Min 29.000 Sec S LONG 121 Deg 1 Min 42.000 Sec E

Previous det.: *Thryptomene* sp. Queen Victoria Springs (D.J. Pearson)

Thryptomene eremaea

Rye & Trudgen (Myrtaceae)

CONSERVATION STATUS: P2

Coll.: J.T. Jutson 214 Date: 12 1916 (PERTH 02187809)

LOCALITY Comet Vale district WA

LAT 29 Deg 56 Min 24.000 Sec S LONG 121 Deg 6 Min 59.000 Sec E

Previous det.: *Thryptomene* sp. Queen Victoria Springs (D.J. Pearson)

Thysanotus brachyantherus

Brittan (Anthericaceae)

CONSERVATION STATUS: P2

Coll.: R.J. Cranfield 7572 Date: 21 09 1988 (PERTH 02638037)

LOCALITY 2.5 km S of Sampsons Well, Riverina Station WA

LAT 29 Deg 43 Min Sec S LONG 120 Deg 37 Min Sec E

Rhizomatous herb 20 cm, flowers purple, anthers 3 erect, 3 not erect, anther tips twisted. Gilgi
holes, brown clay.

Herbland. Abundance: occasional.

Previous det.: *Thysanotus speckii* N.H. Brittan

APPENDIX H -THE RESULTS OF ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION (EPBC) PROTECTED MATTERS SEARCH TOOL

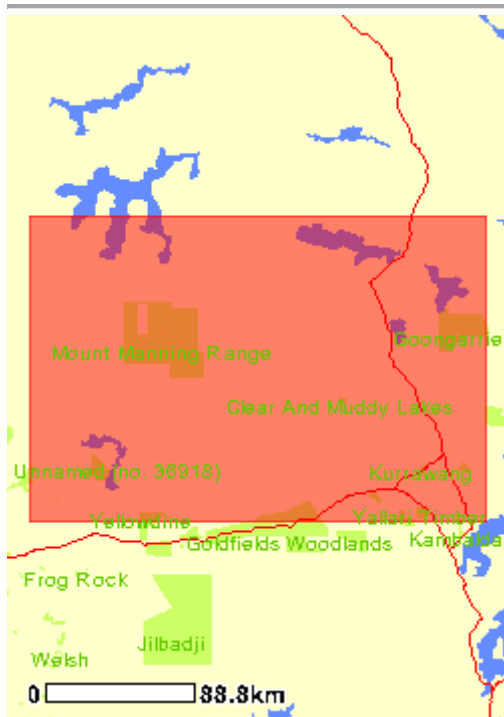
29 October 2007 13:27

EPBC ACT PROTECTED MATTERS REPORT

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the [caveat](#) at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at <http://www.environment.gov.au/atlas> may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at <http://www.environment.gov.au/epbc/assessmentsapprovals/index.html>



This map may contain data which are
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Search Type: Area

Buffer: 0 km

Coordinates: -29.3000,118.9426, -31.1729,118.9426, -31.1729,121.7390, -29.300,121.7390



Report Contents: [Summary](#)

[Details](#)

- [Matters of NES](#)
- [Other matters protected by the EPBC Act](#)
- [Extra Information](#)

[Caveat](#)

[Acknowledgments](#)

SUMMARY

MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see

<http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html>.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
<u>Threatened Species:</u>	15
<u>Migratory Species:</u>	7

OTHER MATTERS PROTECTED BY THE EPBC ACT

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage/index.html>.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application

forms can be found at <http://www.environment.gov.au/epbc/permits/index.html>.

<u>Commonwealth Lands:</u>	2
<u>Commonwealth Heritage Places:</u>	1
<u>Places on the RNE:</u>	99
<u>Listed Marine Species:</u>	4
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

EXTRA INFORMATION

This part of the report provides information that may also be relevant to the area you have nominated.

<u>State and Territory Reserves:</u>	22
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

DETAILS

MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
<i>Acanthiza iredalei iredalei</i> * Slender-billed Thornbill (western)	Vulnerable	Species or species habitat likely to occur within area
<i>Leipoa ocellata</i> * Malleefowl	Vulnerable	Species or species habitat likely to occur within area
Plants		
<i>Acacia lobulata</i> * Chiddarcooping Wattle	Endangered	Species or species habitat likely to occur within area
<i>Boronia adamsiana</i> * Barbalin Boronia	Vulnerable	Species or species habitat likely to occur within area
<i>Eremophila virens</i> * Campion Eremophila, Green-flowered Emu bush	Endangered	Species or species habitat likely to occur within area
<i>Eremophila viscida</i> * Varnish Bush	Endangered	Species or species habitat may occur within area
<i>Eucalyptus crucis subsp. crucis</i> * Silver Mallee	Vulnerable	Species or species habitat likely to occur within area
<i>Frankenia parvula</i> * Short-leaved Frankenia	Endangered	Species or species habitat known to occur within area
<i>Gastrolobium graniticum</i> *	Endangered	Species or species habitat likely to

Granite Poison		occur within area
<u><i>Myriophyllum lapidicola</i></u> *	Endangered	Species or species habitat known to occur within area
Chiddarcooping myriophyllum		
<u><i>Roycea pycnophylloides</i></u> *	Endangered	Species or species habitat likely to occur within area
Saltmat		
<u><i>Tetratheca aphylla</i></u> *	Vulnerable	Species or species habitat likely to occur within area
Bungalbin Tetratheca		
<u><i>Tetratheca harperi</i></u> *	Vulnerable	Species or species habitat likely to occur within area
Jackson Tetratheca		
<u><i>Tetratheca paynterae</i></u> *	Endangered	Species or species habitat known to occur within area
Paynter's Tetratheca		
<u><i>Thelymitra manginii</i> K.Dixon & Batty ms.</u> *	Endangered	Species or species habitat likely to occur within area

Migratory Species [Dataset Information]	Status	Type of Presence
---	--------	------------------

Migratory Terrestrial Species

Birds

<u><i>Leipoa ocellata</i></u> *	Migratory	Species or species habitat likely to occur within area
Malleefowl		
<u><i>Merops ornatus</i></u> *	Migratory	Species or species habitat may occur within area
Rainbow Bee-eater		

Migratory Wetland Species

Birds

<u><i>Ardea alba</i></u>	Migratory	Species or species habitat may occur within area
Great Egret, White Egret		
<u><i>Ardea ibis</i></u>	Migratory	Species or species habitat may occur within area
Cattle Egret		

Migratory Marine Birds

<u><i>Apus pacificus</i></u>	Migratory	Species or species habitat may occur within area
Fork-tailed Swift		
<u><i>Ardea alba</i></u>	Migratory	Species or species habitat may occur within area
Great Egret, White Egret		
<u><i>Ardea ibis</i></u>	Migratory	Species or species habitat may occur within area
Cattle Egret		

OTHER MATTERS PROTECTED BY THE EPBC ACT

Listed Marine Species [Dataset Information]	Status	Type of Presence
---	--------	------------------

Birds

<u><i>Apus pacificus</i></u>	Listed - overfly marine area	Species or species habitat may occur within area
Fork-tailed Swift		
<u><i>Ardea alba</i></u>	Listed - overfly marine area	Species or species habitat may occur within area
Great Egret, White Egret		
<u><i>Ardea ibis</i></u>	Listed -	Species or species habitat may occur

Cattle Egret	overfly marine area	within area
<i>Merops ornatus</i> * Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area

Commonwealth Lands [[Dataset Information](#)]

Defence

Unknown

Commonwealth Heritage Places [[Dataset Information](#)]

[Kalgoorlie Post Office WA](#)

Places on the RNE [[Dataset Information](#)]

Note that not all Indigenous sites may be listed.

Historic

[ANZ Bank \(former\) WA](#)

[Albion Hotel WA](#)

[Ardagh Bros Menswear WA](#)

[Ardagh Bros Shops WA](#)

[Bayleys Obelisk WA](#)

[Boulder Courthouse \(former\) WA](#)

[Boulder Fire Station \(former\) WA](#)

[Boulder Park and Rotunda WA](#)

[Boulder Post and Telegraph Office and Quarters \(former\) WA](#)

[Boulder Town Hall and Offices WA](#)

[British Arms Hotel \(former\) WA](#)

[Burt Street Precinct WA](#)

[Butchers Shop WA](#)

[Chamber of Mines, School of Mines & School of Mines Museum Group WA](#)

[Commercial Bank \(former\) WA](#)

[Commercial Bank \(former\) WA](#)

[Commercial Building \(former\) WA](#)

[Commercial Building WA](#)

[Commercial Building WA](#)

[Convent School Building \(former\) WA](#)

[Coolgardie Hospital \(former\) WA](#)

[Coolgardie Post Office and Associated Buildings WA](#)

[Coolgardie Primary School WA](#)

[Coolgardie Railway Station \(former\) WA](#)

[Coolgardie Town Hall and Road Board Office \(former\) WA](#)

[Court Hotel WA](#)

[Cremorne Hotel \(former\) WA](#)
[Denver City Hotel WA](#)
[Dr Sawells House and Grounds \(former\) WA](#)
[Exchange Hotel WA](#)
[Exhibition Building Site and Ruins WA](#)
[Fly Flat WA](#)
[Gnarlbine Soak WA](#)
[Government Buildings Precinct WA](#)
[Grand Hotel WA](#)
[Hannan Street Precinct WA](#)
[Hannans Club WA](#)
[House WA](#)
[House WA](#)
[House WA](#)
[House WA](#)
[House WA](#)
[House WA](#)
[House WA](#)
[Ivorys Corner \(former\) WA](#)
[Johnnys Mart \(former\) WA](#)
[Kalgoorlie City Markets WA](#)
[Kalgoorlie Mechanics Institute \(former\) WA](#)
[Kalgoorlie Post Office WA](#)
[Kalgoorlie Racecourse and Buildings WA](#)
[Kalgoorlie Railway Station Buildings WA](#)
[Kalgoorlie Town Hall and Council Chambers WA](#)
[Kingdom Hall \(former\) WA](#)
[Marvel Bar Hotel \(former\) WA](#)
[Masonic Lodge WA](#)
[Masonic Temple WA](#)
[Mercy Gregory Monument WA](#)
[Metropole Hotel WA](#)
[Mines Water Supply Managers House \(former\) WA](#)
[Mines Water Supply Office \(former\) and Trees WA](#)
[Morans Stores WA](#)
[No 8 Pumping Station including Contents WA](#)
[Old Australia Hotel \(former\) WA](#)
[Ora Banda Hotel WA](#)
[Original Cemetery WA](#)
[Paddy Hannans Statue \(Replica\) WA](#)

[Palace Chambers WA](#)
[Park WA](#)
[Pavilion WA](#)
[Peter Pan WA](#)
[Pioneers Cemetery WA](#)
[Railway Goods Shed \(former\) WA](#)
[Railway Hotel \(former\) WA](#)
[Row of Four Shops WA](#)
[Semi - detached Villa WA](#)
[Shop \(former\) WA](#)
[Shop WA](#)
[Shop WA](#)
[St Antonys Convent of Mercy \(former\) WA](#)
[St Josephs Catholic Convent \(former\) WA](#)
[St Marys Catholic Church WA](#)
[St Marys Roman Catholic Church WA](#)
[State Battery WA](#)
[Station Masters House WA](#)
[Stone Paved Rights of Way WA](#)
[The Kalgoorlie Miner Building WA](#)
[Town of Coolgardie WA](#)
[Trades Hall Facade WA](#)
[Two Railway Houses and Trees WA](#)
[United Friendly Societies Hall \(former\) WA](#)
[Victoria Park and Rotunda WA](#)
[Warden Finnertys House \(former\) and Trees WA](#)
[Wardens Court Building WA](#)
[Wesley Church and Manse \(former\) WA](#)
[Workers Hall and Office \(former\) WA](#)
[York Hotel WA](#)

Natural

[Boorabbin National Park WA](#)
[Goongarrie Area WA](#)
[Mount Manning Nature Reserve WA](#)
[Yellowdine Proposed Reserve WA](#)

EXTRA INFORMATION

State and Territory Reserves [[Dataset Information](#)]

Baladjie Lake Nature Reserve, WA

Boorabbin National Park, WA
Bullock Holes Miscellaneous Conservation Reserve, WA
Clear And Muddy Lakes Nature Reserve, WA
Duladgin Nature Reserve, WA
Goldfields Woodlands Conservation Park, WA
Goldfields Woodlands National Park, WA
Goongarrie National Park, WA
Kalgoorlie Miscellaneous Conservation Reserve, WA
Kambalda Nature Reserve, WA
Kangaroo Hills Miscellaneous Conservation Reserve, WA
Kurrawang Nature Reserve, WA
Lakeside Miscellaneous Conservation Reserve, WA
Mount Manning Range Nature Reserve, WA
Niagara Dam Nature Reserve, WA
Rowles Lagoon Conservation Park, WA
Scahill Miscellaneous Conservation Reserve, WA
Un-named (No. 25801) Nature Reserve, WA
Un-named (No. 36918) Nature Reserve, WA
Un-named (No. 43219) Nature Reserve, WA
Yallari Miscellaneous Conservation Reserve, WA
Yellowdine Nature Reserve, WA

CAVEAT

The information presented in this report has been provided by a range of data sources as [acknowledged](#) at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and

other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the [migratory](#) and [marine](#) provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as [extinct or considered as vagrants](#)
- some species and ecological communities that have only recently been listed
- [some terrestrial species](#) that overfly the Commonwealth marine area
- migratory species that are very [widespread, vagrant, or only occur in small numbers](#).

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

ACKNOWLEDGMENTS

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:

- [New South Wales National Parks and Wildlife Service](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Water and Environment, Tasmania](#)
- [Department of Environment and Heritage, South Australia Planning SA](#)
- [Parks and Wildlife Commission of the Northern Territory](#)
- [Environmental Protection Agency, Queensland](#)
- [Birds Australia](#)

- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Queensland Herbarium](#)
- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
- [Western Australian Herbarium](#)
- [Australian National Herbarium, Atherton and Canberra](#)
- [University of New England](#)
- Other groups and individuals

[ANUCliM Version 1.8, Centre for Resource and Environmental Studies, Australian National University](#) was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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