
FLORA AND VEGETATION
SURVEY OF
THE
MULGA ROCK PROJECT AREA

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Prepared by



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Abbreviations

ARRP Act:	Agriculture and Related Resources Protection Act 1976
BAM Act:	Biosecurity and Agriculture Management Act 2007
BOM:	Bureau of Meteorology
DAF:	Department of Agriculture and Food
DEC:	Department of Environment and Conservation
DSEWPC:	Department of Sustainability, Environment, Water, Population and Communities
EPA:	Environmental Protection Authority
EPBC Act:	Environment Protection and Biodiversity Conservation Act 1999
EP Act:	Environmental Protection Act 1986
IBRA:	Interim Biogeographical Regionalisation for Australia
MCPL:	Mattiske Consulting Pty Ltd
PEC:	Priority Ecological Community
TEC:	Threatened Ecological Community
TSSC:	Threatened Species Scientific Committee
WC Act:	Wildlife Conservation Act 1950

1. SUMMARY

Mattiske Consulting Pty Ltd (MCPL) was commissioned by Energy and Minerals Australia Limited (EMA) to establish permanent monitoring plots and map the vegetation within and outside the Mulga Rock Project, located approximately 250 kilometres north-east of Kalgoorlie, Western Australia. Eleven botanists from MCPL completed the surveys over seven trips from 2007-2010. This report provides an updated overview of vegetation mapping communities and priority and other conservation significant flora species recorded and described by MCPL to date in the wider Mulga Rock Project area.

An updated total of 276 vascular plant taxa, representative of 125 genera and 41 families, were recorded in the Mulga Rock Project area between 2007 and 2010. Species representation was greatest within the Fabaceae (47 taxa), Myrtaceae (38 taxa), Goodeniaceae (19 taxa) and Proteaceae (17 taxa) families.

Eleven priority flora species as defined by the Department of Environment and Conservation (DEC 2013b; 2013e) were recorded during the surveys:

- *Hibbertia crispula* (P1 - Vulnerable)
- *Dampiera eriantha* (P1)
- *Malleostemon* sp. Officer Basin (D. Pearson 350) (P2)
- *Styphelia* sp. Great Victoria Desert (N. Murdoch 44) (P2)
- *Labichea eremaea* (P3)
- *Ptilotus blackii* (P3)
- *Conospermum toddii* (P4)
- *Comesperma viscidulum* (P4)
- *Dicrastylis cundeeleensis* (P4)
- *Grevillea secunda* (P4)
- *Olearia arida* (P4)

Four species of flora, including *Labichea eremaea* (P3), *Brunonia ?suffruticosa* ms, *Dampiera ramosa* and *Gastrolobium brevipes* were recorded outside of their currently known distributions. No introduced (weed) species or declared plant (pest) organisms were recorded within the Mulga Rock Project area.

Twenty-two vegetation communities were defined within the survey area, comprising 12 eucalypt woodlands, one acacia woodland and nine mixed shrublands, including one chenopod shrubland. A total of 239 permanent vegetation plots have been set up over the wider Mulga Rock Project area.

No threatened ecological communities (TECs), as defined by the EPBC Act, or the DEC (2010; 2013c) were observed in the survey area.

Data from MCPL (2008a; 2008b; 2010a; 2010b) surveys suggest that community S6 on yellow sand dunes contains the highest species richness and the highest number of priority flora species, including *Dampiera eriantha* (P1) and *Malleostemon* sp. Officer Basin (D. Pearson 350) (P2) which are only recorded from the yellow sand dunes, as well as *Hibbertia crispula* (P1) which is listed on the EPBC Act as Vulnerable. It is possible that this community will have values that coincide with the broadly defined Priority 3(ii) ecological community, the "yellow sandplain communities of the Great Victoria Desert" (DEC 2013d). Although this PEC is not well understood and lacks a detailed description, the yellow sand dune community defined in the Mulga Rock Project area extends well beyond the boundary of any currently proposed developments.

The updated proposed infrastructure boundaries as of June 2013 are not entirely covered by the previous vegetation mapping. It is recommended that the vegetation communities should be reviewed and mapping be extended over a wider area to cover the proposed infrastructure areas and provide more floristic context for the Mulga Rock Project. This can be based on permanent plots and relevé mapping sites already completed by MCPL in past surveys.

2. INTRODUCTION

Mattiske Consulting Pty Ltd (MCPL) was commissioned by Energy and Minerals Australia Limited (EMA) to establish permanent monitoring plots and map the vegetation within and outside the Mulga Rock Project area to adhere to *Guidance Statement 51* Level 2 survey requirements (EPA 2004).

2.1 Location and Scope of Proposal

The survey area is located near the Officer Basin Airstrip, within and surrounding the Mulga Rock Project area which is located approximately 250 kilometres north east of Kalgoorlie (Figure 1).

Previous MCPL reports refer to the Mulga Rock Project as the Narnoo Project. The Mulga Rock Project consists of four deposits: Ambassador; Princess, Emperor; and Shogun. Previous MCPL survey work has been focused on the granted mining leases M39/1090 and 1081; formerly tenements E39/876, E39/877, E39/1148, E39/1149 and E39/1150. This report provides an overview of vegetation mapping communities and priority and other conservation significant flora species recorded and described by MCPL to date in the wider Mulga Rock Project area.



Figure 1: Regional map illustrating the location of the Mulga Rock Project

2.2 Western Australia's flora – A legislative perspective

Western Australia has a unique and diverse flora, and is recognised as one of the world's 34 biodiversity hotspots (Myers *et al.* 2000). In this context, Western Australia possesses a high degree of species richness and endemism. This is particularly pronounced in the south-west region of the state. There are currently over 12,000 plant species known to occur within Western Australia (Department of Environment and Conservation - DEC 2013a), and scientific knowledge of many of these species is limited.

The legislative protection of flora within Western Australia is principally governed by three Acts. These are:

- The *Wildlife Conservation Act 1950*,
- The *Environmental Protection Act 1986*; and
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The unique flora of Western Australia is potentially under threat due to historical clearing practices associated with agricultural, mining and human habitation activities. As a consequence of these historical clearing practices a number of flora species have become threatened or have the potential to become threatened as their habitat is impacted by human activity. In addition, some areas of the State have been affected by past clearing practices such that entire ecological communities are under threat. The following sections describe these threatened and priority flora and ecological communities, and outline the legislative protection afforded to them.

At the State level, the *Wildlife Conservation Act 1950* provides for taxa of native flora (and fauna) to be specially protected because they are subject to identifiable threats. Protection of these taxa has been identified as being warranted because they may become extinct, are threatened, or are otherwise in need of special protection. Ecological communities that are deemed to be threatened are afforded protection under the *Environmental Protection Act 1986*. Listings of threatened species and communities are reviewed annually by the Western Australian Threatened Species Scientific Committee (TSSC), which is a body appointed by the Minister for the Environment and supported by the DEC. The TSSC reviews threatened and specially protected flora (and fauna) listings on an annual basis. Recommendation for additions or deletions to the listings of specially protected flora (and fauna) is made to the Minister for the Environment by the TSSC, via the Director General of the DEC, and the WA Conservation Commission. Under Schedule 1 of the *Wildlife Conservation Act 1950*, the Minister for the Environment may declare that a class or description of flora to be threatened flora throughout the State, by notice published in the *Government Gazette* (DEC 2012).

At the Commonwealth level, under the *Environment Protection and Biodiversity Conservation Act 1999*, a nomination process exists, to list a threatened species or ecological community. Additions or deletions to the lists of threatened species and communities are made by the Minister for Sustainability, Environment, Water, Populations and Communities, on advice from the Federal TSSC. *Environment Protection and Biodiversity Conservation Act 1999* lists of threatened flora and ecological communities are published on the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) websites (2013a; 2013b).

2.3 Threatened and Priority Flora

Flora within Western Australia that is considered to be under threat may be classed as either threatened flora or priority flora. Where flora has been gazetted as threatened flora under the *Wildlife Conservation Act 1950*, it is an offence "to take" such flora without the written consent of the Minister. The *Wildlife Conservation Act 1950* states that "to take" flora includes to gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means.

Priority flora constitute species which are considered to be under threat, but for which there is insufficient information available concerning their distribution and/or populations to make a proper evaluation of their conservation status. Such species are considered to potentially be under threat, but do not have legislative protection afforded under the *Wildlife Conservation Act 1950*. The DEC categorises priority flora according to their conservation priority, using five categories, P1 to P5, to denote the conservation priority status of such species, with P1 listed species being the most threatened, and P5 the least. Priority flora species are regularly reviewed, and may have their priority status changed when more information on the species becomes available. Appendix A1 sets out definitions of both threatened and priority flora (DEC 2013b).

At the Commonwealth level, under the *Environment Protection and Biodiversity Conservation Act 1999*, threatened species can be listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable, or conservation dependent, by the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities. Refer to Appendix A2 for a description of each of these categories of threatened species. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened species without approval from the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities, unless those actions are not prohibited under the Act.

The current *Environment Protection and Biodiversity Conservation Act 1999* list of threatened flora may be found on the DSEWPC (2013a) website.

2.4 Declared Plant (pest) Organisms

The *Biosecurity and Agriculture Management Act 2007* (BAM Act), Section 22, makes provision for plant taxa to be listed as a declared pest organism in respect of parts of, or the entire State. According to the BAM Act, a declared pest is defined as a prohibited organism (Section 12), or an organism for which a declaration under section 22 (2) of the Act is in force.

Under section 26 (1) of the *Biosecurity and Agriculture Management Act 2007*, a person who finds a declared plant pest must report, in accordance with subsection (2), the presence or suspected presence of the declared pest to the Director General or an inspector of the Department of Agriculture and Food (DAF) Western Australia.

Under the *Biosecurity and Agriculture Management Regulations 2013*, declared plant pests are placed in one of three control categories, C1 (exclusion), C2 (eradication) or C3 (management), which determines the measures of control which apply to the declared pest (Appendix A6). According to section 30 (3) of the BAM Act, the owner or occupier of land, or a person who is conducting an activity on the land, must take the prescribed control measures to control the declared pest if it is present on the land.

The current listing of declared pest organisms and their control category is available on the Western Australian Organism List (WAOL), at the Biosecurity and Agriculture Management website of the Department of Agriculture and Food Western Australia (DAF 2013).

2.5 Threatened and Priority Ecological Communities

An ecological community is defined as a naturally occurring biological assemblage that occurs in a particular type of habitat composed of specific abiotic and biotic factors. At the State level, ecological communities may be considered as threatened once they have been identified as such by the Western Australian Threatened Ecological Communities Scientific Advisory Committee. A threatened ecological community (TEC) is defined, under the *Environmental Protection Act 1986*, as an ecological community listed, designated or declared under a written law or a law of the Commonwealth as threatened, endangered or vulnerable. There are four State categories of TECs: presumed totally destroyed (PD); critically endangered (CR); endangered (EN); and vulnerable (VU) (DEC 2010). A description of each of these categories of TECs is presented in Appendix A3. Threatened ecological communities are gazetted as such (DEC 2013c).

At the Commonwealth level, some Western Australian TECs are listed as threatened, under the *Environment Protection and Biodiversity Conservation Act 1999*. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened ecological community without approval from the Commonwealth Minister for the Sustainability, Environment, Water, Population and Communities, unless those actions are not prohibited under the Act. A description of each of these categories of TECs is presented in Appendix A4. The current *Environment Protection and Biodiversity Conservation Act 1999* list of threatened ecological communities can be located on the DSEWPC (2013b) website.

Ecological communities identified as threatened, but not listed as threatened ecological communities, can be classified as priority ecological communities (PECs). These communities are under threat, but there is insufficient information available concerning their distribution to make a proper evaluation of their conservation status. The DEC categorises priority ecological communities according to their conservation priority, using five categories, P1 to P5, to denote the conservation priority status of such ecological communities, with P1 communities being the most threatened and P5 the least. Appendix A5 sets out definitions of priority ecological communities (DEC 2010). A list of current priority ecological communities can be viewed at the DEC (2013d) website.

2.6 Clearing of Native Vegetation

Under the *Environmental Protection Act 1986*, the clearing of native vegetation requires a permit to do so, from the DEC or the Department of Mines and Petroleum, unless that clearing is exempted under specific provisions listed in Schedule 6 of the Act, or are prescribed in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Under the *Environmental Protection Act 1986*, "native vegetation" means indigenous aquatic or terrestrial vegetation, and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation. Under the *Environmental Protection Act 1986*, Section 51A, "clearing" means the killing or destruction of, the removal of, the severing or ringbarking of trunks or stems of, or the doing of any other substantial damage to, some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity, that causes any of the aforementioned consequences or results.

Under the *Environmental Protection Act 1986*, ten principles are set out, under which native vegetation should not be cleared. These principles state that native vegetation should not be cleared, if:

- a. it comprises a high level of biological diversity;
- b. it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia;
- c. it includes, or is necessary for the continued existence of, threatened flora;
- d. it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community;
- e. it is significant as a remnant of native vegetation in an area that has been extensively cleared;
- f. it is growing in, or in association with, an environment associated with a watercourse or wetland;
- g. the clearing of the vegetation is likely to cause appreciable land degradation;
- h. the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area;
- i. the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water; or
- j. the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

The *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 5, sets out prescribed clearing actions that do not require a clearing permit, as defined in Section 51C of the *Environmental Protection Act 1986*.

Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 6 – "environmentally sensitive areas" are defined as "the area covered by vegetation within 50 m of threatened flora, to the extent to which the vegetation is continuous with the vegetation in which the threatened flora is located".

Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* - Regulation 6 (environmentally sensitive areas), the area covered by a threatened ecological community, is similarly considered an environmentally sensitive area and therefore non-permitted, unless Ministerial approval is granted.

2.7 Local and Regional Significance

Flora or vegetation may be locally or regionally significant in addition to statutory listings by the State or Federal Government. Species, subspecies, varieties, hybrids and ecotypes of flora may be significant for a variety of reasons other than as threatened or priority flora, 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;
- anomalous features that indicate a potential new discovery;
- 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 (Environmental Protection Authority - EPA 2004).

Vegetation may be significant because the extent is below a threshold level and a range of other reasons, 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 (EPA 2004).

Vegetation communities are locally significant if they contain priority flora species or contain a range extension of a particular taxon outside of the normal distribution. They may also be locally significant if they are very restricted to one or two locations or occur as small isolated communities. In addition, vegetation communities that exhibit unusually high structural and species diversity are also locally significant.

Vegetation communities are regionally significant where they are limited to specific landform types, are uncommon or restricted plant community types within the regional context, or support populations of threatened flora.

Determining the significance of flora and vegetation may be applied at various scales, for example, a vegetation community may be nationally significant and governed by statutory protection as well as being locally and regionally significant.

3. OBJECTIVES

The aim of the combined surveys was to assess the flora and vegetation values of the Mulga Rock Project area. Specifically, the objectives of this updated report include:

- Provide vegetation mapping completed to date over the three resource areas and proposed infrastructure associated with the Mulga Rock Project;
- Define MCPL permanent monitoring plots and mapping sites completed in the wider project area;
- Review the conservation status of the vascular plant species recorded by reference to current literature and current listings by the DEC (2013e; 2013f) and plant collections held at the WA State Herbarium, and listed by the DSEWPC (2013a) under the *EPBC Act 1999*;
- Provide details on the number of conservation significant species likely to be impacted by the Mulga Rock Project proposed infrastructure;
- Provide recommendations on the local and regional significance of the vegetation communities;
- Review potential gaps in the flora and vegetation information collected to date; and
- Prepare a report summarising the findings.

4. METHODS

4.1 Desktop Methods

A desktop assessment was conducted prior to each field trip using the FloraBase DEC (2013e) and NatureMap (DEC 2013f) databases, to identify the possible occurrence of threatened and priority flora and threatened and priority ecological communities within the Mulga Rock Project area. The NatureMap search parameters used were a 40 km radius 'by circle' at 29° 57' 50" S, 123° 40' 24" E. The NatureMap report has been integrated into Appendix B.

MCPL has completed numerous botanical surveys in the Mulga Rock Project area from 2007-2010. This includes threatened and priority flora searches along drill lines and drill holes, targeted helicopter surveys for *Conospermum toddii*, permanent plot establishment and relevè mapping sites for vegetation community mapping (MCPL 2008a; 2008b; 2009; 2010a; 2010b).

4.2 Field Survey Methods

A Level 2 field assessment of the flora and vegetation of the Mulga Rock Project area has been undertaken by a total of 13 MCPL botanists over seven trips from 2007-2010 (Table 1). The surveys were carried out in accordance with methods outlined in *Guidance Statement 51* (EPA 2004). All botanists held valid collection licences to collect flora for scientific purposes, issued under the WC Act 1950.

Table 1: Timing of surveys and number of personnel per field trip

DATE	YEAR	NO. MCPL PERSONNEL
8 – 12 December	2008	2
17 – 23 August	2009	4
14 – 18 September	2009	4
18 – 23 March	2010	4
22 – 28 May	2010	4
15 – 23 July	2010	4
2 – 5 November	2010	4

4.3 Field Survey Methods

The flora and vegetation was described and sampled systematically at each survey site, and additional opportunistic collecting was undertaken wherever previously unrecorded plants were observed. At each survey site the following floristic and environmental parameters were noted:

- GPS location (MGA94, Zone 51J);
- Topography;
- Soil type and colour;
- Outcropping rocks and their type;
- Percentage litter cover and percentage bare ground;
- Time since fire; and
- For each vascular plant species, the average height and percentage cover (both alive and dead material) was recorded.

Vegetation condition was described at each mapping site according to Keighery 1994 (see Appendix A7 for definitions). The number of plants of any potential threatened flora, priority flora and unknown species were also recorded.

All plant specimens collected during the field surveys were dried and processed in accordance with the requirements of the Western Australian Herbarium (PERTH). The plant species were identified through comparisons with pressed specimens housed at the Western Australian Herbarium (PERTH). Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded is in accordance with the DEC (2013e).

Sites were selected in representative vegetation communities based on 1:10 000 aerial photographic maps supplied by CAD Resources and previous mapping by Mattiske Consulting Pty Ltd (2010a).

Permanent monitoring plots (50 x 50 m) marked in each corner by a metal stake were established per vegetation community in the Ambassador Resource Area. Relevé vegetation sites (50 x 50 m) were used to aid the mapping of community boundaries.

A total of 239 permanent plots were set up in and around the Mulga Rock and proposed infrastructure areas and additional surveying was conducted at 496 relevé sites. The number of sites located inside and outside the impact areas are presented in Table 2. Permanent plot and relevé mapping site locations are listed in Appendix C & D.

Table 2: Number of sites located inside and outside the impact areas

AREA	NO. OF PERMANENT PLOTS	NO. OF RELEVÉ MAPPING SITES
Proposed infrastructure areas	13	52
Non-impact areas	226	444
Total	239	496

4.4 Data Analysis

A species accumulation curve, based on accumulated species versus sites surveyed was prepared, using the August 2012 field data only, to indicate the level of adequacy of the survey effort (Estimate S - Colwell 2006). As the number of survey sites increases, and correspondingly the size of the area surveyed increases, there should be a diminishing number of new species recorded. At some point, the number of new species recorded becomes essentially asymptotic. The asymptotic value was determined using Michaelis-Menten modelling and provides an incidence based coverage estimator of species richness (ICE - Chao 2005). When the number of new species being recorded for survey effort expended approaches this asymptotic value, the survey effort can be considered to be adequate.

PRIMER v6 (Plymouth Routines in Multivariate Ecological Research) statistical analysis software was used to analyse species-by-site data and discriminate sites on the basis of their species composition (Clarke and Gorley 2006). The percentage alive data was transformed from a range of 0-100 to a range of 0-1. Transformed data were analysed using Hierarchical Clustering (CLUSTER) with the Bray Curtis Similarity

measure. Singletons (species occurring at a single site) were removed from the data set if they did not form a dominant component of the vegetative cover (i.e. < 1 % cover). Results were used to inform and support interpretation of aerial photography and delineation of individual plant communities. The descriptions of plant communities within the survey area are based on the structural forms of Australian vegetation developed by Beard (1990; Appendix A8).

Species richness per vegetation community was calculated for permanent plots only and did not include plots outside the mapped area, or plots that were recently burnt (as these comprise different species after fire and identification of eucalypts is difficult with epicormic regrowth and lack of fruit and/or buds). As a result, some vegetation communities are only represented by one plot in this calculation, but mapping sites and plots not in the mapped area provide replication for these communities in the PRIMER analyses.

5. DESKTOP SURVEY RESULTS

The proposed Mulga Rock Project area lies within the Helms Botanical District of the Great Victoria Desert region, of the Eremaean Province (Beard 1990). More recently, the vegetation of Western Australia has been assigned to bioregions and subregions under the Interim Biogeographical Regionalisation for Australia (IBRA), with the survey area falling within the Shield subregion (GVD1) of the Great Victoria Desert bioregion (Barton & Cowan 2001; DSEWPC 2013c). Geologically, the Mulga Rock Project area lies within the Officer Basin (Beard 1990; ed. Blewett 2012).

5.1 Climate

Beard (1990) describes the Helms Botanical District as arid with rain during summer and winter, producing an annual precipitation of 200 mm. Kalgoorlie-Boulder Airport and Laverton are the two nearest active BOM (2011) weather stations to the survey area. They have similar climatic patterns and similar annual rainfall and temperatures (BOM 2011). Figure 2 illustrates the average climatic data from the Kalgoorlie-Boulder Airport weather station.

It is recommended that flora and vegetation surveys be conducted after significant rainfall events in the Eremaean Province (EPA 2004). Kalgoorlie received above average rainfall approximately six weeks before the December 2008 survey (Figure 2). Above average rainfall was also experienced in June, preceding the August and September 2009 surveys and above average rainfall was experienced approximately six weeks preceding the November 2010 survey (Figure 2).

5.2 Geology, Soils and Topography

The Helms Botanical District is characterised by undulating topography with longitudinal dunes (Beard 1990). Between the dunes the soils are characterised by shallow earthy soils overlying red brown hardpan, and other soils are red earthy sands or red brown sands of the dunes (Beard 1990). The geology is characterised by quaternary sand plain over Cenozoic, Mesozoic and Permian rocks (Beard 1990).

The Western end of the Great Victoria Desert is underlain by the Yilgarn Craton, whilst the majority of this region is comprised of an arid, active sand-ridge desert of deep Quaternary Aeolian sands overlying Cenozoic, Mesozoic and Permian strata of the Officer Basin. Sand plains with patches of self (longitudinal) dunes running east-west are characteristic of this region (Barton and Cowan 2001).

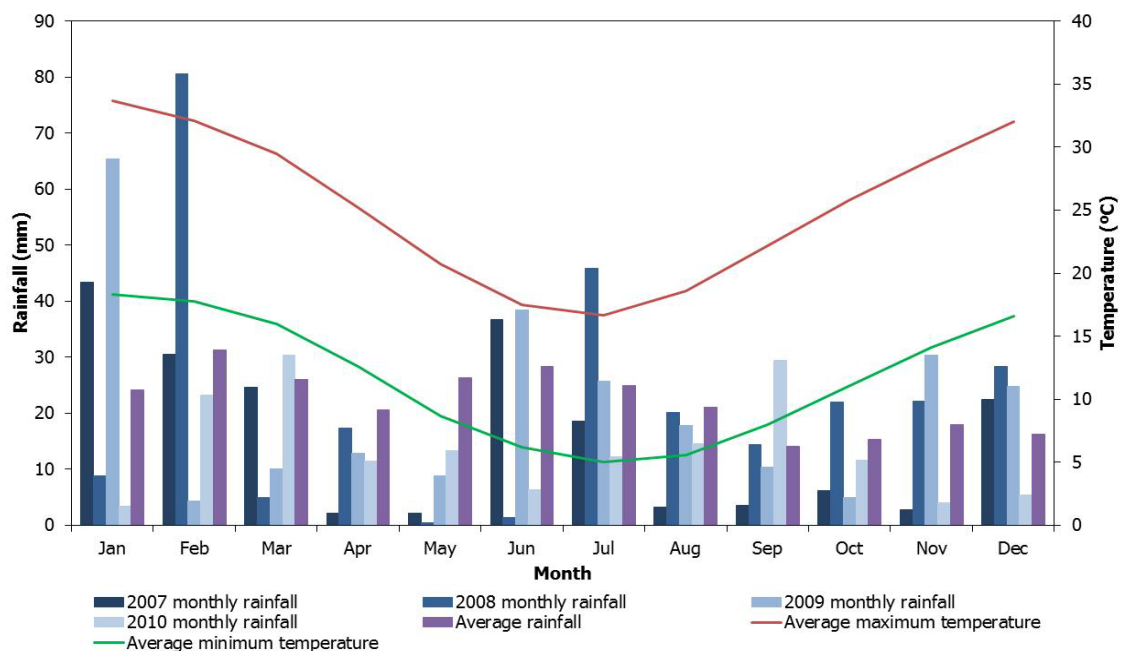


Figure 2: Climatic data for Kalgoorlie-Boulder Airport (BOM 2011)

Note: Long term average rainfall and temperature data shown for the period 1939-2013 (BOM 2011).

5.3 Regional Vegetation

The vegetation of the Helms Botanical District is very consistent and is characterised by tree steppe of *Eucalyptus gongylocarpa* and *Triodia basedowii* (Beard 1974). The sandy areas are a mosaic of tree and shrub communities, however *Eucalyptus gongylocarpa* is dominant on sand dunes only where it occurs locally between them (Beard 1990). Beard (1975) mapped the following dominant vegetation complex across the survey area:

- Tree steppe of *Eucalyptus gongylocarpa* over *Eucalyptus youngiana* shrubs over *Triodia basedowii* hummock grass (e₁₉Lr.e₂₀Sr.t₂Hi).

Patches of low mulga (*Acacia aneura* complex) woodland also occur in the Great Victoria Desert region (Beard 1975; 1990). MCPL have previously conducted vegetation mapping within the survey area (MCPL 2008a; 2008b; 2010b) as well as targeted threatened and priority flora surveys (MCPL 2009; 2010a).

Barton and Cowan (2001) describe the GVD1 – Shield IBRA subregion as mostly Aeolian sandplains dominated by spinifex, with mallees over hummock grassland (*Triodia basedowii*). Scattered marble gum (*Eucalyptus gongylocarpa*) and *Callitris* occur on the deeper sands, whilst mulga (*Acacia* spp.) woodlands occur mainly on colluvial and residual soils. Also noted in the subregion is the occurrence of halophytes and samphires that occur on salt lake margins and saline drainage areas, but to a lesser extent in the Mulga Rock Project area (Barton and Cowan 2001).

5.4 Threatened and Priority Ecological Communities

No threatened ecological communities (TECs) as defined by EPBC Act and the DEC (2013c) are known to occur in the survey area.

One Priority 3(ii) Ecological Community (see Appendix A5 for definition) as defined by the Department of Environment and Conservation (2010) is likely to be within the survey area. This PEC is listed as the "Yellow sandplain communities of the Great Victoria Desert" that contain very diverse mammalian and reptile fauna, with distinctive plant communities. It has threats from mining activities. This PEC is not well understood and to date, little information is available.

5.5 Introduced (weed) Species and Declared Plant (pest) Organisms

No weeds or declared plants have been recorded within the Mulga Rock Project area based on current DEC (2013f) and DAF (2013) records (Appendix B).

5.6 Threatened and Priority Flora

Based on the NatureMap DEC search results, one threatened flora species pursuant to subsection (2) of section 23F of the WC Act 1950 and as listed by the DEC (2012), and one P1 flora species pursuant to section 179 of the EPBC Act and as listed by the DSEWPC (2013e), have the possibility of occurring in the Mulga Rock Project area. Eighteen priority flora as listed by the DEC (2013e), have the possibility of occurring in the Mulga Rock Project area. The updated results are displayed in Table 3.

Table 3: Threatened or Priority Flora with the potential to occur in the Mulga Rock Project area

Note: ^ current as of June 2013.

SPECIES	FAMILY	CONSERVATION STATUS ^
<i>Eucalyptus articulata</i>	Myrtaceae	T (Vulnerable)
<i>Hibbertia crispula</i>	Dilleniaceae	P1 (Vulnerable)
<i>Caesia rigidifolia</i>	Hemerocallidaceae	P1
<i>Dampiera eriantha</i>	Goodeniaceae	P1
<i>Isotropis canescens</i>	Fabaceae	P2
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	Myrtaceae	P2
<i>Physopsis chrysotricha</i>	Lamiaceae	P2
<i>Thryptomene eremaea</i>	Myrtaceae	P2
<i>Trachymene pyrophila</i>	Araliaceae	P2
<i>Acacia eremophila</i> numerous-nerved variant (a. S. George 11924)	Fabaceae	P3
<i>Eucalyptus pimpiniana</i>	Myrtaceae	P3
<i>Micromyrtus serrulata</i>	Myrtaceae	P3
<i>Ptilotus blackii</i>	Amaranthaceae	P3
<i>Comesperma viscidulum</i>	Polygalaceae	P4
<i>Conospermum toddii</i>	Proteaceae	P4
<i>Daviesia purpurascens</i>	Fabaceae	P4
<i>Dicrastylis cundeeleensis</i>	Lamiaceae	P4
<i>Grevillea secunda</i>	Proteaceae	P4
<i>Olearia arida</i>	Asteraceae	P4

Priority flora species recorded during previous MCPL (2008a; 2008b; 2009; 2010a and 2010b) surveys are presented in Table 4 below.

Table 4: Threatened and priority flora previously recorded by MCPL in the south-western corner of the Great Victoria Desert

Note: ^ current as of June 2013.

SPECIES	CONSERVATION STATUS ^	SOIL TYPE & TOPOGRAPHY	RECORDED BY MCPL FOR EMA	RECORDED BY MCPL IN WIDER AREA
<i>Eucalyptus articulata</i>	T (Vulnerable)	Red sand (rocky)	-	Yes
<i>Hibbertia crispula</i>	P1 (Vulnerable)	Yellow sand dune crests	Yes	-
<i>Caesia rigidifolia</i>	P1	Yellow-orange sand	-	Yes
<i>Dampiera eriantha</i>	P1	Yellow sand dune crests	Yes	Yes
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	Yellow sand dune crests and slopes	Yes	Yes
<i>Physopsis chrysotricha</i>	P2	Orange-brown sandplains	-	Yes
<i>Thryptomene eremaea</i>	P2	Red or yellow sandplains	-	Yes
<i>Acacia eremophila</i> numerous-nerved variant (A.S. George 11924)	P3	Orange-red sandy flats	-	Yes
<i>Eucalyptus pimpiniana</i>	P3	Red sand plains	-	Yes
<i>Micromyrtus serrulata</i>	P3	Brown sands and clays	-	Yes
<i>Ptilotus blackii</i>	P3	Orange-red sand	-	Yes
<i>Comesperma viscidulum</i>	P4	Orange-red sandy flats	Yes	Yes
<i>Conospermum toddii</i>	P4	Yellow sand dunes	Yes	Yes
<i>Daviesia purpurascens</i>	P4	Red-orange sandy loam	-	Yes
<i>Dicrastylis cundeeleensis</i>	P4	Yellow-orange sand	Yes	Yes
<i>Grevillea secunda</i>	P4	Yellow sand dunes and undulating slopes	Yes	Yes
<i>Olearia arida</i>	P4	Yellow-orange to orange-red sandy loam flats	Yes	Yes

6. FIELD SURVEY RESULTS

6.1 Flora

An updated total of 276 vascular plant taxa, representative of 125 genera and 41 families, were recorded in the Mulga Rock Project area. The majority of taxa recorded were representative of the Fabaceae (47 taxa), Myrtaceae (38 taxa), Goodeniaceae (19 taxa) and Proteaceae (17 taxa) families (see Appendix B for a species list based on current nomenclature).

A species accumulation curve was used to evaluate the sampling adequacy and is presented in Figure 3. The Incidence based Coverage Estimator (ICE) of species richness was 324.8. Based on this value and the original total of 283 species recorded during the surveys (MCPL 2010b), approximately 87.1 % of the flora species potentially present within the Mulga Rock Project area were recorded.

A total of four annual or biennial species have been recorded in the Mulga Rock Project area by MCPL. A total of nine (inclusive of MCPL records) annual or biennial are known from the wider area (Appendix B).

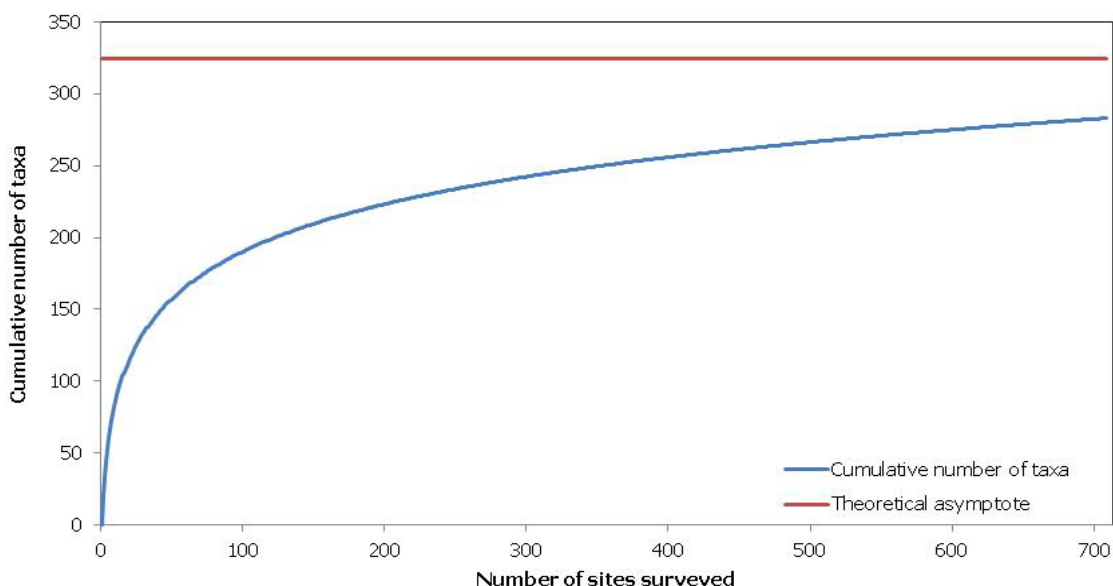


Figure 3: Average Randomised Species Accumulation Curve

Note: Field survey data (relevé mapping sites and permanent plots) were used to calculate both a species accumulation curve and a theoretical maximum number of species (asymptotic value) within the Mulga Rock Project area.

6.2 Introduced (weed) species and declared plant (pest) organisms

No introduced (weed) species or declared plant organisms have been recorded in the Mulga Rock Project area to date.

6.3 Threatened and Priority Flora

No threatened flora species pursuant to subsection (2) of section 23F of the WC Act 1950 and as listed by the DEC (2012) were recorded within the Mulga Rock Project area.

A total of 11 priority flora species as listed by the DEC (2013e) were recorded within the Mulga Rock Project area (Appendix B). In particular, one Priority 1 species (*Hibbertia crispula*) is also listed as Vulnerable, pursuant to section 179 of the EPBC Act and as listed by the DSEWPC (2013a) and was recorded within the Mulga Rock Project area. A brief description of these priority flora species is provided below.

***Dampiera eriantha* K. Krause – GOODENIACEAE – Priority 1**

This species is described as an erect perennial herb to 60 cm tall, with purple flowers (Plate 1; DEC 2013e). It has been recorded on unburnt, yellow sand dunes. The WA State Herbarium has 13 records in its collections. This species was found at 32 locations by MCPL botanists during the 2007-2010 surveys (Appendix E).



Plate 1: *Dampiera eriantha* (P1) in flower (photograph by N. Murdock)

***Hibbertia crispula* JM Black – DILLENIACEAE – Priority 1 & Vulnerable**

This species is a small wiry, glabrous shrub growing up to 50 cm high (Plate 2; DEC 2013e). It has been recorded on long-unburnt yellow sand dunes in the Officer Basin area and also has two disjunct populations in South Australia (DSEWPC 2013a). The WA State Herbarium has six records in its collections and it was recorded at nine unburnt locations by MCPL botanists during the 2007-2010 surveys (Appendix E).



Plate 2: *Hibbertia crispula* (P1) in flower (photograph by S. Reiffer)

***Malleostemon* sp. Officer Basin (D. Pearson 350) – MYRTACEAE – Priority 2**

This species is a shrub to 3 m tall that produces white flowers in December (DEC 2013e). It has been recorded on unburnt yellow sand dunes. The WA State Herbarium has 13 records in its collections. This species was recorded at 20 locations by MCPL botanists during the 2007-2010 surveys (Appendix E).

***Styphelia* sp. Great Victoria Desert (N. Murdoch 44) – ERICACEAE – Priority 2**

This phrase name was proposed early 2011 for four specimens collected from the Officer Basin area. It has been observed by MCPL botanists as a shrub to 50 cm tall, usually growing in low numbers on recently burnt to unburnt orange-yellow sandy slopes (Plate 3). Specimens that have been collected in the area by MCPL botanists were identified in previous reports as *Styphelia intertexta*, *Styphelia* sp. and *Leucopogon* sp. Kau Rock (M.A. Burgman 1126). *Styphelia* sp. Great Victoria Desert (N. Murdoch 44) has therefore been recorded at 14 locations during the 2007-2010 surveys (Appendix E). One specimen with white flowers was collected in July and another was collected with fruit in November. Four collections by Mattiske Consulting Pty Ltd botanists have been submitted to the Western Australian Herbarium: NM044 (flowers – collected 21/07/2010); NM055 (collected 2/11/2010); MG022 (collected 2/11/2010); and NM057 (fruit – collected 3/11/2010). Samples for DNA analysis have been collected from two of these specimens.



Plate 3: *Styphelia* sp. Great Victoria Desert fruiting and vegetative (photographs by N. Murdoch)

***Labichea eremaea* C.A. Gardner – FABACEAE – Priority 3**

This species is a compact, rigid shrub from 30-80 cm tall that produces yellow flowers in August and September (DEC 2013e). It has been recorded on red sand. The WA State Herbarium has 20 records in its collections.

This species had not been recorded in the Great Victoria Desert bioregion until specimens collected by MCPL botanists were lodged with the WA State Herbarium. These collections from the Mulga Rock Project area represent an approximate 400 km extension to the south-east of the previously known range. *Labichea eremaea* was recorded by MCPL botanists during the 2007-2010 surveys on yellow-orange sand slopes that were burnt 3-4 years prior to the survey. It was found at eight locations (Appendix E), however only one post-flowering specimen has so far been collected from a site that was not recently burnt.

***Ptilotus blackii* Benl – AMARANTHACEAE – Priority 3**

This species is an erect perennial herb to 35 cm tall that produces pink flowers between May and September (DEC 2013e). It has been recorded on orange-brown sand plains. The WA State Herbarium has seven records in its collections. This species was found by MCPL botanists at four recently burnt sites during the 2007-2010 surveys (Appendix E). One locality, however, could not be positively identified due to lack of flowering material.

***Conospermum toddii* F. Muell. – PROTEACEAE – Priority 4**

This species is a spreading shrub from 100-200 cm tall that produces white or yellow flowers from July to October (DEC 2013e). It has been recorded on yellow sand dunes. The WA State Herbarium has 52 records in its collections. This species was found at 388 locations by MCPL botanists during the 2007-2010 surveys (Appendix E).

***Comesperma viscidulum* F. Muell. – POLYGALACEAE – Priority 4**

This species is a shrub to 70 cm tall that produces cream or purple flowers (Plate 4; DEC 2013e). It has been recorded on red or orange sands on flats and undulating sand plains. The WA State Herbarium has 14 records in its collections. This species was found at 42 locations by MCPL botanists during the 2007-2010 surveys (Appendix E). Two juveniles (to 15 cm tall) were recorded in a recently burnt area. One *Comesperma viscidulum* specimen was observed flowering in November (Plate 4).



Plate 4: *Comesperma viscidulum* (P4) vegetative (photograph by N. Murdock) and in flower, November (photograph by F. Riviera)

***Dicrasyllis cundeeleensis* Rye – LAMIACEAE – Priority 4**

This species is a woolly shrub from 20-50 cm tall that flowers white during April and October to December (DEC 2013e). It has been recorded as occurring on yellow, red or reddish yellow sand on sand plains. The WA State Herbarium has 21 records in its collections. This species was recorded by MCPL botanists at 38 recently burnt locations during the 2007-2010 surveys (Appendix E).

***Grevillea secunda* McGill – PROTEACEAE – Priority 4**

This species is a low, spreading shrub from 30-80 cm tall that produces red flowers from September to October (Plate 5; DEC 2013e). It has been recorded on yellow or red sands on sand dunes and sand plains. The WA State Herbarium has 22 records in its collections. This species was found at 305 recently burnt and unburnt locations during the 2007-2010 surveys (Appendix E).



Plate 5: *Grevillea secunda* (P4) vegetative and flowering (photographs by MCPL botanist)

***Olearia arida* E. Pritz – ASTERACEAE – Priority 4**

This species is an erect shrub to 40 cm tall that produces white flowers from July to September (Plate 6). It has been recorded on red or yellow sands on undulating low rises (DEC 2013e). The WA State Herbarium has 17 records in its collections. This species was found at 49 recently burnt and unburnt locations during the 2007-2010 surveys (Appendix E). *Olearia arida* has been recorded around disturbed areas and appears to be a disturbance specialist.



Plate 6: *Olearia arida* (P4) post-flowering (photographs by N. Murdock)

The potential number of species to be impacted based on current plans versus the number of species recorded outside the impact areas are presented in Table 5 below. Of the eleven priority flora recorded in the area, only five of these (all Priority 4) are likely to be impacted by the proposed infrastructure areas (Table 5).

Table 5: Priority flora recorded in the Mulga Rock Project area

Note: Includes numbers and localities from all MCPL surveys for EMA. Number of individuals was calculated from the median (if recorded as a range) and the error associated with that range. 'IN' refers to plants recorded within the Proposed Infrastructure boundaries (see Figures 4.1, 4.2 and 4.3); 'OUT' refers to plants recorded outside these boundaries. Highlighted rows indicate the species has been recorded within the proposed infrastructure boundaries.

SPECIES	CONSERVATION STATUS	SITES IN	SITES OUT	TOTAL SITES	NO. INDIVIDUALS IN (\pm ERROR)	NO. INDIVIDUALS OUT (\pm ERROR)	TOTAL NO. INDIVIDUALS (\pm ERROR)
<i>Hibbertia crispula</i>	P1 - Vulnerable	0	9	9	0.0 (\pm 0)	341 (\pm 98)	341 (\pm 98)
<i>Dampiera eriantha</i>	P1	0	32	32	0.0 (\pm 0)	403 (\pm 132)	403 (\pm 132)
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	0	20	20	0.0 (\pm 0)	411 (\pm 132)	411 (\pm 132)
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	0	14	14	0.0 (\pm 0)	14 (\pm 0)	14 (\pm 0)
<i>Labichea eremaea</i>	P3	0	8	8	0.0 (\pm 0)	284 (\pm 92)	284 (\pm 92)
<i>Ptilotus blackii</i>	P3	0	4	4	0.0 (\pm 0)	39 (\pm 15)	39 (\pm 15)
<i>Conospermum toddii</i>	P4	84	261	345	1837 (\pm 588)	30641 (\pm 2779)	32478 (\pm 3367)
<i>Comesperma viscidulum</i>	P4	13	29	42	37 (\pm 10)	76 (\pm 13)	113 (\pm 23)
<i>Dicrastylis cundeeleensis</i>	P4	1	37	38	4 (\pm 2)	738 (\pm 249)	742 (\pm 251)
<i>Grevillea secunda</i>	P4	68	237	305	233 (\pm 57)	1662 (\pm 465)	1895 (\pm 522)
<i>Olearia arida</i>	P4	13	36	49	43 (\pm 11)	228 (\pm 70)	271 (\pm 81)

6.4 Other Species of Particular Interest

See Section 6.3 for a description of *Labichea eremaea*, which is listed as a Priority 3 species and is also considered to be a range extension. A total of three species were recorded outside their known distribution, including *Brunonia suffruticosa*, *Dampiera ramosa* and *Gastrolobium brevipes*. The localities of these records are included in Appendix E.

***Dampiera ramosa* Rajput & Carolin - GOODENIACEAE**

This species is a tufted perennial herb that has been recorded from the Great Victoria Desert, Central Ranges, Little Sandy Desert and Murchison regions of the Eremaean Botanical Province (Plate 7; DEC 2013e). This collection represents an approximate 200 km range extension to the south-west. At least 19 individuals were recorded across 12 sites in the Mulga Rock Project area on yellow sand dunes (Appendix E).



Plate 7: *Dampiera ramosa* (photograph by N. Murdock)

***Gastrolobium brevipes* Crisp - FABACEAE**

This species is an erect shrub to 250 cm tall that has been recorded in the Central Ranges of the Eremaean Botanical Province around the Northern Territory, South Australian and Western Australian borders (Plate 8; DEC 2013e; Chandler *et al.* 2002). This collection represents an approximate 600 km range extension to the south-south-west. Approximately 140 individuals were recorded across 15 sites on yellow-orange sandy loam flats in areas that were subject to fire in the last 2-4 years (Appendix E).



Plate 8: *Gastrolobium brevipes* in flower (photograph by S. Reiffer)

***Brunonia suffruticosa* L.W. Sage ms - GOODENIACEAE**

Description is not available (DEC 2013e). This collection represents a poor specimen with no flowering or fruiting material, therefore cannot be positively identified. It otherwise represents an approximate 400 km extension to the south of its range. At least 43 individuals have been recorded across three localities in the Mulga Rock Project area (Appendix E).

6.5 Vegetation

Twenty-two plant communities have been defined within the survey area (2007-2010) and are presented in Figures 4.1 – 4.3. Some of the vegetation community descriptions have been altered since MCPL (2008a; 2008b; and 2010b) due to a greater understanding of the communities and their species compositions after additional surveys. See Appendix F for the dendrogram based on presence and absence of species, used to broadly define the vegetation communities.

The following communities are currently defined within the Mulga Rock Project area:

Eucalypt Woodlands

- E1 – Low Woodland to Low Open Woodland of *Eucalyptus concinna* with *Callitris preissii* over *Westringia cephalantha*, *Melaleuca hamata*, *Acacia colletioides*, *Acacia hemiteles* and *Scaevola spinescens* over *Triodia desertorum*. This community occurs on red-orange sandy loams on flats.
- E2 – Low Woodland to Open Scrub Mallee of *Eucalyptus trivalva* and *Eucalyptus platycorys* with *Callitris preissii* and *Hakea francisiana* over *Acacia colletioides*, *Acacia hemiteles*, *Melaleuca hamata*, *Westringia cephalantha*, *Bertya dimerostigma* and mixed shrubs over *Triodia desertorum* with occasional emergent *Eucalyptus gongylocarpa*. This community occurs on red-orange sandy loams on flats.
- E3 – Low Open Woodland of *Eucalyptus gongylocarpa* over *Eucalyptus youngiana*, *Eucalyptus ceratocorys*, *Grevillea juncifolia*, *Hakea francisiana* and *Callitris preissii* over *Acacia helmsiana*, *Cryptandra distigma* and mixed low shrubs over *Triodia desertorum*, *Chrysitrix distigmata* and *Lepidobolus deserti*. This community occurs on yellow and yellow-orange sands on flats, slopes and between dunes.

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- E4 – Low Open Woodland of *Eucalyptus gongylocarpa* over *Callitris preissii* with *Hakea francisiana* and *Grevillea juncifolia* over *Bertya dimerostigma*, *Westringia cephalantha* and mixed shrubs over *Triodia rigidissima* and *Triodia desertorum*. This community occurs on orange sands on flats and slopes.
- E5 – Low Open Woodland of *Eucalyptus gongylocarpa* over *Eucalyptus rigidula* and *Eucalyptus* sp. Mulga Rock (K.D. Hill & L.A.S. Johnson KH 2668) with *Hakea francisiana* and *Grevillea juncifolia* over *Westringia cephalantha*, *Acacia helmsiana*, *Acacia rigens*, *Eremophila platythamnos* subsp. *platythamnos*, *Cryptandra distigma* and mixed low shrubs over *Triodia desertorum*, *Triodia rigidissima* and *Chrysitrix distigmatosa*. This community occurs on yellow and orange sands on flats and slopes.
- E6 – Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus rigidula* and/or *Eucalyptus* sp. Mulga Rock (K.D. Hill & L.A.S. Johnson KH 2668) over *Acacia hemiteles*, *Hakea francisiana*, *Westringia rigida*, *Cryptandra distigma*, *Grevillea acuarina* and mixed low shrubs over *Triodia rigidissima* with *Halgania cyanea*. This community occurs on red-orange sandy loams on flats and low lying swales.
- E7 – Open Scrub Mallee to Very Open Scrub Mallee of varying *Eucalyptus* spp. over *Grevillea acuarina*, *Acacia hemiteles*, *Cryptandra distigma*, *Westringia cephalantha* and mixed shrubs over *Triodia desertorum*. This community occurs on red-orange sandy loams in low lying swales.
- E8 – Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus ceratocorys* and *Eucalyptus mannensis* subsp. *mannensis* with *Eucalyptus youngiana*, *Hakea francisiana* and *Grevillea juncifolia* over *Acacia fragilis*, *Acacia helmsiana* and mixed low shrubs over *Triodia desertorum*, *Chrysitrix distigmatosa* and *Lepidobolus deserti* with emergent *Eucalyptus gongylocarpa*. This community occurs on yellow sands on flats and slopes.
- E9 – Very Open Scrub Mallee of *Eucalyptus mannensis* subsp. *mannensis* with *Grevillea juncifolia* and *Hakea francisiana* over *Cryptandra distigma*, *Acacia ligulata* and mixed low shrubs over *Triodia desertorum* with emergent *Eucalyptus gongylocarpa*. This community occurs on yellow sand on slopes and flats.
- E10 – Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus concinna* with *Eucalyptus platycorys* over *Hakea francisiana*, *Cryptandra distigma*, *Acacia rigens* and mixed shrubs over *Triodia rigidissima* and *Chrysitrix distigmatosa* with *Leptosema chambersii*. This community occurs on orange-red sandy loams on slopes and flats.
- E11 – Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus platycorys* with *Eucalyptus concinna* over *Acacia helmsiana*, *Grevillea juncifolia*, *Hakea francisiana* and mixed shrubs over *Triodia desertorum* and *Chrysitrix distigmatosa*. This community occurs on orange-yellow sandy loams on slopes and flats.
- E12 – Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus trivalva* with *Eucalyptus rigidula* over *Hakea francisiana*, *Bertya dimerostigma*, *Acacia helmsiana*, *Cryptandra distigma* and *Grevillea juncifolia* over *Triodia rigidissima*, *Triodia desertorum*, *Chrysitrix distigmatosa* and *Halgania cyanea*. This community occurs on orange and red-orange sandy loams on flats and swales.

Acacia Woodland

- A1 – Low Woodland to Tall Shrubland of *Acacia aneura* over *Aluta maisonneuvei* subsp. *auriculata*, *Eremophila latrobei*, *Phebalium canaliculatum*, *Prostanthera* spp. and mixed shrubs. This community occurs on orange sandy loams or clay loams with some laterite pebbles on flats.

Mixed Shrublands

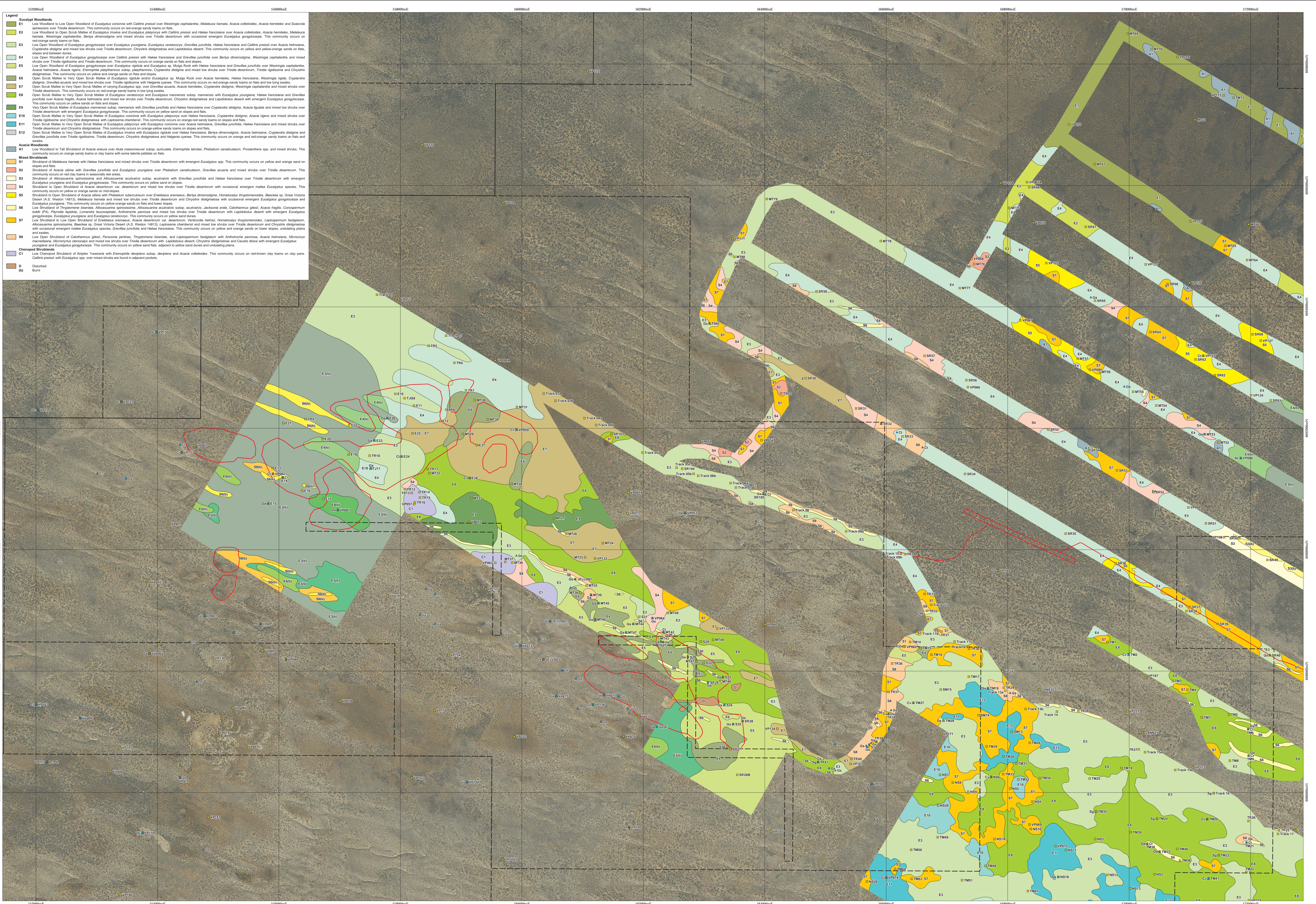
- S1 – Shrubland of *Melaleuca hamata* with *Hakea francisiana* and mixed shrubs over *Triodia desertorum* with emergent *Eucalyptus* spp.. This community occurs on yellow and orange sand on slopes and flats.
- S2 – Shrubland of *Acacia sibina* with *Grevillea juncifolia* and *Eucalyptus youngiana* over *Phebalium canaliculatum*, *Grevillea acuarria* and mixed shrubs over *Triodia desertorum*. This community occurs on red clay loams in seasonally wet areas.
- S3 – Shrubland of *Allocasuarina spinosissima* and *Allocasuarina acutivalvis* subsp. *acutivalvis* with *Grevillea juncifolia* and *Hakea francisiana* over *Triodia desertorum* with emergent *Eucalyptus youngiana* and *Eucalyptus gongylocarpa*. This community occurs on yellow sand on slopes.
- S4 – Shrubland to Open Shrubland of *Acacia desertorum* var. *desertorum* and mixed low shrubs over *Triodia desertorum* with occasional emergent mallee *Eucalyptus* species. This community occurs on yellow or orange sands on mid-slopes.
- S5 – Shrubland to Open Shrubland of *Acacia sibina* with *Phebalium tuberculosum* over *Enekbatus eremaeus*, *Bertya dimerostigma*, *Homalocalyx thryptomenoides*, *Baeckea* sp. Great Victoria Desert (A.S. Weston 14813), *Melaleuca hamata* and mixed low shrubs over *Triodia desertorum* and *Chrysitrix distigmata* with occasional emergent *Eucalyptus gongylocarpa* and *Eucalyptus youngiana*. This community occurs on yellow-orange sands on flats and lower slopes.
- S6 – Low Shrubland of *Thryptomene biseriata*, *Allocasuarina spinosissima*, *Allocasuarina acutivalvis* subsp. *acutivalvis*, *Jacksonia arida*, *Calothamnus gilesii*, *Acacia fragilis*, *Conospermum toddii* (P4), *Pityrodia lepidota*, *Lomandra leucocephala*, *Anthotroche pannosa* and mixed low shrubs over *Triodia desertorum* with *Lepidobolus deserti* with emergent *Eucalyptus gongylocarpa*, *Eucalyptus youngiana*, *Eucalyptus ceratocorys* and *Eucalyptus mannensis* subsp. *mannensis*. This community occurs on yellow sand dunes.
- S7 – Low Shrubland to Low Open Shrubland of *Enekbatus eremaeus*, *Acacia desertorum* var. *desertorum*, *Verticordia helmsii*, *Homalocalyx thryptomenoides*, *Leptospermum fastigiatum*, *Allocasuarina spinosissima*, *Baeckea* sp. Great Victoria Desert (A.S. Weston 14813), *Leptosema chambersii* and mixed low shrubs over *Triodia desertorum* and *Chrysitrix distigmata* with occasional emergent mallee *Eucalyptus* species, *Grevillea juncifolia* and *Hakea francisiana*. This community occurs on yellow and orange sands on lower slopes, undulating plains and swales.
- S8 – Low Open Shrubland of *Calothamnus gilesii*, *Persoonia pertinax*, *Thryptomene biseriata* and *Leptospermum fastigiatum* with *Anthotroche pannosa*, *Acacia helmsiana*, *Microcorys macredieana*, *Micromyrtus stenocalyx* and mixed low shrubs over *Triodia desertorum* with *Lepidobolus deserti*, *Chrysitrix distigmata* and *Caustis dioica* with emergent *Eucalyptus youngiana*, *Eucalyptus gongylocarpa* and *Eucalyptus ceratocorys*. This community occurs on yellow sands flats adjacent to yellow sand dunes and undulating sandplains.

Chenopod Shrubland

- C1 – Low Chenopod Shrubland of *Atriplex ?vesicaria* with *Eremophila decipiens* subsp. *decipiens* and *Acacia colletioides*. This community occurs on red-brown clay loams on clay pans. *Callitris preissii* with *Eucalyptus* spp. over mixed shrubs are found in adjacent pockets.

The extent of the vegetation communities defined within the Mulga Rock Project area and surrounding region is summarised in Table 6. Based on the current proposed infrastructure boundaries as displayed in Figures 4.2, 4.2 and 4.3, only vegetation communities E3-E8, E12 and S6-S8 are likely to be impacted (Table 6). Community S6 occurs on yellow sand dune ridges and is likely to be associated with the “Yellow sandplain communities of the Great Victoria Desert” PEC. The proposed infrastructure is likely to impact 17.7 ha of community S6, comprising only 0.1 % of the total mapped area. This equates to impacting 2.8 % of the 636 ha of community S6 mapped by MCPL.

It is estimated that 8.8 % of the total area mapped was burnt between 2007 and the time of surveys.



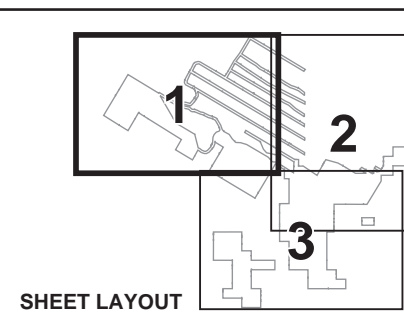
- Legend**
- Eucalypt Woodlands**
 - E1 Low Woodland to Low Open Woodland of *Eucalyptus concinna* with *Callitris preissii* over *Wesleya ophthalmitis*, *Melaleuca hamata*, *Acacia coloradensis*, *Acacia hemiteles* and *Scaevola* spp. over *Triodia desertorum*. This community occurs on red-orange sandy loams on flats.
 - E2 Low Woodland to Open Scrub Mallee of *Eucalyptus nitida* and *Eucalyptus platycorys* with *Callitris preissii* and *Hakea franseria* over *Acacia coloradensis*, *Acacia hemiteles*, *Melaleuca hamata*, *Wesleya ophthalmitis*, *Beryla dimorpha* and mixed shrubs over *Triodia desertorum* with occasional emergent *Eucalyptus gonycarpa*. This community occurs on red-orange sandy loams on flats.
 - E3 Low Open Woodland of *Eucalyptus gonycarpa* over *Eucalyptus youngiana*, *Eucalyptus caerulescens*, *Grevillea juncea*, *Hakea franseria* and *Callitris preissii* over *Acacia hemiteles*, *Cyathochaeta diandra* and mixed low shrubs over *Triodia desertorum*, *Chrysothrix distigmatica* and *Lepidobolus deserti*. This community occurs on yellow and yellow-orange sands on flats, slopes and between dunes.
 - E4 Low Open Woodland of *Eucalyptus gonycarpa* over *Callitris preissii* with *Hakea franseria* and *Grevillea juncea* over *Beryla dimorpha*, *Wesleya ophthalmitis* and mixed shrubs over *Triodia rigida* and *Triodia desertorum*. This community occurs on orange sands on flats and slopes.
 - E5 Low Open Woodland of *Eucalyptus gonycarpa* over *Eucalyptus rigida* and *Eucalyptus sp.* Mulla Rock with *Hakea franseria* and *Grevillea juncea* over *Wesleya ophthalmitis*, *Acacia hemiteles*, *Acacia rigens*, *Eremophila platyphloea* subsp. *platyphloea*, *Cyathochaeta diandra* and mixed low shrubs over *Triodia desertorum*, *Triodia rigida* and *Chrysothrix distigmatica*. This community occurs on yellow and orange sands on flats and slopes.
 - E6 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus rigida* and/or *Eucalyptus sp.* Mulla Rock over *Acacia hemiteles*, *Hakea franseria*, *Wesleya rigida*, *Cyathochaeta diandra*, *Grevillea acuta* and mixed low shrubs over *Triodia desertorum* on red-orange sandy loams on flats and low lying heath.
 - E7 Open Scrub Mallee to Very Open Scrub Mallee of varying *Eucalyptus* spp. over *Grevillea acuta*, *Acacia hemiteles*, *Cyathochaeta diandra*, *Wesleya ophthalmitis* and mixed shrubs over *Triodia desertorum*. This community occurs on red-orange sandy loams on flats and low lying heath.
 - E8 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus caerulescens* and *Eucalyptus menziesii* subsp. *menziesii* with *Eucalyptus youngiana*, *Hakea franseria* and *Grevillea juncea* over *Acacia rigida*, *Acacia hemiteles* and mixed low shrubs over *Triodia desertorum*, *Chrysothrix distigmatica* and *Lepidobolus deserti* with emergent *Eucalyptus gonycarpa*. This community occurs on yellow sands on flats and slopes.
 - E9 Very Open Scrub Mallee of *Eucalyptus menziesii* subsp. *menziesii* with *Grevillea juncea* and *Hakea franseria* over *Cyathochaeta diandra*, *Acacia ligulata* and mixed low shrubs over *Triodia desertorum* with emergent *Eucalyptus gonycarpa*. This community occurs on yellow sand on slopes and flats.
 - E10 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus concinna* with *Eucalyptus platycorys* over *Hakea franseria*, *Cyathochaeta diandra*, *Acacia rigens* and mixed shrubs over *Triodia rigida* and *Chrysothrix distigmatica* with *Lepidobolus deserti*. This community occurs on orange to yellow sandy loams on slopes and flats.
 - E11 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus platycorys* with *Eucalyptus concinna* over *Acacia hemiteles*, *Grevillea juncea*, *Hakea franseria* and mixed shrubs over *Triodia desertorum* and *Chrysothrix distigmatica*. This community occurs on orange-yellow sandy loams on slopes and flats.
 - E12 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus nitida* with *Eucalyptus rigida* over *Hakea franseria*, *Beryla dimorpha*, *Acacia hemiteles*, *Cyathochaeta diandra* and *Grevillea juncea* over *Triodia rigida*, *Triodia desertorum*, *Chrysothrix distigmatica* and *Habelea cyanea*. This community occurs on orange and red-orange sandy loams on flats and slopes.
 - Acacia Woodlands**
 - A1 Low Woodland to Tall Shrubland of *Acacia aneura* over *Alata masoniorum* subsp. *auriculata*, *Eremophila latrobei*, *Phaeobolus canaliculatus*, *Prostanthera* spp. and mixed shrubs. This community occurs on orange sandy loams or clay loams with some laterite pebbles on flats.
 - Mixed Shrublands**
 - S1 Shrubland of *Melaleuca hamata* with *Hakea franseria* and mixed shrubs over *Triodia desertorum* with emergent *Eucalyptus* spp. This community occurs on yellow and orange sand on slopes and flats.
 - S2 Shrubland of *Acacia alba* with *Grevillea juncea* and *Eucalyptus youngiana* over *Phaeobolus canaliculatus*, *Grevillea acuta* and mixed shrubs over *Triodia desertorum*. This community occurs on red clay loams in seasonally wet areas.
 - S3 Shrubland of *Allocasuarina gonocarpa* and *Allocasuarina acutivalva* subsp. *acutivalva* with *Grevillea juncea* and *Hakea franseria* over *Triodia desertorum* with emergent *Eucalyptus youngiana* and *Eucalyptus gonycarpa*. This community occurs on yellow sand on slopes.
 - S4 Shrubland to Open Shrubland of *Acacia stenocarpa* var. *desertorum* and mixed low shrubs over *Triodia desertorum* with occasional emergent mallee *Eucalyptus* species. This community occurs on yellow or orange sands on mid-slopes.
 - S5 Shrubland to Open Shrubland of *Acacia alba* with *Phaeobolus tuberculatus* over *Eriohatena eremodora*, *Beryla dimorpha*, *Homobolus rhytidomoides*, *Baccharis* sp. Great Victoria Desert (S.S. Weston 14813), *Melaleuca hamata* and mixed low shrubs over *Triodia desertorum* and *Chrysothrix distigmatica* with occasional emergent *Eucalyptus gonycarpa* and *Eucalyptus youngiana*. This community occurs on yellow-orange sands on flats and lower slopes.
 - S6 Low Shrubland of *Phytolacca boveana*, *Allocasuarina gonocarpa*, *Allocasuarina acutivalva* subsp. *acutivalva*, *Jacksonia arida*, *Chaetochloa glauca*, *Acacia flaggis*, *Crotophaga sulcirostris* (P.), *Phytolacca boveana*, *LomatiumAllocasuarina* *pernosa* and mixed low shrubs over *Triodia desertorum* with emergent *Eucalyptus gonycarpa*, *Eucalyptus youngiana* and *Eucalyptus caerulescens*. This community occurs on yellow sand dunes.
 - S7 Low Shrubland to Low Open Shrubland of *Eriohatena eremodora*, *Acacia desertorum* var. *desertorum*, *Verticordia haemata*, *Homobolus rhytidomoides*, *Lepidosperma festuciforme*, *Allocasuarina gonocarpa*, *Baccharis* sp. Great Victoria Desert (S.S. Weston 14813), *Lepidosperma chandleri* and mixed low shrubs over *Triodia desertorum* and *Chrysothrix distigmatica* with occasional emergent mallee *Eucalyptus* species, *Grevillea juncea* and *Hakea franseria*. This community occurs on yellow and orange sands on lower slopes, underlying plains and wetlands.
 - S8 Low Open Shrubland of *Callitamus oleoides*, *Peronopsis parviflora*, *Thysothamnus bialatus* and *Lepidosperma festuciforme* with *Ariahammonia peronae*, *Acacia hemiteles*, *Microcorys macrodonia*, *Microcorys strobilata* and mixed low shrubs over *Triodia desertorum* with *Lepidobolus deserti*, *Chrysothrix distigmatica* and *Caustis dioica* with emergent *Eucalyptus youngiana* and *Eucalyptus gonycarpa*. This community occurs on yellow sand flats, adjacent to yellow sand dunes and surrounding plains.
 - Chenopod Shrublands**
 - C1 Low Chenopod Shrubland of *Atriplex vesicaria* with *Eremophila declinata* subsp. *declinata* and *Acacia coloradensis*. This community occurs on red-brown clay loams on clay pans, *Callitris preissii* with *Eucalyptus* spp. over mixed shrubs are found in adjacent pockets.
 - Disturbed**
 - Burnt**

Notes:
 MCPPL Vegetation as at 18/07/2011
 MCPPL priority species - June 2011
 DEC rare and priority search reference 59-0709
 Background image - SPCF sourced 27/7/2009

Code	Species	Priority	Code	Species	Priority
HC	<i>Dampiera eriantha</i>	P1	DC	<i>Dicranella combedentata</i>	P4
HC	<i>Hibbertia cingulata</i>	P1	DC	<i>Drosera secundata</i>	P4
HC	<i>Melaleuca argentea</i>	P2	DC	<i>Diuris alba</i>	P4
HC	<i>Syphila sp.</i> Great Victoria Desert (N. Murdoch 44)	P2	DC	<i>Dampiera ramosa</i>	Other
HC	<i>Lathraea eriantha</i>	P3	DC	<i>Gastrolobium brevipes</i>	Other
HC	<i>Phyllanthus thalictroides</i>	P4			
HC	<i>Conioselinum boscii</i>	P4			

THREATEND AND PRIORITY SPECIES

Threatened	Priority	DCPL	Herbarium	MCPPL
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2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
Other	Other	Other	Other	Other



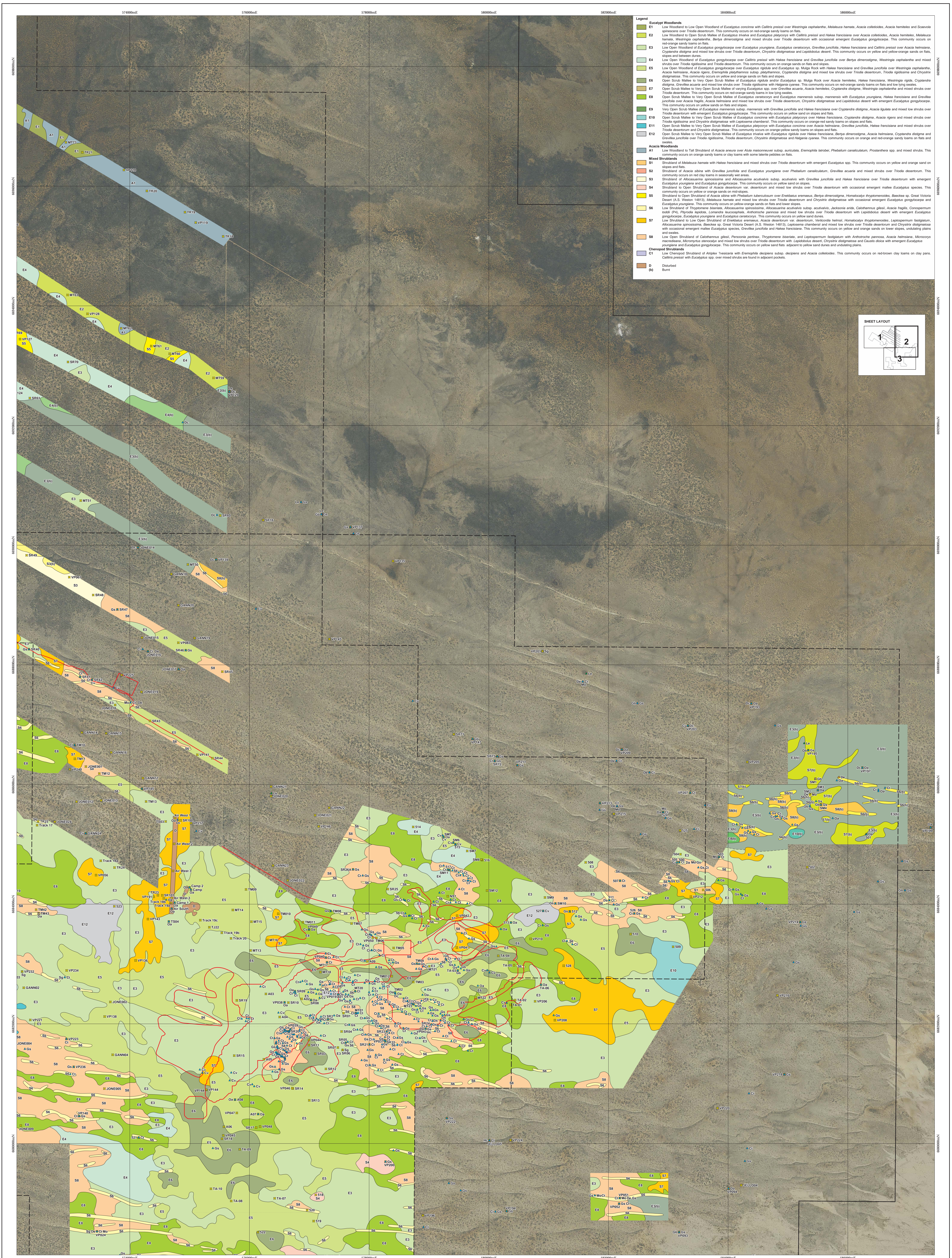
ENERGY AND MINERALS AUSTRALIA



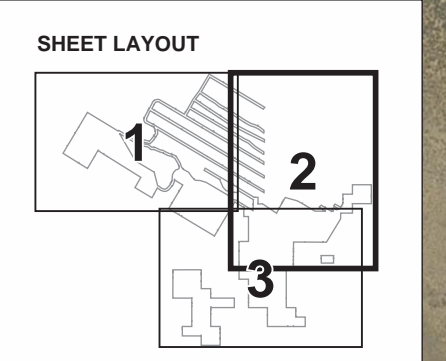
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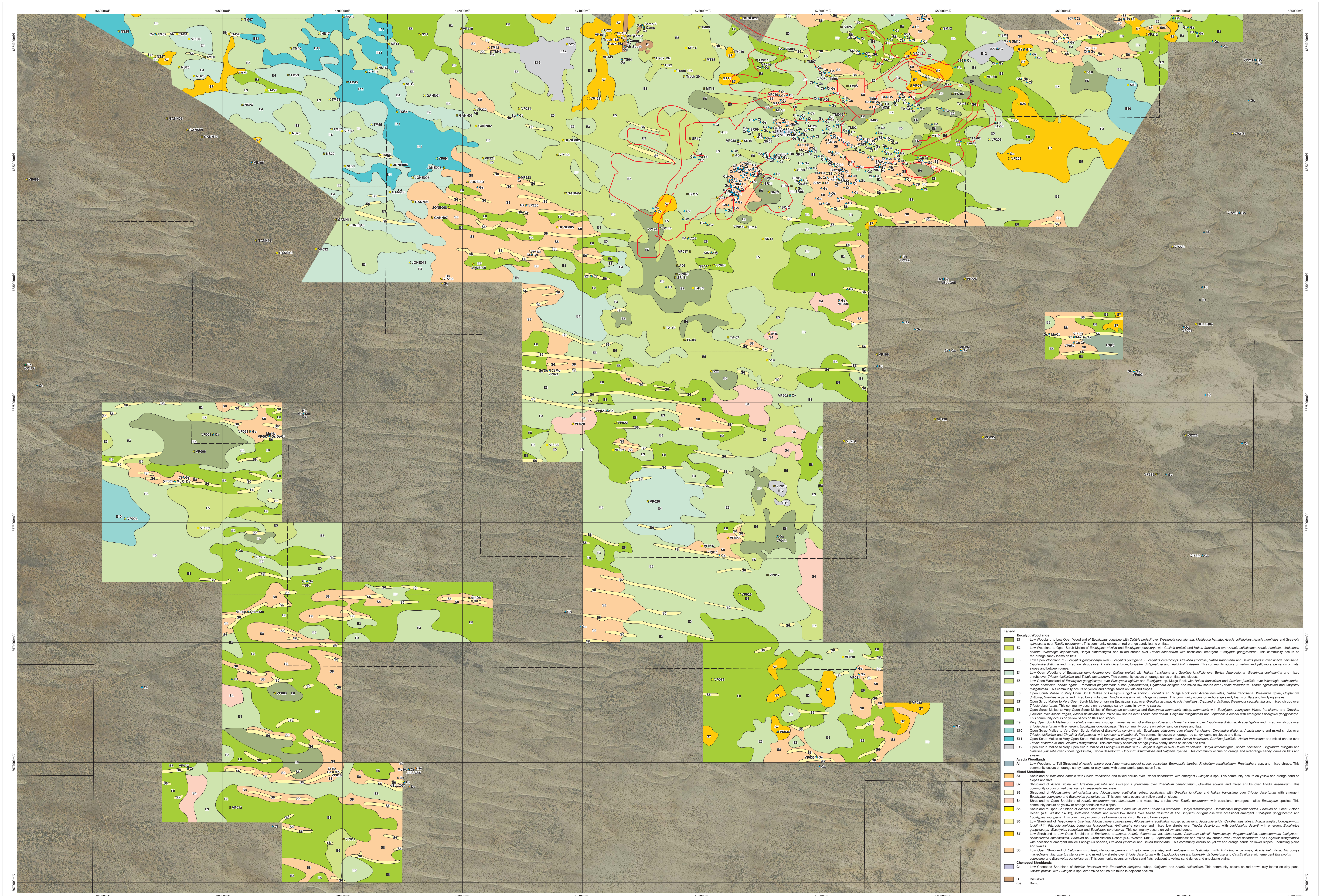
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- Legend**
- Eucalypt Woodlands**
- E1 Low Woodland to Low Open Woodland of *Eucalyptus concinna* with *Callitris preissii* over *Westringia ophthalma*, *Melaleuca hansenii*, *Acacia colletioides*, *Acacia hemiteles* and *Scaevola gracilis* over *Triodia desertorum*. This community occurs on red-orange sandy loams on flats.
 - E2 Low Woodland to Open Scrub Mallee of *Eucalyptus inuvata* and *Eucalyptus phoenicea* with *Callitris preissii* and *Hakea francosana* over *Acacia colletioides*, *Acacia hemiteles*, *Melaleuca hansenii*, *Westringia ophthalma*, *Bertha dimorpha* and mixed shrubs over *Triodia desertorum* with occasional emergent *Eucalyptus gongylocarpa*. This community occurs on red-orange sandy loams on flats.
 - E3 Low Open Woodland of *Eucalyptus gongylocarpa* over *Eucalyptus youngiana*, *Eucalyptus oerocorys*, *Grewia junifolia*, *Hakea francosana* and *Callitris preissii* over *Acacia hemiteles*, *Cyrtandra distigma* and mixed low shrubs over *Triodia desertorum*, *Chrysothrix distigmatica* and *Lepidobolus deserti*. This community occurs on yellow and yellow-orange sands on flats, slopes and between dunes.
 - E4 Low Open Woodland of *Eucalyptus gongylocarpa* over *Callitris preissii* with *Hakea francosana* and *Grewia junifolia* over *Bertha dimorpha*, *Westringia ophthalma* and mixed shrubs over *Triodia distigmatica* and *Triodia desertorum*. This community occurs on orange sands on flats and slopes.
 - E5 Low Open Woodland of *Eucalyptus gongylocarpa* over *Eucalyptus rigidula* and *Eucalyptus sp. Mulga Rock* with *Hakea francosana* and *Grewia junifolia* over *Westringia ophthalma*, *Acacia hemiteles*, *Acacia rigens*, *Enemophila platyphloea* subsp. *platyphloea*, *Cyrtandra distigma* and mixed low shrubs over *Triodia desertorum*, *Triodia rigidissima* and *Chrysothrix distigmatica*. This community occurs on yellow and orange sands on flats and slopes.
 - E6 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus rigidula* and *Eucalyptus sp. Mulga Rock* over *Acacia hemiteles*, *Hakea francosana*, *Westringia rigida*, *Cyrtandra distigma*, *Grewia junifolia* and mixed low shrubs over *Triodia rigidissima* with *Hakea cyanea*. This community occurs on red-orange sandy loams on flats and low lying swales.
 - E7 Open Scrub Mallee to Very Open Scrub Mallee of varying *Eucalyptus* spp. over *Grewia acuta*, *Acacia hemiteles*, *Cyrtandra distigma*, *Westringia ophthalma* and mixed shrubs over *Triodia desertorum*. This community occurs on red-orange sandy loams in low lying swales.
 - E8 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus oerocorys* and *Eucalyptus youngiana* with *Eucalyptus youngiana*, *Hakea francosana* and *Grewia junifolia* over *Acacia rigens*, *Acacia hemiteles* and mixed low shrubs over *Triodia desertorum*, *Chrysothrix distigmatica* and *Lepidobolus deserti* with emergent *Eucalyptus gongylocarpa*. This community occurs on yellow sands on flats and slopes.
 - E9 Very Open Scrub Mallee of *Eucalyptus mannevillei* subsp. *mannevillei* with *Grewia junifolia* and *Hakea francosana* over *Cyrtandra distigma*, *Acacia ligulata* and mixed low shrubs over *Triodia desertorum* with emergent *Eucalyptus gongylocarpa*. This community occurs on yellow sand on slopes and flats.
 - E10 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus concinna* with *Eucalyptus youngiana* over *Acacia rigens* and *Acacia hemiteles*, *Cyrtandra distigma*, *Acacia rigens* and mixed shrubs over *Triodia rigidissima* and *Chrysothrix distigmatica* with *Lepidobolus deserti*. This community occurs on orange-red sandy loams on slopes and flats.
 - E11 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus youngiana* with *Eucalyptus concinna* over *Acacia hemiteles*, *Grewia junifolia*, *Hakea francosana* and mixed shrubs over *Triodia desertorum* and *Chrysothrix distigmatica*. This community occurs on orange-yellow sandy loams on slopes and flats.
 - E12 Open Scrub Mallee to Very Open Scrub Mallee of *Eucalyptus inuvata* with *Eucalyptus rigidula* over *Hakea francosana*, *Bertha dimorpha*, *Acacia hemiteles*, *Cyrtandra distigma* and *Grewia junifolia* over *Triodia rigidissima*, *Triodia desertorum*, *Chrysothrix distigmatica* and *Hakea cyanea*. This community occurs on orange and red-orange sandy loams on flats and swales.
- Acacia Woodlands**
- A1 Low Woodland to Tall Shrubland of *Acacia aneura* over *Alata mannevillei* subsp. *aneura*, *Enemophila latrobei*, *Phabulum canaliculatum*, *Prostanthera* spp. and mixed shrubs. This community occurs on orange sandy loams or clay loams with some laterite pebbles on flats.
- Mixed Shrublands**
- S1 Shrubland of *Melaleuca hansenii* with *Hakea francosana* and mixed shrubs over *Triodia desertorum* with emergent *Eucalyptus* spp. This community occurs on yellow and orange sand on slopes and flats.
 - S2 Shrubland of *Acacia alba* with *Grewia junifolia* and *Eucalyptus youngiana* over *Phabulum canaliculatum*, *Grewia acuta* and mixed shrubs over *Triodia desertorum*. This community occurs on red clay loams in seasonally wet areas.
 - S3 Shrubland of *Allocasuarina spirostachya* and *Allocasuarina acutivalva* subsp. *acutivalva* with *Grewia junifolia* and *Hakea francosana* over *Triodia desertorum* with emergent *Eucalyptus youngiana* and *Eucalyptus gongylocarpa*. This community occurs on yellow sand on slopes.
 - S4 Shrubland to Open Shrubland of *Acacia dealbata* over *Phabulum canaliculatum* and mixed low shrubs over *Triodia desertorum* with occasional emergent mallee *Eucalyptus* species. This community occurs on yellow or orange sands on mid-slopes.
 - S5 Shrubland to Open Shrubland of *Acacia alba* with *Phabulum canaliculatum* over *Ennebotrys emmanus*, *Bertha dimorpha*, *Homalium myrsinoides*, *Baeolaea* sp. Great Victoria Desert (A.S. Weston 14813), *Melaleuca hansenii* and mixed low shrubs over *Triodia desertorum* and *Chrysothrix distigmatica* with occasional emergent *Eucalyptus gongylocarpa* and *Eucalyptus youngiana*. This community occurs on yellow-orange sands on flats and lower slopes.
 - S6 Low Shrubland of *Trigonostemon ibonata*, *Allocasuarina spirostachya*, *Allocasuarina acutivalva* subsp. *acutivalva*, *Jacksonia arida*, *Carotammus glisii*, *Acacia rigens*, *Crotophaga sulcirostris* (P.A. Phelan) sp. *sp.*, *Conostegia leucophaea*, *Arenaria pinnata* and mixed low shrubs over *Triodia desertorum* with *Lepidobolus deserti* with emergent *Eucalyptus gongylocarpa*, *Eucalyptus youngiana* and *Eucalyptus oerocorys*. This community occurs on yellow sand dunes.
 - S7 Low Shrubland to Low Open Shrubland of *Ennebotrys emmanus*, *Acacia desertorum* var. *desertorum*, *Verticordia holmsii*, *Homalium myrsinoides*, *Lepidostemon forsterianus*, *Allocasuarina spirostachya*, *Baeolaea* sp. Great Victoria Desert (A.S. Weston 14813), *Lepidostemon chandleri* and mixed low shrubs over *Triodia desertorum* and *Chrysothrix distigmatica* with occasional emergent mallee *Eucalyptus* species, *Grewia junifolia* and *Hakea francosana*. This community occurs on yellow and orange sands on lower slopes, undulating plains and swales.
 - S8 Low Open Shrubland of *Callitriche glabra*, *Paranona juncea*, *Trigonostemon ibonata*, and *Lepidostemon longicaulis* with *Andropogon parviflorus*, *Acacia hemiteles*, *Microcorys macrobotrys*, *Microcorys allosiphia* and mixed low shrubs over *Triodia desertorum* with *Lepidobolus deserti*, *Chrysothrix distigmatica* and *Caustis dioica* with emergent *Eucalyptus youngiana* and *Eucalyptus gongylocarpa*. This community occurs on yellow sand flats adjacent to yellow sand dunes and undulating plains. *Callitris preissii* with *Eucalyptus* spp. over mixed shrubs are found in adjacent pockets.
- Chenopod Shrublands**
- C1 Low Chenopod Shrubland of *Atriplex* *trivaccaria* with *Enemophila distigma* subsp. *distigma* and *Acacia colletioides*. This community occurs on reddish-brown clay loams on clay pans. *Callitris preissii* with *Eucalyptus* spp. over mixed shrubs are found in adjacent pockets.
- Disturbed**
- D Disturbed
 - B Bunted



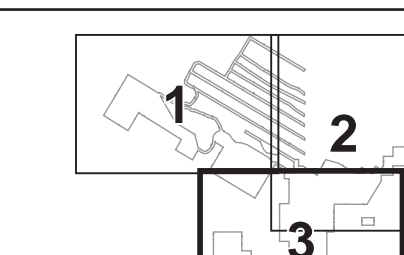


Notes
 MCPL Vegetation as at 18/07/2011
 MCPL priority species - June 2011
 DEC rare and priority search reference 59-0709
 Background image - SPTC sourced 27/7/2009

Code	Species	Priority	Code	Species	Priority
HC	<i>Dampiera eriantha</i>	P1	CC	<i>Drosera cuneiflora</i>	P4
HC	<i>Hibiscus cingulatus</i>	P1	CC	<i>Drosera secunda</i>	P4
MC	<i>Melaleuca argentea</i>	P2	CC	<i>Drosera adida</i>	P4
MC	<i>Symplocos</i> sp. Great Victoria Desert (N. Murrumbidgee)	P2	DA	<i>Dampiera ramosa</i>	Other
PL	<i>Platichia</i> sp. Blacki	P3	GB	<i>Gastrophysalis brevipes</i>	Other
CV	<i>Congospermum vicioides</i>	P4			
CI	<i>Conioselinum boidii</i>	P4			

Legend
Proposed Infrastructure
Tenement - Low
Tenement - Pending

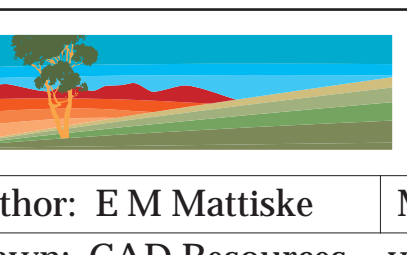
THREATENED AND PRIORITY SPECIES			
Threatened	DEL	Herbarium	MCPL
1	●	A	A
2	●	A	A
3	●	A	A
4	●	A	A
5	●	A	A
6	●	A	A
7	●	A	A
8	●	A	A
9	●	A	A
10	●	A	A
11	●	A	A
12	●	A	A
13	●	A	A
14	●	A	A
15	●	A	A
16	●	A	A
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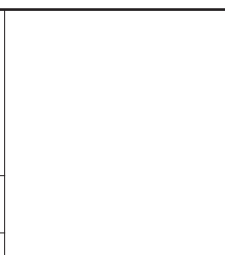
ENERGY AND MINERALS AUSTRALIA



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 Date: July 2013 Rev: B A0



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**MULGA ROCK PROJECT
 VEGETATION**

Figure: **4.3**
 Sheet 3 of 3

Table 6: Summary of the extent of each vegetation community within and surrounding the Mulga Rock Project area

Note: Recently burnt areas (denoted as '(b)' in Figures 4.1, 4.2 and 4.3) were included in the respective community code. 'D' refers to degraded/cleared areas. Highlighted rows indicate the vegetation community occurs within the proposed infrastructure boundaries.

VEGETATION COMMUNITY	TOTAL SURVEY AREA (ha)	PROPORTION OF TOTAL SURVEY AREA (%)	PROPOSED IMPACT AREA (ha)	PROPOSED IMPACT AREA AS % OF TOTAL AREA MAPPED
A1	114.3	0.5	0.0	0.0
C1	46.3	0.2	0.0	0.0
E1	203.4	1.0	0.0	0.0
E2	125.5	0.6	0.0	0.0
E3	7199.2	34.6	548.8	2.6
E4	1667.5	8.0	93.2	0.4
E5	2094.2	10.1	247.4	1.2
E6	659.2	3.2	135.6	0.7
E7	419.0	2.0	84.5	0.4
E8	3591.4	17.3	124.3	0.6
E9	108.2	0.5	0.0	0.0
E10	170.4	0.8	0.0	0.0
E11	441.0	2.1	0.0	0.0
E12	90.4	0.4	2.5	<0.1
S1	12.4	0.1	0.0	0.0
S2	14.2	0.1	0.0	0.0
S3	60.7	0.3	0.0	0.0
S4	314.6	1.5	0.0	0.0
S5	101.5	0.5	0.0	0.0
S6	636.2	3.1	17.7	0.1
S7	881.9	4.2	18.1	0.1
S8	1678.8	8.1	73.9	0.4
D	26.6	0.1	5.9	0.0
Not Mapped	156.6	0.8	156.6	0.8
Total	20813.5	100.0	1508.6	7.2

6.6 Species Richness

Community S6 had the highest mean species richness (37.5 ± 1.5), whilst community C1, a chenopod shrubland, had the lowest mean species richness (9.5 ± 0.5 ; Table 7).

Table 7: Mean species richness for each vegetation community

Note: Only permanent plots within the mapped area that have not been recently burnt were included.

VEGETATION COMMUNITY	MEAN SPECIES RICHNESS (\pm S.E.)
A1	10.3 (\pm 2.8)
C1	9.5 (\pm 0.5)
E1	11.3 (\pm 0.7)
E2	17.0 (\pm 4.0)
E3	26.9 (\pm 3.3)
E4	16.6 (\pm 1.4)
E5	23.4 (\pm 1.2)
E6	17.9 (\pm 1.4)
E7	20.4 (\pm 0.4)
E8	26.9 (\pm 1.6)
E9	23.0 (\pm 0.0)
E10	20.0 (\pm 0.0)
E11	21.5 (\pm 2.3)
E12	20.0 (\pm 1.0)
S1	10.0 (\pm 0.0)
S2	11.0 (\pm 0.0)
S3	20.5 (\pm 2.5)
S4	20.2 (\pm 1.1)
S5	14.0 (\pm 2.2)
S6	37.5 (\pm 1.5)

6.7 Vegetation Condition

Besides current and historic drill line activity, the majority of the vegetation within and surrounding the Mulga Rock survey area has not been affected by human activities. These areas were regarded as being Excellent – Pristine in condition, based on the criteria developed by Keighery (1994). Wildfires of various ages have burnt large sections of land in the survey area. A fire in late 2007 burnt part of the Emperor Resource Area and sections north-east of the Ambassador Resource Area. Recently burnt areas (burnt < 4 years ago) are indicated by a '(b)' in the vegetation mapping (Figures 4.1 - 4.3) and are deemed as being in Good – Very Good condition. Areas affected by other smaller fires from approximately 4-8 years ago are deemed to be in Very Good condition.

6.8 Conservation Significance of Vegetation

No TECs as defined by the EPBC Act or the DEC (2013c) are located within, or were observed in the Mulga Rock Project area.

One PEC as defined by the DEC (2013d) is likely to be within the survey area. This PEC is described as "Yellow sandplain communities of the Great Victoria Desert", which contains very diverse mammalian and reptile fauna, with distinctive plant communities and has threats from mining activities. It has been classified as Priority 3(ii). A Priority 3 PEC is defined as "a poorly known ecological community" and a Priority 3(ii) community is further defined as "known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat".

7. DISCUSSION

7.1 Survey Constraints and Limitations

An assessment of the survey against a range of factors which may have had an impact on the outcomes of the present survey was made (Table 8). Based on this assessment, the present survey has not been subject to constraints which would affect the thoroughness of the survey, and the conclusions which have been formed.

The updated proposed infrastructure boundaries as of June 2013 are not entirely covered by the previous vegetation mapping (see Figures 4.1, 4.2 and 4.3). Vegetation communities should be reviewed and potentially merged, and some boundaries may need moving (especially on the northern drill line tracks which were originally mapped on lower resolution aerial photography).

Table 8: Potential limitations affecting the flora and vegetation survey of the Mulga Rock Project area

Note: Adapted from section 3.3.1 of *Guidance Statement 51* (EPA 2004).

POTENTIAL SURVEY LIMITATION	IMPACT ON CURRENT SURVEY
Sources of information and availability of contextual information (i.e. pre-existing background versus new material).	Not a constraint: Work has been conducted by MCPL in the Mulga Rock Project area since 2007, and large areas have previously been mapped from this information.
<i>Scope (i.e. what life forms, etc. were sampled?).</i>	Not a constraint: Eucalypts in burnt areas had regrowth and sometimes no fruit or buds, making them very difficult to identify. However, trips have been conducted over various seasons (summer, autumn, winter and spring), capturing a range of life forms and annual species.
Proportion of flora collected and identified (based on sampling, timing and intensity).	Not a constraint: Trips have been conducted over various seasons (summer, autumn, winter and spring). Both relevè mapping sites and permanent monitoring plots were used to define vegetation communities and their boundaries.
Completeness and further work which might be needed (i.e. was the relevant survey area fully surveyed?).	Not a constraint: The areas have been adequately surveyed.
Mapping reliability.	Not a constraint: Maps have been reviewed and updated over the survey years.
Timing, weather, season, cycle.	Not a constraint: Trips have been conducted over various seasons (summer, autumn, winter and spring). The November 2010 survey was conducted approximately 6-8 weeks following high rainfall.
Disturbances (fire, flood, accidental human intervention, etc.).	Possible constraint: Sections outside the Mulga Rock Project have been burnt in recent years. Mapping of burnt areas is problematic as they usually contain different dominant species due to regeneration and colonisation effects. However, this has also been beneficial as previously unrecorded species from the area have been discovered (including priority flora and range extensions).
Intensity (in retrospect, was the intensity adequate?).	Not a constraint: Adequate mapping sites were used and permanent plots have been set up inside and outside the immediate impact areas.

Table 8: Potential limitations affecting the flora and vegetation survey of the Mulga Rock Project area (continued)

Note: Adapted from section 3.3.1 of *Guidance Statement 51* (EPA 2004).

POTENTIAL SURVEY LIMITATION	IMPACT ON CURRENT SURVEY
Resources (i.e. were there adequate resources to complete the survey to the required standard?).	Not a constraint: Adequate resources were available to complete the survey to standards set out in the EPA (2004) <i>Guidance Statement 51</i> .
Access problems (i.e. the ability to access the survey area).	Not a constraint: Old, overgrown drill lines meant some areas could not be accessed by 4WD, but overall this poses little constraint to the survey areas as they were accessible.
Experience levels (i.e. the degree of expertise in plant identification to taxon level).	Not a constraint: All field team members were familiarised with the threatened and priority flora within the Mulga Rock Project area.

7.2 Threatened and Priority Flora

No threatened flora species pursuant to subsection (2) of section 23F of the WC Act 1950 and as listed by the DEC (2012) were recorded within the Mulga Rock Project area. Eleven priority flora were recorded during the surveys, one of which is a large range extension and another which is a potentially new, undescribed species. In particular, one Priority 1 species (*Hibbertia crispula*) is also listed as Vulnerable, pursuant to section 179 of the EPBC Act and as listed by the DSEWPC (2013a) and was recorded within the Mulga Rock Project area. A brief description of these priority flora species is provided below.

Prior to August 2010, *Conospermum toddii* was listed as threatened. It is currently listed as Priority 4 under state legislation and as of June 2011 was delisted from the Commonwealth EPBC Act. Although 1837 (\pm 588) *Conospermum toddii* plants were recorded in the proposed impact area, due to extensive targeted surveys (MCPL 2010a), this equates to impacting only 5.7 % of the known population in the wider area.

A *Hibbertia* specimen (*Hibbertia* sp. ?nov) was collected from previous MCPL surveys in the Officer Basin area and was deemed similar to three collections labelled as *Hibbertia* aff. *inclusa* at the WA State Herbarium in 2009 (PERTH Sheet Numbers: 2578751, 4542681 and 4509013) which were also collected near the Mulga Rock Project. These WA State Herbarium specimens have since been determined as *Hibbertia crispula*. This species is listed as Vulnerable pursuant to Schedule 1 of the Commonwealth EPBC Act (DSEWPC 2013a). It is also listed as Priority 1 by the DEC (2013e). *Hibbertia crispula* was recorded on large longitudinal, yellow sand dune ridges that have not been burnt in many years. Whilst no individuals fall within the current proposed infrastructure boundaries (Table 5), one locality (site VP043) lies within close proximity and may potentially be impacted (Figure 4.2). Since the surveys, two *Hibbertia crispula* specimens collected by MCPL botanists have been lodged at the WA State Herbarium (PERTH Sheet Numbers: 8424381 and 8424489). It is recommended that localities of *Hibbertia crispula* be avoided wherever possible.

Labichea eremaea, a Priority 3 species, was collected from the Mulga Rock Project area in 2010. MCPL collections represent an approximate 400 km extension to the south-east of its known range. It has been recorded by MCPL botanists on yellow-orange sand slopes burnt 3-4 years ago in the wider Mulga Rock Project area. One specimen was collected post-flowering from a site that was not recently burnt. None of the localities recorded by MCPL occur in the outlined impact areas (Table 5; Figure 4.1 – 4.3) however it is recommended that these localities be avoided in the future, wherever possible. Since the surveys, three *Labichea eremaea* specimens collected by MCPL botanists have been lodged at the WA State Herbarium (PERTH Sheet Numbers: 8414181, 8424527 and 8424403).

Styphelia sp. Great Victoria Desert (N. Murdoch 44) is currently known from eight collections at the WA State Herbarium, two of which were collected in the 1960's. Locations of *Styphelia* sp. Great Victoria Desert (N. Murdoch 44) from MCPL surveys have consisted only of single specimens. These collections from the Officer Basin area have been given a Priority 2 conservation status. Molecular work is currently being conducted on the *Styphelia* s. Lat. Group (which includes *Styphelia intertexta*, *Styphelia* sp. Bullfinch and *Leucopogon* sp. Kau Rock) to determine their appropriate generic placement (pers. comm. Mike Hislop, WA Herbarium). Only 14 plants have been recorded in the area, and two of these individuals lie outside the proposed boundary but within close proximity to the proposed infrastructure areas. It is recommended that localities of *Styphelia* sp. Great Victoria Desert (N. Murdoch 44) be avoided until further research defines its generic placement. Since the MCPL surveys, four *Styphelia* sp. Great Victoria Desert (N. Murdoch 44) specimens have been lodged at the WA State Herbarium (PERTH Sheet Numbers: 8290288, 8290261, 8290296 and 8214921).

No specimens of *Malleostemon* sp. Officer Basin (D. Pearson 350), *Ptilotus blackii* or *Dampiera eriantha* have been recorded in the proposed infrastructure boundaries (Table 6). One locality (site VP043) of *Dampiera eriantha* and another locality of *Ptilotus blackii* lie within close proximity to the proposed infrastructure area however.

Less than 1 % of *Dicrasyllis cundeeleensis* individuals recorded in the Mulga Rock Project area are likely to be impacted by the current proposed infrastructure. This species had been recorded on recently burnt yellow-orange sandplains and has a regional distribution of up to 200 km to the north east of the project area (DEC 2013e).

Approximately 33 % of *Comesperma viscidulum* individuals in the wider survey area occur inside the proposed infrastructure boundaries (Table 6). This species is difficult to target survey due to its occurrence in usually low population numbers. *Comesperma viscidulum*, however, has a wide regional distribution with records from the north and south west of Wiluna, Rawlinson Range (just west of the Northern Territory border), and approximately 200 km north of the Mulga Rock Project area (DEC 2013e). Even though locally a high number of plants will be affected, it is not likely to cause a large regional impact on the species.

Grevillea secunda was recorded on yellow sand dunes and slopes and appears to regenerate after fire events. Approximately 12 % of individuals recorded in the Mulga Rock Project area are located in the proposed infrastructure boundaries (Table 6). This species however has a wide regional distribution with records up to 200 km north of the Mulga Rock Project area (DEC 2013e).

Olearia arida was recorded in recently burnt sites on undulating orange sandplains. Approximately 16 % of known plants within the survey area occur inside the proposed infrastructure boundaries (Table 6). The WA State Herbarium has records of *Olearia arida* from south of Wiluna and up to 200 km north east of the Mulga Rock Project area, therefore having a wide regional distribution (DEC 2013e).

The majority of the priority flora recorded within the Mulga Rock Project area have wide regional distributions or high population numbers outside the immediate impact areas. *Styphelia* sp. Great Victoria Desert (N. Murdoch 44), however, is likely to require further research to ascertain its conservation status and population numbers.

7.3 Other Species of Particular Interest

Localities of *Gastrolobium brevipes* from the Mulga Rock Project Area previously represented a 600 km range extension. Since the surveys, two specimens were submitted as *Gastrolobium brevipes* by MCPL botanists and accepted (PERTH Sheet Numbers: 8424497 and 8424411). Many collections were made in recently burnt areas, suggesting it may be a disturbance specialist. Records in the Mulga Rock Project area have therefore added to knowledge of the range and distribution of *Gastrolobium brevipes*.

Dampiera ramosa represents a 200 km range extension from previously known localities. This species appears scattered throughout the Eremaean Botanical District. *Brunonia suffruticosa* ms is more commonly found in the Little Sandy Desert to Pilbara regions and represents a 400 km range extension to the south. The identity of the specimen collected during MCPL surveys could not be confirmed however, as the specimen was of poor quality and lacking flowering material. It is recommended that in future surveys a flowering specimen is collected to aid identification and confirm the large range extension.

During the time of surveys (2007-2010), the *Acacia aneura* (mulga) complex was undergoing taxonomic revision. This species complex has since been reviewed and published as a variety of different species, causing changes to previously known species ranges and descriptions (Maslin and Reid 2012). In order to accurately identify the specimens previously collected and regarded as *Acacia aneura*, fertile plant samples will need to be collected for future vegetation community resolution. All *Acacia aneura* specimens (including subspecies) were treated as a single entity in the statistical analyses.

Acacia heteroneura var. *jutsonii* was not recorded in the MCPL surveys prior to 2010. The Cowan and Maslin (1995) description of *Acacia heteroneura* states that "a number of collections from Queen Victoria Spring Nature Reserve appear as though they may combine characters of *A. heteroneura* var. *jutsonii* and *A. desertorum* var. *desertorum*", thus causing uncertain identifications of the species. Further studies of these populations in the Great Victoria Desert are needed in order to ascertain their taxonomic status.

7.4 Vegetation

The final statistical analysis was based on presence/absence data. The dendrogram in Appendix F was used to make four broad groupings based on vegetation structure. The majority of woodlands and shrublands were split at approximately 35 % similarity (Appendix F). Anomalies (i.e. plots falling out in the woodland grouping but mapped as a shrubland) are due to decisions of community structure being based more on topography, field observations, data from relevé mapping sites, aerial photography, previous mapping boundaries and percentage cover data (as many of the shrublands have emergent eucalypts present, but they are not necessarily dominant).

The identification of some *Eucalyptus* mallees was restricted by the lack of fruit or buds. In addition, the identification of some *Eucalyptus* species was also restricted due to the passage of recently fires in some sites. *Eucalyptus* species such as *E. gongylocarpa*, *E. youngiana*, *E. ceratocorys*, *E. platycorys* and *E. trivalva* were left as separate species in the PRIMER analysis as they have characteristic leaves and habits. Separation of communities was based more on percentage cover and various combinations of *Eucalyptus* presence. It was usually the understorey and soil colour and topography that changes throughout the landscape and therefore had a bigger influence on community delineation.

Vegetative material of the *Triodia* species found in the Mulga Rock Project area are also very similar and difficult to distinguish without flowers. *Triodia desertorum* and *Triodia rigidissima* are both characterised by the presence of an awn on the lemma, whereas the awn is absent in *Triodia scariosa* (Lazarides 1997). After initially treating each *Triodia* species as separate entities in the PRIMER analysis and with little success in defining communities, due to the potential problems with identifying sterile material, all *Triodia* species were grouped as a single entity.

As a result of undergoing revisions of the *Acacia aneura* complex all previous *Acacia aneura* identifications were treated as a single entity. *Acacia desertorum* var. *desertorum* identified in the initial surveys has similar characteristics to the more recently identified specimens as *Acacia heteroneura* var. *jutsonii*, therefore these species were also treated as a single entity in the PRIMER analyses.

7.5 Conservation Significance of Vegetation

One Priority Ecological Community (PEC), "Yellow sandplain communities of the Great Victoria Desert", is thought to occur within the survey area. However this PEC is not well understood, and to date little information is available.

Data from previous MCPL surveys suggests that community S6 of yellow sand dunes contains the highest species richness and the highest number of Priority Flora species including *Conospermum toddii*, *Hibbertia crispula*, *Dampiera eriantha* and *Malleostemon* sp. Officer Basin (D.Pearson 350) which were only recorded from the yellow dunes. It is possible that the S6 vegetation community will have significance in regard to this PEC in the future.

Only 2.8 % of the 636 ha of community S6 mapped by MCPL is likely to be impacted by the proposed infrastructure areas. The association of *Conospermum toddii* with this yellow sand dune community based on MCPL (2010a) regional surveys suggests that this community extends beyond the Mulga Rock Project area.

8. CONCLUSION AND RECOMMENDATIONS

In response to the proposed infrastructure of the Mulga Rock Project, the following recommendations are made:

- Avoid clearing known locations of *Hibbertia crispula* (P1 – Vulnerable) and *Styphelia* sp. Great Victoria Desert (N. Murdoch 44) (P2);
- Minimise clearing, where possible, of all other priority flora species recorded within the Mulga Rock Project area;
- Avoid, where possible, and minimise clearing of the S6 dune community, which has a high species richness and may be considered to be regionally significant;
- Review vegetation communities and mapping boundaries based on all available MCPL site information in the wider Mulga Rock Project area;
- Continue to survey for annual or biennial species following high seasonal rainfall events; and
- Minimise soil disturbance during clearing and practice vehicle hygiene measures to ensure introduced (weed) species do not become established within the Mulga Rock Project area.

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10. PERSONNEL

The following MCPL personnel were involved in this project:

NAME	POSITION	PROJECT INVOLVEMENT	FLORA COLLECTION PERMIT
Dr E.M. Mattiske	Managing Director & Principal Ecologist	Planning, management, editing	SL008897; Rare Flora 118-0910
Mrs B. Koch	Senior Botanist	Plant identifications	N/A
Ms N. Murdock	Experienced Botanist & Project Leader	Planning, fieldwork, plant identifications, data interpretation, mapping and report preparation and updating	SL008901
Mr S. Reiffer	Experienced Botanist	Fieldwork, plant identifications, planning, data interpretation, mapping	SL008465
Mr T. Sleigh	Experienced Botanist	Field work, data, mapping	SL008904
Mr M. Boardman	Experienced Botanist	Field work	SL008902
Ms L. Cockram	Botanist	Field work	SL008895
Mr T. Phillips	Experienced Botanist	Field work	SL008898
Ms J. Jones	Botanist	Field work	SL008905
Ms R. Chesney	Experienced Botanist	Field work	SL008907
Ms F. de Wit	Experienced Botanist	Field work	SL008909
Mr A. MacGillivray	Botanist	Field work, plant identifications	SL008914
Mr M. Gannaway	Experienced Botanist	Field work	SL008893
Ms M. Hocking	Botanist	Field work	SL008911
Ms F. Riviera	Botanist	Field work	N/A
Ms S. Chandran	Botanist	Plant identifications	N/A
Ms K. Tippur	Botanist	Plant identifications	N/A

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APPENDIX A1: STATE DEFINITION OF THREATENED AND PRIORITY FLORA SPECIES

Note: Adapted from DEC (2013b).

CONSERVATION CODE	CATEGORY
T	<p>Threatened Flora (Declared Rare Flora – Extant)</p> <p>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 (Schedule 1 under the WC Act).</p> <p>Threatened flora (Schedule 1) are further ranked by DEC according to their level of threat using IUCN Red List criteria:</p> <ul style="list-style-type: none"> • CR: Critically Endangered – considered to be facing an extremely high risk of extinction in the wild; • EN: Endangered – considered to be facing a very high risk of extinction in the wild; or • VU: Vulnerable – considered to be facing a high risk of extinction in the wild.
P1	<p>Priority One – Poorly Known Species</p> <p>Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.</p>
P2	<p>Priority Two – Poorly Known Species</p> <p>Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.</p>
P3	<p>Priority Three – Poorly Known Species</p> <p>Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.</p>
P4	<p>Priority Four – Rare Threatened and other species in need of monitoring</p> <p>(i) Rare - Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.</p> <p>(ii) Near Threatened - Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>(iii) Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>
P5	<p>Priority Five – Conservation Dependent Species</p> <p>Taxa that are not threatened but are subject to a specific conservation program, the cessation of which would result in the taxon becoming threatened within five years.</p>

APPENDIX A2: FEDERAL DEFINITION OF THREATENED FLORA SPECIES

Note: Adapted from Section 179 of the EPBC Act.

CODE	CATEGORY
Ex	<p>Extinct</p> <p>Taxa which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.</p>
ExW	<p>Extinct in the Wild</p> <p>Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.</p>
CE	<p>Critically Endangered</p> <p>Taxa which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.</p>
E	<p>Endangered</p> <p>Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.</p>
V	<p>Vulnerable</p> <p>Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.</p>
CD	<p>Conservation Dependent</p> <p>Taxa which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.</p>

APPENDIX A3: STATE DEFINITION OF THREATENED ECOLOGICAL COMMUNITIES

Note: Adapted from DEC (2010).

CODE	CATEGORY
PTD	<p>Presumed Totally Destroyed</p> <p>An ecological community will be listed as Presumed Totally Destroyed if there are no recent records of the community being extant and either of the following applies:</p> <ul style="list-style-type: none"> (i) records within the last 50 years have not been confirmed despite thorough searches or known likely habitats or; (ii) all occurrences recorded within the last 50 years have since been destroyed.
CE	<p>Critically Endangered</p> <p>An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting any one of the following criteria:</p> <ul style="list-style-type: none"> (i) The estimated geographic range and distribution has been reduced by at least 90% and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification; (ii) The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; (iii) The ecological community is highly modified with potential of being rehabilitated in the immediate future.
E	<p>Endangered</p> <p>An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. The ecological community must meet any one of the following criteria:</p> <ul style="list-style-type: none"> (i) The estimated geographic range and distribution has been reduced by at least 70% and is either continuing to decline with total destruction imminent in the short term future, or is unlikely to be substantially rehabilitated in the short term future due to modification; (ii) The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; (iii) The ecological community is highly modified with potential of being rehabilitated in the short term future.
V	<p>Vulnerable</p> <p>An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet any one of the following criteria:</p> <ul style="list-style-type: none"> (i) The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated; (ii) The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution; (iii) The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.

APPENDIX A4: FEDERAL DEFINITION OF THREATENED ECOLOGICAL COMMUNITIES

Note: Adapted from DSEWPC (2013b).

CATEGORY	DEFINITION
Critically endangered	If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.
Vulnerable	If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future.

APPENDIX A5: STATE DEFINITION OF PRIORITY ECOLOGICAL COMMUNITIES

Note: Adapted from DEC (2010).

CODE	CATEGORY
P1	<p>Poorly-known ecological communities</p> <p>Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist.</p>
P2	<p>Poorly-known ecological communities</p> <p>Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, un-allocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation.</p>
P3	<p>Poorly known ecological communities</p> <p>(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or;</p> <p>(ii) Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;</p> <p>(iii) Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.</p>
P4	<p>Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.</p>
P5	<p>Conservation Dependent ecological communities</p> <p>Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.</p>

APPENDIX A6: CATEGORIES AND CONTROL OF DECLARED PLANT (PEST) ORGANISMS IN WESTERN AUSTRALIA

Note: Adapted from the *Biosecurity and Agriculture Management Regulations 2013* and DAF (2013).

CONTROL CATEGORY	CONTROL MEASURES
<p style="text-align: center;">C1 (Exclusion)</p> <p>If, in the opinion of the Minister, introduction of the declared pest into an area or part of an area for which it is declared, should be prevented.</p> <p>Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.</p>	<p>The owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent, or eradicate the declared pest.</p>
<p style="text-align: center;">C2 (Eradication)</p> <p>If, in the opinion of the Minister, eradication of the declared pest from an area or part of an area for which it is declared, is feasible.</p> <p>Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.</p>	<p>The owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent, or eradicate the declared pest.</p>
<p style="text-align: center;">C3 (Management)</p> <p>If, in the opinion of the Minister, eradication of the declared pest from an area or part of an area for which it is declared is not feasible, but that it is necessary to:</p> <ol style="list-style-type: none"> i. Alleviate the harmful impact of the declared pest in the area; or ii. Reduce the number or distribution of the declared pest in the area; or iii. Prevent or contain the spread of the declared pest in the area. <p>Pests will be assigned to this category if they are established in Western Australia, but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density, or moving from an area in which it is established into an area which currently is free of that pest.</p>	<p>The owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to:</p> <ol style="list-style-type: none"> i. Alleviate the harmful impact of the declared pest in the area for which it is declared; or ii. Reduce the number or distribution of the declared pest in the area for which it is declared; or iii. Prevent or contain the spread of the declared pest in the area for which it is declared.

APPENDIX A7: DEFINITION OF VEGETATION CONDITION SCALE

Note: Adapted from Keighery (1994).

CONDITION RATING	DESCRIPTION
P	<p>Pristine Pristine or nearly so, with no obvious sign of disturbance.</p>
EX	<p>Excellent Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.</p>
VG	<p>Very Good 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.</p>
G	<p>Good Vegetation structure significantly altered by obvious signs of multiple disturbances. 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, grazing.</p>
D	<p>Degraded 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.</p>
CD	<p>Completely Destroyed 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.</p>

APPENDIX A8: DEFINITION OF STRUCTURAL FORMS OF AUSTRALIAN VEGETATION

Note: Adapted from Beard (1990).

GROWTH-FORM OF TALLEST STRATUM	FOLIAGE COVER OF TALLEST STRATUM		
	30 – 70 %	10 – 30 %	LESS THAN 10 %
Tall Trees (greater than 30 m)	Tall Forest	Tall Woodland	Open Tall Forest
Medium Trees (10 – 30 m)	Forest	Woodland	Open Woodland
Low Trees (less than 10 m)	Low Forest	Low Woodland	Open Low Woodland
Tall Shrubs (greater than 2 m)	Thicket	Scrub	Open Scrub
Low Shrubs (less than 2 m)	Heath	Low Shrubland	Open Low Shrubland
Grassland (less than 1 m)	Closed Bunch Grassland	Open Bunch Grassland	Hummock Grassland

**APPENDIX B: VASCULAR PLANT SPECIES WITH POTENTIAL TO OCCUR, OR RECORDED AT SURVEY SITES
WITHIN THE MULGA ROCK PROJECT AREA, 2007 - 2010**

Note: * denotes introduced species; T denotes threatened flora and P1-P5 denote priority flora species (DEC 2012c). ^ all specimens previously identified as *Acacia aneura* variants have been referred to in the appendix as *A. aneura* since they have been revised recently and will require identification of fresh material.

FAMILY	SPECIES	MCPL RECORD	NATUREMAP RECORD	ANNUAL OR BIENNIAL SPECIES
AMARANTHACEAE	<i>Ptilotus blackii</i> (P3)	+		
	<i>Ptilotus drummondii</i>	+		
	<i>Ptilotus drummondii</i> var. <i>minor</i>	+		
	<i>Ptilotus nobilis</i> (prev. <i>Ptilotus exaltatus</i>)	+		
	<i>Ptilotus obovatus</i>	+		
	<i>Ptilotus obovatus</i> var. <i>obovatus</i>	+	+	
APIACEAE	<i>Platysace trachymenioides</i>	+	+	
APOCYNACEAE	<i>Alyxia buxifolia</i>	+		
	<i>Marsdenia australis</i>	+		
	<i>Marsdenia</i> sp.	+		
ARALIACEAE	<i>Trachymene pyrophila</i> (P2)		+	+
ASPARAGACEAE	<i>Chamaexeros fimbriata</i>	+		
	<i>Laxmannia arida</i>	+		
	<i>Lomandra leucocephala</i> subsp. <i>robusta</i>	+		
	<i>Thysanotus manglesianus</i>	+	+	
	<i>Thysanotus patersonii</i>		+	
	<i>Thysanotus</i> ?sp. Eremaean (S. van Leeuwen 1067)	+		
ASTERACEAE	<i>Brachyscome ciliaris</i>	+		+
	<i>Calotis</i> sp. Carnarvon Range (D.J. Edinger & K.F. Kenneally D 2708 K 12243)	+	+	
	<i>Cassinia arcuata</i> (P2)	+		
	<i>Chrysocephalum apiculatum</i>	+	+	
	<i>Chrysocephalum eremaeum</i>		+	
	<i>Chrysocephalum puteale</i>	+		
	<i>Leiocarpa semicalva</i> subsp. <i>semicalva</i>		+	
	<i>Olearia arida</i> (P4)	+	+	
	<i>Olearia exiguiifolia</i>	+	+	
	<i>Olearia incana</i>	+	+	
	<i>Olearia lanuginosa</i>	+	+	
	<i>Olearia muelleri</i>	+		
	<i>Olearia subspicata</i>	+		
	<i>Pluchea dentex</i>	+		
	<i>Podolepis canescens</i>		+	+
	<i>Podolepis capillaris</i>		+	+
	<i>Senecio</i> sp.	+		
<i>Waitzia acuminata</i> var. <i>acuminata</i>		+	+	
BORAGINACEAE	<i>Halgania cyanea</i>	+		
	<i>Halgania cyanea</i> var. Allambi Stn (B.W. Strong 676)	+	+	
	<i>Halgania cyanea</i> var. Charleville (R.W. Purdie +111)	+	+	
	<i>Halgania erecta</i>		+	
	<i>Halgania ?integerrima</i>	+		

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FAMILY	SPECIES	MCPL RECORD	NATUREMAP RECORD	ANNUAL OR BIENNIAL SPECIES
CASUARINACEAE	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	+	+	
	<i>Allocasuarina helmsii</i>	+		
	<i>Allocasuarina spinosissima</i>	+	+	
	<i>Allocasuarina spinosissima</i> subsp. Short spine (D.L. Serventy & A.R. Main s.n. 25/8/1960)		+	
	<i>Allocasuarina</i> sp.	+		
	<i>Casuarina pauper</i>	+		
CELASTRACEAE	<i>Stackhousia megaloptera</i>	+	+	
CHENOPODIACEAE	<i>Atriplex vesicaria</i>	+		
	<i>Maireana turbinata</i>		+	
	<i>Maireana</i> sp.	+		
	<i>Rhagodia ?drummondii</i>	+		
	<i>Salsola australis</i> (prev. <i>Salsola tragus</i>)	+		
	<i>Sclerolaena diacantha</i>	+		
CONVOLVULACEAE	<i>Bonamia erecta</i>	+		
	<i>Convolvulus angustissimus</i>	+		
CUPRESSACEAE	<i>Callitris preissii</i>	+		
CYPERACEAE	<i>Caustis dioica</i>	+	+	
	<i>Chyrsitrix distigmata</i>	+	+	
	<i>Lepidosperma sanguinolentum</i> (prev. <i>Lepidosperma</i> sp. A2 Inland Flat (G.J. Keigher	+	+	
	<i>Schoenus hexandrus</i>		+	
	<i>Schoenus subaphyllus</i>	+	+	
DILLENIACEAE	<i>Hibbertia crispula</i> (P1 - Vulnerable)	+	+	
	<i>Hibbertia exasperata</i>	+	+	
ERICACEAE	<i>Leucopogon cuneifolius</i>	+	+	
	<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44) (P2)	+	+	
EUPHORBIACEAE	<i>Bertya dimerostigma</i>	+	+	
	<i>Beyeria brevifolia</i>	+	+	
	<i>Beyeria sulcata</i> var. <i>sulcata</i>	+	+	
	<i>Euphorbia drummondii</i>	+		
	<i>Monotaxis luteiflora</i>	+	+	
FABACEAE	<i>Acacia abrupta</i>		+	
	<i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i>	+	+	
	<i>Acacia aneura</i> complex ^	+	+	
	<i>Acacia burkittii</i>	+	+	
	<i>Acacia colletioides</i>	+	+	
	<i>Acacia desertorum</i> var. <i>desertorum</i>	+	+	
	<i>Acacia duriuscula</i>	+	+	

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Note: * denotes introduced species; T denotes threatened flora and P1-P5 denote priority flora species (DEC 2012c). ^ all specimens previously identified as *Acacia aneura* variants have been referred to in the appendix as *A. aneura* since they have been revised recently and will require identification of fresh material.

FAMILY	SPECIES	MCPL RECORD	NATUREMAP RECORD	ANNUAL OR BIENNIAL SPECIES
LAMIACEAE (continued)	<i>Prostanthera althoferi</i> subsp. <i>althoferi</i>	+	+	
	<i>Prostanthera laricoides</i>	+		
	<i>Westringia cephalantha</i>	+	+	
	<i>Westringia cephalantha</i> var. <i>cephalantha</i>		+	
	<i>Westringia rigida</i>	+		
LAURACEAE	<i>Cassytha melantha</i>	+	+	
	<i>Cassytha</i> sp.	+		
LOGANIACEAE	<i>Logania nuda</i>	+	+	
MALVACEAE	<i>Alyogyne pinoniana</i>	+	+	
	<i>Alyogyne pinoniana</i> var. <i>leptochlamys</i> ms	+	+	
	<i>Androcalva melanopetala</i> (prev. <i>Commersonia melanopetala</i>)	+	+	
	<i>Hannafordia bissillii</i> subsp. <i>bissillii</i>	+		
	<i>Keraudrenia velutina</i> subsp. <i>velutina</i>	+		
	<i>Lawrenzia squamata</i>		+	
	<i>Sida</i> ? <i>cardiophylla</i>	+		
	<i>Sida</i> ?sp. Rabbit Flat (B.J. Carter 626)	+	+	
	<i>Sida</i> sp.	+		
MYRTACEAE	<i>Aluta maisonneuvei</i> subsp. <i>auriculata</i>	+		
	<i>Baeckea</i> sp. Great Victoria Desert (A.S. Weston 14813)	+	+	
	<i>Calothamnus gilesii</i>	+	+	
	<i>Enekbatus eremaeus</i>	+	+	
	<i>Eucalyptus</i> ? <i>balladoniensis</i> subsp. <i>sedens</i>	+		
	<i>Eucalyptus brachycorys</i>		+	
	<i>Eucalyptus celastroides</i> subsp. <i>virella</i>	+		
	<i>Eucalyptus ceratocorys</i>	+	+	
	<i>Eucalyptus comitae-vallis</i>	+	+	
	<i>Eucalyptus concinna</i>	+	+	
	<i>Eucalyptus cylindrocarpa</i>	+		
	<i>Eucalyptus effusa</i>	+		
	<i>Eucalyptus eremicola</i>	+		
	<i>Eucalyptus gongylocarpa</i>	+	+	
	<i>Eucalyptus gracilis</i>	+		
	<i>Eucalyptus</i> ? <i>gypsophila</i>	+		
	<i>Eucalyptus horistes</i>	+	+	
	<i>Eucalyptus hypolaena</i>	+		
	<i>Eucalyptus leptophylla</i>	+	+	
	<i>Eucalyptus lesouefii</i>		+	
	<i>Eucalyptus mannensis</i> subsp. <i>mannensis</i>	+	+	
	<i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>	+		
	<i>Eucalyptus pimpiniana</i> (P3)		+	
	<i>Eucalyptus platycorys</i>	+	+	
	<i>Eucalyptus rigidula</i>	+		
	<i>Eucalyptus rosacea</i>	+	+	

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FAMILY	SPECIES	MCPL RECORD	NATUREMAP RECORD	ANNUAL OR BIENNIAL SPECIES
PROTEACEAE	<i>Banksia elderiana</i>	+	+	
	<i>Conospermum toddii</i> (P4)	+	+	
	<i>Grevillea acacioides</i>	+		
	<i>Grevillea acuaria</i>	+	+	
	<i>Grevillea didymobotrya</i>	+	+	
	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>	+		
	<i>Grevillea juncifolia</i>	+		
	<i>Grevillea juncifolia</i> subsp. <i>juncifolia</i>	+	+	
	<i>Grevillea juncifolia</i> subsp. <i>temulenta</i>	+		
	<i>Grevillea nematophylla</i>	+		
	<i>Grevillea nematophylla</i> subsp. <i>planicosta</i>	+		
	<i>Grevillea pterosperma</i>	+	+	
	<i>Grevillea sarissa</i>	+		
	<i>Grevillea sarissa</i> subsp. <i>rectitepala</i>	+	+	
	<i>Grevillea sarissa</i> subsp. <i>sarissa</i>	+		
	<i>Grevillea secunda</i> (P4)	+	+	
	<i>Grevillea ?stenobotrya</i>	+		
	<i>Grevillea</i> sp.	+		
<i>Hakea francisiana</i>	+	+		
<i>Persoonia pertinax</i>	+	+		
PTERIDACEAE	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		+	
RESTIONACEAE	<i>Lepidobolus deserti</i>	+	+	
RHAMNACEAE	<i>Cryptandra connata</i>	+		
	<i>Cryptandra distigma</i>	+	+	
RUBIACEAE	<i>Opercularia spermacocea</i>	+	+	
	<i>Pomax</i> sp. desert (A.S. George 11968)	+	+	
	<i>Psyrax suaveolens</i>	+		
RUTACEAE	<i>Boronia coerulescens</i>	+		
	<i>Phebalium brevifolium</i>	+	+	
	<i>Phebalium canaliculatum</i>	+		
	<i>Phebalium laevigatum</i>	+	+	
	<i>Phebalium microphyllum</i>		+	
	<i>Phebalium tuberosum</i>	+	+	
	<i>Phebalium</i> sp.	+		
<i>Philotheca tomentella</i>	+	+		
SANTALACEAE	<i>Choretrum chrysanthum</i> (prev. <i>Choretrum glomeratum</i> var. <i>chrysanthum</i>)	+	+	
	<i>Exocarpos aphyllus</i>	+		
	<i>Leptomeria ?preissiana</i>	+		
	<i>Santalum acuminatum</i>	+	+	
	<i>Santalum murrayanum</i>	+		
<i>Santalum</i> sp.	+			

**APPENDIX C: LOCATION OF PERMANENT PLOTS WITHIN THE MULGA ROCK PROJECT
AREA, 2007-2010**

OLD SITE REFERENCE (From MCPL 2010B)	SITE	MGA94 - ZONE 51	
		North West Corner EASTING (mE)	North West Corner NORTHING (mN)
PLS1	VP001	567848	6677465
PLS2	VP002	568516	6675422
PLS3	VP003	567598	6675907
PLS4	VP004	566385	6676063
PLS5	VP005	567211	6676685
PLS6	VP006	567525	6677181
PLS8	VP007	568788	6677433
PNL1	VP008	568433	6674511
PNL2	VP009	568872	6673156
PNL3	VP010	569844	6671846
PNL4	VP011	570017	6670726
PNL5	VP012	568127	6671251
PNL6	VP013	567428	6671900
PNS1	VP014	577246	6675764
PNS2	VP015	576046	6675508
PNS3	VP016	575985	6675608
PNS4	VP017	577079	6675124
PNS5	VP018	577194	6676605
PNS6	VP019	577434	6682502
PNT1	VP020	573837	6677642
PNT2	VP021	574505	6677207
PNT3	VP022	574550	6677660
PNT4	VP023	574414	6677859
PNT5	VP024	573452	6678530
PNT6	VP025	573409	6677290
PNT7	VP026	575086	6676351
PNT8	VP027	576418	6675743
PLS7	VP028	568465	6677514
PTS1	VP029	576613	6674801
PTS2	VP030	578334	6673759
PTS3	VP031	578600	6673472
PTS4	VP032	579452	6672999
PTS5	VP033	577897	6672088
PTS6	VP034	577249	6672512
PTS7	VP035	576160	6673382
PTS8	VP036	572109	6674744
VMP1	VP037	578257	6681724
VMP10	VP038	576587	6682358
VMP11	VP039	576684	6681911
VMP12	VP040	577277	6683107
VMP13	VP041	579467	6683275
VMP14	VP042	579471	6683807
VMP2	VP043	578943	6681918
VMP3	VP044	576994	6681732
VMP4	VP045	575563	6680135
VMP5	VP046	576715	6680925
VMP6	VP047	575789	6680511
VMP7	VP048	576178	6680283
VMP8	VP049	576995	6683577
VMP9	VP050	578060	6683438
VMP-C1	VP051	582189	6679087
VMP-C2	VP052	582178	6678994
MAR01	VP053	562688	6690605
MAR02	VP054	563946	6691804

**APPENDIX C: LOCATION OF PERMANENT PLOTS WITHIN THE MULGA ROCK PROJECT
AREA, 2007-2010**

OLD SITE REFERENCE (From MCPL 2010B)	SITE	MGA94 - ZONE 51	
		North West Corner EASTING (mE)	North West Corner NORTHING (mN)
MAR03	VP055	557970	6694126
MAR04	VP056	573437	6684485
-	VP057	558226	6690752
-	VP058	562922	6691778
-	VP059	559913	6691976
-	VP060	564007	6688768
-	VP061	572989	6689465
-	VP062	566288	6688402
-	VP063	559562	6689785
-	VP064	562151	6688872
-	VP065	554615	6691715
-	VP065A	568318	6696054
-	VP066	567345	6692677
-	VP067	568207	6693779
-	VP068	567403	6694791
-	VP069	568359	6685471
-	VP070	569010	6697006
-	VP071	568424	6695385
-	VP072	559133	6690456
-	VP073	561741	6690598
-	VP074	566001	6684599
-	VP075	568787	6685117
-	VP076	567448	6684051
-	VP077	569997	6682519
-	VP078	557006	6687507
-	VP079	554986	6686986
-	VP080	556115	6688192
-	VP081	556970	6690653
-	VP082	555902	6691250
-	VP083	574812	6688370
-	VP084	570976	6690696
-	VP084A	559567	6693117
-	VP085	569353	6692963
-	VP085A	561754	6690944
-	VP086	571837	6691508
-	VP087	561742	6680544
-	VP088	561187	6681637
-	VP089	564742	6681712
-	VP090	563458	6683627
-	VP091	571569	6682061
-	VP092	569560	6680550
-	VP093	583181	6678518
-	VP094	584006	6679248
-	VP095	580664	6677420
-	VP096	584322	6675446
-	VP097	552195	6697551
-	VP098	555327	6695678
-	VP099	555319	6698475
-	VP100	552479	6699120
-	VP101	543393	6702399
-	VP102	546968	6700657
-	VP103	559875	6686922
-	VP104	559095	6686174
-	VP105	564102	6685362

**APPENDIX C: LOCATION OF PERMANENT PLOTS WITHIN THE MULGA ROCK PROJECT
AREA, 2007-2010**

OLD SITE REFERENCE (From MCPL 2010B)	SITE	MGA94 - ZONE 51	
		North West Corner EASTING (mE)	North West Corner NORTHING (mN)
-	VP106	568491	6681992
-	VP107	570398	6683504
-	VP108	571565	6690204
-	VP109	559688	6695718
-	VP110	558356	6696668
-	VP111	563472	6695124
-	VP112	561077	6697883
-	VP113	558842	6699204
-	VP114	567888	6696039
-	VP115	571555	6697484
-	VP116	570795	6698114
-	VP117	571007	6695408
-	VP118	573902	6696271
-	VP119	575102	6695392
-	VP120	552033	6692300
-	VP121	553405	6692440
-	VP122	568637	6694721
-	VP123	571220	6693195
-	VP124	572008	6692544
-	VP125	570272	6694699
-	VP126	570995	6694395
-	VP127	572166	6693444
-	VP128	573294	6693867
-	VP129	575666	6692568
-	VP130	554913	6688213
-	VP131	551305	6689590
-	VP132	561206	6689856
-	VP133	563217	6688703
-	VP134	564206	6687050
-	VP135	578399	6689734
-	VP136	574098	6683060
-	VP137	577688	6690303
-	VP138	573580	6682122
-	VP139	575443	6689759
-	VP140	573153	6680457
-	VP141	575129	6686498
-	VP142	556302	6681922
-	VP143	574304	6683751
-	VP144	575281	6680896
-	VP144	575279	6680899
-	VP145	577336	6688431
-	VP146	577156	6685299
-	VP147	579729	6686763
-	VP148	555512	6694302
-	VP149	551290	6690337
-	VP150	553986	6693586
-	VP151	550636	6692247
-	VP152	559404	6689352
-	VP153	554399	6691602
-	VP154	558791	6688262
-	VP155	551391	6685631
-	VP156	561169	6687448
-	VP157	552182	6686503
-	VP158	558563	6687350

**APPENDIX C: LOCATION OF PERMANENT PLOTS WITHIN THE MULGA ROCK PROJECT
AREA, 2007-2010**

OLD SITE REFERENCE (From MCPL 2010B)	SITE	MGA94 - ZONE 51	
		North West Corner EASTING (mE)	North West Corner NORTHING (mN)
-	VP159	553753	6685338
-	VP160	561765	6685429
-	VP161	554838	6685593
-	VP162	558187	6686239
-	VP163	552002	6687452
-	VP164	559687	6684898
-	VP165	553383	6686738
-	VP166	561292	6683958
-	VP167	565415	6686471
-	VP168	559607	6681461
-	VP169	565761	6686141
-	VP170	558523	6683219
-	VP171	566906	6686967
-	VP172	557699	6681707
-	VP173	571051	6686417
-	VP174	557132	6680337
-	VP175	563263	6679963
-	VP176	555457	6680612
-	VP177	564236	6678829
-	VP178	556173	6683557
-	VP179	564723	6678623
-	VP180	553386	6684314
-	VP181	564557	6677579
-	VP182	563191	6676550
-	VP183	562805	6677588
-	VP184	563556	6676253
-	VP185	574204	6685929
-	VP186	563501	6676705
-	VP187	570277	6687925
-	VP188	563288	6676708
-	VP189	567839	6689655
-	VP190	563764	6676114
-	VP191	574400	6684123
-	VP192	564463	6675701
-	VP193	584387	6687355
-	VP194	580298	6678870
-	VP195	585339	6686573
-	VP196	578898	6678798
-	VP197	586243	6686281
-	VP198	579867	6677717
-	VP199	587384	6685282
-	VP200	578274	6679696
-	VP201	580899	6688228
-	VP202	577454	6678115
-	VP203	583326	6686983
-	VP204	578355	6677352
-	VP205	584319	6686376
-	VP206	580774	6682376
-	VP207	583366	6685862
-	VP208	581105	6682061
-	VP209	582223	6686584
-	VP210	580699	6683419
-	VP211	580477	6686322
-	VP212	583377	6684125

**APPENDIX C: LOCATION OF PERMANENT PLOTS WITHIN THE MULGA ROCK PROJECT
AREA, 2007-2010**

OLD SITE REFERENCE (From MCPL 2010B)	SITE	MGA94 - ZONE 51	
		North West Corner EASTING (mE)	North West Corner NORTHING (mN)
-	VP213	581857	6685690
-	VP214	585206	6683701
-	VP215	582090	6685509
-	VP216	584822	6682475
-	VP217	575024	6685355
-	VP218	584940	6681154
-	VP219	571973	6684223
-	VP220	583822	6680591
-	VP221	572338	6682065
-	VP222	579299	6680423
-	VP223	572941	6681746
-	VP224	580363	6680056
-	VP225	573864	6687830
-	VP226	584041	6677451
-	VP227	569968	6687339
-	VP228	583555	6676804
-	VP230	586553	6675838
-	VP232	572201	6682873
-	VP234	572945	6682892
-	VP236	573063	6681281
-	VP238	571647	6680056
-	VP240	572998	6686254
-	VP242	567919	6687997

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0701	A01	577482	6682490
EMA0701	A02	576871	6682417
EMA0701	A03	576275	6682500
EMA0701	A04	576505	6682114
EMA0701	A05	576241	6681408
EMA0701	A06	575573	6680280
EMA0701	A07	576146	6680491
EMA0701	A08	575759	6680732
EMA0701	A09	577970	6683044
EMA0701	E10	557918	6692566
EMA0701	E11	558224	6692373
EMA0701	E12	558659	6692123
EMA0701	E13	555900	6691345
EMA0701	E14	556063	6691190
EMA0701	E15	555825	6690760
EMA0701	E16	556384	6690971
EMA0701	E17	556733	6690840
EMA0701	E18	557525	6691342
EMA0701	E19	557149	6691569
EMA0701	E20	556720	6691820
EMA0701	E21	556075	6692085
EMA0701	E22	557156	6692052
EMA0701	E23	557572	6691798
EMA0701	E24	558020	6691534
EMA0701	E25	558200	6691916
EMA0701	E26	557785	6692165
EMA0701	E37	559260	6691724
EMA0701	E38	559140	6691180
EMA0701	S27	562330	6688477
EMA0701	S28	562734	6688232
EMA0701	S29	562948	6688486
EMA0701	S30	562854	6688329
EMA0701	S31	561935	6688895
EMA0701	S32	562995	6688135
EMA0701	S33	563310	6687900
EMA0701	S34	563335	6687440
EMA0701	S35	563480	6687125
EMA0701	S36	563380	6686750
EMA0701	Track 01	557615	6694200
EMA0701	Track 02	558754	6693526
EMA0701	Track 03a	560360	6692571
EMA0701	Track 03b	560556	6692453
EMA0701	Track 04a	561032	6692167
EMA0701	Track 04b	561224	6692053
EMA0701	Track 05a	561986	6691599
EMA0701	Track 05b	562828	6691250
EMA0701	Track 05c	562549	6691351

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0701	Track 06a	563438	6691096
EMA0701	Track 06b	562904	6691217
EMA0701	Track 07	563525	6691024
EMA0701	Track 08	564470	6690652
EMA0701	Track 09a	565340	6690303
EMA0701	Track 09b	566242	6689932
EMA0701	Track 10	566242	6689932
EMA0701	Track 11a	566741	6689092
EMA0701	Track 11b	566864	6688666
EMA0701	Track 11c	567125	6688486
EMA0701	Track 12	567349	6688398
EMA0701	Track 13a	567962	6687676
EMA0701	Track 13b	568295	6687376
EMA0701	Track 14	568810	6687333
EMA0701	Track 15a	570261	6686665
EMA0701	Track 15b	570758	6686370
EMA0701	Track 16	571393	6685988
EMA0701	Track 17	572451	6685319
EMA0701	Track 18a	573515	6684725
EMA0701	Track 18b	574569	6684096
EMA0701	Track 19a	574692	6684023
EMA0701	Track 19b	575538	6683521
EMA0701	Track 19c	575179	6683732
EMA0701	Track 20	575692	6683428
EMA0801	Camp	575021	6684242
EMA0801	MT01	577776	6682176
EMA0801	MT13	576020	6683226
EMA0801	MT14	575722	6683903
EMA0801	MT15	576033	6683707
EMA0801	MT16	576300	6683400
EMA0801	MT17	577296	6683028
EMA0801	MT18	577187	6682865
EMA0801	MT20	577767	6682546
EMA0801	MT21	579005	6682961
EMA0801	MT22	579778	6682438
EMA0801	MT23	578744	6682327
EMA0801	MT24	561335	6690108
EMA0801	MT25	561041	6689874
EMA0801	MT26	560732	6690259
EMA0801	MT27	560529	6690518
EMA0801	MT28	559832	6691083
EMA0801	MT29	559029	6691906
EMA0801	MT30	559227	6692464
EMA0801	MT31	559919	6692351
EMA0801	MT32	558479	6691259
EMA0801	MT33	559170	6690848
EMA0801	MT34	559442	6692147

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0801	MT35	561067	6689412
EMA0801	MT36	559842	6689787
EMA0801	MT37	559727	6689799
EMA0801	MT38	560962	6689292
EMA0801	MT39	561139	6689256
EMA0801	MT40	563267	6687828
EMA0801	MT41	562876	6688162
EMA0801	MT42	562333	6688641
EMA0801	MT43	562291	6688483
EMA0801	MT44	561836	6688776
EMA0801	MT45	561263	6689118
EMA0801	MT46	561207	6688850
EMA0801	MT47	561717	6688635
EMA0801	MT48	563151	6688516
EMA0801	MT49	562404	6688959
EMA0801	MT50	574971	6689677
EMA0801	MT51	573180	6690745
EMA0801	MT52	571469	6691765
EMA0801	MT53	571241	6691901
EMA0801	MT54	570447	6692375
EMA0801	MT55	570065	6692602
EMA0801	MT56	569518	6692929
EMA0801	MT57	569153	6693147
EMA0801	MT59	575400	6692796
EMA0801	MT60	574667	6693200
EMA0801	MT61	574359	6693328
EMA0801	MT62	573857	6693625
EMA0801	MT63	572961	6694182
EMA0801	MT64	571942	6694771
EMA0801	MT65	571585	6695006
EMA0801	MT66	571966	6695359
EMA0801	MT67	569435	6696350
EMA0801	MT69	569975	6698500
EMA0801	MT70	570371	6698247
EMA0801	MT71	571087	6697082
EMA0801	MT73	572933	6696733
EMA0801	MT75	568024	6695631
EMA0801	MT76	567449	6694705
EMA0801	MT77	567211	6694310
EMA0801	MT78	565910	6695084
EMA0801	MT79	564034	6695777
EMA0801	MT80	563501	6694823
EMA0801	SR01	577571	6682179
EMA0801	SR03	577100	6681500
EMA0801	SR04	577540	6681872
EMA0801	SR05	577608	6681683
EMA0801	SR06	577557	6681563

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0801	SR07	577478	6681604
EMA0801	SR08	577028	6682398
EMA0801	SR09	576760	6682545
EMA0801	SR10	576651	6682355
EMA0801	SR100	574850	6685400
EMA0801	SR101	574545	6684148
EMA0801	SR103	561475	6691905
EMA0801	SR104	562641	6691334
EMA0801	SR105	563976	6690921
EMA0801	SR11	576994	6681644
EMA0801	SR12	577278	6681247
EMA0801	SR13	577000	6680721
EMA0801	SR14	576725	6680919
EMA0801	SR15	575746	6681469
EMA0801	SR16	576229	6690419
EMA0801	SR17	576113	6680266
EMA0801	SR18	575541	6680079
EMA0801	SR19	575789	6682392
EMA0801	SR2	577313	6682076
EMA0801	SR20	576654	6681875
EMA0801	SR21	578006	6681655
EMA0801	SR22	578274	6681706
EMA0801	SR23	578294	6681871
EMA0801	SR24	579041	6681987
EMA0801	SR25	578311	6684252
EMA0801	SR26A	577731	6684581
EMA0801	SR26B	563547	6686292
EMA0801	SR27	563437	6686716
EMA0801	SR28	563636	6687176
EMA0801	SR29	563066	6687810
EMA0801	SR30	564670	6692823
EMA0801	SR31	565504	6692326
EMA0801	SR32	565918	6692075
EMA0801	SR33	566269	6691865
EMA0801	SR34	567298	6691248
EMA0801	SR35	568954	6690265
EMA0801	SR36	569778	6689776
EMA0801	SR37	570999	6689056
EMA0801	SR38	570944	6688988
EMA0801	SR39	571460	6688777
EMA0801	SR40	572315	6688261
EMA0801	SR41	573170	6687800
EMA0801	SR42	573368	6687750
EMA0801	SR43	574338	6687063
EMA0801	SR44	575382	6686440
EMA0801	SR45	575547	6687886
EMA0801	SR46	574935	6688244

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0801	SR47	573793	6688925
EMA0801	SR48	573389	6689167
EMA0801	SR49	572276	6689831
EMA0801	SR50	571813	6690188
EMA0801	SR51	571264	6690433
EMA0801	SR52	570401	6690948
EMA0801	SR53	569800	6691306
EMA0801	SR54	569340	6691640
EMA0801	SR55	568669	6691979
EMA0801	SR56	567320	6692793
EMA0801	SR57	566631	6693193
EMA0801	SR58	564852	6694255
EMA0801	SR60	575512	6690495
EMA0801	SR61	572330	6692459
EMA0801	SR62	571413	6692873
EMA0801	SR63	571093	6693134
EMA0801	SR64	570350	6693586
EMA0801	SR65	569439	6694102
EMA0801	SR66	568355	6695969
EMA0801	SR67	569286	6695319
EMA0801	SR68	570634	6694376
EMA0801	SR69	572031	6693548
EMA0801	SR70	572968	6693062
EMA0801	SR71	579416	6686840
EMA0801	SR72	580098	6686394
EMA0801	SR73	580141	6686470
EMA0801	TA-01	580364	6682316
EMA0801	TA-02	580441	6682398
EMA0801	TA-03	579481	6682890
EMA0801	TA-04	580159	6683137
EMA0801	TA-05	580420	6682978
EMA0801	TA-06	580872	6682653
EMA0801	TA-07	576421	6679083
EMA0801	TA-08	575695	6679039
EMA0801	TA-09	575837	6679902
EMA0801	TA-10	575356	6679243
EMA0801	TJ11	557509	6691337
EMA0801	TJ22	575330	6683614
EMA0801	TJQ9	558070	6692496
EMA0801	TM010	576482	6683840
EMA0801	TM011	576895	6683700
EMA0801	TM012	578379	6682796
EMA0801	TM02	578432	6682522
EMA0801	TM03	578738	6682699
EMA0801	TM04	578797	6683006
EMA0801	TM05	578410	6683268
EMA0801	TM06	578124	6683437

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0801	TM07	577706	6683676
EMA0801	TM08	577357	6683885
EMA0801	TM09	575943	6684246
EMA0801	TM72	571719	6697445
EMA0801	TR10	557494	6691549
EMA0801	TR12	558075	6690997
EMA0801	TR13	558186	6690936
EMA0801	TR14	558314	6690948
EMA0801	TR15	558323	6690859
EMA0801	TR16	558239	6690779
EMA0801	TR17	558452	6691328
EMA0801	TR18	575561	6695161
EMA0801	TR19	574923	6695565
EMA0801	TR20	574286	6695921
EMA0801	TR21	573207	6696566
EMA0801	TR23	574470	6684149
EMA0801	TR24	573745	6684612
EMA0801	TR25	572468	6685383
EMA0801	TR26	571965	6685531
EMA0801	TR27	570156	6686711
EMA0801	TR28	569163	6687342
EMA0801	TR29	567936	6687728
EMA0801	TR30	567364	6688368
EMA0801	TR31	566911	6688650
EMA0801	TR32	566675	6688992
EMA0801	TR33	566633	6689272
EMA0801	TR34	566310	6689926
EMA0801	TR35	566304	6688408
EMA0801	TR36	566098	6688126
EMA0801	TR37	566039	6687656
EMA0801	TR38	566036	6687294
EMA0801	TR39	565837	6686839
EMA0801	TR4	556441	6692151
EMA0801	TR40	565427	6686553
EMA0801	TR41	564879	6686502
EMA0801	TR5	558467	6693359
EMA0801	TR6	558890	6693079
EMA0801	TR7	559080	6692624
EMA0801	TR8	558757	6692306
EMA0801	TS01	563091	6693726
EMA0801	TS02	564270	6692575
EMA0801	TS03	574600	6685382
EMA0801	TS04	574653	6683710
EMA0802	500	583184	6684698
EMA0802	502	585321	6684620
EMA0802	503	583847	6684790
EMA0802	504	583204	6684835

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0802	505	583145	6684697
EMA0802	506	583583	6684238
EMA0802	507	582194	6684392
EMA0802	508	581619	6684698
EMA0802	509	583081	6683288
EMA0802	510	582370	6683500
EMA0802	511	582014	6684064
EMA0802	512	581353	6683878
EMA0802	513	580370	6683693
EMA0802	514	578737	6685291
EMA0802	515	579444	6685002
EMA0802	516	579890	6684737
EMA0802	517	579346	6684573
EMA0802	518	577108	6679142
EMA0802	519	577073	6678703
EMA0802	520	576965	6678886
EMA0802	521	574150	6680100
EMA0802	522	576141	6678518
EMA0802	523	573742	6683964
EMA0802	524	582913	6685538
EMA0802	525	583197	6685231
EMA0802	526	582431	6683844
EMA0802	527	580908	6683887
EMA0802	528	581252	6682971
EMA0901	NS1	571287	6684132
EMA0901	NS1	579315	6684132
EMA0901	NS10	568381	6685398
EMA0901	NS11	568960	6685052
EMA0901	NS12	569643	6684645
EMA0901	NS13	570015	6684420
EMA0901	NS14	570773	6683971
EMA0901	NS15	571022	6683300
EMA0901	NS16	570566	6683573
EMA0901	NS17	569617	6684141
EMA0901	NS18	568833	6684609
EMA0901	NS19	567782	6685233
EMA0901	NS2	570415	6684652
EMA0901	NS20	566854	6685787
EMA0901	NS21	570039	6681935
EMA0901	NS22	569695	6682142
EMA0901	NS23	569128	6682482
EMA0901	NS24	568335	6682954
EMA0901	NS25	567532	6683433
EMA0901	NS26	567281	6683581
EMA0901	NS27	566875	6683761
EMA0901	NS28	566275	6684179
EMA0901	NS29	565682	6684534

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0901	NS3	569441	6685234
EMA0901	NS4	568407	6685851
EMA0901	NS5	568043	6686066
EMA0901	NS6	567728	6686256
EMA0901	NS7	566887	6686291
EMA0901	NS8	567097	6686165
EMA0901	NS9	567350	6686013
EMA0901	SM1	585458	6686095
EMA0901	SM10	581113	6684011
EMA0901	SM11	579315	6684578
EMA0901	SM12	579971	6684228
EMA0901	SM13	568067	6687000
EMA0901	SM14	567520	6687274
EMA0901	SM15	566897	6687696
EMA0901	SM2	585371	6685835
EMA0901	SM3	585500	6685905
EMA0901	SM4	585552	6685661
EMA0901	SM5	579244	6685123
EMA0901	SM6	579406	6685027
EMA0901	SM7	579640	6684889
EMA0901	SM8	579878	6684745
EMA0901	SM9	580939	6684112
EMA0901	TM1	569644	6688477
EMA0901	TM10	573076	6686661
EMA0901	TM11	573083	6686429
EMA0901	TM12	573491	6686183
EMA0901	TM13	574273	6685716
EMA0901	TM14	566394	6688480
EMA0901	TM15	566565	6688379
EMA0901	TM16	566746	6688270
EMA0901	TM17	567360	6687908
EMA0901	TM18	567675	6687718
EMA0901	TM19	569874	6686402
EMA0901	TM2	569991	6688270
EMA0901	TM20	571284	6685561
EMA0901	TM21	571932	6685176
EMA0901	TM22	571930	6684692
EMA0901	TM23	571474	6684967
EMA0901	TM24	570458	6685570
EMA0901	TM25	569349	6686231
EMA0901	TM26	568364	6686819
EMA0901	TM27	566447	6687477
EMA0901	TM28	566943	6687184
EMA0901	TM29	567653	6686758
EMA0901	TM3	570720	6687836
EMA0901	TM30	567931	6686595
EMA0901	TM31	568141	6686477

APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA0901	TM32	568176	6686216
EMA0901	TM33	567927	6686303
EMA0901	TM34	568532	6686238
EMA0901	TM35	569455	6685686
EMA0901	TM36	570837	6684882
EMA0901	TM37	570502	6685026
EMA0901	TM38	570298	6685157
EMA0901	TM39	570027	6685346
EMA0901	TM4	570959	6687692
EMA0901	TM40	570792	6685071
EMA0901	TM41	571307	6684582
EMA0901	TM42	572435	6683908
EMA0901	TM43	572476	6683844
EMA0901	TM44	570911	6682840
EMA0901	TM45	570084	6683333
EMA0901	TM46	569140	6683896
EMA0901	TM47	568333	6684377
EMA0901	TM48	567636	6684792
EMA0901	TM49	566847	6685263
EMA0901	TM5	571643	6687285
EMA0901	TM50	566411	6685056
EMA0901	TM51	567248	6684555
EMA0901	TM52	568112	6684130
EMA0901	TM53	569101	6683450
EMA0901	TM54	569787	6683043
EMA0901	TM55	570485	6682626
EMA0901	TM56	570629	6682124
EMA0901	TM57	569820	6682548
EMA0901	TM58	568728	6683199
EMA0901	TM59	568240	6683489
EMA0901	TM6	571959	6687041
EMA0901	TM60	567705	6683752
EMA0901	TM61	567245	6684131
EMA0901	TM62	566891	6684131
EMA0901	TM63	566417	6684578
EMA0901	TM64	566146	6684740
EMA0901	TM7	571195	6687238
EMA0901	TM8	571659	6686524
EMA0901	TM9	571967	6686607
EMA1002	JELLO01	560881	6689515
EMA1002	JELLO02	560467	6688821
EMA1002	JELLO03	560355	6688193
EMA1002	JELLO04	584218	6679303
EMA1002	JELLO05	580010	6680053
EMA1002	JELLO06	571106	6671885
EMA1002	JELLO07	571029	6671672
EMA1002	Veg01	554192	6690426

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA1002	Veg02	553864	6689470
EMA1002	Veg03	554780	6688910
EMA1002	Veg04	555735	6688335
EMA1002	Veg05	555700	6688778
EMA1002	Veg06a	553870	6688290
EMA1002	Veg06b	555241	6687393
EMA1002	Veg07	555463	6686759
EMA1002	Veg08	553231	6686346
EMA1002	Veg09	552725	6687227
EMA1002	Veg10	554367	6686247
EMA1002	Veg11	561928	6687256
EMA1002	Veg12	561351	6687605
EMA1002	Veg13	559975	6688420
EMA1002	Veg14	557792	6689243
EMA1002	Veg15	560566	6687588
EMA1002	Veg16	561676	6686927
EMA1002	GANN01	571366	6683109
EMA1002	GANN02	572228	6682603
EMA1002	GANN03	571908	6682779
EMA1002	GANN04	573714	6681483
EMA1002	GANN05	570790	6681500
EMA1002	GANN06	571175	6681341
EMA1002	GANN07	571494	6681076
EMA1002	GANN08	567077	6682728
EMA1002	GANN09	567419	6682539
EMA1002	GANN10	567662	6682425
EMA1002	GANN11	569891	6681044
EMA1002	GANN12	568558	6680696
EMA1002	GANN13	568908	6680489
EMA1002	GANN14	573200	6686869
EMA1002	GANN15	573605	6686855
EMA1002	GANN16	573690	6686536
EMA1002	GANN17	574219	6686106
EMA1002	GANN18	574695	6689517
EMA1002	GANN19	575083	6688448
EMA1002	GANN20	574812	6688995
EMA1002	GANN21	576361	6685965
EMA1002	GANN22	577332	6685612
EMA1002	GANN23	576394	6684646
EMA1002	GANN24	573263	6685184
EMA1002	GANN25	570220	6686985
EMA1002	JONE001	573266	6686300
EMA1002	JONE002	573676	6682366
EMA1002	JONE003	571693	6681908
EMA1002	JONE004	572084	6681673
EMA1002	JONE005	573576	6680917
EMA1002	JONE006	570810	6681956

**APPENDIX D: LOCATION OF RELEVÉ MAPPING SITES WITHIN THE MULGA ROCK
PROJECT AREA, 2007-2010**

MCPL JOB CODE	SITE	MGA94 - ZONE 51	
		EASTING (mE)	NORTHING (mN)
EMA1002	JONE007	571171	6681742
EMA1002	JONE008	571781	6681245
EMA1002	JONE009	572179	6680300
EMA1002	JONE010	570087	6680950
EMA1002	JONE011	571121	6680328
EMA1002	JONE012	573110	6685713
EMA1002	JONE013	573521	6685733
EMA1002	JONE014	574137	6689963
EMA1002	JONE015	574204	6688455
EMA1002	JONE016	574304	6688227
EMA1002	JONE017	574818	6687928
EMA1002	JONE018	573756	6687330
EMA1002	JONE019	574196	6687548
EMA1002	JONE020	576361	6685805
EMA1002	JONE021	577097	6685487
EMA1002	JONE022	576638	6684398
EMA1002	JONE023	568523	6687697
EMA1002	JONE024	572747	6685377

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Dampiera eriantha</i>	P1	585852	6686123	2009	Opportunistic		2-5
<i>Dampiera eriantha</i>	P1	578943	6681918	2009	Plot	VP043	6-10
<i>Dampiera eriantha</i>	P1	582189	6679087	2009	Plot	VP051	10-25
<i>Dampiera eriantha</i>	P1	585371	6685835	2009	Track Clearance		
<i>Dampiera eriantha</i>	P1	567211	6676685	2009	Plot	VP005	2-5
<i>Dampiera eriantha</i>	P1	568433	6674511	2009	Plot	VP008	11-25
<i>Dampiera eriantha</i>	P1	568788	6677433	2009	Plot	VP007	2-5
<i>Dampiera eriantha</i>	P1	569844	6671846	2009	Plot	VP010	11-25
<i>Dampiera eriantha</i>	P1	573452	6678530	2009	Plot	VP024	2-5
<i>Dampiera eriantha</i>	P1	574414	6677859	2009	Plot	VP023	2-5
<i>Dampiera eriantha</i>	P1	577897	6672088	2009	Plot	VP033	6-10
<i>Dampiera eriantha</i>	P1	609530	6667942	2009	Helicopter	Heli 08	2-5
<i>Dampiera eriantha</i>	P1	589950	6683809	2009	Helicopter	Heli 03	11-25
<i>Dampiera eriantha</i>	P1	560953	6661371	2009	Helicopter	Heli 15	6-10
<i>Dampiera eriantha</i>	P1	589892	6684265	2009	Helicopter	Heli 04	11-25
<i>Dampiera eriantha</i>	P1	601073	6666625	2009	Helicopter	Heli 09	6-10
<i>Dampiera eriantha</i>	P1	576552	6659812	2009	Helicopter	Heli 10	11-25
<i>Dampiera eriantha</i>	P1	571715	6669122	2009	Helicopter	Heli 13	11-25
<i>Dampiera eriantha</i>	P1	569349	6677810	2009	Helicopter	Heli 16	11-25
<i>Dampiera eriantha</i>	P1	605201	6681639	2009	Helicopter	Heli 07	11-25
<i>Dampiera eriantha</i>	P1	572281	6656731	2009	Helicopter	Heli 14	11-25
<i>Dampiera eriantha</i>	P1	562688	6690605	2010	Plot	VP053	30
<i>Dampiera eriantha</i>	P1	574013	6687369	2010	Mapping	OPPO34	1
<i>Dampiera eriantha</i>	P1	581571	6687721	2010	Mapping	OPPO47	26-50
<i>Dampiera eriantha</i>	P1	582686	6686200	2010	Mapping	OPPO50	6-10
<i>Dampiera eriantha</i>	P1	582135	6686396	2010	Mapping	OPPO51	11-25
<i>Dampiera eriantha</i>	P1	582143	6685640	2010	Mapping	OPPO54	2-5
<i>Dampiera eriantha</i>	P1	573714	6674509	2010	Mapping	OPPO55	26-50
<i>Dampiera eriantha</i>	P1	576279	6675445	2010	Mapping	OPPO57	1
<i>Dampiera eriantha</i>	P1	571220	6671907	2010	Mapping	JELLO06	6-10
<i>Dampiera eriantha</i>	P1	571112	6671599	2010	Mapping	JELLO07	17-20
<i>Dampiera eriantha</i>	P1	574304	6688227	2010	Mapping	JONE016	
<i>Hibbertia crispula</i>	P1	578943	6681918	2009	Plot	VP043	25-50

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Hibbertia crispula</i>	P1	568788	6677433	2009	Plot	VP007	26-50
<i>Hibbertia crispula</i>	P1	569844	6671846	2009	Plot	VP010	25-50
<i>Hibbertia crispula</i>	P1	572158	6674694	2009	Plot	VP036	1
<i>Hibbertia crispula</i>	P1	571715	6669122	2009	Helicopter	Heli 13	51-100
<i>Hibbertia crispula</i>	P1	569349	6677810	2009	Helicopter	Heli 16	51-100
<i>Hibbertia crispula</i>	P1	580010	6680053	2010	Mapping	JELLO05	20-25
<i>Hibbertia crispula</i>	P1	571106	6671885	2010	Mapping	JELLO06	15-25
<i>Hibbertia crispula</i>	P1	571029	6071672	2010	Mapping	JELLO07	30-35
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	582913	6685538	2008	Mapping		2-5
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	583184	6684698	2008	Mapping		5-10
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	583847	6684790	2008	Mapping		5-10
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	582189	6679087	2009	Plot	VP051	26-50
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	585371	6685835	2009	Track Clearance		25-50
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	567211	6676685	2009	Plot	VP005	6-10
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	568433	6674511	2009	Plot	VP008	2-5
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	568788	6677433	2009	Plot	VP007	11-25
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	569844	6671846	2009	Plot	VP010	2-5
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	573452	6678530	2009	Plot	VP024	6-10
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	589950	6683809	2009	Helicopter	Heli 03	51-100
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	571715	6669122	2009	Helicopter	Heli 13	11-25
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	569349	6677810	2009	Helicopter	Heli 16	11-25
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	581773	6679131	2009	Helicopter	Heli 02	11-25
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	574013	6687369	2010	Mapping	OPPO34	11-25
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	581571	6687721	2010	Mapping	OPPO47	6-10
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	582143	6685640	2010	Mapping	OPPO54	2-5
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	573714	6674509	2010	Mapping	OPPO55	51-100
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	571106	6671885	2010	Mapping	JELLO06	20-25
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	571205	6071591	2010	Mapping	JELLO07	16
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	571393	6685988	2007	Mapping	Track 16	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	577557	6681563	2008	Mapping	SR06	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	564879	6686502	2008	Mapping	TR41	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	571474	6684967	2009	Mapping	TM23	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	570458	6685570	2009	Mapping	TM24	

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	569455	6685686	2009	Mapping	TM35	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	573452	6678530	2009	Plot	VP024	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	550636	6692247	2010	Plot	VP151	1
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	563263	6679963	2010	Plot	VP175	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	567839	6689655	2010	Plot	VP189	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	580899	6688228	2010	Plot	VP201	1
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	572201	6682873	2010	Plot	VP232	1
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	572914	6682776	2010	Plot	VP234 - OPPO	1
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2	571661	6679981	2010	Plot	VP238 - OPPO	1
<i>Labichea eremaea</i>	P3	575666	6692568	2010	Plot	VP129	6-10
<i>Labichea eremaea</i>	P3	556302	6681922	2010	Plot	VP142	6-10
<i>Labichea eremaea</i>	P3	576862	6690720	2010	Mapping	OPPO30	51-100
<i>Labichea eremaea</i>	P3	577203	6690516	2010	Mapping	OPPO31	51-100
<i>Labichea eremaea</i>	P3	585271	6686689	2010	Mapping	OPPO42	26-50
<i>Labichea eremaea</i>	P3	581630	6687853	2010	Mapping	OPPO48	26-50
<i>Labichea eremaea</i>	P3	585339	6686573	2010	Plot	VP195	26-50
<i>Labichea eremaea</i>	P3	576368	6685854	2010	Mapping	JONE020/OPPO	4
<i>Ptilotus ?blackii</i>	P3	552182	6686503	2010	Plot	VP157	11-25
<i>Ptilotus ?blackii</i>	P3	564723	6678623	2010	Plot	VP179	1
<i>Ptilotus ?blackii</i>	P3	562805	6677588	2010	Plot	VP183	11-25
<i>Ptilotus blackii</i>	P3	555700	6688778	2010	Mapping	Veg05	2
<i>Comesperma viscidulum</i>	P4	559140	6691180	2007	Recon		1
<i>Comesperma viscidulum</i>	P4	576485	6682186	2007	Recon		1
<i>Comesperma viscidulum</i>	P4	573368	6687750	2008	Mapping		1
<i>Comesperma viscidulum</i>	P4	566036	6687294	2008	Mapping		1
<i>Comesperma viscidulum</i>	P4	575670	6681053	2008	Drill Holes	P3-08	1
<i>Comesperma viscidulum</i>	P4	579231	6685148	2008	Drill Holes	P2-36	1
<i>Comesperma viscidulum</i>	P4	579443	6684997	2008	Drill Holes	P2-40	1
<i>Comesperma viscidulum</i>	P4	579444	6685002	2008	Mapping		1
<i>Comesperma viscidulum</i>	P4	580908	6683887	2008	Mapping		2
<i>Comesperma viscidulum</i>	P4	579030	6682402	2009	Drill Holes	Aug018	11-25
<i>Comesperma viscidulum</i>	P4	578061	6682548	2009	Opportunistic		2-5
<i>Comesperma viscidulum</i>	P4	576995	6683577	2009	Plot	VP049	1

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Comesperma viscidulum</i>	P4	566447	6687477	2009	Track Clearance		1
<i>Comesperma viscidulum</i>	P4	566891	6684131	2009	Track Clearance		
<i>Comesperma viscidulum</i>	P4	567728	6686256	2009	Track Clearance		1
<i>Comesperma viscidulum</i>	P4	569991	6688270	2009	Track Clearance		6-10
<i>Comesperma viscidulum</i>	P4	571284	6685561	2009	Track Clearance		
<i>Comesperma viscidulum</i>	P4	571307	6684582	2009	Track Clearance		
<i>Comesperma viscidulum</i>	P4	579244	6685123	2009	Track Clearance		1
<i>Comesperma viscidulum</i>	P4	579406	6685027	2009	Track Clearance		
<i>Comesperma viscidulum</i>	P4	580300	6682350	2009	Drill Holes	Sept009	1
<i>Comesperma viscidulum</i>	P4	580185	6672605	2009	Opportunistic		1
<i>Comesperma viscidulum</i>	P4	567848	6677465	2009	Plot	VP001	1
<i>Comesperma viscidulum</i>	P4	575171	6681234	2010	Drill Line Clearance	9	1
<i>Comesperma viscidulum</i>	P4	575217	6681180	2010	Drill Line Clearance	9	1
<i>Comesperma viscidulum</i>	P4	575696	6681184	2010	Drill Line Clearance	11	1
<i>Comesperma viscidulum</i>	P4	576047	6680988	2010	Drill Line Clearance	12	6-10
<i>Comesperma viscidulum</i>	P4	576080	6680955	2010	Drill Line Clearance	12	11-25
<i>Comesperma viscidulum</i>	P4	577172	6682434	2010	Drill Line Clearance	30	1
<i>Comesperma viscidulum</i>	P4	577763	6682814	2010	Drill Line Clearance	35	
<i>Comesperma viscidulum</i>	P4	578911	6683636	2010	Drill Line Clearance	50	1
<i>Comesperma viscidulum</i>	P4	579973	6682896	2010	Drill Line Clearance	46	1
<i>Comesperma viscidulum</i>	P4	580012	6682856	2010	Drill Line Clearance	46	1
<i>Comesperma viscidulum</i>	P4	559913	6691976	2010	Plot	VP059	6-10
<i>Comesperma viscidulum</i>	P4	576107	6688936	2010	Mapping	OPPO01	1
<i>Comesperma viscidulum</i>	P4	578729	6687396	2010	Mapping	OPPO02	2
<i>Comesperma viscidulum</i>	P4	573730	6687616	2010	Mapping	OPPO33	11
<i>Comesperma viscidulum</i>	P4	575111	6685221	2010	Mapping	OPPO35	1
<i>Comesperma viscidulum</i>	P4	577454	6678115	2010	Plot	VP202	1
<i>Comesperma viscidulum</i>	P4	583613	6685653	2010	Mapping	OPPO49	1
<i>Comesperma viscidulum</i>	P4	583326	6686983	2010	Plot	VP203	2
<i>Comesperma viscidulum</i>	P4	573263	6685184	2010	Mapping	GANN24	1
<i>Conospermum toddii</i>	P4	556063	6691190	2007	Recon		
<i>Conospermum toddii</i>	P4	558020	6691534	2007	Recon		
<i>Conospermum toddii</i>	P4	576444	6681672	2007	Recon		>8

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	562333	6688641	2008	Mapping		50-100
<i>Conospermum toddii</i>	P4	564015	6690910	2008	Mapping		25-50
<i>Conospermum toddii</i>	P4	566177	6691931	2008	Mapping		2
<i>Conospermum toddii</i>	P4	566599	6691684	2008	Mapping		5-10
<i>Conospermum toddii</i>	P4	573170	6687800	2008	Mapping		
<i>Conospermum toddii</i>	P4	573368	6687750	2008	Mapping		
<i>Conospermum toddii</i>	P4	576447	6681700	2008	Mapping		25-50
<i>Conospermum toddii</i>	P4	577296	6683028	2008	Mapping		1
<i>Conospermum toddii</i>	P4	577608	6681683	2008	Mapping		50-100
<i>Conospermum toddii</i>	P4	577644	6681700	2008	Mapping		14
<i>Conospermum toddii</i>	P4	577767	6682546	2008	Mapping		10-25
<i>Conospermum toddii</i>	P4	577776	6682176	2008	Mapping		25-50
<i>Conospermum toddii</i>	P4	577894	6684478	2008	Mapping		50-100
<i>Conospermum toddii</i>	P4	578006	6681655	2008	Mapping		100+
<i>Conospermum toddii</i>	P4	578047	6682051	2008	Mapping		50-100
<i>Conospermum toddii</i>	P4	578057	6682370	2008	Mapping		25-50
<i>Conospermum toddii</i>	P4	578134	6682338	2008	Mapping		26-50
<i>Conospermum toddii</i>	P4	578173	6681960	2008	Mapping		11-25
<i>Conospermum toddii</i>	P4	578181	6682596	2008	Mapping		4-10
<i>Conospermum toddii</i>	P4	578265	6681778	2008	Mapping		1-4
<i>Conospermum toddii</i>	P4	578274	6681706	2008	Mapping		100+
<i>Conospermum toddii</i>	P4	578294	6681871	2008	Mapping		2
<i>Conospermum toddii</i>	P4	578579	6684074	2008	Mapping		4-10
<i>Conospermum toddii</i>	P4	578634	6682376	2008	Mapping		4
<i>Conospermum toddii</i>	P4	578744	6682327	2008	Mapping		100+
<i>Conospermum toddii</i>	P4	578804	6682236	2008	Mapping		26-50
<i>Conospermum toddii</i>	P4	579041	6681987	2008	Mapping		50-100
<i>Conospermum toddii</i>	P4	579059	6682047	2008	Mapping		26-50
<i>Conospermum toddii</i>	P4	579662	6682024	2008	Mapping		100-200
<i>Conospermum toddii</i>	P4	580098	6686394	2008	Mapping		10-25
<i>Conospermum toddii</i>	P4	576654	6681875	2008	Mapping		51-100
<i>Conospermum toddii</i>	P4	577313	6682076	2008	Mapping		1
<i>Conospermum toddii</i>	P4	578603	6684062	2008	Drill Holes	P2-20	11-25

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	579358	6684027	2008	Drill Holes	P2-17 Oppo	20-25
<i>Conospermum toddii</i>	P4	579363	6684075	2008	Drill Holes	P2-17	1
<i>Conospermum toddii</i>	P4	579550	6683515	2008	Drill Holes	P2-18 Oppo	6-10
<i>Conospermum toddii</i>	P4	579579	6684476	2008	Drill Holes	P2-28	2-5
<i>Conospermum toddii</i>	P4	579698	6684382	2008	Drill Holes	P2-27	1
<i>Conospermum toddii</i>	P4	581306	6683387	2008	Drill Holes	P2-10	11-25
<i>Conospermum toddii</i>	P4	581398	6683329	2008	Drill Holes	P2-09	2-5
<i>Conospermum toddii</i>	P4	582573	6684110	2008	Drill Holes	P1-36	11-25
<i>Conospermum toddii</i>	P4	583011	6684384	2008	Drill Holes	P1-33	1
<i>Conospermum toddii</i>	P4	583502	6684613	2008	Drill Holes	P1-31	11-25
<i>Conospermum toddii</i>	P4	584145	6685337	2008	Drill Holes	P1-20	2-5
<i>Conospermum toddii</i>	P4	584435	6685164	2008	Drill Holes	P1-23 Oppo	11-20
<i>Conospermum toddii</i>	P4	584790	6685470	2008	Drill Holes	P1-15	1
<i>Conospermum toddii</i>	P4	584819	6685470	2008	Drill Holes	P1-16 Oppo	2-5
<i>Conospermum toddii</i>	P4	586511	6685912	2008	Drill Holes	P1-6 Oppo	6-10
<i>Conospermum toddii</i>	P4	586622	6685943	2008	Drill Holes	P1-7 Oppo	50-100
<i>Conospermum toddii</i>	P4	574150	6680100	2008	Mapping		10-25
<i>Conospermum toddii</i>	P4	579346	6684573	2008	Mapping		6-10
<i>Conospermum toddii</i>	P4	580901	6683647	2008	Mapping		2-5
<i>Conospermum toddii</i>	P4	582014	6684064	2008	Mapping		100-200
<i>Conospermum toddii</i>	P4	582194	6684392	2008	Mapping		11-25
<i>Conospermum toddii</i>	P4	582431	6683844	2008	Mapping		6-10
<i>Conospermum toddii</i>	P4	582913	6685538	2008	Mapping		100-200
<i>Conospermum toddii</i>	P4	583145	6684697	2008	Mapping		25-50
<i>Conospermum toddii</i>	P4	583184	6684698	2008	Mapping		10-25
<i>Conospermum toddii</i>	P4	583432	6685256	2008	Mapping		10-25
<i>Conospermum toddii</i>	P4	583847	6684790	2008	Mapping		11-25
<i>Conospermum toddii</i>	P4	576421	6681758	2009	Drill Holes	Aug062	2-5
<i>Conospermum toddii</i>	P4	576559	6681677	2009	Drill Holes	Aug063	25-50
<i>Conospermum toddii</i>	P4	576595	6681410	2009	Drill Holes	Aug091	11-25
<i>Conospermum toddii</i>	P4	576664	6681862	2009	Drill Holes	Aug065	11-25
<i>Conospermum toddii</i>	P4	576801	6681780	2009	Drill Holes	Aug066	2-5
<i>Conospermum toddii</i>	P4	577011	6682134	2009	Drill Holes	Aug071	1

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	577194	6681802	2009	Drill Holes	Aug092	6-10
<i>Conospermum toddii</i>	P4	577334	6682658	2009	Drill Holes	Aug086	2-5
<i>Conospermum toddii</i>	P4	577586	6682774	2009	Drill Holes	Aug055	6-10
<i>Conospermum toddii</i>	P4	577666	6681983	2009	Drill Holes	Aug113	25-50
<i>Conospermum toddii</i>	P4	577724	6682692	2009	Drill Holes	Aug056	6-10
<i>Conospermum toddii</i>	P4	577748	6682413	2009	Drill Holes	Aug039	6-10
<i>Conospermum toddii</i>	P4	577787	6682174	2009	Drill Holes	Aug029	50-100
<i>Conospermum toddii</i>	P4	577924	6682093	2009	Drill Holes	Aug118	50-100
<i>Conospermum toddii</i>	P4	577942	6681820	2009	Drill Holes	Aug106	11-25
<i>Conospermum toddii</i>	P4	577999	6682529	2009	Drill Holes	Aug058	1
<i>Conospermum toddii</i>	P4	578014	6681309	2009	Drill Holes	Aug094	25-50
<i>Conospermum toddii</i>	P4	578080	6681739	2009	Drill Holes	Aug107	50-100
<i>Conospermum toddii</i>	P4	578095	6682708	2009	Drill Holes	Aug011	1
<i>Conospermum toddii</i>	P4	578112	6681481	2009	Drill Holes	Aug099	1
<i>Conospermum toddii</i>	P4	578137	6682447	2009	Drill Holes	Aug059	11-25
<i>Conospermum toddii</i>	P4	578153	6681229	2009	Drill Holes	Aug093	25-50
<i>Conospermum toddii</i>	P4	578161	6682168	2009	Drill Holes	Aug030	2-5
<i>Conospermum toddii</i>	P4	578200	6681930	2009	Drill Holes	Aug060	25-50
<i>Conospermum toddii</i>	P4	578217	6681657	2009	Drill Holes	Aug108	100-200
<i>Conospermum toddii</i>	P4	578233	6682626	2009	Drill Holes	Aug012	2-5
<i>Conospermum toddii</i>	P4	578250	6681400	2009	Drill Holes	Aug100	1
<i>Conospermum toddii</i>	P4	578275	6682366	2009	Drill Holes	Aug042	11-25
<i>Conospermum toddii</i>	P4	578298	6682087	2009	Drill Holes	Aug031	100-200
<i>Conospermum toddii</i>	P4	578337	6681848	2009	Drill Holes	Aug025	11-25
<i>Conospermum toddii</i>	P4	578355	6681575	2009	Drill Holes	Aug109	11-25
<i>Conospermum toddii</i>	P4	578412	6682284	2009	Drill Holes	Aug043	25-50
<i>Conospermum toddii</i>	P4	578436	6682005	2009	Drill Holes	Aug032	6-10
<i>Conospermum toddii</i>	P4	578475	6681766	2009	Drill Holes	Aug026	25-50
<i>Conospermum toddii</i>	P4	578493	6681494	2009	Drill Holes	Aug110	50-100
<i>Conospermum toddii</i>	P4	578550	6682203	2009	Drill Holes	Aug044	6-10
<i>Conospermum toddii</i>	P4	578613	6681685	2009	Drill Holes	Aug116	100-200
<i>Conospermum toddii</i>	P4	578646	6682381	2009	Drill Holes	Aug002	2-5
<i>Conospermum toddii</i>	P4	578783	6682300	2009	Drill Holes	Aug003	25-50

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	578826	6682039	2009	Drill Holes	Aug046	25-50
<i>Conospermum toddii</i>	P4	578849	6681761	2009	Drill Holes	Aug035	2-5
<i>Conospermum toddii</i>	P4	578963	6681958	2009	Drill Holes	Aug047	50-100
<i>Conospermum toddii</i>	P4	579101	6681876	2009	Drill Holes	Aug048	50-100
<i>Conospermum toddii</i>	P4	579168	6682321	2009	Drill Holes	Aug019	100-200
<i>Conospermum toddii</i>	P4	579196	6682055	2009	Drill Holes	Aug006	11-25
<i>Conospermum toddii</i>	P4	579239	6681795	2009	Drill Holes	Aug049	25-50
<i>Conospermum toddii</i>	P4	579334	6681973	2009	Drill Holes	Aug007	6-10
<i>Conospermum toddii</i>	P4	579376	6681713	2009	Drill Holes	Aug050	25-50
<i>Conospermum toddii</i>	P4	579514	6681631	2009	Drill Holes	Aug051	11-25
<i>Conospermum toddii</i>	P4	579581	6682076	2009	Drill Holes	Aug022	25-50
<i>Conospermum toddii</i>	P4	579652	6681550	2009	Drill Holes	Aug052	2-5
<i>Conospermum toddii</i>	P4	579719	6681994	2009	Drill Holes	Aug023	50-100
<i>Conospermum toddii</i>	P4	577804	6681902	2009	Drill Holes	Aug114	100-200
<i>Conospermum toddii</i>	P4	578574	6681924	2009	Drill Holes	Aug033	50-100
<i>Conospermum toddii</i>	P4	577274	6683173	2009	Opportunistic		25-50
<i>Conospermum toddii</i>	P4	577363	6682500	2009	Opportunistic		2-5
<i>Conospermum toddii</i>	P4	577681	6682391	2009	Opportunistic		11-25
<i>Conospermum toddii</i>	P4	577850	6682430	2009	Opportunistic		2-5
<i>Conospermum toddii</i>	P4	577857	6683330	2009	Opportunistic		50-100
<i>Conospermum toddii</i>	P4	578040	6683479	2009	Opportunistic		100-200
<i>Conospermum toddii</i>	P4	578046	6683229	2009	Opportunistic		2-5
<i>Conospermum toddii</i>	P4	578061	6682548	2009	Opportunistic		2-5
<i>Conospermum toddii</i>	P4	578258	6682624	2009	Opportunistic		2-5
<i>Conospermum toddii</i>	P4	578335	6683062	2009	Opportunistic		100-200
<i>Conospermum toddii</i>	P4	579498	6684531	2009	Opportunistic		1
<i>Conospermum toddii</i>	P4	579569	6684510	2009	Opportunistic		1
<i>Conospermum toddii</i>	P4	579642	6684011	2009	Opportunistic		25-50
<i>Conospermum toddii</i>	P4	579642	6684394	2009	Opportunistic		1
<i>Conospermum toddii</i>	P4	579656	6684433	2009	Opportunistic		1
<i>Conospermum toddii</i>	P4	577277	6683107	2009	Plot	VP040	50-100
<i>Conospermum toddii</i>	P4	578257	6681724	2009	Plot	VP037	200-500
<i>Conospermum toddii</i>	P4	578943	6681918	2009	Plot	VP043	26-50

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	582178	6678994	2009	Plot	VP052	100-200
<i>Conospermum toddii</i>	P4	582189	6679087	2009	Plot	VP051	100-200
<i>Conospermum toddii</i>	P4	576684	6681911	2009	Plot	VP039	50-100
<i>Conospermum toddii</i>	P4	570298	6685157	2009	Track Clearance		1
<i>Conospermum toddii</i>	P4	571932	6685176	2009	Track Clearance		11-25
<i>Conospermum toddii</i>	P4	571959	6687041	2009	Track Clearance		200+
<i>Conospermum toddii</i>	P4	571967	6686607	2009	Track Clearance		200+
<i>Conospermum toddii</i>	P4	573076	6686661	2009	Track Clearance		101-200
<i>Conospermum toddii</i>	P4	579315	6684578	2009	Track Clearance		11-25
<i>Conospermum toddii</i>	P4	567211	6676685	2009	Plot	VP005	50-100
<i>Conospermum toddii</i>	P4	567428	6671900	2009	Plot	VP013	50-100
<i>Conospermum toddii</i>	P4	568433	6674511	2009	Plot	VP008	50-100
<i>Conospermum toddii</i>	P4	568788	6677433	2009	Plot	VP007	51-100
<i>Conospermum toddii</i>	P4	569844	6671846	2009	Plot	VP010	50-100
<i>Conospermum toddii</i>	P4	572109	6674744	2009	Plot	VP036	50-100
<i>Conospermum toddii</i>	P4	573452	6678530	2009	Plot	VP024	11-25
<i>Conospermum toddii</i>	P4	574414	6677859	2009	Plot	VP023	50-100
<i>Conospermum toddii</i>	P4	577249	6672512	2009	Plot	VP034	26-50
<i>Conospermum toddii</i>	P4	577897	6672088	2009	Plot	VP033	100-200
<i>Conospermum toddii</i>	P4	578600	6673472	2009	Plot	VP031	1
<i>Conospermum toddii</i>	P4	575870	6682085	2009	Drill Holes	Sept079	1
<i>Conospermum toddii</i>	P4	575939	6682044	2009	Drill Holes	Sept332	1
<i>Conospermum toddii</i>	P4	576185	6682623	2009	Drill Holes	Sept165	1
<i>Conospermum toddii</i>	P4	576490	6681717	2009	Drill Holes	Sept336	50-100
<i>Conospermum toddii</i>	P4	576526	6681451	2009	Drill Holes	Sept343	50-100
<i>Conospermum toddii</i>	P4	577878	6683575	2009	Drill Holes	Sept227	25-50
<i>Conospermum toddii</i>	P4	576595	6681902	2009	Drill Holes	Sept330	25-50
<i>Conospermum toddii</i>	P4	576627	6681636	2009	Drill Holes	Sept337	2-5
<i>Conospermum toddii</i>	P4	576732	6681821	2009	Drill Holes	Sept331	50-100
<i>Conospermum toddii</i>	P4	576771	6682513	2009	Drill Holes	Sept307	2-5
<i>Conospermum toddii</i>	P4	577403	6682617	2009	Drill Holes	Sept302	1
<i>Conospermum toddii</i>	P4	577406	6683116	2009	Drill Holes	Sept251	2-5
<i>Conospermum toddii</i>	P4	577902	6683309	2009	Drill Holes	Sept224	6-10

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	577928	6683055	2009	Drill Holes	Sept220	2-5
<i>Conospermum toddii</i>	P4	578016	6683494	2009	Drill Holes	Sept228	2-5
<i>Conospermum toddii</i>	P4	578039	6683227	2009	Drill Holes	Sept225	1
<i>Conospermum toddii</i>	P4	578068	6682488	2009	Drill Holes	Sept293	11-25
<i>Conospermum toddii</i>	P4	578177	6683146	2009	Drill Holes	Sept226	2-5
<i>Conospermum toddii</i>	P4	578206	6682406	2009	Drill Holes	Sept294	6-10
<i>Conospermum toddii</i>	P4	578343	6682325	2009	Drill Holes	Sept295	11-25
<i>Conospermum toddii</i>	P4	578481	6682243	2009	Drill Holes	Sept296	25-50
<i>Conospermum toddii</i>	P4	578577	6682422	2009	Drill Holes	Sept289	2-5
<i>Conospermum toddii</i>	P4	578619	6682161	2009	Drill Holes	Sept297	25-50
<i>Conospermum toddii</i>	P4	578714	6682340	2009	Drill Holes	Sept290	25-50
<i>Conospermum toddii</i>	P4	578756	6682080	2009	Drill Holes	Sept298	11-25
<i>Conospermum toddii</i>	P4	578852	6682259	2009	Drill Holes	Sept291	11-25
<i>Conospermum toddii</i>	P4	578905	6682959	2009	Drill Holes	Sept270	1
<i>Conospermum toddii</i>	P4	579061	6683085	2009	Drill Holes	Sept043	11-25
<i>Conospermum toddii</i>	P4	579099	6682361	2009	Drill Holes	Sept286	25-50
<i>Conospermum toddii</i>	P4	579149	6681973	2009	Drill Holes	Sept394	100-200
<i>Conospermum toddii</i>	P4	579176	6684191	2009	Drill Holes	Sept239	25-50
<i>Conospermum toddii</i>	P4	579198	6683003	2009	Drill Holes	Sept001	11-25
<i>Conospermum toddii</i>	P4	579246	6684644	2009	Drill Holes	Sept246	6-10
<i>Conospermum toddii</i>	P4	579268	6682019	2009	Drill Holes	Sept393	11-25
<i>Conospermum toddii</i>	P4	579391	6684564	2009	Drill Holes	Sept242	2-5
<i>Conospermum toddii</i>	P4	579439	6683083	2009	Drill Holes	Sept015	25-50
<i>Conospermum toddii</i>	P4	579450	6684031	2009	Drill Holes	Sept237	50-100
<i>Conospermum toddii</i>	P4	579524	6684481	2009	Drill Holes	Sept243	11-25
<i>Conospermum toddii</i>	P4	579666	6684394	2009	Drill Holes	Sept244	1
<i>Conospermum toddii</i>	P4	567352	6676750	2009	Opportunistic		11-25
<i>Conospermum toddii</i>	P4	568840	6670939	2009	Opportunistic		1
<i>Conospermum toddii</i>	P4	578398	6683025	2009	Opportunistic		25-50
<i>Conospermum toddii</i>	P4	569413	6675019	2009	Opportunistic		6-10
<i>Conospermum toddii</i>	P4	609530	6667942	2009	Helicopter	Heli 08	148
<i>Conospermum toddii</i>	P4	598718	6681798	2009	Helicopter	Heli 06	86
<i>Conospermum toddii</i>	P4	594301	6671971	2009	Helicopter	Heli 01	250

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	581773	6679131	2009	Helicopter	Heli 02	338
<i>Conospermum toddii</i>	P4	589950	6683809	2009	Helicopter	Heli 03	4
<i>Conospermum toddii</i>	P4	542182	6674369	2009	Helicopter	Heli 19	628
<i>Conospermum toddii</i>	P4	558266	6674238	2009	Helicopter	Heli 17	659
<i>Conospermum toddii</i>	P4	553069	6664609	2009	Helicopter	Heli 18	933
<i>Conospermum toddii</i>	P4	570634	6702653	2009	Helicopter	Heli 11	274
<i>Conospermum toddii</i>	P4	566776	6707573	2009	Helicopter	Heli 12	1184
<i>Conospermum toddii</i>	P4	560953	6661371	2009	Helicopter	Heli 15	1139
<i>Conospermum toddii</i>	P4	589594	6684433	2009	Helicopter	Heli 05	1300
<i>Conospermum toddii</i>	P4	589892	6684265	2009	Helicopter	Heli 04	310
<i>Conospermum toddii</i>	P4	601073	6666625	2009	Helicopter	Heli 09	382
<i>Conospermum toddii</i>	P4	576552	6659812	2009	Helicopter	Heli 10	676
<i>Conospermum toddii</i>	P4	571715	6669122	2009	Helicopter	Heli 13	904
<i>Conospermum toddii</i>	P4	569349	6677810	2009	Helicopter	Heli 16	1124
<i>Conospermum toddii</i>	P4	605201	6681639	2009	Helicopter	Heli 07	1002
<i>Conospermum toddii</i>	P4	572281	6656731	2009	Helicopter	Heli 14	3246
<i>Conospermum toddii</i>	P4	575954	6682092	2009	Track Clearance		1
<i>Conospermum toddii</i>	P4	575990	6682087	2009	Track Clearance		7
<i>Conospermum toddii</i>	P4	576562	6681854	2009	Track Clearance		6
<i>Conospermum toddii</i>	P4	576581	6681874	2009	Track Clearance		2
<i>Conospermum toddii</i>	P4	576743	6682521	2009	Track Clearance		1
<i>Conospermum toddii</i>	P4	576849	6682698	2009	Track Clearance		1
<i>Conospermum toddii</i>	P4	576886	6682714	2009	Track Clearance		3
<i>Conospermum toddii</i>	P4	577229	6682640	2009	Track Clearance		2
<i>Conospermum toddii</i>	P4	576451	6681520	2010	Drill Line Clearance	17	1
<i>Conospermum toddii</i>	P4	576457	6681606	2010	Drill Line Clearance	18	11-25
<i>Conospermum toddii</i>	P4	576464	6681627	2010	Drill Line Clearance	18	11-25
<i>Conospermum toddii</i>	P4	576473	6681584	2010	Drill Line Clearance	18	11-25
<i>Conospermum toddii</i>	P4	576477	6681499	2010	Drill Line Clearance	17	5
<i>Conospermum toddii</i>	P4	576496	6681490	2010	Drill Line Clearance	17	2-5
<i>Conospermum toddii</i>	P4	576508	6681482	2010	Drill Line Clearance	17	26-50
<i>Conospermum toddii</i>	P4	576528	6681840	2010	Drill Line Clearance	20	1
<i>Conospermum toddii</i>	P4	576531	6681466	2010	Drill Line Clearance	17	26-50

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	576554	6681459	2010	Drill Line Clearance	17	2-5
<i>Conospermum toddii</i>	P4	576559	6681447	2010	Drill Line Clearance	17	6-10
<i>Conospermum toddii</i>	P4	576566	6681569	2010	Drill Line Clearance	18	6-10
<i>Conospermum toddii</i>	P4	576570	6681565	2010	Drill Line Clearance	18	6-10
<i>Conospermum toddii</i>	P4	576589	6681433	2010	Drill Line Clearance	17	6-10
<i>Conospermum toddii</i>	P4	576595	6681551	2010	Drill Line Clearance	18	2-5
<i>Conospermum toddii</i>	P4	576604	6681875	2010	Drill Line Clearance	22	2-5
<i>Conospermum toddii</i>	P4	576619	6681528	2010	Drill Line Clearance	18	26-50
<i>Conospermum toddii</i>	P4	576628	6681517	2010	Drill Line Clearance	18	1
<i>Conospermum toddii</i>	P4	576659	6681869	2010	Drill Line Clearance	22	2-5
<i>Conospermum toddii</i>	P4	576719	6681819	2010	Drill Line Clearance	22	11-25
<i>Conospermum toddii</i>	P4	576751	6681823	2010	Drill Line Clearance	22	6-10
<i>Conospermum toddii</i>	P4	576796	6681799	2010	Drill Line Clearance	22	26-50
<i>Conospermum toddii</i>	P4	576840	6681873	2010	Drill Line Clearance	23	2-5
<i>Conospermum toddii</i>	P4	576840	6681903	2010	Drill Line Clearance	23	2-5
<i>Conospermum toddii</i>	P4	576874	6681846	2010	Drill Line Clearance	23	11-25
<i>Conospermum toddii</i>	P4	577018	6682143	2010	Drill Line Clearance	28	1
<i>Conospermum toddii</i>	P4	577068	6682103	2010	Drill Line Clearance	28	2
<i>Conospermum toddii</i>	P4	577196	6682119	2010	Drill Line Clearance	Oppo	6-10
<i>Conospermum toddii</i>	P4	577249	6682008	2010	Drill Line Clearance	28	11-25
<i>Conospermum toddii</i>	P4	577351	6682666	2010	Drill Line Clearance	33	2
<i>Conospermum toddii</i>	P4	577356	6682553	2010	Drill Line Clearance	32	1
<i>Conospermum toddii</i>	P4	577595	6682285	2010	Drill Line Clearance	Oppo	11
<i>Conospermum toddii</i>	P4	577625	6682758	2010	Drill Line Clearance	34	47
<i>Conospermum toddii</i>	P4	577676	6682728	2010	Drill Line Clearance	34	47
<i>Conospermum toddii</i>	P4	577731	6682712	2010	Drill Line Clearance	34	1
<i>Conospermum toddii</i>	P4	578605	6683846	2010	Drill Line Clearance	50	11-25
<i>Conospermum toddii</i>	P4	578680	6683808	2010	Drill Line Clearance	50	11-25
<i>Conospermum toddii</i>	P4	578716	6682338	2010	Drill Line Clearance	Oppo	51-100
<i>Conospermum toddii</i>	P4	578720	6683763	2010	Drill Line Clearance	50	6-10
<i>Conospermum toddii</i>	P4	578875	6682387	2010	Drill Line Clearance	37	1
<i>Conospermum toddii</i>	P4	579078	6684042	2010	Drill Line Clearance	52	1
<i>Conospermum toddii</i>	P4	579284	6683084	2010	Drill Line Clearance	44	26-50

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	579294	6683060	2010	Drill Line Clearance	44	26-50
<i>Conospermum toddii</i>	P4	579507	6684252	2010	Drill Line Clearance	54	2-5
<i>Conospermum toddii</i>	P4	522858	6701026	2010	Helicopter	D10	2
<i>Conospermum toddii</i>	P4	536669	6664160	2010	Helicopter	D04	899
<i>Conospermum toddii</i>	P4	538394	6704042	2010	Helicopter	D11	940
<i>Conospermum toddii</i>	P4	538880	6705231	2010	Helicopter	D08	220
<i>Conospermum toddii</i>	P4	542639	6669642	2010	Helicopter	D03	83
<i>Conospermum toddii</i>	P4	544243	6686228	2010	Helicopter	D02	601
<i>Conospermum toddii</i>	P4	546535	6699191	2010	Helicopter	D01	505
<i>Conospermum toddii</i>	P4	571707	6616774	2010	Helicopter	D05	212
<i>Conospermum toddii</i>	P4	577961	6633830	2010	Helicopter	D06	83
<i>Conospermum toddii</i>	P4	590562	6641362	2010	Helicopter	D07	67
<i>Conospermum toddii</i>	P4	595881	6657248	2010	Helicopter	C08	786
<i>Conospermum toddii</i>	P4	598400	6698209	2010	Helicopter	A10	111
<i>Conospermum toddii</i>	P4	617438	6711715	2010	Helicopter	A07	335
<i>Conospermum toddii</i>	P4	625513	6685260	2010	Helicopter	C06	99
<i>Conospermum toddii</i>	P4	625577	6711000	2010	Helicopter	A08	97
<i>Conospermum toddii</i>	P4	625980	6695193	2010	Helicopter	C10	76
<i>Conospermum toddii</i>	P4	629050	6709000	2010	Helicopter	A09	10
<i>Conospermum toddii</i>	P4	644567	6692110	2010	Helicopter	C05	118
<i>Conospermum toddii</i>	P4	655985	6664428	2010	Helicopter	C09	40
<i>Conospermum toddii</i>	P4	562688	6690605	2010	Plot	VP053	1
<i>Conospermum toddii</i>	P4	555902	6691250	2010	Plot	VP082	1
<i>Conospermum toddii</i>	P4	566001	6684599	2010	Plot	VP074	1
<i>Conospermum toddii</i>	P4	571220	6693195	2010	Plot	VP123	2-5
<i>Conospermum toddii</i>	P4	553013	6691256	2010	Mapping	OPPO06	500+
<i>Conospermum toddii</i>	P4	554399	6691602	2010	Plot	VP153	100-200
<i>Conospermum toddii</i>	P4	580110	6678860	2010	Mapping	OPPO64	6-10
<i>Conospermum toddii</i>	P4	578908	6678603	2010	Mapping	OPPO65	5-10
<i>Conospermum toddii</i>	P4	584084	6684245	2010	Mapping	OPPO69	2-5
<i>Conospermum toddii</i>	P4	584348	6680837	2010	Mapping	OPPO77	11-25
<i>Conospermum toddii</i>	P4	584319	6679919	2010	Mapping	OPPO78	50-100
<i>Conospermum toddii</i>	P4	552002	6687452	2010	Plot	VP163	80

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Conospermum toddii</i>	P4	558523	6683219	2010	Plot	VP170	20
<i>Conospermum toddii</i>	P4	564916	6678278	2010	Mapping	OPPO28	31
<i>Conospermum toddii</i>	P4	574013	6687369	2010	Mapping	OPPO34	200+
<i>Conospermum toddii</i>	P4	584237	6684147	2010	Mapping	OPPO37	11-25
<i>Conospermum toddii</i>	P4	573153	6680457	2010	Plot	VP140	7
<i>Conospermum toddii</i>	P4	581571	6687721	2010	Mapping	OPPO47	200
<i>Conospermum toddii</i>	P4	583366	6685862	2010	Plot	VP207	11-25
<i>Conospermum toddii</i>	P4	582686	6686200	2010	Mapping	OPPO50	51-100
<i>Conospermum toddii</i>	P4	582135	6686396	2010	Mapping	OPPO51	26-50
<i>Conospermum toddii</i>	P4	581852	6685576	2010	Mapping	OPPO53	1
<i>Conospermum toddii</i>	P4	582143	6685640	2010	Mapping	OPPO54	200+
<i>Conospermum toddii</i>	P4	573714	6674509	2010	Mapping	OPPO55	500+
<i>Conospermum toddii</i>	P4	576279	6675445	2010	Mapping	OPPO57	500
<i>Conospermum toddii</i>	P4	580010	6680053	2010	Mapping	JELLO05	289
<i>Conospermum toddii</i>	P4	571106	6671885	2010	Mapping	JELLO06	15-20
<i>Conospermum toddii</i>	P4	571029	6671672	2010	Mapping	JELLO07	25-30
<i>Conospermum toddii</i>	P4	573007	6681158	2010	Mapping	JONE004/OPPO	60
<i>Conospermum toddii</i>	P4	572941	6681746	2010	Plot	VP223	11-25
<i>Conospermum toddii</i>	P4	572914	6682776	2010	Plot	VP234 - OPPO	51-100
<i>Conospermum toddii</i>	P4	574217	6688261	2010	Mapping	JONE015OPPO	16
<i>Conospermum toddii</i>	P4	574304	6688227	2010	Mapping	JONE016	21
<i>Dicrastylis cundeeleensis</i>	P4	574801	6685408	2008	Mapping		1
<i>Dicrastylis cundeeleensis</i>	P4	574884	6692052	2008	Mapping		6-10
<i>Dicrastylis cundeeleensis</i>	P4	575458	6690505	2008	Mapping		4-10
<i>Dicrastylis cundeeleensis</i>	P4	578439	6682503	2009	Drill Holes	Sept288	2-5
<i>Dicrastylis cundeeleensis</i>	P4	589594	6684433	2009	Helicopter	Heli 05	3
<i>Dicrastylis cundeeleensis</i>	P4	556115	6688192	2010	Plot	VP080	11-25
<i>Dicrastylis cundeeleensis</i>	P4	571837	6691508	2010	Plot	VP086	51-100
<i>Dicrastylis cundeeleensis</i>	P4	543393	6702399	2010	Plot	VP101	6-10
<i>Dicrastylis cundeeleensis</i>	P4	546968	6700657	2010	Plot	VP102	6-10
<i>Dicrastylis cundeeleensis</i>	P4	552195	6697551	2010	Plot	VP097	11-25
<i>Dicrastylis cundeeleensis</i>	P4	552479	6699120	2010	Plot	VP100	2-5
<i>Dicrastylis cundeeleensis</i>	P4	552033	6692300	2010	Plot	VP120	6-10

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Dicrastylis cundeeleensis</i>	P4	552033	6692300	2010	Plot	VP120	2-5
<i>Dicrastylis cundeeleensis</i>	P4	553405	6692440	2010	Plot	VP121	26-50
<i>Dicrastylis cundeeleensis</i>	P4	575666	6692568	2010	Plot	VP129	6-10
<i>Dicrastylis cundeeleensis</i>	P4	551305	6689590	2010	Plot	VP131	26-50
<i>Dicrastylis cundeeleensis</i>	P4	556302	6681922	2010	Plot	VP142	11-25
<i>Dicrastylis cundeeleensis</i>	P4	555512	6694302	2010	Plot	VP148	50-100
<i>Dicrastylis cundeeleensis</i>	P4	553986	6693586	2010	Plot	VP150	2-5
<i>Dicrastylis cundeeleensis</i>	P4	550636	6692247	2010	Plot	VP151	1
<i>Dicrastylis cundeeleensis</i>	P4	552725	6687227	2010	Mapping	Veg09	2-5
<i>Dicrastylis cundeeleensis</i>	P4	554367	6686247	2010	Mapping	Veg10	26-50
<i>Dicrastylis cundeeleensis</i>	P4	551391	6685631	2010	Plot	VP155	26-50
<i>Dicrastylis cundeeleensis</i>	P4	552182	6686503	2010	Plot	VP157	26-50
<i>Dicrastylis cundeeleensis</i>	P4	553753	6685338	2010	Plot	VP159	2-5
<i>Dicrastylis cundeeleensis</i>	P4	562222	6687080	2010	Mapping	OPPO11	11-25
<i>Dicrastylis cundeeleensis</i>	P4	557699	6681707	2010	Plot	VP172	11-25
<i>Dicrastylis cundeeleensis</i>	P4	557132	6680337	2010	Plot	VP174	6-10
<i>Dicrastylis cundeeleensis</i>	P4	555457	6680612	2010	Plot	VP176	26-50
<i>Dicrastylis cundeeleensis</i>	P4	556173	6683557	2010	Plot	VP178	11-25
<i>Dicrastylis cundeeleensis</i>	P4	575443	6689759	2010	Plot	VP139	2-5
<i>Dicrastylis cundeeleensis</i>	P4	574204	6685929	2010	Plot	VP185	
<i>Dicrastylis cundeeleensis</i>	P4	584387	6687355	2010	Plot	VP193	6-10
<i>Dicrastylis cundeeleensis</i>	P4	586243	6686281	2010	Plot	VP197	2-5
<i>Dicrastylis cundeeleensis</i>	P4	583326	6686983	2010	Plot	VP203	51-100
<i>Dicrastylis cundeeleensis</i>	P4	586553	6675838	2010	Plot	VP230	1
<i>Dicrastylis cundeeleensis</i>	P4	582223	6686584	2010	Plot	VP209	2-5
<i>Dicrastylis cundeeleensis</i>	P4	574137	6689963	2010	Mapping	JONE014	51-100
<i>Grevillea secunda</i>	P4	562330	6688477	2007	Recon		
<i>Grevillea secunda</i>	P4	562734	6688232	2007	Recon		
<i>Grevillea secunda</i>	P4	563310	6687900	2007	Recon		
<i>Grevillea secunda</i>	P4	563335	6687440	2007	Recon		
<i>Grevillea secunda</i>	P4	563480	6687125	2007	Recon		
<i>Grevillea secunda</i>	P4	576625	6681880	2007	Recon		1
<i>Grevillea secunda</i>	P4	576447	6681700	2008	Mapping		

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	577608	6681683	2008	Mapping		
<i>Grevillea secunda</i>	P4	577894	6684478	2008	Mapping		
<i>Grevillea secunda</i>	P4	578047	6682051	2008	Mapping		
<i>Grevillea secunda</i>	P4	578134	6682338	2008	Mapping		6-10
<i>Grevillea secunda</i>	P4	578173	6681960	2008	Mapping		
<i>Grevillea secunda</i>	P4	578274	6681706	2008	Mapping		
<i>Grevillea secunda</i>	P4	578294	6681871	2008	Mapping		
<i>Grevillea secunda</i>	P4	578579	6684074	2008	Mapping		
<i>Grevillea secunda</i>	P4	578744	6682327	2008	Mapping		
<i>Grevillea secunda</i>	P4	578804	6682236	2008	Mapping		
<i>Grevillea secunda</i>	P4	579041	6681987	2008	Mapping		
<i>Grevillea secunda</i>	P4	579059	6682047	2008	Mapping		
<i>Grevillea secunda</i>	P4	580098	6686394	2008	Mapping		
<i>Grevillea secunda</i>	P4	576654	6681875	2008	Mapping		
<i>Grevillea secunda</i>	P4	577313	6682076	2008	Mapping		
<i>Grevillea secunda</i>	P4	559910	6689900	2008	Mapping		3-10
<i>Grevillea secunda</i>	P4	561139	6689256	2008	Mapping		
<i>Grevillea secunda</i>	P4	561146	6689246	2008	Mapping		4
<i>Grevillea secunda</i>	P4	561207	6688850	2008	Mapping		
<i>Grevillea secunda</i>	P4	561263	6689118	2008	Mapping		
<i>Grevillea secunda</i>	P4	561717	6688635	2008	Mapping		
<i>Grevillea secunda</i>	P4	561836	6688776	2008	Mapping		
<i>Grevillea secunda</i>	P4	562291	6688484	2008	Mapping		
<i>Grevillea secunda</i>	P4	563066	6687810	2008	Mapping		
<i>Grevillea secunda</i>	P4	563091	6693726	2008	Mapping		
<i>Grevillea secunda</i>	P4	563636	6687176	2008	Mapping		
<i>Grevillea secunda</i>	P4	563976	6690921	2008	Mapping		
<i>Grevillea secunda</i>	P4	564879	6686502	2008	Mapping		
<i>Grevillea secunda</i>	P4	565060	6686398	2008	Mapping		
<i>Grevillea secunda</i>	P4	565154	6686796	2008	Mapping		
<i>Grevillea secunda</i>	P4	565163	6686362	2008	Mapping		
<i>Grevillea secunda</i>	P4	565671	6686769	2008	Mapping		
<i>Grevillea secunda</i>	P4	565684	6686748	2008	Mapping		

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	565688	6686748	2008	Mapping		
<i>Grevillea secunda</i>	P4	565716	6686793	2008	Mapping		7
<i>Grevillea secunda</i>	P4	565724	6686772	2008	Mapping		
<i>Grevillea secunda</i>	P4	565750	6686812	2008	Mapping		
<i>Grevillea secunda</i>	P4	565837	6686839	2008	Mapping		
<i>Grevillea secunda</i>	P4	565918	6692075	2008	Mapping		
<i>Grevillea secunda</i>	P4	565950	6686860	2008	Mapping		
<i>Grevillea secunda</i>	P4	566036	6687294	2008	Mapping		7
<i>Grevillea secunda</i>	P4	566039	6687037	2008	Mapping		
<i>Grevillea secunda</i>	P4	566041	6687067	2008	Mapping		
<i>Grevillea secunda</i>	P4	572315	6688261	2008	Mapping		
<i>Grevillea secunda</i>	P4	573793	6688925	2008	Mapping		
<i>Grevillea secunda</i>	P4	574935	6688244	2008	Mapping		
<i>Grevillea secunda</i>	P4	577357	6683885	2008	Mapping		
<i>Grevillea secunda</i>	P4	577731	6684581	2008	Mapping		
<i>Grevillea secunda</i>	P4	578797	6683006	2008	Mapping		
<i>Grevillea secunda</i>	P4	579481	6682890	2008	Mapping		
<i>Grevillea secunda</i>	P4	580141	6686470	2008	Mapping		
<i>Grevillea secunda</i>	P4	583011	6684384	2008	Drill Holes	P1-33	2-5
<i>Grevillea secunda</i>	P4	583502	6684613	2008	Drill Holes	P1-31	2-5
<i>Grevillea secunda</i>	P4	584145	6685337	2008	Drill Holes	P1-20	2-5
<i>Grevillea secunda</i>	P4	584790	6685470	2008	Drill Holes	P1-15	2-5
<i>Grevillea secunda</i>	P4	584819	6685470	2008	Drill Holes	P1-16 Oppo	2-5
<i>Grevillea secunda</i>	P4	579669	6683425	2008	Drill Holes	P2-32	2-5
<i>Grevillea secunda</i>	P4	581457	6683798	2008	Drill Holes	P2-03	2-5
<i>Grevillea secunda</i>	P4	581539	6683739	2008	Drill Holes	P2-04	2-5
<i>Grevillea secunda</i>	P4	584237	6685276	2008	Drill Holes	P1-21	6-10
<i>Grevillea secunda</i>	P4	584334	6685224	2008	Drill Holes	P1-22	2-5
<i>Grevillea secunda</i>	P4	584699	6685521	2008	Drill Holes	P1-14	2-5
<i>Grevillea secunda</i>	P4	584892	6685436	2008	Drill Holes	P1-16	1
<i>Grevillea secunda</i>	P4	585072	6685327	2008	Drill Holes	P1-17	2-5
<i>Grevillea secunda</i>	P4	580901	6683647	2008	Mapping		2-5
<i>Grevillea secunda</i>	P4	582431	6683844	2008	Mapping		2-5

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	583184	6684698	2008	Mapping		1
<i>Grevillea secunda</i>	P4	581353	6683878	2008	Mapping		2-5
<i>Grevillea secunda</i>	P4	582088	6683996	2008	Mapping		2-5
<i>Grevillea secunda</i>	P4	582954	6685438	2008	Mapping		6-10
<i>Grevillea secunda</i>	P4	584371	6685200	2008	Mapping		2-5
<i>Grevillea secunda</i>	P4	576421	6681758	2009	Drill Holes	Aug062	1
<i>Grevillea secunda</i>	P4	576559	6681677	2009	Drill Holes	Aug063	1
<i>Grevillea secunda</i>	P4	576595	6681410	2009	Drill Holes	Aug091	1
<i>Grevillea secunda</i>	P4	576801	6681780	2009	Drill Holes	Aug066	1
<i>Grevillea secunda</i>	P4	577666	6681983	2009	Drill Holes	Aug113	1
<i>Grevillea secunda</i>	P4	577804	6681902	2009	Drill Holes	Aug114	1
<i>Grevillea secunda</i>	P4	577924	6682093	2009	Drill Holes	Aug118	2-5
<i>Grevillea secunda</i>	P4	577942	6681820	2009	Drill Holes	Aug106	1
<i>Grevillea secunda</i>	P4	577975	6681563	2009	Drill Holes	Aug098	2-5
<i>Grevillea secunda</i>	P4	578014	6681309	2009	Drill Holes	Aug094	2-5
<i>Grevillea secunda</i>	P4	578080	6681739	2009	Drill Holes	Aug107	2-5
<i>Grevillea secunda</i>	P4	578112	6681481	2009	Drill Holes	Aug099	1
<i>Grevillea secunda</i>	P4	578161	6682168	2009	Drill Holes	Aug030	1
<i>Grevillea secunda</i>	P4	578250	6681400	2009	Drill Holes	Aug100	2-5
<i>Grevillea secunda</i>	P4	578436	6682005	2009	Drill Holes	Aug032	2-5
<i>Grevillea secunda</i>	P4	578475	6681766	2009	Drill Holes	Aug026	2-5
<i>Grevillea secunda</i>	P4	578574	6681924	2009	Drill Holes	Aug033	1
<i>Grevillea secunda</i>	P4	578613	6681685	2009	Drill Holes	Aug116	1
<i>Grevillea secunda</i>	P4	578783	6682300	2009	Drill Holes	Aug003	2-5
<i>Grevillea secunda</i>	P4	578849	6681761	2009	Drill Holes	Aug035	6-10
<i>Grevillea secunda</i>	P4	579581	6682076	2009	Drill Holes	Aug022	1
<i>Grevillea secunda</i>	P4	579719	6681994	2009	Drill Holes	Aug023	1
<i>Grevillea secunda</i>	P4	576457	6681492	2009	Drill Holes	Aug090	1
<i>Grevillea secunda</i>	P4	576960	6682664	2009	Drill Holes	Aug083	1
<i>Grevillea secunda</i>	P4	577098	6682582	2009	Drill Holes	Aug080	2-5
<i>Grevillea secunda</i>	P4	577610	6682495	2009	Drill Holes	Aug038	1
<i>Grevillea secunda</i>	P4	577875	6681392	2009	Drill Holes	Aug095	6-10
<i>Grevillea secunda</i>	P4	578062	6682011	2009	Drill Holes	Aug115	2-5

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	578388	6681318	2009	Drill Holes	Aug101	2-5
<i>Grevillea secunda</i>	P4	578711	6681842	2009	Drill Holes	Aug034	2-5
<i>Grevillea secunda</i>	P4	579059	6682137	2009	Drill Holes	Aug005	1
<i>Grevillea secunda</i>	P4	577681	6682391	2009	Opportunistic		2-5
<i>Grevillea secunda</i>	P4	578040	6683479	2009	Opportunistic		25-50
<i>Grevillea secunda</i>	P4	578046	6683229	2009	Opportunistic		1
<i>Grevillea secunda</i>	P4	578061	6682548	2009	Opportunistic		2-5
<i>Grevillea secunda</i>	P4	578095	6682719	2009	Opportunistic		11-25
<i>Grevillea secunda</i>	P4	578104	6683498	2009	Opportunistic		11-25
<i>Grevillea secunda</i>	P4	578118	6682947	2009	Opportunistic		1
<i>Grevillea secunda</i>	P4	578835	6683003	2009	Opportunistic		11-25
<i>Grevillea secunda</i>	P4	585469	6685721	2009	Opportunistic		11-25
<i>Grevillea secunda</i>	P4	578257	6681724	2009	Plot	VP037	1
<i>Grevillea secunda</i>	P4	578943	6681918	2009	Plot	VP043	2-5
<i>Grevillea secunda</i>	P4	582178	6678994	2009	Plot	VP052	10-25
<i>Grevillea secunda</i>	P4	582189	6679087	2009	Plot	VP051	6-10
<i>Grevillea secunda</i>	P4	576684	6681911	2009	Plot	VP039	6-10
<i>Grevillea secunda</i>	P4	567675	6687718	2009	Track Clearance		2-5
<i>Grevillea secunda</i>	P4	581113	6684011	2009	Track Clearance		2-5
<i>Grevillea secunda</i>	P4	585552	6685661	2009	Track Clearance		10-25
<i>Grevillea secunda</i>	P4	568788	6677433	2009	Plot	VP007	2-5
<i>Grevillea secunda</i>	P4	572109	6674744	2009	Plot	VP036	1
<i>Grevillea secunda</i>	P4	577249	6672512	2009	Plot	VP034	6-10
<i>Grevillea secunda</i>	P4	577897	6672088	2009	Plot	VP033	1
<i>Grevillea secunda</i>	P4	578600	6673472	2009	Plot	VP031	6-10
<i>Grevillea secunda</i>	P4	568465	6677514	2009	Plot	VP028	2-5
<i>Grevillea secunda</i>	P4	576526	6681451	2009	Drill Holes	Sept343	1
<i>Grevillea secunda</i>	P4	577878	6683575	2009	Drill Holes	Sept227	2-5
<i>Grevillea secunda</i>	P4	576595	6681902	2009	Drill Holes	Sept330	1
<i>Grevillea secunda</i>	P4	577902	6683309	2009	Drill Holes	Sept224	2-5
<i>Grevillea secunda</i>	P4	578016	6683494	2009	Drill Holes	Sept228	2-5
<i>Grevillea secunda</i>	P4	578206	6682406	2009	Drill Holes	Sept294	1
<i>Grevillea secunda</i>	P4	578343	6682325	2009	Drill Holes	Sept295	1

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	578714	6682340	2009	Drill Holes	Sept290	2-5
<i>Grevillea secunda</i>	P4	578852	6682259	2009	Drill Holes	Sept291	1
<i>Grevillea secunda</i>	P4	579061	6683085	2009	Drill Holes	Sept043	2-5
<i>Grevillea secunda</i>	P4	576427	6681281	2009	Drill Holes	Sept349	2-5
<i>Grevillea secunda</i>	P4	576496	6681241	2009	Drill Holes	Sept113	1
<i>Grevillea secunda</i>	P4	577144	6682569	2009	Drill Holes	Sept397	2-5
<i>Grevillea secunda</i>	P4	578837	6683001	2009	Drill Holes	Sept063	11-25
<i>Grevillea secunda</i>	P4	578990	6682177	2009	Drill Holes	Sept292	2-5
<i>Grevillea secunda</i>	P4	579260	6682150	2009	Drill Holes	Sept391	2-5
<i>Grevillea secunda</i>	P4	578398	6683025	2009	Opportunistic		2-5
<i>Grevillea secunda</i>	P4	567352	6676750	2009	Opportunistic		1
<i>Grevillea secunda</i>	P4	568161	6673392	2009	Opportunistic		2-5
<i>Grevillea secunda</i>	P4	568238	6675530	2009	Opportunistic		2-5
<i>Grevillea secunda</i>	P4	569413	6675019	2009	Opportunistic		2-5
<i>Grevillea secunda</i>	P4	573835	6678133	2009	Opportunistic		1
<i>Grevillea secunda</i>	P4	577945	6671932	2009	Opportunistic		6-10
<i>Grevillea secunda</i>	P4	578558	6673568	2009	Opportunistic		2-5
<i>Grevillea secunda</i>	P4	580185	6672605	2009	Opportunistic		11-25
<i>Grevillea secunda</i>	P4	581773	6679131	2009	Helicopter	Heli 02	2-5
<i>Grevillea secunda</i>	P4	576552	6659812	2009	Helicopter	Heli 10	2
<i>Grevillea secunda</i>	P4	572281	6656731	2009	Helicopter	Heli 14	11-25
<i>Grevillea secunda</i>	P4	579193	6682169	2010	Drill Line Clearance	37	7
<i>Grevillea secunda</i>	P4	575389	6679921	2010	Drill Line Clearance	2	11-25
<i>Grevillea secunda</i>	P4	576386	6681201	2010	Drill Line Clearance	15	1
<i>Grevillea secunda</i>	P4	576437	6681522	2010	Drill Line Clearance	17	1
<i>Grevillea secunda</i>	P4	576456	6681510	2010	Drill Line Clearance	17	1
<i>Grevillea secunda</i>	P4	576464	6681627	2010	Drill Line Clearance	18	6-10
<i>Grevillea secunda</i>	P4	576479	6681598	2010	Drill Line Clearance	18	1
<i>Grevillea secunda</i>	P4	576491	6681372	2010	Drill Line Clearance	16	1
<i>Grevillea secunda</i>	P4	576557	6681333	2010	Drill Line Clearance	16	2
<i>Grevillea secunda</i>	P4	576566	6681569	2010	Drill Line Clearance	18	1
<i>Grevillea secunda</i>	P4	576579	6681902	2010	Drill Line Clearance	22	2-5
<i>Grevillea secunda</i>	P4	576585	6681436	2010	Drill Line Clearance	17	1

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	576589	6681397	2010	Drill Line Clearance	Oppo	2
<i>Grevillea secunda</i>	P4	576594	6681430	2010	Drill Line Clearance	17	1
<i>Grevillea secunda</i>	P4	576595	6681551	2010	Drill Line Clearance	18	1
<i>Grevillea secunda</i>	P4	576617	6681536	2010	Drill Line Clearance	18	4
<i>Grevillea secunda</i>	P4	576624	6681878	2010	Drill Line Clearance	22	2-5
<i>Grevillea secunda</i>	P4	576636	6681783	2010	Drill Line Clearance	20	2
<i>Grevillea secunda</i>	P4	576670	6681750	2010	Drill Line Clearance	20	1
<i>Grevillea secunda</i>	P4	576676	6681883	2010	Drill Line Clearance	22	1
<i>Grevillea secunda</i>	P4	576707	6681705	2010	Drill Line Clearance	20	1
<i>Grevillea secunda</i>	P4	576719	6681819	2010	Drill Line Clearance	22	2
<i>Grevillea secunda</i>	P4	576791	6681674	2010	Drill Line Clearance	20	1
<i>Grevillea secunda</i>	P4	576796	6681799	2010	Drill Line Clearance	22	2
<i>Grevillea secunda</i>	P4	576840	6681903	2010	Drill Line Clearance	23	1
<i>Grevillea secunda</i>	P4	576851	6681767	2010	Drill Line Clearance	22	1
<i>Grevillea secunda</i>	P4	576985	6682528	2010	Drill Line Clearance	30	1
<i>Grevillea secunda</i>	P4	577068	6682103	2010	Drill Line Clearance	28	2
<i>Grevillea secunda</i>	P4	577124	6682083	2010	Drill Line Clearance	28	6-10
<i>Grevillea secunda</i>	P4	577153	6682064	2010	Drill Line Clearance	28	2
<i>Grevillea secunda</i>	P4	577180	6682656	2010	Drill Line Clearance	32	1
<i>Grevillea secunda</i>	P4	577189	6682045	2010	Drill Line Clearance	28	2-5
<i>Grevillea secunda</i>	P4	577553	6682684	2010	Drill Line Clearance	34	1
<i>Grevillea secunda</i>	P4	577568	6682536	2010	Drill Line Clearance	33	2
<i>Grevillea secunda</i>	P4	577583	6682412	2010	Drill Line Clearance	32	1
<i>Grevillea secunda</i>	P4	577653	6682485	2010	Drill Line Clearance	33	4
<i>Grevillea secunda</i>	P4	577926	6682683	2010	Drill Line Clearance	35	3
<i>Grevillea secunda</i>	P4	578008	6682676	2010	Drill Line Clearance	35	5
<i>Grevillea secunda</i>	P4	578664	6683805	2010	Drill Line Clearance	50	1
<i>Grevillea secunda</i>	P4	578716	6682338	2010	Drill Line Clearance	Oppo	2
<i>Grevillea secunda</i>	P4	578788	6682919	2010	Drill Line Clearance	40	7
<i>Grevillea secunda</i>	P4	579028	6682228	2010	Drill Line Clearance	Oppo	2
<i>Grevillea secunda</i>	P4	579069	6682232	2010	Drill Line Clearance	37	1
<i>Grevillea secunda</i>	P4	579225	6682141	2010	Drill Line Clearance	37	1
<i>Grevillea secunda</i>	P4	579277	6683088	2010	Drill Line Clearance	44	1

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	579432	6682983	2010	Drill Line Clearance	44	2
<i>Grevillea secunda</i>	P4	579490	6682951	2010	Drill Line Clearance	44	2-5
<i>Grevillea secunda</i>	P4	579533	6682924	2010	Drill Line Clearance	44	11-25
<i>Grevillea secunda</i>	P4	579585	6682897	2010	Drill Line Clearance	44	11-25
<i>Grevillea secunda</i>	P4	580126	6683290	2010	Drill Line Clearance	48	1
<i>Grevillea secunda</i>	P4	523792	6702605	2010	Helicopter	Opportunistic	1
<i>Grevillea secunda</i>	P4	538785	6705278	2010	Helicopter	D08	1
<i>Grevillea secunda</i>	P4	546535	6699191	2010	Helicopter	D01	1
<i>Grevillea secunda</i>	P4	598396	6698254	2010	Helicopter	A10	9
<i>Grevillea secunda</i>	P4	617438	6717175	2010	Helicopter	A07	1
<i>Grevillea secunda</i>	P4	655985	6664428	2010	Helicopter	C09	1
<i>Grevillea secunda</i>	P4	522769	6701073	2010	Helicopter	D10	2
<i>Grevillea secunda</i>	P4	562151	6688872	2010	Plot	VP064	11-25
<i>Grevillea secunda</i>	P4	556970	6690653	2010	Plot	VP081	26-50
<i>Grevillea secunda</i>	P4	583181	6678518	2010	Plot	VP093	2-5
<i>Grevillea secunda</i>	P4	584322	6675446	2010	Plot	VP096	2-5
<i>Grevillea secunda</i>	P4	563458	6683627	2010	Plot	VP090	
<i>Grevillea secunda</i>	P4	552479	6699120	2010	Plot	VP100	2-5
<i>Grevillea secunda</i>	P4	559095	6686174	2010	Plot	VP104	11-25
<i>Grevillea secunda</i>	P4	579729	6686763	2010	Mapping	OPPO03	1
<i>Grevillea secunda</i>	P4	553487	6691170	2010	Mapping	OPPO05	11-25
<i>Grevillea secunda</i>	P4	555252	6688630	2010	Mapping	OPPO07	2-5
<i>Grevillea secunda</i>	P4	554531	6688481	2010	Mapping	OPPO08	6-10
<i>Grevillea secunda</i>	P4	554646	6687825	2010	Mapping	OPPO09	11-25
<i>Grevillea secunda</i>	P4	554780	6688910	2010	Mapping	Veg03	11-25
<i>Grevillea secunda</i>	P4	554757	6685058	2010	Mapping	OPPO10	3
<i>Grevillea secunda</i>	P4	554367	6686247	2010	Mapping	Veg10	11-25
<i>Grevillea secunda</i>	P4	560881	6689515	2010	Mapping	JELLO01	5-10
<i>Grevillea secunda</i>	P4	560467	6688821	2010	Mapping	JELLO02	5-10
<i>Grevillea secunda</i>	P4	560286	6688517	2010	Mapping	OPPO58	2-5
<i>Grevillea secunda</i>	P4	560063	6687808	2010	Mapping	OPPO59	6-10
<i>Grevillea secunda</i>	P4	563234	6676314	2010	Mapping	OPPO60	13-25
<i>Grevillea secunda</i>	P4	578407	6679884	2010	Mapping	OPPO61	1

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	560355	6688193	2010	Mapping	JELLO03	2-5
<i>Grevillea secunda</i>	P4	579531	6679215	2010	Mapping	OPPO62	6-10
<i>Grevillea secunda</i>	P4	579332	6679336	2010	Mapping	OPPO63	6-10
<i>Grevillea secunda</i>	P4	580110	6678860	2010	Mapping	OPPO64	2-5
<i>Grevillea secunda</i>	P4	581085	6682142	2010	Mapping	OPPO66	6-10
<i>Grevillea secunda</i>	P4	583838	6684400	2010	Mapping	OPPO67	2-5
<i>Grevillea secunda</i>	P4	584084	6684245	2010	Mapping	OPPO68	6-10
<i>Grevillea secunda</i>	P4	584212	6684168	2010	Mapping	OPPO70	6-10
<i>Grevillea secunda</i>	P4	584490	6684009	2010	Mapping	OPPO71	2-5
<i>Grevillea secunda</i>	P4	584638	6683924	2010	Mapping	OPPO72	2-5
<i>Grevillea secunda</i>	P4	585093	6683028	2010	Mapping	OPPO73	6-10
<i>Grevillea secunda</i>	P4	584280	6679706	2010	Mapping	OPPO74	6-10
<i>Grevillea secunda</i>	P4	583717	6676797	2010	Mapping	OPPO75	6-10
<i>Grevillea secunda</i>	P4	570924	6671745	2010	Mapping	OPPO76	11-25
<i>Grevillea secunda</i>	P4	561169	6687448	2010	Plot	VP156	2-5
<i>Grevillea secunda</i>	P4	560802	6689373	2010	Mapping	JELLO01 Oppo	5-10
<i>Grevillea secunda</i>	P4	560667	6688014	2010	Mapping	JELLO03 Oppo	40
<i>Grevillea secunda</i>	P4	562222	6687080	2010	Mapping	OPPO11	3
<i>Grevillea secunda</i>	P4	561595	6687581	2010	Mapping	OPPO12	12
<i>Grevillea secunda</i>	P4	561743	6687383	2010	Mapping	OPPO15	2
<i>Grevillea secunda</i>	P4	561351	6687605	2010	Mapping	Veg12	
<i>Grevillea secunda</i>	P4	560889	6687876	2010	Mapping	OPPO16	11-25
<i>Grevillea secunda</i>	P4	559975	6688420	2010	Mapping	Veg13	2-5
<i>Grevillea secunda</i>	P4	559664	6688607	2010	Mapping	OPPO18	6-10
<i>Grevillea secunda</i>	P4	559374	6688782	2010	Mapping	OPPO20	11-25
<i>Grevillea secunda</i>	P4	558567	6689264	2010	Mapping	OPPO21	11-25
<i>Grevillea secunda</i>	P4	558422	6689350	2010	Mapping	OPPO22	11-25
<i>Grevillea secunda</i>	P4	558322	6688925	2010	Mapping	OPPO23	2-5
<i>Grevillea secunda</i>	P4	558569	6688777	2010	Mapping	OPPO24	6-10
<i>Grevillea secunda</i>	P4	560566	6687588	2010	Mapping	Veg15	
<i>Grevillea secunda</i>	P4	560922	6687380	2010	Mapping	OPPO25	26-50
<i>Grevillea secunda</i>	P4	561300	6687164	2010	Mapping	OPPO26	2-5
<i>Grevillea secunda</i>	P4	566080	6687354	2010	Mapping	OPPO27	6-10

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	557132	6680337	2010	Plot	VP174	10
<i>Grevillea secunda</i>	P4	563288	6676708	2010	Plot	VP188	2-5
<i>Grevillea secunda</i>	P4	565761	6686141	2010	Plot	VP169	26-50
<i>Grevillea secunda</i>	P4	563827	6677956	2010	Mapping	OPPO29	6-10
<i>Grevillea secunda</i>	P4	576862	6690720	2010	Mapping	OPPO30	6-10
<i>Grevillea secunda</i>	P4	577203	6690516	2010	Mapping	OPPO31	11-25
<i>Grevillea secunda</i>	P4	577738	6690196	2010	Mapping	OPPO32	51-100
<i>Grevillea secunda</i>	P4	584237	6684147	2010	Mapping	OPPO37	1
<i>Grevillea secunda</i>	P4	573153	6680457	2010	Plot	VP140	6-10
<i>Grevillea secunda</i>	P4	578274	6679696	2010	Plot	VP200	5-10
<i>Grevillea secunda</i>	P4	580298	6678870	2010	Plot	VP194	11-25
<i>Grevillea secunda</i>	P4	577688	6690303	2010	Plot	VP137	51-125
<i>Grevillea secunda</i>	P4	585213	6683639	2010	Mapping	OPPO38	2-5
<i>Grevillea secunda</i>	P4	586105	6683869	2010	Mapping	OPPO39	6-10
<i>Grevillea secunda</i>	P4	586503	6684379	2010	Mapping	OPPO40	6-10
<i>Grevillea secunda</i>	P4	586955	6684230	2010	Mapping	OPPO41	6-10
<i>Grevillea secunda</i>	P4	584784	6686986	2010	Mapping	OPPO43	11-25
<i>Grevillea secunda</i>	P4	586907	6684717	2010	Mapping	OPPO44	51-100
<i>Grevillea secunda</i>	P4	585367	6685637	2010	Mapping	OPPO45	6-10
<i>Grevillea secunda</i>	P4	582484	6687358	2010	Mapping	OPPO46	6-10
<i>Grevillea secunda</i>	P4	585206	6683701	2010	Plot	VP214	
<i>Grevillea secunda</i>	P4	584940	6681154	2010	Plot	VP218	6-7
<i>Grevillea secunda</i>	P4	585339	6686573	2010	Plot	VP195	6-10
<i>Grevillea secunda</i>	P4	582536	6685170	2010	Mapping	OPPO52	2-5
<i>Grevillea secunda</i>	P4	581852	6685576	2010	Mapping	OPPO53	6-10
<i>Grevillea secunda</i>	P4	582143	6685640	2010	Mapping	OPPO54	1
<i>Grevillea secunda</i>	P4	573960	6674264	2010	Mapping	OPPO56	2-5
<i>Grevillea secunda</i>	P4	579299	6680423	2010	Plot	VP222	11-25
<i>Grevillea secunda</i>	P4	586553	6675838	2010	Plot	VP230	1
<i>Grevillea secunda</i>	P4	580477	6686322	2010	Plot	VP211	6-10
<i>Grevillea secunda</i>	P4	581857	6685690	2010	Plot	VP213	2-5
<i>Grevillea secunda</i>	P4	572247	6681580	2010	Mapping	JONE004/OPPO	61

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Grevillea secunda</i>	P4	573063	6681281	2010	Plot	VP236	2
<i>Grevillea secunda</i>	P4	568040	6687638	2010	Plot	VP242 - OPPO	12
<i>Olearia arida</i>	P4	555825	6690760	2007	Recon		
<i>Olearia arida</i>	P4	557572	6691798	2007	Recon		
<i>Olearia arida</i>	P4	557785	6692165	2007	Recon		
<i>Olearia arida</i>	P4	574700	6683925	2007	Recon		
<i>Olearia arida</i>	P4	574750	6684025	2007	Recon		Few
<i>Olearia arida</i>	P4	575000	6684280	2007	Recon		Few
<i>Olearia arida</i>	P4	575759	6680732	2007	Recon		
<i>Olearia arida</i>	P4	576146	6680491	2007	Recon		
<i>Olearia arida</i>	P4	577117	6682501	2007	Recon		
<i>Olearia arida</i>	P4	577482	6682490	2007	Recon		
<i>Olearia arida</i>	P4	557509	6691337	2008	Mapping		4
<i>Olearia arida</i>	P4	569369	6694155	2008	Mapping		7
<i>Olearia arida</i>	P4	569919	6692686	2008	Mapping		25-50
<i>Olearia arida</i>	P4	571241	6691901	2008	Mapping		10-25
<i>Olearia arida</i>	P4	574608	6684073	2008	Mapping		
<i>Olearia arida</i>	P4	574653	6683710	2008	Mapping		3-1
<i>Olearia arida</i>	P4	574801	6685408	2008	Mapping		10
<i>Olearia arida</i>	P4	575021	6684242	2008	Mapping		
<i>Olearia arida</i>	P4	576760	6682545	2008	Mapping		1
<i>Olearia arida</i>	P4	577028	6682398	2008	Mapping		4
<i>Olearia arida</i>	P4	577415	6682139	2008	Mapping		6-10
<i>Olearia arida</i>	P4	578432	6682522	2008	Mapping		1
<i>Olearia arida</i>	P4	580872	6682653	2008	Mapping		
<i>Olearia arida</i>	P4	580202	6683583	2008	Drill Holes	P2-13	2-5
<i>Olearia arida</i>	P4	585748	6685436	2008	Drill Holes	P1-13	2-5
<i>Olearia arida</i>	P4	586512	6685888	2008	Drill Holes	P1-06	2-5
<i>Olearia arida</i>	P4	580370	6683693	2008	Mapping		2-5
<i>Olearia arida</i>	P4	586310	6685169	2008	Mapping		1
<i>Olearia arida</i>	P4	578892	6682484	2009	Drill Holes	Aug017	1
<i>Olearia arida</i>	P4	585816	6686068	2009	Opportunistic		11-25
<i>Olearia arida</i>	P4	576587	6682358	2009	Plot	VP038	2-5

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Olearia arida</i>	P4	576995	6683577	2009	Plot	VP049	2-5
<i>Olearia arida</i>	P4	568833	6684609	2009	Track Clearance		
<i>Olearia arida</i>	P4	570502	6685026	2009	Track Clearance		1
<i>Olearia arida</i>	P4	579244	6685123	2009	Track Clearance		1
<i>Olearia arida</i>	P4	585500	6685905	2009	Track Clearance		10-25
<i>Olearia arida</i>	P4	577246	6675764	2009	Plot	VP014	
<i>Olearia arida</i>	P4	578439	6682503	2009	Drill Holes	Sept288	11-25
<i>Olearia arida</i>	P4	579818	6682636	2009	Drill Holes	Sept268	1
<i>Olearia arida</i>	P4	578936	6682572	2010	Drill Line Clearance	38	2
<i>Olearia arida</i>	P4	584006	6679248	2010	Plot	VP094	2-5
<i>Olearia arida</i>	P4	568491	6681992	2010	Plot	VP106	2-5
<i>Olearia arida</i>	P4	553870	6688290	2010	Mapping	Veg06a	2
<i>Olearia arida</i>	P4	561765	6685429	2010	Plot	VP160	1
<i>Olearia arida</i>	P4	584387	6687355	2010	Plot	VP193	11-25
<i>Olearia arida</i>	P4	586243	6686281	2010	Plot	VP197	2-5
<i>Olearia arida</i>	P4	587384	6685282	2010	Plot	VP199	26-50
<i>Olearia arida</i>	P4	582223	6686584	2010	Plot	VP209	2-5
<i>Olearia arida</i>	P4	574818	6687928	2010	Mapping	JONE017	1
<i>Brunonia ?suffruticosa</i> (ms)	Range Extension	556115	6688192	2010	Plot	VP080	2-5
<i>Brunonia ?suffruticosa</i> (ms)	Range Extension	556302	6681922	2010	Plot	VP142	25-50
<i>Brunonia ?suffruticosa</i> (ms)	Range Extension	557699	6681707	2010	Plot	VP172	
<i>Dampiera ramosa</i>	Range Extension	571932	6685176	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	566943	6687184	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	570298	6685157	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	572476	6683844	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	571959	6687041	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	571967	6686607	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	583184	6684698	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	582913	6685538	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	582014	6684064	2009	Mapping		
<i>Dampiera ramosa</i>	Range Extension	557699	6681707	2010	Plot	VP172	6-10
<i>Dampiera ramosa</i>	Range Extension	557132	6680337	2010	Plot	VP174	
<i>Dampiera ramosa</i>	Range Extension	586553	6675838	2010	Plot	VP230	

APPENDIX E: LOCATION OF PRIORITY AND OTHER SPECIES OF INTEREST WITHIN THE MULGA ROCK PROJECT AREA, 2007-2010

Note : P1 - P5 denote priority flora species (DEC 2013e)

SPECIES	CONSERVATION STATUS	MGA94 - ZONE 51		YEAR	MCPL JOB	SITE	COUNT OF INDIVIDUALS
		EASTING	NORTHING				
<i>Gastrolobium brevipes</i>	Range Extension	585458	6686095	2009	Mapping		2-5
<i>Gastrolobium brevipes</i>	Range Extension	585552	6685661	2009	Mapping		2-5
<i>Gastrolobium brevipes</i>	Range Extension	583181	6678518	2010	Plot	VP093	2-5
<i>Gastrolobium brevipes</i>	Range Extension	552324	6689790	2010	Mapping	OPPO04	10
<i>Gastrolobium brevipes</i>	Range Extension	560467	6688821	2010	Mapping	JELLO02	2-5
<i>Gastrolobium brevipes</i>	Range Extension	562222	6687080	2010	Mapping	OPPO11	1
<i>Gastrolobium brevipes</i>	Range Extension	559975	6688420	2010	Mapping	Veg13	6-10
<i>Gastrolobium brevipes</i>	Range Extension	557132	6680337	2010	Plot	VP174	1
<i>Gastrolobium brevipes</i>	Range Extension	555457	6680612	2010	Plot	VP176	2-5
<i>Gastrolobium brevipes</i>	Range Extension	577203	6690516	2010	Mapping	OPPO31	2-5
<i>Gastrolobium brevipes</i>	Range Extension	586503	6684379	2010	Mapping	OPPO40	11-25
<i>Gastrolobium brevipes</i>	Range Extension	586955	6684230	2010	Mapping	OPPO41	11-25
<i>Gastrolobium brevipes</i>	Range Extension	585367	6685637	2010	Mapping	OPPO45	11-25
<i>Gastrolobium brevipes</i>	Range Extension	582484	6687358	2010	Mapping	OPPO46	26-50
<i>Gastrolobium brevipes</i>	Range Extension	585339	6686573	2010	Plot	VP195	2-5

APPENDIX F: CLUSTER DENDROGRAM OF PERMANENT MONITORING PLOTS WITHIN THE MULGA ROCK PROJECT AREA

Note: Analysis was based on presence/absence data from permanent plots within the Mulga Rock Project area. Singletons were removed and *Triodia*, *Acacia* and *Eucalyptus* species were merged to reduce noise in the data. Plots are labelled as per the final mapped vegetation community (see Figures 4.1 – 4.3).

Dendrogram - Group Average

Resemblance: S17 Bray Curtis similarity

