Western Botanical

Marda East Project

Level 2 Flora and Vegetation Survey

Southern Cross Goldfields

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Executive Summary

Project Background

Southern Cross Goldfields Ltd (SXG) is an Australian mining and exploration company with potential near term production from two gold projects located at Marda in the Southern Cross region of Western Australia. Southern Cross Goldfields has significant exploration tenure within the Southern Cross region and is looking to develop two prospects, collectively referred to as the Marda East Project, into mines located 35 km NE of the Marda Central Project along the Bulfinch-Evanston road. These prospects are referred to by their exploration target names as 'Fiddleback' and 'Red Legs' prospects.

The two prospects are located on the south eastern foot slopes of the Die Hardy Range approximately 140 km north of Southern Cross and are connected to the Bulfinch Evanston road by a 3.68 km of Haul Road. The prospects are on the ex Diemals Pastoral Station lease that is currently destocked and not being used for cattle production and is located within the Southern Cross sub-region of the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion as described in Thackway & Cresswell (1995).

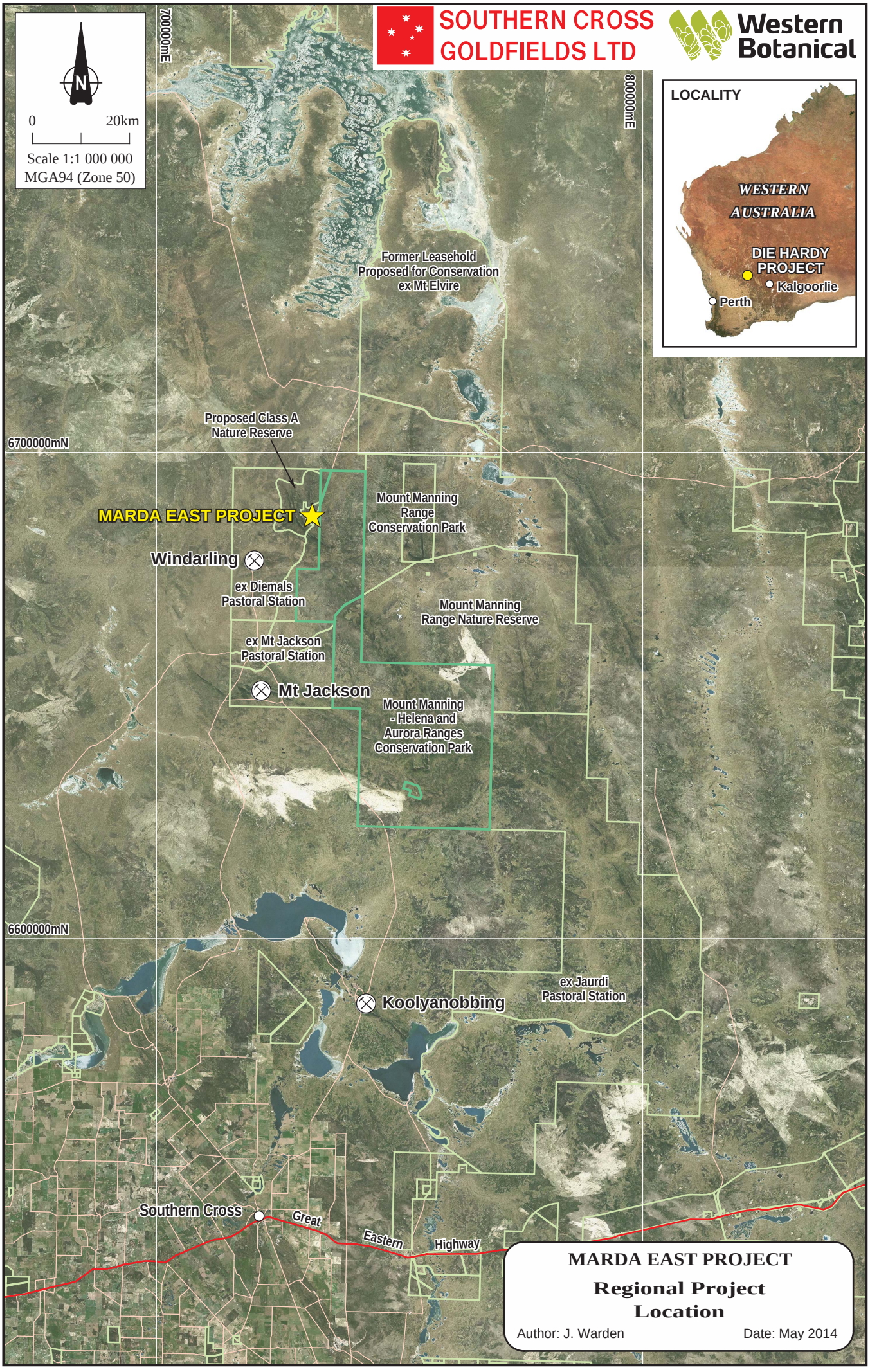
The Marda East Project area currently resides within the Department of Parks and Wildlife (DPaW) Act Section 5(1)(h) proposed 'Conservation and Mining Reserve'. The project area borders the Mount Manning - Helena and Aurora Ranges Conservation Park at the south eastern corner of the Fiddleback prospect. An area encompassing a significant proportion of the adjacent Die Hardy Range has been nominated for inclusion in a proposed 'Class A' Nature Reserve. This proposed reserve abuts the north western boundary of the Red Legs prospect. Additionally the Mount Manning Range Nature Reserve and Mount Manning Range Conservation Park are located approximately 10 km and 17 km east of the project area respectively.

Survey Technique

A Level 2 Flora and Vegetation assessment was completed in accordance with the Environmental Protection Authority (EPA) Position Statement No.3 " Terrestrial Biological Surveys as an element of Biodiversity Protection " (EPA 2002) and the EPA Guidance Statement No. 51 "Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia" (EPA 2004). The results of this survey will be used to assist in preparation of applications for government approvals.

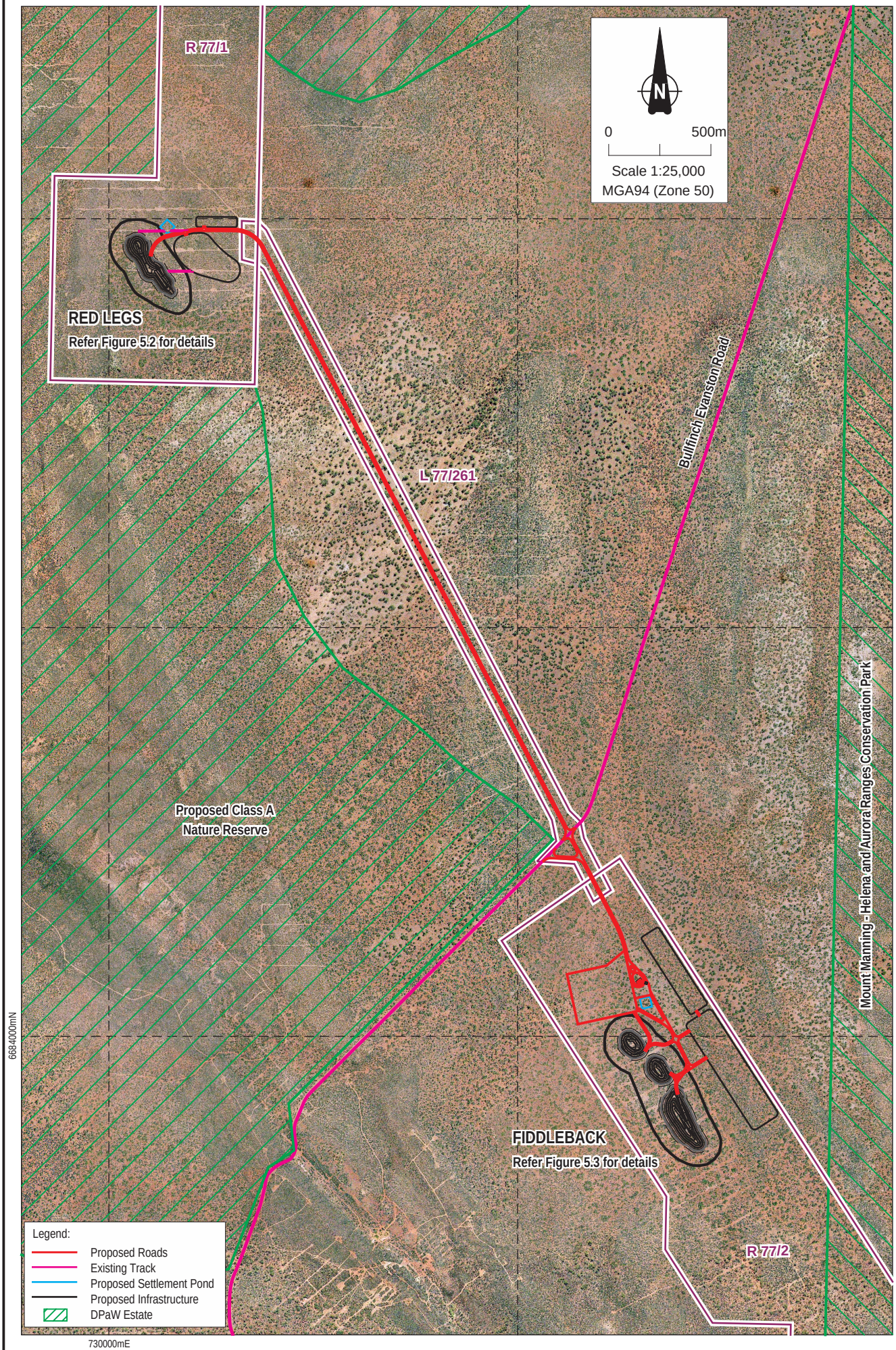
The surveys were conducted in October 2012 and November 2013 (spring) both following below average winter rainfall periods. During the first survey (17th to the 26th October 2012) vegetation association mapping (NVIS Level V, Association) was conducted and searches for flora of conservation significance were conducted focusing on the proposed disturbance areas. During the second survey (5th to 12th November 2013), 32 permanent quadrats were established within the vegetation associations mapped in 2012 and the significant flora searches were completed across the entire project area.

Figure 1. Regional Location of the Marda East Project



Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: D ~ CAD Ref g2083_WB_R01_01B.dgn

Figure 2. Marda East Project Prospect locations and Proposed Infrastructure layout



Source:
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Tenements: DMP
Infrastructure layout: SXG (18/12/2013)

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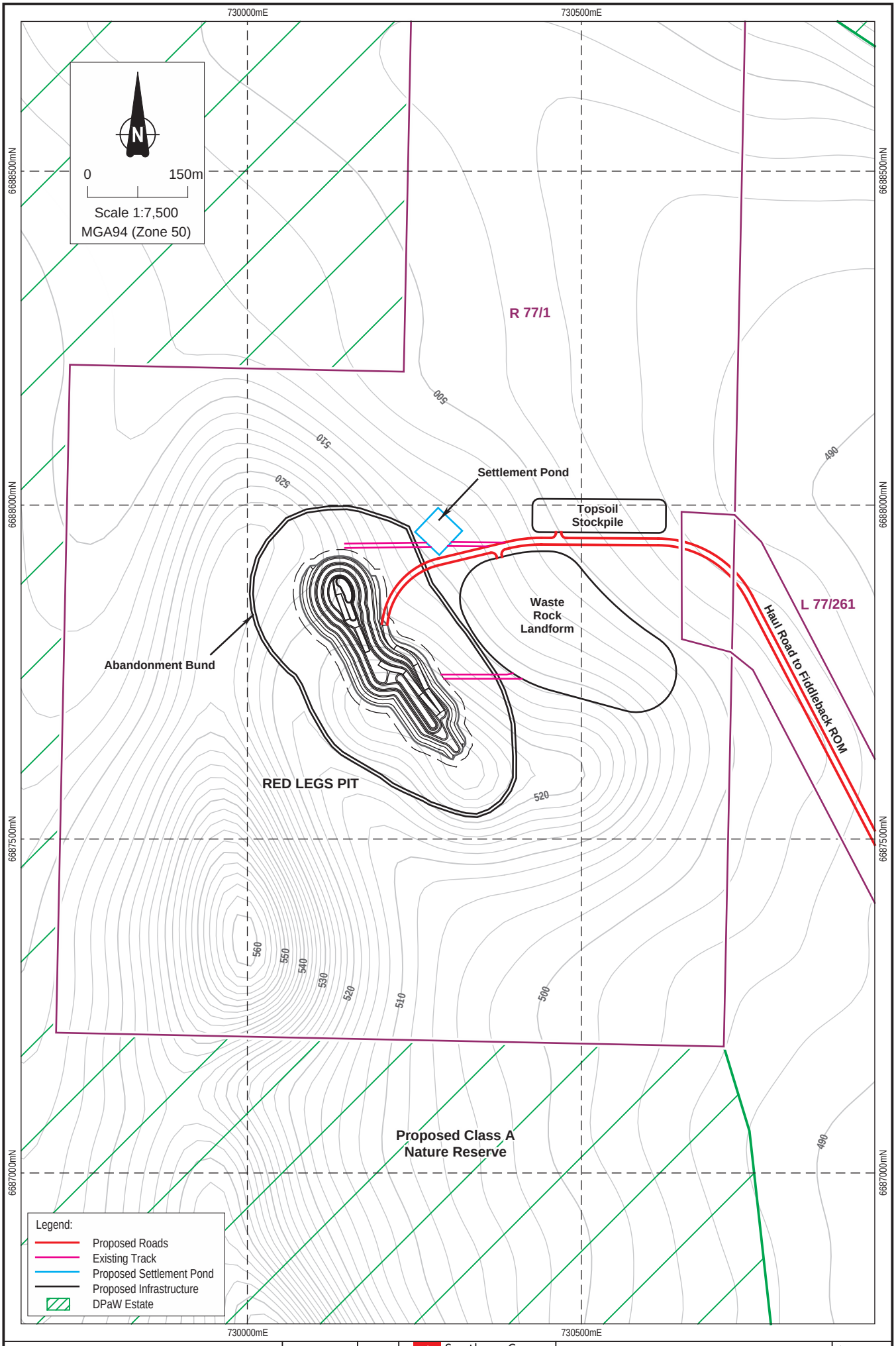
Southern Cross Goldfields Ltd

Marda Gold Project

Marda East Project
Infrastructure Layout

Figure No: **5.1**



Source:
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Infrastructure layout: SXG (18/12/2013)

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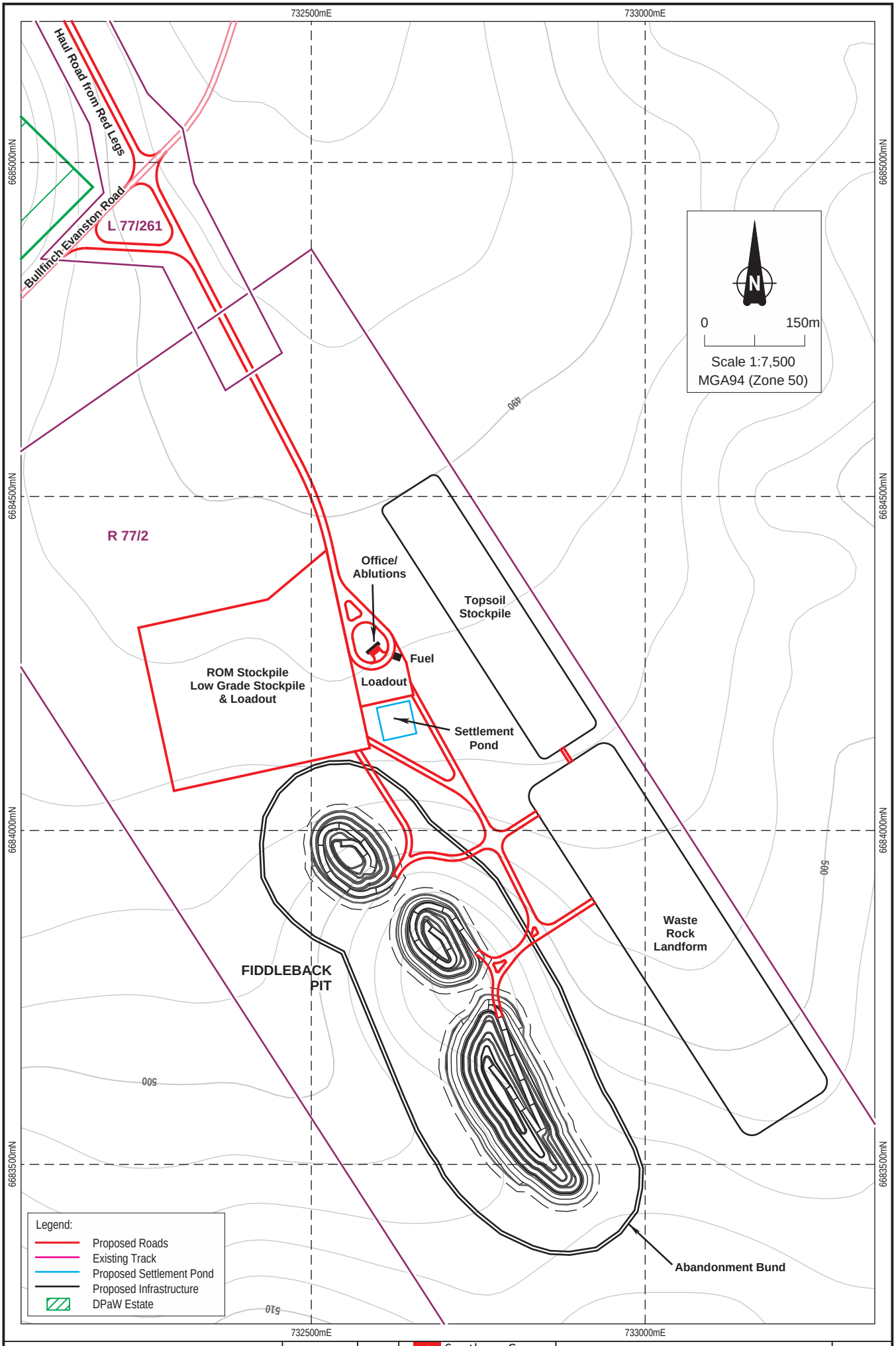
Marda Gold Project

Marda East Project
Red Legs Layout

Figure No: 5.2



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Infrastructure layout: SXG (18/12/2013)

Drawn: CAD Resources
Rev: A
File No: g2103_mep_f04_03

Southern Cross Goldfields Ltd
Marda Gold Project

Marda East Project
Fiddleback Layout

Figure No: 5.3

Flora

Across the Marda East Project area a total of 171 native flora species from 74 genera and 34 families were identified. Whilst the total number of taxa recorded within the project area can be considered a good representation of the perennial flora represented, the low winter rainfall conditions prior to both surveys meant the number of annual and geophytic perennial species was lower than would normally be expected. Six taxa recorded within the project area represent range extensions of 50 km or greater from of their current known distribution within Australia. No introduced (weed) species were encountered during the flora and vegetation surveys.

Flora of Conservation Significance

No rare flora species declared under the *Wildlife Conservation Act 1950* (WA) or Threatened flora species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) were recorded within the project area. Four Priority species were encountered within the project area, 2,347 *Grevillea georgeana* (P3), 308 *Mirbelia ferricola* (P3), 287 *Dryandra arborea* (P4), and 1,356 *Eucalyptus formanii* (P4) individuals.

Within the Red Legs prospect 1,093 *Eucalyptus formanii* trees were located, forming the dominant upperstorey in vegetation association 2.4, as well as being scattered throughout vegetation association 3.2. The banded ironstone hill to the west of the prospect (vegetation association 1.2) supported 281 *Dryandra arborea* (P4) trees, 2347 *Grevillea georgeana* (P3) plants, and 308 *Mirbelia ferricola* (P3) plants. The *Grevillea georgeana* (P3) population extended off the ridge and into surrounding vegetation associations 3.3 and 3.2. The proposed mine and infrastructure areas within the Red Legs prospect accounts for 708 (98.7%) of the 717 proposed impacts to priority flora individuals within the Marda East Project area (Table 1).

Table 1. Flora of Conservation Significance Locations, number recorded and Proposed impacts

Conservation Status	Family Name	Genus species	Location	Total Numbers Recorded	Total Numbers to be Impacted	% to be impacted within the Project
P3	Proteaceae	*Grevillea georgeana*	Red Legs Haul Road	2,347	477	20.32%
P3	Fabaceae	*Mirbelia ferricola*	Red Legs	308	163	52.92%
P4	Proteaceae	*Dryandra arborea*	Red Legs Fiddleback Haul Road	287	33	11.49%
P4	Myrtaceae	*Eucalyptus formanii*	Red Legs Fiddleback Haul Road	1,356	44	3.24%

Threatened / Priority Ecological Communities (TECs / PECs)

No Threatened Ecological Communities (TECs) were located within the Marda East Project area.

The Priority One (P1) Die Hardy Range / Diemels vegetation complex (banded ironstone formation), Priority Ecological Community (PEC) covers an area of 10,547.54 ha and follows the Banded Ironstone Formation geology of the Die Hardy Ranges and the adjacent Yokradine Hills, inclusive of the midslopes, lower slopes and portions of the adjacent plains. The Marda East Project area intersects this PEC with 107.18 ha of the project area mapped within the PEC (representing 1.02 % of the total PEC). The Red Legs prospect is almost entirely within the PEC and has 52.84 ha within the PEC boundary (representing 0.5% of the Priority 1 PEC). The Fiddleback prospect has 53.63 ha within the PEC boundary also representing 0.5% of the total area mapped for the Priority 1 PEC. Ten of the 12 mapped vegetation associations across the project area form part of the Priority 1 PEC vegetation complex (banded ironstone formation).

Vegetation Association Mapping

A total of 245.29 ha was mapped within the Marda East Project area with 12 vegetation associations identified across the project consisting of three Shrubland, six Woodland and three Thicket associations. The Red Legs prospect contained eight vegetation associations, the Fiddleback prospect four associations and the Haul Road six associations.

Vegetation Condition

Vegetation condition was assessed according to the scale presented in Keighery (1994). The vegetation condition was considered across the project area to be in Pristine to Very Good condition reflecting the relatively minor historical impacts caused by the disturbance due to cleared exploration gridlines present within the project area. The vegetation structure was considered to be intact with natural regeneration of old tracks considered to be progressing well.

Floristic Analysis

The vegetation associations were analysed using the results from the quadrat and relevé survey sites in the statistical program PATN. This resulted in 11 of the 12 mapped vegetation associations separating out clearly into their own distinct groups during the species presence/absence site dendrogram analysis. The one vegetation association that did not neatly group together within the dendrogram was vegetation association 2.3. This vegetation association separated across vegetation associations 2.2 and 2.1 as it has commonality with both these vegetation associations. When the analysis of these associations was assessed using the Percentage Foliar Cover (PFC) values these three vegetation associations grouped separately supporting the on-ground mapping assessment.

Recommendations

The following recommendations arise from the vegetation and flora survey of the Marda East Project area.

- The locations of the four Priority flora species should be taken into consideration during mine planning and direct impacts to these species should be avoided or minimised where possible during the mine development.

- Survey works following average to above average winter rainfall will be useful in gaining a full species list inclusive of the annual / ephemeral and geophyte species located within the project area.

- Weed hygiene measures should be implemented to minimize the risk of introduction of weeds to the project area during mine development.

- Standard dust suppression should be implemented to minimize the potential for dust impacts on vegetation and flora during construction and operation. Most of the vegetation associations recorded within the Project area are not tolerant of saline conditions and the management of saline water, if used, should be carefully controlled and monitored.

- Construction and operational personnel should be made aware of the vegetation and flora with conservation significance occurring on site. Clearing boundaries should be clearly marked on site and there should be no clearing beyond these set limits.

- The collection of seed from the conservation-significant species, as well as the common species within the project footprint, should be implemented prior to clearing for mine development. Seed from the *Eucalyptus*, *Dryandra* and other bradysporous species can be collected at most time of the year while those of the *Acacia* and other geosporous species need to be collected in late spring to early summer.

- Implement procedures to remove and separately stockpile topsoil and surface materials from areas to be cleared for future rehabilitation programs.

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1 Introduction

1.1 Project Background

Southern Cross Goldfields (SXG) is an Australian mining and exploration company with potential near term production from two gold projects located at Marda in the Southern Cross region of Western Australia. Southern Cross Goldfields has significant exploration tenure within the Southern Cross region and is looking to develop two prospects, referred to by their exploration target names as Fiddleback and Red Legs, collectively called the Marda East Project. This is located 35 km north-east of SXG's Marda Central Project along the Bulfinch-Evanston road. The Fiddleback and Red Legs prospects are located on the south eastern foot slopes of the Die Hardy Range approximately 140 km north of Southern Cross and are connected to the Bulfinch-Evanston road by a 3.68 km Haul Road, Appendix 1. The prospects are on the former Diemals Pastoral Station lease that is currently destocked and not being used for cattle production. The Marda East project is located within the Southern Cross sub-region of the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion as described in Thackway & Cresswell (1995), Appendix 2.

Southern Cross Goldfields will require approval under the *Environmental Protection Act WA* (1986) for the proposed development of the Fiddleback and Red Legs prospects. Western Botanical was commissioned in October 2012 to conduct a flora and vegetation survey of the Red Legs prospect, Fiddleback prospect and the Haul Road connecting these prospects collectively referred to herein as the project area. The objectives were to develop an inventory of the flora, with particular focus on identifying and quantifying conservation significant flora species; mapping the vegetation at an appropriate scale; and identifying any Threatened or Priority Ecological Communities (TEC's / PEC's) or conservation significant vegetation present within the project area.

A Level 2 Flora and Vegetation assessment was completed in accordance with the Environmental Protection Authority (EPA) Position Statement No. 3 "Terrestrial Biological Surveys as an element of Biodiversity Protection" (EPA 2002) and the EPA guidance Statement No. 51 "Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia" (EPA 2004). The results of this survey will be used to assist in preparation of applications for government approval.

1.2 Physical Environment

1.2.1 Geology and Biogeography

The soils and landforms of the Southern Cross IBRA sub-region are characterised by gently undulating uplands dissected by broad valleys with bands of low greenstone hills with an occluded drainage system. The valleys have Quaternary duplex and gradational soils and included chains of saline playa –lakes. The upper levels in the landscape are eroded remnants of a lateritic duricrust yielding yellow sandplains, gravelly sandplains and lateritic breakaways (Cowan 2001).

The Geological survey of Western Australia (GSWA) has completed 1:2,500,000 mapping across the Goldfields region. The project area lies on Archaean metamorphosed basic and ultra basic volcanic and intrusive rocks (GSWA 2014). The area forms part of the Yilgarn Craton, which makes up a significant portion of Western Australia and is one of the oldest, most geologically stable parts of the earth's surface (Gibson *et al.* 2007). The main components of the Yilgarn Craton are granite, interspersed with greenstone and banded iron formation (BIF) ranges.

The project area is located on the south eastern flanks of the Die Hardy Range, which is one of the many large BIF ranges within the region. The BIF ranges of the Yilgarn Craton make up a small portion of the land in the region, which is predominantly flat. They are ancient isolated features, exhibiting different geology, soils, and biological aspects to those found in the surrounding land. The ranges are known for their unique compositions of flora and fauna and for supporting rare and endemic plant species (DEC 2007). Based on survey information to date, each range is distinctly different from the other sampled ranges from an ecological perspective (DEC 2007).

1.2.2 Conservation Reserves in the Locality of the project area

The Marda East Project area currently resides within the Department of Parks and Wildlife (DPaW) Act Section 5(1)(h) proposed 'Conservation and Mining Reserve'. The project area borders The Mount Manning - Helena and Aurora Ranges Conservation Park at the south eastern corner of the Fiddleback prospect. An area encompassing a significant proportion of the Die Hardy Range has been nominated for inclusion in a proposed 'Class A' Nature Reserve. This proposed reserve abuts the north western boundary of the Red Legs prospect, Appendix 3. Additionally the Mount Manning Range Nature Reserve and Mount Manning Range Conservation Park are located approximately 10 km and 17 km east of the project area respectively.

1.2.3 Climate

The region experiences a semi-arid Mediterranean climate; hot dry summers, mild wet winters and 9 to 11 months of dry weather (Payne *et al.* 1998). The average monthly temperature, recorded approximately 140 km south of the project area at the Southern Cross Airfield (Weather Station no. 12320, between 1996 and August 2012) reaches a maximum of 37.3°C and minimum of 15.9°C during the summer months, and 18.7°C maximum and 0.6°C minimum during the winter months. The average annual rainfall, recorded approximately 12 km south west of the project area at the Windarling minesite (Weather Station no. 012141, between May 2004 and December 2013) was 269.1 mm (Bureau of Meteorology 2014).

The surveys conducted in October 2012 and November 2013 both followed below average winter rainfall periods. The 2012 and 2013 spring seasons were considered good with above average rainfall of 60.4 mm and 60.6 mm received (annual average 44.7 mm). Prior to the 2013 spring survey 241.2 mm of rainfall had been received over the preceding summer, autumn and winter periods, which is marginally above the annual average of 224.4 mm recorded across this same period since 2004 (Figure 1). The below average winter rainfall is considered to have contributed to a lower than expected number of annual taxa being present during the flora and vegetation surveys.

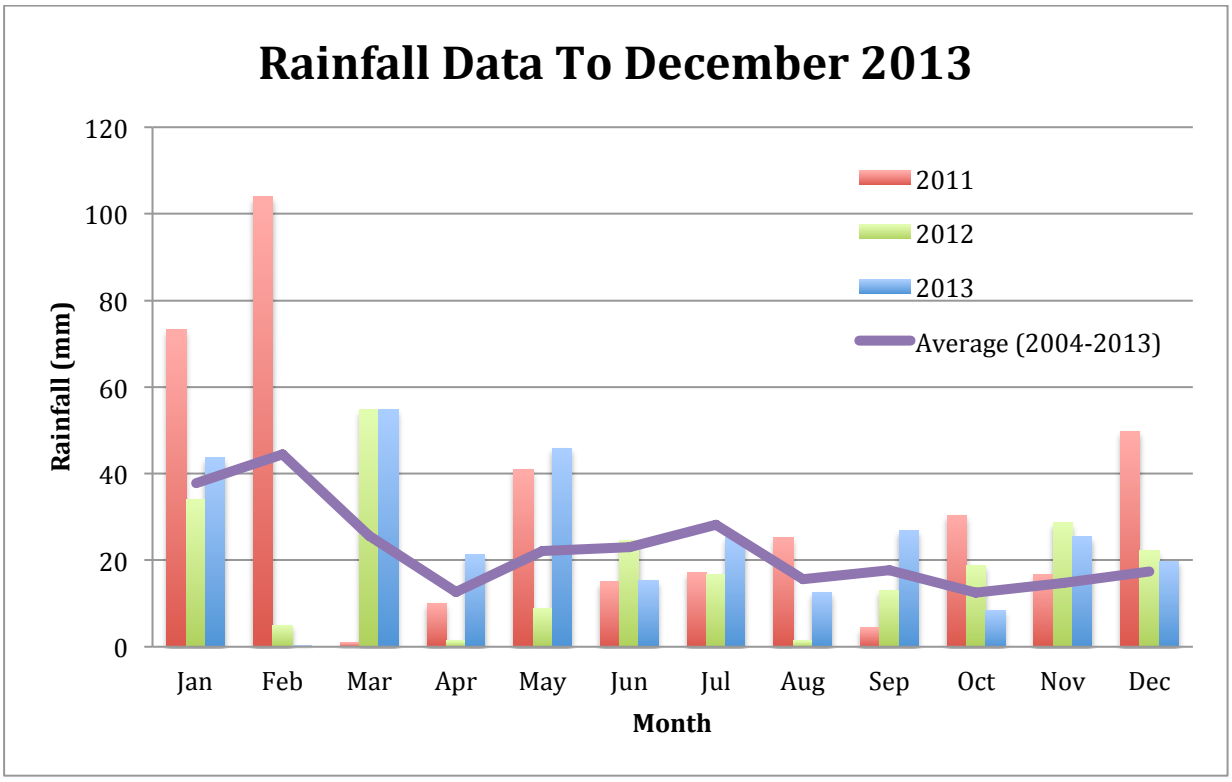

Figure 1. Rainfall recorded at Windarling Range from 2011 to December 2013, with the average taken from May 2004 to December 2013 observations (Bureau of Meteorology 2014)

1.3 Previous Regional surveys

The Marda East Project area has previously been included in broader scale vegetation mapping by Beard (1976) at a 1:1,000,000 scale. The Marda East Project lies within the Coolgardie Botanical district of the South Western Interzone (Beard, 1976). The project area intersects three of Beard's vegetation units with the majority of the area (129.56 ha) mapped as the Jackson 19 unit, (Appendix 4, Table 1).

Table 1. Beard (1976) Vegetation Mapping units recorded within the project area.

Beard Code	Description	Area mapped within the Marda East Project (Ha)
Jackson 141	Medium woodland; York gum, salmon gum and gimlet	22.54
Jackson 202	Shrublands; mulga (Acacia aneura) and Acacia quadrimarginea scrub	93.19
Jackson 19	Low Woodland: mulga (Acacia aneura) between sandridges	129.56

More recently Payne *et al.* (1998) conducted Land Systems (rangelands) mapping at a scale of 1:500,000 encompassing the project area. Land System mapping comprises repeating patterns of topography, soils, and vegetation. Payne *et al.* (1998) describes four Land Systems that extend over the Marda East Project; the Dryandra, Campsite, Moriarty, and Yowie Land Systems, described below (Table 2 and Appendix 5). The majority of the project area is mapped within the

Campsite System (171.02 ha) followed by the Dryandra System with 61.19 ha mapped. These two Land Systems represent 94.6% of the project area (245.29 ha).

Table 2. Land System units mapped within the Marda East Project area.

Land System Code	Land System Unit	Description
RGECAM	Campsite Land System	Alluvial plains (very gently inclined plains receiving sheet wash from mafic hills, gently undulating calcareous stony upper plains (erosional) and occasional narrow concentrated drainage tracts). It supports eucalypt woodlands with halophytic understoreys and eucalypt-acacia shrublands.
RGEDRY	Dryandra Land System	Conspicuous banded ironstone and jaspilite ridges and hills with hill slopes of variable country rock, relief up to 150 m or more, and supporting dense mixed shrublands with emergent native pines, mallees and casuarinas.
RGEYOW	Yowie Land System	Sandy plains with negligible surface drainage features, supporting shrublands of mulga and bowgada with common mallee eucalypts and patchy wanderrie grasses.
RGEMOR	Moriarty Land System	Low greenstone rises and stony plains, with local pockets of lateritic duricrust on weathered greenstone, very gently undulating plains with stony lag and alluvial plains with texture contrast soils, supporting chenopod, halophytic and acacia shrublands with patchy eucalypt over storeys.

1.4 Previous Local surveys

The Department of Environment and Conservation (DEC) now Department of Parks and Wildlife (DPaW) has conducted botanical surveys on a number of ranges in the region surrounding the Marda East Project. The closest areas surveyed were the Mount Manning Range approximately 20 km east (Gibson 2004), the Johnston range approximately 22 km north-west (Markey and Dillon 2011), and the Helena and Aurora Range 50 km south-east (Gibson *et al.* 1997) of the project area. These surveys did not present spatial vegetation mapping, rather they presented vegetation communities types defined using quadrat based sampling techniques and multivariate analysis. Although the Marda East Project was not included in these surveys, the vegetation associations identified during the surveys can be used for comparative purposes on a regional scale.

Other botanical survey works with local relevance to the project area that have been conducted and reported across the region including Flora and Vegetation of the Western Jackson Range (Mt Jackson Range) Western Australia (Western Botanical 2009), Deception Deposit Vegetation and Flora Survey (Biota 2011) and Flora and Vegetation of the Windarling Range (Western Botanical 2012). These surveys also provide a regional scale understanding of the types of vegetation associations in the region and can be used for comparative purposes.

1.5 Legislative and Administrative Levels of Flora Protection

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

• *The Wildlife Conservation Act 1950* (WA);

• *Environment Protection and Biodiversity Conservation Act 1999* (C'th); and

• *The Environmental Protection Act 1986* (WA).

In Western Australia, all native flora are protected under the *Wildlife Conservation Act 1950.* In addition to this, a number of flora are assigned further protection based on the number of known populations and the threats to these populations. The additional protection is assigned a ranking with flora considered of the highest conservation significance assigned Threatened species (T). These are species that 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. Threatened species (T) are further ranked into Critically Endangered (CR) considered to be facing an extremely high risk of extinction in the wild. Endangered (EN) considered to be facing a very high risk of extinction in the wild and Vulnerable (VU) considered to be facing a high risk of extinction in the wild. Flora that have not yet been adequately surveyed, and are considered of conservation significance are listed as Priority Flora ranked from Priority 1 through to Priority 5. The Department of Parks and Wildlife framework for ranking of these flora species of conservation significance is presented in Appendix 6.

At the Federal level, species of the highest conservation significance are listed as threatened species under the *Commonwealth EPBC Act 1986*. These include the majority, but not all, of the species listed as Threatened species (T) under the *Wildlife Conservation Act 1950*.

The *Environmental Protection Act 1986* is *'an Act to provide for an Environmental Protection Authority, for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing'*.

Under the *Environmental Protection Act 1986*, the clearing of native vegetation requires a permit, from the Department of Parks and Wildlife 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.

2 Methods

2.1 Desktop Review

2.1.1 Literature review

Background information was gathered from a number of publications prior to and during the early stages of the field program. Historical vegetation mapping by Beard (1976) and Pringle *et al*. (1998) provided a broad background and context of the vegetation associations likely to be encountered. More detailed descriptions of the flora and vegetation that occur across the region and likely to be present within the project area were sourced from Western Botanical (2009), Biota (2011) and Western Botanical (2012).

2.1.2 Database Searches

Three database searches were conducted utilizing the co-ordinate 119°23'32"E, 29°57'28"S as a central point for the Marda East Project.

1. Two NatureMap species reports were generated the first on the 15th of October 2012 with a 20 km buffer applied and the second on the 13th of November 2013, with a 10 km buffer applied, both presented in Appendix 7 (NatureMap 2012, 2013).
2. A search of the Department of Parks and Wildlife (DPaW) database for Priority Ecological Communities (PEC's) and Threatened Ecological Communities (TEC's) was conducted on 16th October 2012 using corner points for a polygon with the coordinates MGA Zone 50J, (NW) 7024446 mE, 6700117 mN and (SE) 743218 mE, 6641388 mN (DPaW 2012).
3. A search of the Department of Parks and Wildlife (DPaW) database for Threatened and Priority flora conducted on 16th October 2012 using corner points for a polygon with the coordinates MGA Zone 50J, (NW) 7024446 mE, 6700117 mN and (SE) 743218 mE, 6641388 mN (DPaW 2012).
4. An *Environmental Protection of Biodiversity and Conservation (EPBC) Act 1999* Protected Matters Search was conducted on 13th November 2013, with a 10 km buffer applied, the results are presented in Appendix 8 (SEWPaC 2013).

2.2 Field Survey Timing and Tasks

The field program was carried out over two periods detailed below:

The first survey was carried out between 17th to the 26th October 2012 by three Western Botanical botanists Geoff Cockerton, Emily Ager and Martin Henson. The survey covered an enlarged area inclusive of the Fiddleback and Red Legs prospects and the proposed connecting Haul Road. Here a Level 1 Flora and Vegetation survey of the Red Legs and Fiddleback prospects was conducted per EPA Guidance statement 51 (EPA 2004). During this survey vegetation association mapping was conducted to NVIS Level V (Association) level with 35 relevé sites recorded across the project area. Also during this survey searches for known conservation significant flora were conducted focusing on the proposed disturbance areas.

The second survey was carried out between 5th to 12th November 2013 by four Western Botanical staff Geoff Cockerton, Jonathan Warden, Emily Ager and Steven Cockerton. This survey was conducted over a reduced and more tightly defined survey area which included the Fiddleback and Red Legs prospects and the proposed connecting Haul Road. During this survey 32 permanent quadrats were established within the 2012 mapped vegetation associations, and the searches for conservation significant flora were completed across the entire project area. Some adjustments to the initial vegetation association mapping boundaries were made to refine the mapping during this survey.

2.3 Flora and Vegetation Association Mapping

Vegetation association mapping within the project area was conducted using high-resolution aerial photography at a scale of 1:10,000. This scale was considered sufficient to identify the changes in vegetation associations. The boundaries of vegetation associations were defined on the ground and marked on laminated A3 maps in the field, whilst all collected specimen data was entered directly into an MS Excel spreadsheet using a MacBook Pro laptop computer.

The vegetation associations within each prospect and the Haul Road were described at 35 representative relevé sites using Muir's vegetation classification system (Muir 1977). These were photographed and numbered according to type as follows: Shrublands with the prefix 1; Woodlands with the prefix 2; and Thickets with the prefix 3.

An overall systematic species list was created from the relevé data and opportunistic collections across the project area.

2.3.1 Traverses

Using the aerial photography the project area was studied to gather information for potential vegetation association changes. Changes in density and species composition of vegetation was considered and used to locate relevé and quadrat survey areas. Traverses were then conducted across the project area either on foot at irregular intervals or using a 4WD vehicle on tracks, with opportunistic collections being made for any flora not previously recorded. Survey tracks were recorded using handheld GPS.

2.3.2 Relevés

Relevé sites were established to record the flora present and the vegetation structure within vegetation associations at representative locations, with the data entered directly into an MS Excel spreadsheet using a MacBook Pro laptop computer. The area covered by each relevé site was approximately a 20 – 40 m radius from a centre point. It was intended to establish a minimum of three relevé sites within each vegetation association with good spatial separation for both the Fiddleback, Red Legs and Haul Road prospect areas.

The following parameters were recorded at each relevé site:

- **General:** Vegetation Association
  Date
  Botanists recording

- **Location:** Unique site number (R01, R02 to R39)
  Location within the Project area (Fiddleback, Red Legs, Haul Road)
  Coordinates recorded on handheld GPS, datum WGS84 (accuracy +/- 5 m)
  Digital photograph
- **Vegetation:** Species present (dominant species were noted)
  Structural description (based on Muir's vegetation classification system (Muir 1977)

2.3.3 Flora of Conservation Significance Species Search

The significant flora search was conducted across both the 2012 and 2013 survey periods. The 2012 survey included the targeted ore bodies in both the Fiddleback and the Red Legs prospects. Transects were traversed on foot by Botanists at 10 m apart over an area approximately 500 m by 600 m at the Red Legs prospect, and 20 m apart over an area approximately 500 m by 900 m at the Fiddleback prospect. All Priority flora encountered were counted and locations recorded using a Garmin GPS76 (accuracy to 5 m, WGS84).

The 2013 survey concentrated on the areas not covered during the 2012 spring survey, giving a comprehensive coverage across the entire project area. During this survey botanists traversed transects across the thickets and shrublands on foot at approximately 20 m apart, whilst within the open woodlands botanists were able to spread to approximately 40 m apart and be confident in capturing all significant flora present. All Priority flora encountered were counted and locations recorded using a Garmin GPS76 (accuracy to 5 m, WGS84).

2.3.4 Quadrats

Using the 2012 vegetation association mapping, quadrat sites were selected to achieve, where possible, at least three quadrat sites per described vegetation association. The quadrat sites were selected based on the best spatial orientation and representation of the vegetation association within the project area. The quadrats were 20 m x 20 m in size, except for the open woodland sites where 50 m x 50 m quadrats were established.

The quadrat corners were set up using a compass and 100 m measuring tapes to ensure the alignment was as accurate as possible and marked with galvanised steel fence droppers. Two of the corner droppers, always the north-west and south-east corners, were left as permanent markers in the field. These were marked with pink flagging tape and had the quadrat number written onto the post with permanent paint pen. These two permanent droppers were also used for recording waypoint positions and a digital photograph looking into the centre of the quadrat. The centroid of these two waypoints was calculated and used when presenting or displaying quadrat locations throughout this report.

The following parameters were recorded in field books at each quadrat site and presented in Appendix 9:

- **General:** Vegetation Association,
  Date

Persons recording
Quadrat size

- **Location:** Unique site number eg. Q01, Q02 etc.
  Project area eg. Fiddleback, Red Legs, or Haul Road.
  Coordinates recorded on handheld GPS, datum WGS84 (accuracy +/- 5 m)
  Digital photograph
- **Vegetation:** Species present - height and Projected Foliar Cover (PFC) for each species
  Species outside of the quadrat (but not noted within)
  Structural description (based on PFC of strata)
- **Disturbance:** Vegetation condition
  Fire Age
- **Surface:** Leaf litter cover
  Bare ground cover
  Cryptogam cover
  Dead standing timber
  Dead timber on ground

All taxa occurring within the quadrats were either recorded using the collection number from the field herbarium, or were collected and included in the field herbarium for future reference. Where the PFC for an individual taxon was calculated as being less than 0.25%, it was recorded as presence only.

2.4 Vegetation Condition

Vegetation condition was assessed according to the scale presented in Keighery (1994) (Appendix 10) that assesses impacts from clearing, weeds, grazing and disease. In 2012 the overall project area was assessed, with vegetation condition not recorded separately at each of the relevé sites. In 2013 however, the vegetation condition was assessed at each of the quadrat sites across the project area, giving a more accurate description of the vegetation condition across the project area.

2.5 Flora Specimen Identification

During the 2012 vegetation association and Priority Flora mapping field survey, all flora specimens that either were not readily identified in the field or were considered having conservation or taxonomic interest were collected for further identification using the resources at Western Botanical and the West Australian Herbarium. Each specimen was recorded with a field name, date, prospect location, relevé number, collectors' names, vegetation unit, waypoint coordinates, and photo number (if taken).

During the 2013 Level 2 survey, specimens of each taxon encountered within the project area were collected and given a unique number with a project specific alpha prefix DH (Die Hardy) for example the first specimen collected was assigned the number DH001, the second DH002.

Specimens were assembled into two field herbariums during the Quadrating field survey, with each specimen displaying the field name and collection number. This allowed for taxa to be noted as present in the quadrats by recording the collection number from the field herbarium, rather than recollecting excessive duplicate material.

On return from the field survey, as part of the specimen processing, once a collection was identified and had its name confirmed it had its current known range checked on Florabase. The Australian virtual herbarium (AVH) website was also used for this purpose as it holds records of specimen collections from all the Australian herbaria (CHAH 2014). All Priority Flora species and range extensions were also submitted to the West Australian Herbarium. All specimens collected were assigned a Western Botanical unique number and entered into the Western Botanical flora database.

2.6 Floristic Analysis

Data from both the quadrat and relevé sites were entered into a MS Access database (Griffin 2012). This database was then used to export site information for presentation and vegetation association floristic analysis.

Statistical analysis of all sites within the project area was conducted to investigate the relationship between the vegetation associations defined in the field. As PFC was not collected for species at the relevé sites, two separate data sets were examined. The first focused on the presence/ absence of species at the combined relevé and quadrat sites, whilst the second concentrated on the PFC of species at the quadrat sites only.

All taxa that only occurred once within each data set (singletons) were removed from the data. The presence/absence and PFC data sets were then imported into the statistical program PATN v 3.12 (Belbin 2010) for analysis.

The presence/absence and PFC data sets were analysed in PATN using the Bray and Curtis association measure and agglomerative hierarchical fusion classification strategy to produce a fusion dendrogram. Each dendrogram was then used to aid in the interpretation of the relationships between each site by organising the dendrogram output into most similar groups, and then assigning three group levels to each of the two data sets. The group levels were determined by calculating the square root of the number sites (for example the square root of the 71 quadrat and relevé sites, presence/absence data set is 8.43, and the 32 quadrat sites making up the PFC data set is 5.65). This resulted in the ten, 20 and 40 group levels for the presence/absence data set and the seven / 15 and 30 group levels for the PFC data set.

2.7 Fauna

All Malleefowl (*Leipoa ocellata*) mounds and activity opportunistically encountered during both surveys were recorded with a waypoint and digital photograph.

2.8 List of Participants

Field Surveys

Jonathan Warden B.Sc. (Biol) *Licence No. – SL010149*

Geoff Cockerton B.Sc. (Biol) *Licence No. – SL010135*

Martin Henson BEnvSci.(Hon) *Licence No. – SL010142*

Emily Ager B.Sc.(Hons) (Nat. Res. Man.) *Licence No. – SL010132*

Steven Cockerton

Specimen Identification

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Geoff Cockerton B.Sc. (Biol) *Licence No. – SL010135*

Emily Ager B.Sc. (Hons) (Nat. Res. Man.) *Licence No. – SL010132*

Data Analysis

David Leach PhD. Plant Biology BAppSci (Hons)(Cons. & Park Man.)

Jonathan Warden B.Sc. (Biol)

Report Preparation

Jonathan Warden B.Sc. (Biol)

Emily Ager B.Sc.(Hons). (Nat. Res. Man.)

Simon Colwill B.Sc. (Env Biol)

Report Review

Geoff Cockerton B.Sc. (Biol)

2.9 Limitations of Methodology

- The field program consisted of two site visits conducted during mid spring 2012 and late spring 2013. Although the timing for both these surveys is considered appropriate, to meet the multi season requirements set out in the EPA guidance Statement No. 51, the surveys were conducted following two poor winter rainfall seasons meaning the annual / ephemeral and geophyte species expected were significantly under represented across the project area in both surveys. There would be some benefit in conducting a follow-up survey in spring after good winter rains.

- The scope allowed for conservation significant flora searches to be restricted to the project area. Therefore the local context for the distribution and numbers of the four priority flora of conservation significance that could potentially be located adjacent to but outside the project area could not be ascertained. However, access to both DPaW and proprietary databases (courtesy of Cliffs Natural Resources and Polaris Metals) on the known occurrences of the noted priority species was available and was used to discuss local regional context of these species.

- Cryptogams, lower order flora and fungi were not sampled as part of the survey.

- Vegetation condition was not mapped but noted only within the relevé and Quadrat data. However, the majority of sites were recorded as 'Pristine' and the only impacts on vegetation condition were existing tracks and roads.

- The occurrences of vegetation associations outside the project area were not assessed in either field survey period and therefore local and regional context for the distribution of the described vegetation associations adjacent to the project area can not be calculated.

- The areas of occurrence of the vegetation associations 1.4, 2.6 and 3.1 within the Project area are small and therefore the number of survey sites able to be established within these vegetation associations is insufficient to provide a good representation of the species present for statistical analysis. However, we are confident of having captured a full species list, within seasonal limitations, of these communities.

- There is currently no comprehensive regional data set available for the Coolgardie Bioregion that can be used to compare vegetation associations or classification groups at the scale presented for this project.

3 Results

3.1 Desktop Review

3.1.1 Database Searches

The first NatureMap search conducted in October 2012 presented a total of 345 known flora species occurring within a 20 km radius of the Marda East Project (Appendix 7). Twenty-five of these are listed by the Department of Parks and Wildlife (DPaW) as Threatened or Priority Flora, including three Threatened (T) species, four Priority 1 (P1), two Priority 2 (P2) (note NatureMap database error with the inclusion of one P2 species, *Calytrix paucicostata,* in this search), 12 Priority 3 (P3) and four Priority 4 (P4) species.

A second NatureMap search conducted in November 2013 presented a total of 205 flora species occurring within a 10 km radius of the Marda East Project (Appendix 7). Fifteen of these are listed by the Department of Environment and Conservation (DEC) as Threatened or Priority Flora, including two Threatened (T) species, two Priority 1 (P1), one Priority 2 (P2) (note NatureMap database error for the inclusion of *Calytrix paucicostata* P2*,* in this search), eight Priority 3 (P3) and two Priority 4 (P4) species (Table 3).

Table 3. NatureMap search results from within a 20 km radius (2012) and a 10 km (2013) radius of the Marda East Project

Conservation Status	Family Name	Genus	Species	2012 (20km radius)	2013 (10km radius)
T	Euphorbiaceae	*Ricinocarpos*	*brevis*	√	
	Elaeocarpaceae	*Tetratheca*	*paynterae* subsp. *cremnobata*	√	√
	Elaeocarpaceae	*Tetratheca*	*paynterae* subsp. *paynterae*	√	√
P1	Casuarinaceae	*Allocasuarina*	*tessellata*	√	√
	Myrtaceae	*Baeckea*	*ochropetala*	√	
	Myrtaceae	*Baeckea*	sp. Die Hardy Range (E. Mattiske J91)	√	√
	Rutaceae	*Philotheca*	*deserti* subsp. *brevifolia*[1]	√ (2012)	
P2	Myrtaceae	*Calytrix*	*paucicostata* [2]	√	√
	Myrtaceae	*Malleostemon*	sp. Adelong (G.J. Keighery 11825)	√	
P3	Poaceae	*Austrostipa*	*blackii*	√	
	Myrtaceae	*Baeckea*	sp. Parker Range (M. Hislop & F. Hort MH 2968)	√	

[1] *Philotheca deserti* subsp. *brevifolia* had the Priority 1 status reviewed during 2013 and due increased knowledge of its current known populations and their distribution it is now considered as a Priority 3 species

[2] *Calytrix paucicostata* occurs in the northern Geraldton Sandplains IBRA region and it's inclusion in the results from DEC Database for this project is considered a database error.

Conservation Status	Family Name	Genus	Species	2012 (20km radius)	2013 (10km radius)
	Rutaceae	*Philotheca*	*deserti* subsp. *brevifolia*		√ (2013)
	Proteaceae	*Grevillea*	*eriobotrya*	√	
	Proteaceae	*Grevillea*	*georgeana*	√	√
	Cyperaceae	*Lepidosperma*	*ferricola*	√	√
	Cyperaceae	*Lepidosperma*	sp. Pigeon Rocks (H. Pringle 30237)	√	
	Rutaceae	*Philotheca*	*coateana*	√	
	Ericaceae	*Melichrus*	sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)	√	√
	Fabaceae	*Mirbelia*	*ferricola*	√	√
	Lamiaceae	*Spartothamnella*	sp. Helena & Aurora Range (P.G. Armstrong 155-109)	√	√
	Rhamnaceae	*Stenanthemum*	*newbeyi*	√	√
	Ericaceae	*Styphelia*	sp. Bullfinch (M. Hislop 3574)	√	√
P4	Myrtaceae	*Baeckea*	sp. Pigeon Rocks (D. Grace DJP 281)	√	
	Proteaceae	*Dryandra*	*arborea* [3]	√	√
	Myrtaceae	*Eucalyptus*	*formanii*	√	√
	Proteaceae	*Grevillea*	*erectiloba*	√	

3.1.2 Threatened and Priority Ecological Communities

The Department of Parks and Wildlife (DPaW), formerly Department of Environment and Conservation (DEC), define an ecological community as a naturally occurring biological assemblage that occurs in a particular type of habitat. A Threatened Ecological Community (TEC) is one which is found to fit into one of the following categories; "presumed totally destroyed", "critically endangered", "endangered" or "vulnerable" (DEC 2010).

No Threatened Ecological Communities (TECs) were located within the Marda East Project area.

A Priority Ecological Community (PEC) is a possible Threatened Ecological Community that does not meet survey criteria or that is not adequately defined, these communities are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community, and evaluation of conservation status, so that consideration can be given to their declaration as Threatened ecological communities (DEC 2010). The DPaW definitions for TEC/PEC's are presented in Appendix 11.

The Priority One (P1) Die Hardy Range / Diemals vegetation complex (banded ironstone formation), Priority Ecological Community (PEC) covers an area of 10,547.54 ha and follows

[3] *Dryandra arborea* is a nomenclatural synonym for *Banksia arborea*

the Banded Ironstone Formation geology of the Die Hardy Ranges and the adjacent Yokradine Hills, inclusive of the midslopes, lower slopes and portions of the adjacent plains Appendix 12.

The Marda East Project area intersects the Priority One (P1) Die Hardy Range / Diemals vegetation complex (banded ironstone formation), with 107.18 ha within the project (representing 1.02 % of the total PEC). The Red Legs prospect lies almost entirely (81.24% of the Red Legs prospect) within the PEC and has 52.84 ha within the PEC boundary (representing 0.5% of the PEC), and the Fiddleback prospect has 53.63 ha within the PEC boundary PEC (0.5% of the PEC) Appendix 12.

A total of ten of the twelve vegetation associations described and mapped across the Marda East Project area were mapped completely or partly within the PEC boundary. Of the ten described within the PEC boundary, eight are proposed to be impacted. The vegetation association mapping results and an assessment of potential impacts to the PEC are presented within section 3.2.3 of this report.

3.2 Field Survey

3.2.1 Flora

Across the Marda East Project area, a total of 171 native flora species identified from 74 genera and 34 families Appendix 13. The majority of these are widespread and well represented in the northern Yilgarn region and the western Coolgardie Biogeographic region while some are characteristic of the vegetation associated with the Banded Ironstone formations of the northern Yilgarn region. Table 4 presents the dominant plant families and genera with the project area.

Table 4. Number of native taxa recorded within the dominant families and genera.

Family	Number of Native Taxa
Fabaceae	34
Myrtaceae	21
Scrophulariaceae	15
Chenopodiaceae	13
Poaceae	9
Proteaceae	7
Asteraceae	6
Malvaceae	6
Rutaceae	6
Genus	**Number of Native Taxa**
Acacia	27
Eremophila	15
Eucalyptus	13
Dodonaea	5
Olearia	5

Whilst the total number of taxa recorded within the project area can be considered a good representation of the perennial flora present, the poor winter conditions prior to both surveys meant the number of annual and geophytic[4] perennial species was lower than would normally be expected. Plotting the species accumulation from the quadrat and relevé sites shows 138 taxa were recorded across the 67 sites, with the graph showing very few new taxa being recorded across the later sites (Figure 2). The species accumulation curve demonstrates the survey effort was sufficient to record the majority of the species present across the site at the time of the survey. This is demonstrated by the flattening out of the accumulation curve, however this data only includes the data recorded at the quadrat and relevé sites and does not include the 33 additional opportunistic collections made across the project area during the flora of Conservation significance searches. Added to this, the low winter rainfall before the surveys meant the ephemeral and geophyte species were under represented at the time of survey.

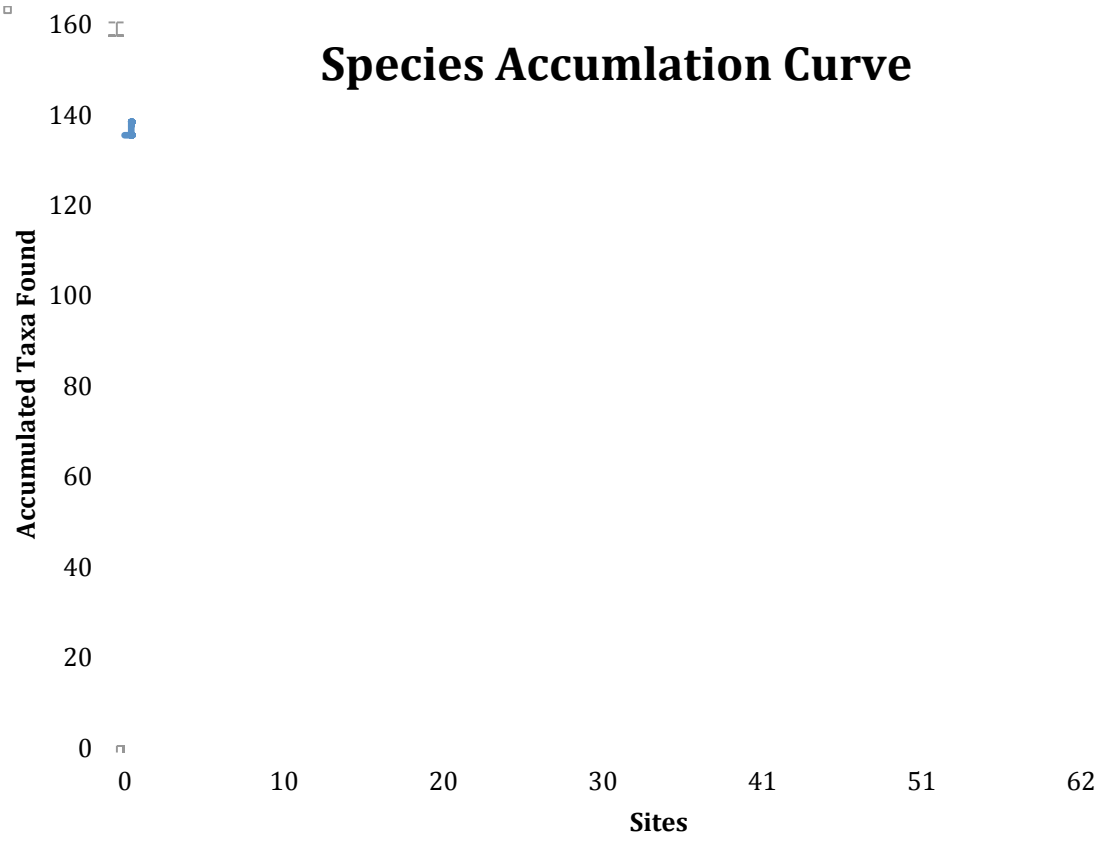

Figure 2. Site species accumulation curve

3.2.2 Flora of Conservation Significance

No rare flora species declared under the *Wildlife Conservation Act 1950* (WA) or Threatened flora species listed under the *Environment Protection and Biodiversity Conservation Act 1999*

[4] A geophyte is a perennial species with perennial underground parts and ephemeral above ground parts and may not be readily noted other than in favourable seasons and when actively growing.

(C'th) were recorded within the project area. There were four Priority flora species encountered within the project area, *Grevillea georgeana* (P3), *Mirbelia ferricola* (P3), *Dryandra arborea* (P4), and *Eucalyptus formanii* (P4). A brief description and the current known regional distribution of these species is given below. Appendix 14 provides a map that presents track logs accumulated during the field survey, demonstrating the survey intensity across the entire project area.

The flora of conservation significance search within the Marda East Project located a total of 2,347 *Grevillea georgeana* (P3), 308 *Mirbelia ferricola* (P3), 1,356 *Eucalyptus formanii* (P4), and 287 *Dryandra arborea* (P4) individuals (Appendix 15). These Priority species are known to occur elsewhere within the Die Hardy Range adjacent to the project area and in association with the Banded Ironstone Formation (BIF) ranges in the broader northern Yilgarn region. A full list of Priority Flora locations is presented in Appendix 16.

The Red Legs prospect contained many more Priority flora with 1,093 *Eucalyptus formanii* making up the dominant upperstorey in vegetation association 2.4, as well as being scattered throughout vegetation association 3.2. The banded ironstone hill in the west of the prospect (vegetation association 1.2) supported 281 *Dryandra arborea* (P4), 2,347 *Grevillea georgeana* (P3) and 308 *Mirbelia ferricola* (P3) individuals, with the *Grevillea georgeana* continuing off the ridge in a north easterly direction and into surrounding vegetation association 3.3.

The four flora of conservation significance encountered within the project area are described below. Proposed impacts to Priority Flora from infrastructure and mine development are also discussed. Table 5 presents a summary of the Potential impacts to conservation significant flora within the Project area.

Table 5. Number of Conservation Significant Flora recorded and proposed Impacts across the Marda East Project

Conservation Status	Family Name	Genus species	Location	Total Numbers Recorded	Total Numbers Impacted	% impacted within the Project
P3	Proteaceae	*Grevillea georgeana*	Red Legs Haul Road	2,347	477	20.32%
P3	Fabaceae	*Mirbelia ferricola*	Red Legs	308	163	52.92%
P4	Proteaceae	*Dryandra arborea*	Red Legs Fiddleback Haul Road	287	33	11.49%
P4	Myrtaceae	*Eucalyptus formanii*	Red Legs Fiddleback Haul Road	1,356	44	3.24%

Grevillea georgeana (Priority 3)

Grevillea georgeana (P3), a member of the Proteaceae family, is an open, prickly, spreading to rounded shrub growing from 1 to 3 m high, producing bright red (rarely yellow cream) flowers in a terminal raceme between September to March (Western Australian Herbarium 2014). It occurs on brown loams in open shrubland on plains or on rocky slopes of ironstone hills. It is

usually restricted to the rocky outcrops along ridges, but can occur in reasonably high numbers within its restricted habitat, particularly after disturbance (fire, soil disturbance).

There are currently 48 vouchered specimens at the WA Herbarium, all occurring in the Coolgardie and Murchison IBRA regions. The species occurs on ranges north of Southern Cross between Koolyanobbing and Diemals, including Mt Finnerty, Mayfield, Highclere Hills, Die Hardy Range, Helena and Aurora Range, Mt Dimer, Mt Manning Range, Kangaroo Hills Timber Reserve, Hunt Range and Mount Correll (Western Australian Herbarium 2014) Plate 1.

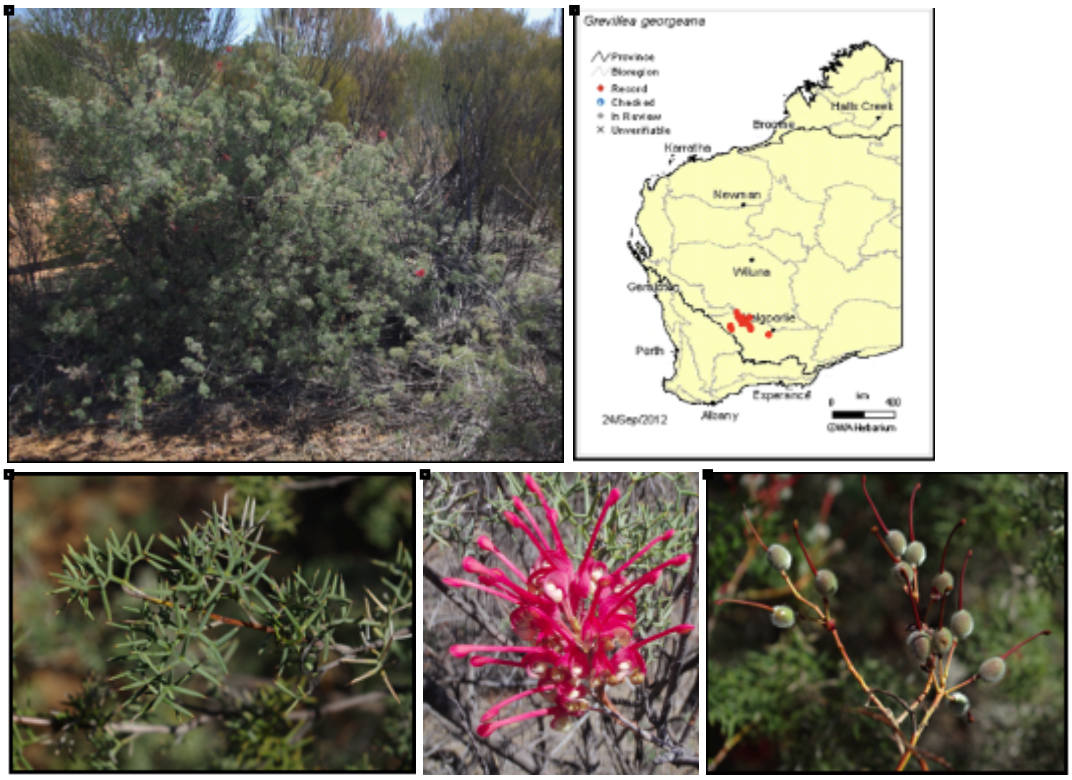

Plate 1. *Grevillea georgeana* (P3) photos (taken by G. Cockerton 2012) and distribution map (Western Australian Herbarium 2014)

A total of 2,347 *Grevillea georgeana* (P3) plants were recorded on lateritic gravely soils within the Red Legs prospect and Haul Road alignment, with 477 of these located within the proposed mine and infrastructure footprint. This represents 20.32% of the population within the project area (Appendix 15). No searches for *Grevillea georgeana* (P3) were conducted outside of the project area, however, the DPaW database Threatened and Priority flora search shows records for this species located within 3 km north, south and west of the Marda East Project area. Regional data recorded for Cliffs Natural Resources and Polaris Metals Pty Ltd shows a further 8,692 *Grevillea georgeana* (P3) individuals have been recorded regionally and are not currently impacted from mining or exploration activities (Table 6.). Therefore based on these figures, the removal of 477 *Grevillea georgeana* (P3) plants through the implementation of this proposal is not considered to significantly impact the local or regional populations of *Grevillea georgeana* (P3).

Table 6. Regional locations and recorded population numbers for *Grevillea Georgeana* (P3)

Regional Location	Number of *Grevillea georgeana (*P3) recorded	Totals at each location
Marda East Project	2,347	2,347
Windarling	0	0
Deception/ Die Hardy	1,661	1,661
Mt Finnerty	4,182	4,182
Mt Jackson	0	0
Helena Aurora Range	2,405	2,405
Koolyanobbing	0	0
Perrinvale	0	0
Other	444	444
Total		**11,039**
Total known outside Marda East Project		**8,692**

Mirbelia ferricola (Priority 3)

Mirbelia ferricola (formally *Mirbelia* sp. Helena and Aurora (B.J. Lepschi 2003), Butcher 2012) is a member of the Fabaceae family. It is an erect leafless shrub (the leaves are reduced to small ovate to triangular, acuminate scales), growing 1 to 3 m tall and 0.7 to 2 m wide. It produces yellow-brown flowers in September, and is apparently restricted to Banded Ironstone Formation (BIF) habitat type. It grows in shallow and lateritic soils on lower to upper slopes and crests of BIF massifs and lateritised banded ironstone with haematite, as well as on ledges and between rock cracks on BIF cliffs (Butcher 2012).

Mirbelia ferricola occurs on a number of BIF ranges in the semi-arid Yilgarn region of Western Australia including the Koolanooka Hills and Perenjori Hills, on the border of the Avon Wheatbelt-Yalgoo IBRA regions, as well as Mt Finnerty, Mt Manning, the Helena and Aurora Range, the Die Hardy Range and the Bremer Range in the Coolgardie IBRA region (Butcher 2012). This species has been observed as locally common after disturbance (fire, soil disturbance) but is less prevalent to absent in mature vegetation (G Cockerton pers. obs. at the Helena & Aurora Range). There are currently 25 vouchered specimens at the WA Herbarium (Western Australian Herbarium 2014) (Plate 2).

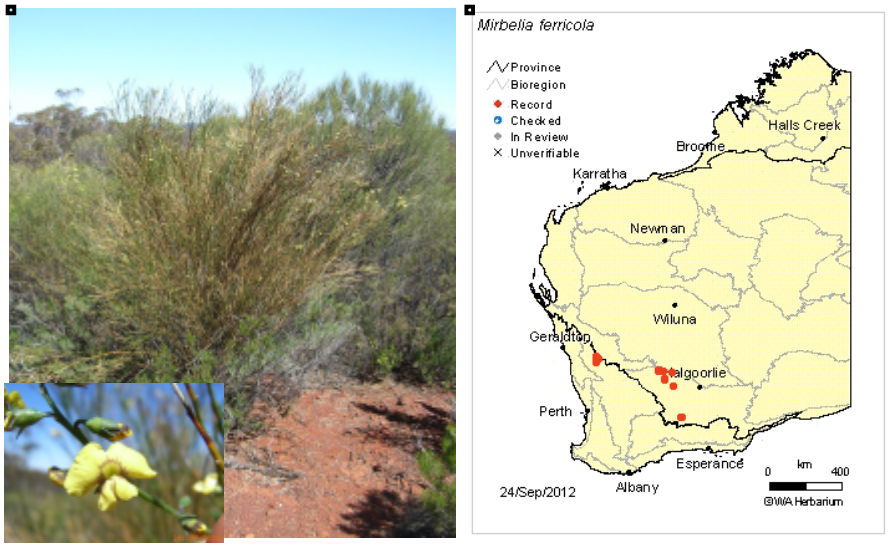

Plate 2. *Mirbelia ferricola* (P3) photo (taken by Ben Eckermann 2008) and distribution map (Western Australian Herbarium 2014)

A total of 308 *Mirbelia ferricola* (P3) plants were recorded within the Red Legs prospect, with 163 of these located within the proposed impact footprint. This represents 52.93% of the local population within the project area (Appendix 15). No local searches for *Mirbelia ferricola* (P3) were conducted outside of the project area, however, the DPaW database search shows records for this species located within 3 km north, south and west of the project area. Regional data recorded for Cliffs Natural Resources and Polaris Metals shows a further 3,611 *Mirbelia ferricola* (P3) individuals have been recorded regionally and are not currently impacted from mining or exploration activities (Table 7.). Therefore based on these figures the removal of 163 *Mirbelia ferricola* (P3) plants through the implementation of this proposal is not considered to significantly impact the local or regional populations of *Mirbelia ferricola* (P3).

Table 7. Regional locations and recorded population numbers for *Mirbelia ferricola* (P3)

Regional Location	Number of Mirbelia ferricola (P3) recorded	Totals at each location
Marda East Project	308	308
Windarling	0	0
Deception/ Die Hardy	170	170
Mt Finnerty	1,510	1,510
Mt Jackson	0	0
Helena Aurora Range	1,364	1,364
Koolyanobbing	0	0
Perrinvale	0	0
Other	567	567
Total		**3,919**
Total outside Marda East Project		**3,611**

Dryandra arborea (Priority 4)

Dryandra arborea, a member of the Proteaceae family, is the only inland *Dryandra* with a tree habit and the most inland species of the genus. It grows 2 to 8 m high, with a stout trunk, deeply fissured bark and spreading branches. It produces terminal bright yellow flowers and can flower at all seasons, providing there is adequate rainfall.

Dryandra arborea is restricted to shallow, rocky soil over hard clay subsoil on the slopes of banded ironstone hills in the northwestern Goldfields. There are currently 45 specimens vouchered at the WA Herbarium, from Manning Range, Die Hardy Range, Windarling Range, Mt Jackson Range, Bungalbin Hill, Koolyanobbing Range and Hunt Range (Western Australian Herbarium 2014) (Plate 3) where it is reasonably common within it's preferred habitat.

Note: *Dryandra arborea* is a synonym of *Banksia arborea.*

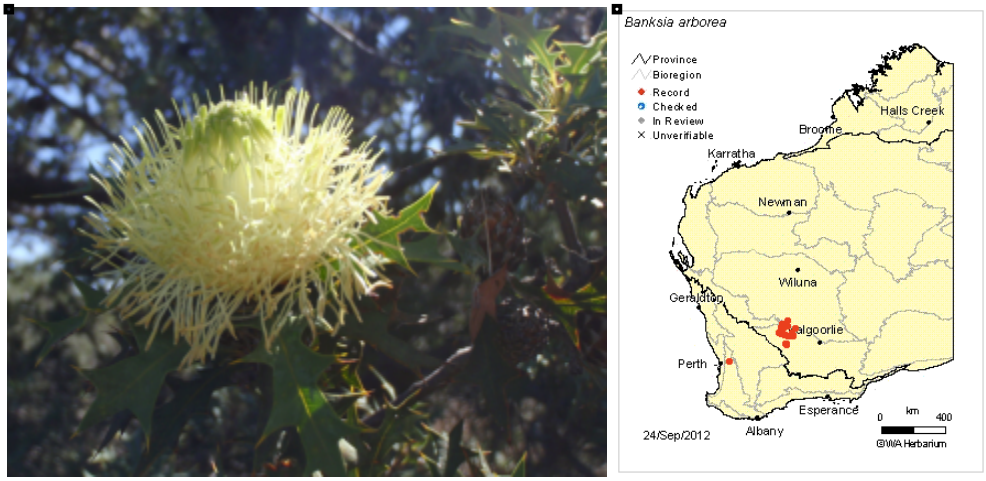

Plate 3. *Dryandra arborea* (P4) photo (Jonathan Warden 2012) and distribution map (Western Australian Herbarium 2014)

A total of 287 *Dryandra arborea* (P4) trees were recorded with 281 within the Red Legs prospect, 5 within the Fiddleback prospect and 1 within the Haul Road alignment. Thirty three of these trees are located within the proposed impact footprint. This represents 11.49% of the local population within the project area (Appendix 15). No searches for *Dryandra arborea* (P4) were conducted outside of the immediate project area, however, the DPaW database search shows records for this species located within 4 km north, south and west of the Marda East Project area. Regional data recorded for Cliffs Natural Resources and Polaris Metals Pty Ltd shows a further 13,591 *Dryandra arborea* (P4) individuals have been recorded regionally and are not currently impacted from mining or exploration activities (Table 8). Therefore based on these figures the removal of 33 *Dryandra arborea* (P4) trees through the implementation of this proposal is not considered to significantly impact the local and regional populations of *Dryandra arborea* (P4).

Table 8. Regional locations and recorded population numbers for *Dryandra arborea* (P4)

Regional Location	Number of Dryandra arborea (P4) recorded	Totals at each location
Marda East Project	287	287
Windarling	990	990
Deception/ Die Hardy	585	585
Mt Finnerty	0	0
Mt Jackson	326	326
Helena Aurora Range	4,791	4,791
Koolyanobbing	5,498	5,498
Perrinvale	1401	1,401
Other	0	0
Total		**13,878**
Total outside Marda East Project		**13,591**

Eucalyptus formanii (Priority 4)

Eucalyptus formanii (P4), a member of the Myrtaceae family, is a tree or mallee growing to 11 m high. It has distinctively narrow, upright, linear, glossy green leaves and flaky, fibrous bark on its lower trunk, with smooth cream-brown to pinkish grey branches (Centre for Plant Biodiversity Research, 2006). It's found on red sands and ironstone slopes and produces white flowers between December and April (Western Australian Herbarium 2014).

There are currently 64 vouchered specimens at the WA Herbarium, primarily occurring in the northern Yilgarn region, extending to the southern boundary of the Murchison Region. It has been recorded in surrounding areas at Windarling Range, Jackson Range, Helena & Aurora Range and northwest of the Die Hardy Ranges (Western Australian Herbarium 2014) (Plate 4).

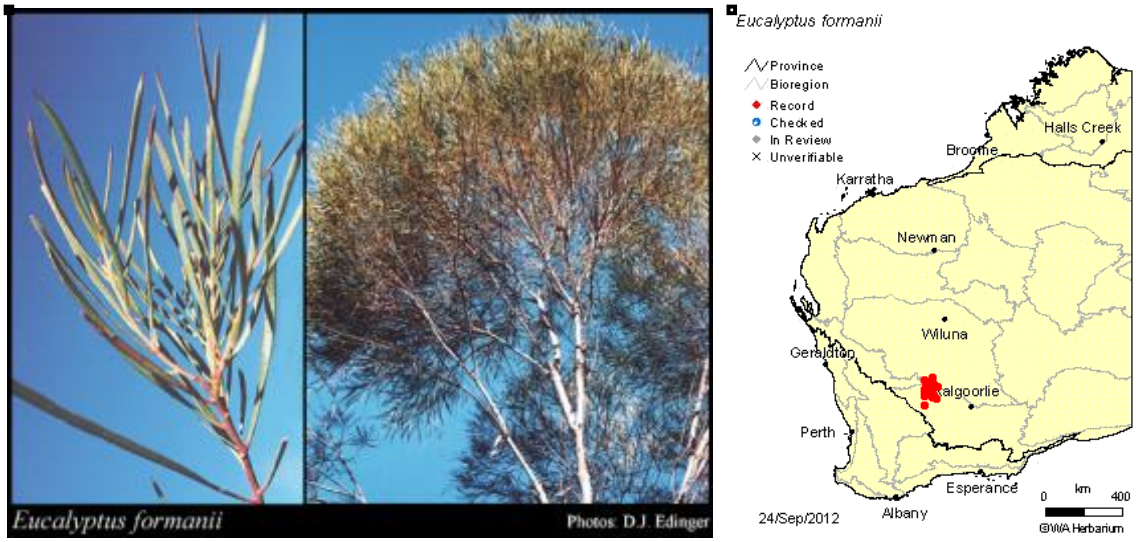

Plate 4. *Eucalyptus formanii* (P4) photo and distribution map (Western Australian Herbarium 2014)

A total of 1,356 *Eucalyptus formanii* (P4) trees were recorded within the Marda East Project with 1093 located within the Red Legs prospect, 203 within the Fiddleback prospect and 60 along the proposed Haul Road alignment. Where dominant in the vegetation, it is found on silty sands on level plains or on moderately inclined stony slopes of BIF rubble. It also occurs as a minor component in vegetation on loamy soils. A total of 44 *Eucalyptus formanii* (P4) trees are located within the proposed impact footprint, this represents 3.24% of the local population within the project area (Appendix 15). No local searches for *Eucalyptus formanii* (P4) were conducted outside of the project area, however, the DPaW database search shows records for this species located within 3 km north, surrounding the Marda East Project area. Regional data recorded for Cliffs Natural Resources and Polaris Metals shows a further 10,403 *Eucalyptus formanii* (P4) individuals have been recorded regionally that are not currently impacted from mining or exploration activities (Table 9). Therefore based on these figures the removal of 44 *Eucalyptus formanii* (P4) trees through the implementation of this proposal is not considered to significantly impact the local or regional populations of 44 *Eucalyptus formanii* (P4).

Table 9. Regional locations and recorded population numbers for *Eucalyptus formanii* (P4)

Regional Location	Number of Eucalyptus formanii (P4) recorded	Totals at each location
Marda East Project	1,356	1,356
Windarling	1,519	1,519
Deception/ Die Hardy	7,280	7,280
Mt Finnerty	0	0
Mt Jackson	412	412
Helena Aurora Range	343	343
Koolyanobbing	0	0
Perrinvale	190	190
Other	659	659
Total		**11,759**
Total outside Marda East Project		**10,403**

3.2.3 Vegetation Association Mapping

As part of the vegetation association mapping 32 quadrats were established within the project area and 35 relevé sites were established both within and just outside the reduced (revised 2013) project area. Of the 35 relevé sites 25 were within the project area and 10 were outside. Details of the location and the number of quadrats and relevé sites are presented in Table 10 . A map showing the location of the survey sites within the project area is presented in Appendix 17 along with a catalog of data recorded for each site in Appendix 18.

Table 10 Number and location of quadrat and relevé sites for each described Vegetation Association.

Vegetation Association Code	Location	Survey Site type			Total sites
		Number of quadrats	Number of relevé sites inside	Number of relevé sites outside	
1.1	Fiddleback Prospect	**3**	2		
	Haul Road	**1**	1		**7**
1.2	Red Legs Prospect	**3**	1	3	**7**
1.4	Red Legs Prospect	**1**	1		**2**
2.1	Fiddleback Prospect	**2**	2	1	
	Haul Road		1		**6**
2.2	Red Legs Prospect	**2**	1		
	Fiddleback Prospect	**1**	2		
	Haul Road	**1**	1		**8**
2.3	Red Legs Prospect	**3**	1		**4**
2.4	Red Legs Prospect	**3**	1	2	**6**
2.6	Red Legs Prospect	**2**	2		**4**
2.7	Fiddleback Prospect	**2**	1		
	Haul Road	**2**	3	1	**9**
3.1	Haul Road	**1**	2	1	**4**
3.2	Red Legs Prospect	**2**	2		**4**
3.3	Red Legs Prospect	**3**	1	2	**6**
Total Survey sites		**32**	**25**	**10**	**67**

A total area of 245.29 ha of vegetation was mapped within the Marda East Project area, with 12 vegetation associations identified across the project consisting of three Shrublands, six Woodlands and three Thickets (Table 11.). The Red Legs prospect (65.04 ha) contained eight vegetation associations, the Fiddleback prospect (143.65 ha) four associations and the Haul Road (36.06 ha) six associations. The vegetation associations were described based on the dominant structural formation, flora and cover using the structural classes presented in Appendix 10. These descriptions meet the requirements of the Level V *Vegetation Association* of the National Vegetation Information System (NVIS) (ESCAVI 2003). The distribution of the vegetation associations is presented in Appendix 19 (map of veg associations) with detailed descriptions and photographs of each association provided in Appendix 20.

Table 11. The 12 Vegetation Associations mapped across the Marda East Project area and proposed impacts

Vegetation Association Code	Vegetation Association Description Mapped across the Marda East Project	Area Mapped (ha)	Proposed Impacts (ha)	Proposed Impacts (%)
1.1	*Acacia aneura* over *Baeckea elderiana* Shrubland	12.37	5.47	44.21
1.2	*Dryandra arborea* (P4), *Acacia cockertoniana*, *A.* sp. Mt Jackson (B Ryan 178) over *Philotheca brucei* subsp. *brucei*, *Eremophila clarkei,* and *E. latrobei* subsp. *latrobei* with *Mirbelia ferricola* (P3) and *Grevillea georgeana* (P3) Shrubland	8.48	1.64	19.34
1.4	*Acacia cockertoniana, A. incurvaneura,* and *A.* sp. Mt Jackson (B Ryan 176) over *Olearia humilis,* and *Philotheca brucei* subsp. *brucei* Shrubland	0.79	0.00	0.00
2.1	*Eucalyptus corrugata, E. oleosa* subsp. *oleosa,* and *E. loxophleba* subsp. *lissophloia* with *E. formanii* (P4) Low Woodland A over *Acacia ramulosa* subsp. *ramulosa* over *Olearia muelleri*	16.99	2.47	14.53
2.2	*Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland A over *Acacia ramulosa* subsp. *ramulosa*, *A.* sp. narrow phyllode (BR Maslin 7831) over *Philotheca brucei* subsp. *brucei* and *Olearia muelleri*	124.31	22.20	17.86
2.3	*Eucalyptus corrugata* Low Woodland A over *Acacia cockertoniana* and *A. incurvaneura*	11.28	1.02	9.04
2.4	*Eucalyptus formanii* (P4) Low Woodland A over *Triodia rigidissima*	6.97	0.00	0.00
2.6	*Eucalyptus formanii* (P4), *E. corrugata*, *E. leptopoda* subsp. *subluta* Open Low Woodland A over *Acacia sibina, Allocasuarina acutivalvis* subsp. *acutivalvis* over *Acacia daviesioides*	4.73	0.14	2.95
2.7	*Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland over *Eremophila scoparia, Atriplex nummularia, A. bunburyana*	26.32	7.17	27.24
3.1	*Acacia sibina, A. aneura* Open Shrubland over *Baeckea elderiana* and *Euryomyrtus patrickiae* Heathland A	1.76	0.17	9.66

Vegetation Association Code	Vegetation Association Description Mapped across the Marda East Project	Area Mapped (ha)	Proposed Impacts (ha)	Proposed Impacts (%)
3.2	*Acacia effusifolia, A. heteroneura, A. sibina, Melaleuca hamata* Thicket with emergent *Eucalyptus leptopoda* subsp. *subluta* and *E. brachycorys*	13.68	1.13	8.26
3.3	*Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket with *Eucalyptus formanii* (P4) and *Grevillea georgeana* (P3)	17.61	7.16	40.66
Totals		**245.29 ha**	**48.57 ha**	**19.8%**

3.2.3.1 Red Legs Prospect

The eight vegetation associations described and mapped within the Red Legs prospect either partly or wholly lie within the boundary of the Priority 1 PEC, with 52.84 ha (81.24%) of the 65.04 ha mapped within the Priority 1 PEC. The proposed mine and infrastructure within the Red Legs prospect will impact 11.42 ha within six of the eight vegetation associations mapped, and 10.53 ha of this is within the Priority 1 PEC, representing 0.1% of the Priority 1 PEC.

The largest impacts will be to vegetation association 3.3 *Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket with *Eucalyptus formanii* (P4) and *Grevillea georgeana* (P3) representing 7.16 ha of the 17.61 ha (40.65%) mapped proposed to be impacted, followed by vegetation association 1.2 the *Dryandra arborea* (P4), *Acacia cockertoniana*, *A.* sp. Mt Jackson (B Ryan 178) Shrubland with 1.64 ha (19.34%) impacted, **Table 12.**

Table 12. Vegetation Associations mapped within Red Legs Prospect and Impacts from Proposed Mine Infrastructure

Vegetation Association Code	Total mapped within Marda East Project area (ha)	Total mapped within Red Legs Prospect (ha)	Total mapped within the Priority 1 PEC (ha)	Proposed Impacts within the Red Legs Prospect (ha)	Proposed Impacts within the Red Legs Prospect (%)	Proposed impacts to the Priority 1 PEC (ha)	Proposed impacts to the Priority 1 PEC (%)	Remaining Vegetation Association within the Red Legs Prospect (ha)
1.2	8.48	8.48	8.48	1.64	19.34	1.64	0.02	6.84
1.4	0.79	0.79	0.79	0.00	0.00	0.00	0.00	0.79
2.2	124.31	2.75	2.21	0.44	15.97	0.44	0.00	2.31
2.3	11.28	11.28	11.28	1.02	9.04	1.02	0.01	10.26
2.4	6.97	6.97	3.60	0.00	0.00	0.00	0.00	6.97
2.6	4.73	4.73	4.73	0.14	2.96	0.14	0.00	4.59
3.2	13.68	12.43	4.22	1.02	8.21	0.14	0.00	11.41
3.3	17.61	17.61	17.54	7.16	40.65	7.15	0.07	10.45
Total	**187.85 ha**	**65.04 ha**	**52.84 ha**	**11.42 ha**	**17.56%**	**10.53 ha**	**0.1%**	**53.62 ha**

3.2.3.2 Fiddleback Prospect

Three of the four vegetation associations described and mapped within the Fiddleback prospect partly lie within the boundary of the Priority 1 PEC with 53.63 ha of the 143.65 ha mapped within the Priority 1 PEC. Only 2.77 ha of the 53.63 ha of Priority 1 PEC mapped representing three vegetation associations are proposed as impact with in the mine and associated infrastructure footprint, this is equivalent to 0.03% of the Priority 1 PEC (Table 13).

The proposed mine will impact 33.30 ha within the four vegetation associations described at the Fiddleback prospect. Vegetation association 2.2 *Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland, with 19.57 ha proposed as impacted forms the majority (58.76%) of the area to be impacted. However, the proportional impacts within the Fiddleback prospect to vegetation associations 1.1 and 2.7 represent 5.39 ha (45.70%) and 5.97 ha (41.46%) respectively within this prospect. Whilst these impacts are significant at the prospect level, none of the vegetation associations described are considered significantly impacted at the project level (Table 13).

Table 13 Vegetation Associations mapped within Fiddleback Prospect and Impacts from Proposed Mine Infrastructure

Vegetation Association Code	Total mapped within Marda East Project area (ha)	Total mapped within Fiddleback Prospect (ha)	Total mapped within the Priority 1 PEC (ha)	Proposed Impacts within the Fiddleback Prospect (ha)	Proposed Impacts within the Fiddleback Prospect (%)	Proposed impacts to the Priority 1 PEC (ha)	Proposed impacts to the Priority 1 PEC (%)	Remaining Vegetation Association within the Fiddleback Prospect (ha)
1.1	12.37	11.78	5.69	5.39	45.70	0.73	0.01	6.40
2.1	16.99	15.85	11.07	2.38	14.99	1.47	0.01	13.47
2.2	124.31	101.62	36.87	19.57	19.26	0.57	0.01	82.05
2.7	26.32	14.40	0.00	5.97	41.46	0.00	0.00	8.43
Total	**179.99 ha**	**143.65 ha**	**53.63 ha**	**33.30 ha**	**23.18%**	**2.77 ha**	**0.03 %**	**110.36 ha**

3.2.3.3 Haul Road Alignment

The six vegetation associations (36.60 ha) described and mapped within the Haul Road alignment lay wholly outside the PEC boundary. However, four of the vegetation associations within the Haul Road alignment (1.1, 2.1, 2.2, and 3.2) also form part of the vegetation complex described within the Priority 1 PEC.

Vegetation association 2.2 *Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland, with 19.93 ha (54.45%) mapped and vegetation association 2.7 *Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland 11.92 ha (32.56%) mapped form the majority (87.01%) of the Haul Road alignment. Of the six vegetation associations described within the Haul Road five were recorded within both the Fiddleback and Red Legs prospects. Vegetation association 3.1 *Acacia sibina, A. aneura* Open Shrubland over *Baeckea elderiana* and *Euryomyrtus patrickiae* Heathland A was the only association unique to the Haul Road with 1.76 ha mapped and 0.17 ha proposed as impacted (Table 14.).

Table 14. Vegetation Associations mapped within the Haul Road Alignment and Impacts from Proposed Mine Infrastructure.

Vegetation Association Code	Total mapped within Marda East Project (ha)	Total Vegetation association mapped within Haul Road Alignment (ha)	Impacts from Proposed Haul Road Alignment (ha)	% Impacts from Proposed Haul Road Alignment	Remaining Vegetation Association within the Haul road Alignment (ha)	Remaining Vegetation Association within the Marda East Project area
1.1	12.37	0.58	0.09	14.70	0.50	6.90
2.1	16.99	1.14	0.09	8.30	1.04	14.52
2.2	124.31	19.93	2.19	11.01	17.74	102.11
2.7	26.32	11.92	1.20	10.07	10.72	19.15
3.1	1.76	1.76	0.17	9.58	1.59	1.59
3.2	13.68	1.26	0.11	8.71	1.15	12.55
Total	**195.43 ha**	**36.59 ha**	**3.85 ha**	**10.53 %**	**32.74 ha**	**156.82 ha**

3.2.4 Regional context of Proposed impacts to mapped Vegetation Associations

The authors are aware of many occurrences of some of the vegetation associations that have been mapped within the project area. A brief discussion of these known occurrences is presented in Table 15.

Table 15 Regional Context for the Vegetation Associations mapped across Marda East Project area

Vegetation Association Code	Vegetation Association	Notes on Vegetation Association occurrences outside the Marda East Project
1.1	*Acacia aneura* over *Baeckea elderiana* Shrubland	Within the PEC. Small areas of occurrence scattered in the western Coolgardie and Murchison Biogeographic Regions (BGRs), usually associated with shallow lateritic gravel on low chert rises. Also known at Mt Finnerty, Windarling, Mt Jackson, Perrinvale station and at Cliffs Natural Resources' Deception project.
1.2	*Dryandra arborea* (P4), *Acacia cockertoniana*, *A*. sp. Mt Jackson (B Ryan 178) over *Philotheca brucei* subsp. *brucei*, *Eremophila clarkei,* and *E. latrobei* subsp. *latrobei* with *Mirbelia ferricola* (P3) and *Grevillea georgeana* (P3) Shrubland	Within the PEC. A commonly encountered vegetation association of the stony hilltops of the BIF ranges in the Yilgarn BGR. Known from the Die Hardy Range west of the Marda East project area, Windarling Range, Cliffs Natural Resources' Deception project, Jackson Range, Koolyanobbing Range, Mt Manning Range, Helena and Aurora Range and Mt Finnerty.

Vegetation Association Code	Vegetation Association	Notes on Vegetation Association occurrences outside the Marda East Project
1.4	*Acacia cockertoniana, A. incurvaneura,* and *A.* sp. Mt Jackson (B Ryan 176) over *Olearia humilis,* and *Philotheca brucei* subsp. *brucei* Shrubland	Within the PEC. Not impacted by the Marda East project. A vegetation association that uncommonly encountered in the region. Known from Cliffs Natural Resources projects areas at Deception and Windarling Range.
2.1	*Eucalyptus corrugata, E. oleosa* subsp. *oleosa,* and *E. loxophleba* subsp. *lissophloia* with *E. formanii* (P4) Low Woodland A over *Acacia ramulosa* subsp. *ramulosa* over *Olearia muelleri*	Within the PEC Impacted by Marda East project. A vegetation association of gravely, loamy soils in upper broad drainage slopes and drainage lines, indicating non saline conditions. Known from the southern Windarling Range, the south-western Jackson Range and Cliffs Natural Resources' Deception deposit.
2.2	*Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland A over *Acacia ramulosa* subsp. *ramulosa*, *A.* sp. narrow phyllode (BR Maslin 7831) over *Philotheca brucei* subsp. *brucei* and *Olearia muelleri*	Within the PEC Impacted by Marda East project. A vegetation association of gravely, loamy soils in upper to mid slopes of BIF ranges. Known from the Windarling Range and the Jackson Range.
2.3	*Eucalyptus corrugata* Low Woodland A over *Acacia cockertoniana* and *A. incurvaneura*	Within the PEC Impacted by Marda East project. A vegetation association of gravely, loamy soils in upper to mid slopes of BIF ranges. Known from the Windarling Range and the Jackson Range.
2.4	*Eucalyptus formanii* (P4) Low Woodland A over *Triodia rigidissima*	Within the PEC Not impacted by the Marda East project. A vegetation association found on near level orange sandy soils in the Diemals region, known from the Deception deposit and south of the Windarling Range and Mt Elvire station.

Vegetation Association Code	Vegetation Association	Notes on Vegetation Association occurrences outside the Marda East Project
2.6	*Eucalyptus formanii* (P4), *E. corrugata*, *E. leptopoda* subsp. *subluta* Open Low Woodland A over *Acacia sibina, Allocasuarina acutivalvis* subsp. *acutivalvis* over *Acacia daviesioides*	Within the PEC Impacted by the Marda East project. Known only from the Marda East, Red Legs prospect area.
2.7	*Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland over *Eremophila scoparia, Atriplex* *Atriplex nummularia,* *A. bunburyana*	Outside the PEC. Impacted by the Marda East project. A widely distributed vegetation association of broad drainage lines with large areas of occupancy in the Coolgardie BGR (uncleared) and adjacent Avon Wheatbelt BGR (largely cleared). Indicative of clay surface soils and saline subsoils.
3.1	*Acacia sibina, A. aneura* Open Shrubland over *Baeckea elderiana* and *Euryomyrtus patrickiae* Heathland A	Outside the PEC. Not impacted by the Marda East project. Small area of occurrence associated with shallow lateritic gravel on low chert rises. Also known at Cliffs Natural Resources' Deception project.
3.2	*Acacia effusifolia, A. heteroneura, A. sibina, Melaleuca hamata* Thicket with emergent *Eucalyptus leptopoda* subsp. *subluta* and *E. brachycorys.*	Within the PEC Impacted by the Marda East project. One of the many variants of vegetation on the yellow sandplains of the Yilgarn region supporting Acacia thickets with emergent mallees. This association is only known by the authors from the Marda East project area. However, this association is likely more widespread in the local area on the gravely sandplains surrounding the Die Hardy Range.

Vegetation Association Code	Vegetation Association	Notes on Vegetation Association occurrences outside the Marda East Project
3.3	*Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket with *Eucalyptus formanii* (P4) and *Grevillea georgeana* (P3)	Within the PEC Impacted by the Marda East project. *Allocasuarina eriochlamys* thickets are commonly encountered in the western Coolgardie BGR and are known from the Mt Jackson range, the Koolyanobbing Range and a small area at the Deception prospect. The associated species can vary considerably. *Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket with *Eucalyptus formanii* (P4) and *Grevillea georgeana* (P3) vegetation association is only known by the authors from the Marda East project area.

3.2.5 Flora Specimen Identification

During the initial 2012 Level 1 vegetation association and Priority flora mapping field survey, 158 flora specimens were collected for further identification using the resources at Western Botanical and the West Australian Herbarium. A total of 152 native vascular flora species from 66 genera and 31 families were identified during the Marda East Project Level 1 survey. The majority of these are widespread and well represented in the northern Yilgarn region and the western Coolgardie Biogeographic Region while some are characteristic of the vegetation associated with the Banded Ironstone formations of the northern Yilgarn.

During the 2013 Marda East Project Level 2 quadrating and Priority flora mapping field survey, a total of 163 native vascular flora species from 71 genera and 34 families were identified. Across both surveys a total of 171 native flora species identified from 74 genera and 34 families (Appendix 13).

3.2.5.1 Undescribed Taxa recognised by WA Herbarium

The following taxa are currently undescribed or have been supplied manuscript names whilst awaiting publication and a formal description. None of the taxa below are listed as having conservation significance as they are common throughout the Coolgardie Bioregion.

- *Acacia* sp. Mt Jackson (B Ryan 176);
- *Acacia* sp. narrow phyllode (BR Maslin 7831)[5];

[5] *Acacia* sp. narrow phyllode (BR Maslin 7831) has had its status reviewed and is known as *Acacia acuminata* as of 21st January 2014.

- *Leucopogon* sp. Clyde Hill (MA Burgman 1207);
- *Olearia dampieri* subsp. Eremicola (Diels & Pritzel s.n. PERTH 00449628);
- *Ptilotus* sp. Goldfields (R. Davis 10796);
- *Sida* sp. Dark Green Fruits (S. van Leeuwen 2260);
- *Sida* sp. Golden calyces glabrous (H.N. Foote 32).

3.2.5.2 Undescribed Taxa not currently recognised by WA Herbarium

The five taxa listed below are recent Western Botanical recognised taxonomic variations that are yet to be formerly recognised with a manuscript name. None of these species are considered to have conservation significance.

- *Acacia erinacea (green upright form)*
- *Acacia erinacea (grey prostrate form)*
- *Scaevola spinescens (broad leaf non-spiny form)*
- *Scaevola spinescens (narrow leaf spiny form)*
- *Solanum lasiophyllum (ovoid fruit form)*

3.2.6 Range Extensions

Six taxa recorded within the project area represent range extensions of their current known distribution within Australia and are described below. These taxa and their range extensions are considered to be 50 km or greater from the previously recorded ranges.

3.2.6.1 Olearia dampieri subsp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)

Olearia dampieri subsp. Eremicola (Diels & Pritzel s.n. PERTH 00449628) is a shrub growing 0.6 to 2 m high and producing green, white or yellow flowers from May through to December. It has been recorded growing on red sand or grey/brown clay/loam with gravel. It is known from coastal dunes, salt flats, dry swamps and hill slopes. It is currently undescribed whilst awaiting publication and a formal description (Western Australian Herbarium 2014) Plate 5.

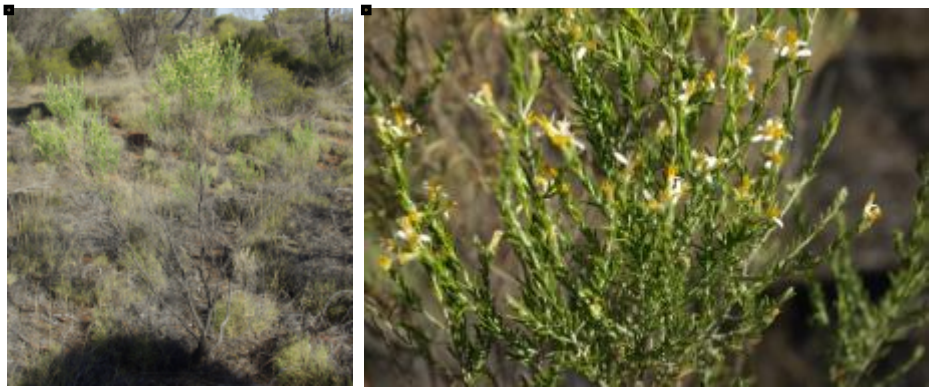

Plate 5. *Olearia dampieri* subsp. Eremicola (Diels & Pritzel s.n. PERTH 00449628) habit (Photos G. Cockerton)

The recorded distribution of *Olearia dampieri* subsp. Eremicola (Diels & Pritzel s.n. PERTH 00449628) is restricted to Western Australia, with over 139 records across the Avon Wheatbelt, Coolgardie, Esperance Plains, Geraldton Sandplains, Hampton, Jarrah Forest, Mallee, Murchison, Warren, and Yalgoo IBRA regions (Western Australian Herbarium 2014), Figure 3.

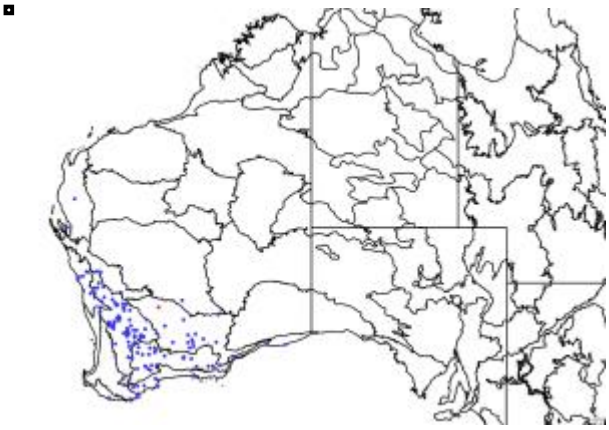

Figure 3. The IBRA regions of WA, blue dots show locations for recorded *Olearia dampieri* subsp. *Eremicola (Diels & Pritzel s.n. PERTH 00449628)* across various Australian Herbaria, the red dot represents the approximate location of the Project area (CHAH 2014).

3.2.6.2 Sclerolaena eriacantha

Sclerolaena eriacantha is an erect woolly perennial herb growing from 0.1 to 0.3m high. It flowers in August and has been found growing on outcrops, rocky hills and plains often associated with Clay, sandy clay, loam, red sand, stony soils (WA Herbarium 2014), Plate 6.

Plate 6. *Sclerolaena eriacantha* habit (WA Herbarium 2014)

Sclerolaena eriacantha has a wide distribution across Australia with 577 specimens currently held across various herbaria across Australia (CHAH 2014). Collections of *S. eriacantha* are distributed widely across Western Australia with over 114 records across the Carnarvon, Central Ranges, Gascoyne, Gibson Desert, Great Sandy Desert, Great Victoria Desert, Little Sandy Desert, Murchison, Pilbara, and Yalgoo IBRA regions (WA Herbarium 2014), Figure 4. A single record of *Sclerolaena eriacantha* was located at relevé 3 within the *Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland vegetation association 2.7, at the Fiddleback prospect.

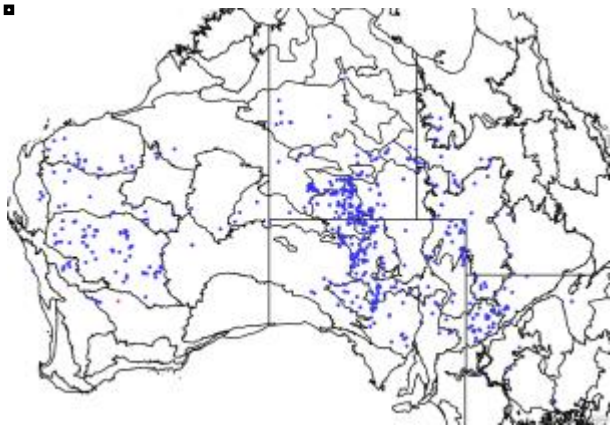

Figure 4. The IBRA regions of WA, blue dots show locations for recorded *Sclerolaena eriacantha* across various Australian Herbaria, the red dot represents the approximate location of the Project area (CHAH 2014)

3.2.6.3 Dampiera lavandulacea

Dampiera lavandulacea is an erect shrub, growing to 0.9 m high producing blue-white flowers from July through to November. It has been found growing on red-brown loam, grey or yellow clay over granite, brown sandy loam over laterite, ironstone gravel soils associated with rocky mid to upper slopes, wetland areas and plains (WA Herbarium 2014), Plate 7.

Plate 7. *Dampiera lavandulacea* habit (WA Herbarium 2014)

The recorded distribution of *Dampiera lavandulacea* is not restricted to WA with 664 specimens currently held across various Australian herbaria (CHAH 2014). However, the majority of the specimens on record to date are from Western Australia with 649 records across the Avon Wheatbelt, Coolgardie, Esperance Plains, Geraldton Sandplains, Great Victoria Desert, Jarrah Forest, Mallee, Murchison, Swan Coastal Plain, and Yalgoo IBRA regions (CHAH 2014), Figure 5. The specimen of this species was recorded within the Haul Road alignment and Red Legs prospect, no flowering material was available and the identification was made using sterile material.

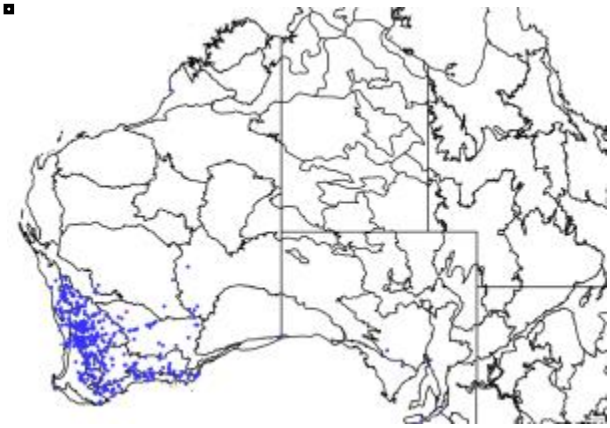

Figure 5. The IBRA regions of WA, blue dots show locations for recorded *Dampiera lavandulacea* across various Australian Herbaria, the red dot represents the approximate location of the Project area (CHAH 2014).

3.2.6.4 Calandrinia translucens

Calandrinia translucens is a semi-erect to erect, sometimes almost prostrate tuberous, perennial, herb that grows to 0.2 m high with pink to yellow flowers that occur between September and November. It has previously been recorded growing in orange to red clayey sand and is associated with clay pans and salt lakes (WA Herbarium 2014), Plate 8

Plate 8. *Calandrinia translucens* habit (Photo Jonathan Warden)

The recorded distribution of *Calandrinia translucens* is restricted to Western Australia, with over 37 records across the Avon Wheatbelt, Carnarvon, Coolgardie, Gascoyne, Geraldton Sandplains, Gibson Desert, Murchison and Yalgoo IBRA regions (CHAH 2014), Figure 6.

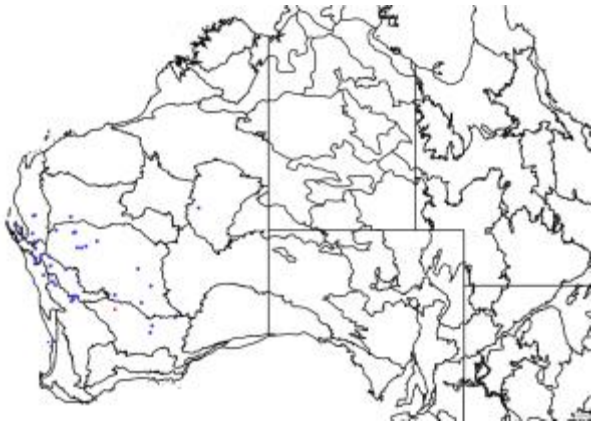

Figure 6. The IBRA regions of WA, blue dots show locations for recorded *Calandrinia translucens* across various Australian Herbaria, the red dot represents the approximate location of the Project area (CHAH 2014).

3.2.6.5 Beyeria sulcata var. brevipes

Beyeria sulcata var. *brevipes* is an erect shrub, growing to 2.0 m high producing flowers from March through to November. It has been recorded as growing on well drained sandy soils sometimes with gravel in mallee communities (Halford & Henderson 2008).

The recorded distribution of *Beyeria sulcata* var. *brevipes* is restricted to Western Australia in an area more or less bounded by Southern Cross, Coolgardie and Salmon Gums, with over 28 records across the Avon Wheatbelt, Coolgardie, Esperance Plains and Mallee IBRA regions (CHAH 2014), Figure 7.

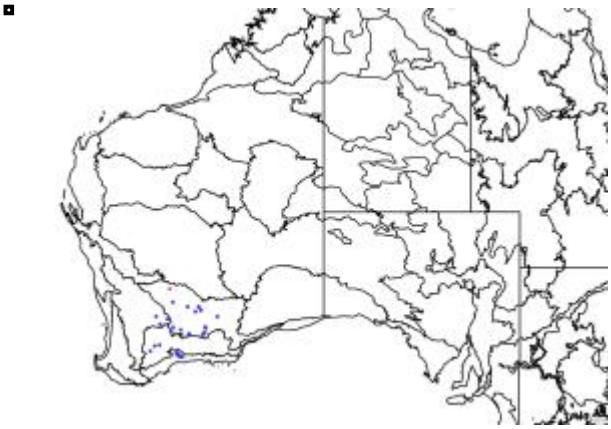

Figure 7. The IBRA regions of WA, blue dots show locations for recorded *Beyeria sulcata* subsp. *brevipes* across various Australian Herbaria, the red dot represents the approximate location of the Project area (CHAH 2014).

3.2.6.6 Leptosema daviesioides

Leptosema daviesioides is a prostrate to erect, pungent shrub, growing from 0.07 m to 1.2 m high producing red basal inflorescences from May to September. It has been recorded as mostly growing on sandy soils (WA Herbarium 2014) Plate 9.

Plate 9. *Leptosema daviesioides* habit (WA Herbarium 2014)

The distribution of *Leptosema daviesioides* is restricted to Western Australia with over 146 records across the Avon Wheatbelt, Coolgardie, Esperance Plains, Geraldton Sandplains, Mallee, Murchison, and Yalgoo IBRA regions, Figure 8 (CHAH 2014). The location of this species within the project area represents the most northerly record within the Coolgardie IBRA region.

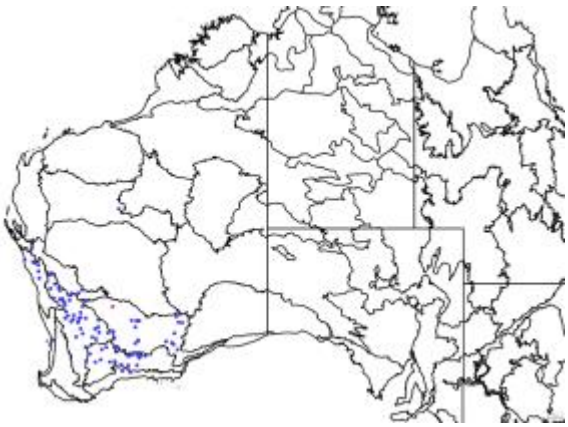

Figure 8. The IBRA regions of WA, blue dots show locations for recorded *Leptosema daviesioides* across various Australian Herbaria, the red dot represents the approximate location of the Project area (CHAH 2014).

3.2.7 Hybrids

A record of *Eremophila forrestii* x *latrobei* specimen was collected during the significant species search. These two *Eremophila* species have been found to hybridise readily in the past. The collection from the Fiddleback prospect was confirmed as a hybrid between *Eremophila forrestii* and *Eremophila latrobei* and is not considered as having any conservation significance.

3.2.8 Weeds

No introduced (weed) species were encountered during the flora and vegetation surveys.

3.2.9 Vegetation Condition

Vegetation condition was assessed at each of the quadrat sites according to the scale presented in Keighery (1994) (Appendix 10) that assesses impacts from clearing, weeds, grazing and disease. Vegetation condition was not assessed at the relevé sites in 2012. All but five quadrat sites were classed as pristine, the highest condition level attainable. Of the five quadrat sites not classed as pristine, four were classed as excellent in the next lowest classification reflecting the impacts caused by the disturbance from vehicles driving off tracks or cleared gridlines present within the quadrat. One quadrat site was classified as very good reflecting significant impacts from previous clearing that were regenerating naturally across the quadrat.

The vegetation condition was considered across the project area in 2012 to be in Excellent to Very Good condition. The vegetation structure was considered to be intact with the exception of the numerous old drill lines, drill pads and a number of access tracks previously cleared within the project area during exploration drilling. The regeneration on these tracks was considered to be more than a few years old, and recovering well.

3.3 Floristic Analysis

3.3.1 Overview

The analysis of all sites within the project area was conducted to investigate the relationships between the vegetation associations mapped in the field. The presence/absence and PFC data sets were analysed in PATN using the Bray and Curtis association measure and agglomerative hierarchical fusion classification strategy to produce a fusion dendrogram. Each dendrogram grouped the sites into discrete clusters based on the species composition, this was then used to aid in the interpretation of the relationships between each site by organising the dendrogram output into most similar groups.

3.3.2 Species PFC Site Dendrogram

The PFC analysis distributed the twelve described vegetation associations from the field into nine distinct groups, consisting of five woodlands, two thickets and two shrublands Appendix 21. The analysis neatly confirmed nine of the described vegetation associations recognised across the project area. Three vegetation associations 1.4, 2.6 and 3.1 were not considered separate and were amalgamated within the nine associations. These associations did not separate well during the analysis as they were only represented by single quadrats, due to the relative small areas of each vegetation association within the project area. The lack of comparative data resulted in these associations being placed within the most similar groups during the analysis and not separating into separate groups.

3.3.3 Species Presence/Absence Site Dendrogram

The species presence / absence site dendrogram analyzed both the quadrat and the relevé data together increasing the number of sites from 32 to 67 sites. The species presence/absence analysis distributed the twelve described vegetation associations from the field into eleven distinct vegetation associations, Appendix 22. The only vegetation association not to separate distinctly was vegetation unit 2.3. This vegetation association was described from two quadrats and one relevé site within the Red Legs prospect. This association was recorded along the colluvial slopes of a valley between two Banded Ironstone Hills and a narrow non-incised central drainage channel within the Red legs prospect. The major vegetation component used to separate this association is the presence of *Acacia cockertoniana,* which was not found with any other association. Many of the taxa within the vegetation association 2.3 have commonality with vegetation association 2.2 however the presence of *Acacia cockertoniana* and the location on the colluvial slopes is unique to vegetation association 2.3. The PFC dendrogram was also a useful tool as it was able to clearly separate these two vegetation associations.

3.4 Fauna

Malleefowls (*Leipoa ocellata*) are a member of the Megapodiidae family (a.k.a. megapodes meaning big feet or mound building) are large ground dwelling birds unique to the arid and semi-arid regions of Australia (Plate 10). They are classified as "Fauna That is Rare or Likely to Become Extinct" under the Western Australian Wildlife Conservation Act 1950-91, and nationally listed as Vulnerable under the Environment Protection and Biodiversity Act 1999.

They are found in shrublands and low woodlands, especially those dominated by mallee and/or Acacias, and require a sandy substrate and abundance of leaf litter to build their incubator mounds for breeding (Malleefowl Preservation Group 2012, Benshemesh 2007).

During the Marda East Project survey, Western Botanical encountered a total of 11 Malleefowl mounds eight within the Red Legs prospect, two within the Haul Road alignment and one at the Fiddleback prospect. Two sets of footprints were also recorded during the 2012 survey, one set within the Red Legs prospect and the other within the Fiddleback prospect (Appendix 15). See Appendix 23 for location details and photographs of the Mallee Fowl mounds and footprints.

Plate 10. Photo of a Malleefowl (*Leipoa ocellata*) (Malleefowl Preservation Group 2012).

4 Discussion

4.1 Vegetation Associations

Twelve vegetation associations were mapped across the Marda East project, including three shrublands, six woodlands and three thickets. The Red Legs prospect contained eight vegetation associations, the Fiddleback prospect four and the Haul Road six associations.

4.1.1 Fiddleback Prospect

The vegetation associations within the Fiddleback prospect consisted of three Woodlands (2.1, 2.2, and 2.7) and one Shrubland (1.1). The *Baeckea elderiana* Shrubland (1.1) was found to grow on rocky hills to stony chert hilltops, on the upper slope to crest of low hills, on yellowish-orange gravel with silt sand over subcropping to outcropping chert, and stony weathered lateritic duricrust. The proposed mine infrastructure will impact 5.39 ha of this association and is not considered to significantly impact upon this vegetation association in a regional context, Table 10.

A total of 15.85 ha of the *Eucalyptus corrugata, E. oleosa* subsp. *oleosa* with *E. loxophleba* subsp. *lissophloia* Woodland (2.1) was mapped primarily on the midslopes of low hills, and occasionally on the stony gentle midslope surrounding the *Baeckea elderiana* shrublands. This vegetation association was described growing on red to brown silty sand with a discontinuous mantle of subangular BIF, quartz rocks and gravel. The proposed mine infrastructure will impact 2.38 ha of this association and is not considered to significantly impact upon this vegetation association in a regional context, Table 10.

A total of 101.62 ha of the *Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland A (2.2) was mapped as the dominant vegetation association within the Fiddleback prospect. It was found on gently inclined sheet-washed plains, on red gravelly silty sand with stony mantle (lag gravel) and abundant discontinuous fine ironstone gravel. The proposed mine infrastructure will impact 19.57 ha of this association and is not considered to significantly impact on this vegetation association in both local and regional context, Table 10.

A total of 14.40 ha of the *Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland (2.7) was mapped This vegetation association was found on broad valley floors, and was described within the Fiddleback prospect, from two quadrats and 1 relevé. The proposed mine infrastructure will impact 5.97 ha of this association and is not considered to significantly impact on this vegetation association in both local and regional context, Table 16.

Table 16. Vegetation association within the Fiddleback Prospect with proposed Mine Infrastructure areas

Vegetation Association Code	Area impacted within Fiddleback Prospect (ha)	Total area with in Fiddleback Prospect (ha)	% impacted within Fiddleback Prospect
1.1	5.39	11.78	45.70
2.1	2.38	15.85	14.99
2.2	19.57	101.62	19.26
2.7	5.97	14.40	41.46
Totals	**33.30ha**	**143.65 ha**	**23.18%**

4.1.2 Red Legs Prospect

There were eight vegetation associations recorded and mapped within the Red Legs prospect consisting of four Woodlands (2.2, 2.3, 2.4 and 2.6), two Shrubland (1.2, 1.4), and two Thickets (3.2, 3.3). The Red Legs prospect was more diverse primarily due to its more varied topography, soils and drainage compared to the Fiddleback prospect. The upper slopes supported the two Shrubland communities (1.2 *Dryandra arborea et al.* Shrubland and 1.4 the *Acacia cockertonian*a, *Acacia* sp. Mt Jackson Shrubland). The Mid slopes supported the *Acacia effusifolia, et al* Thicket (3.2) and the *Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket (3.3). The Eucalyptus woodlands were associated with the drainage channels, lower and gentle broad drainage slopes to flat plains. These associations are consistent with those described on similar BIF ranges across the region. Table 17. provides the proposed mine infrastructure impact figures for each of the vegetation associations within the Red Legs prospect.

Table 17. Vegetation association within the Red Legs prospect within proposed Mine Infrastructure areas

Vegetation Association Code	Total area with in Red Legs Prospect (ha)	Area proposed to be impacted within Red Legs Prospect (ha)	% impacted within Red Legs Prospect
3.2	12.43	1.02	8.18
1.2	8.48	1.64	19.38
2.3	11.28	1.02	9.06
2.6	4.73	0.14	2.86
3.3	17.61	7.16	40.64
1.4	0.79	0.00	0.00
2.4	6.97	0.00	0.00
2.2	2.75	0.44	15.87
Totals	**65.04ha**	**11.41ha**	**17.55%**

4.1.3 Haul Road

The Haul Road alignment is approximately 3.7 km long with six vegetation associations described and mapped within the proposed alignment, including 3 Woodlands 2 Thickets and one Shrubland. Vegetation association 2.2 *Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland A and 2.7 *Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland formed the majority of the alignment with 31.86 ha or 87.05% of the Haul Road mapped associations. A small (0.58 ha) *Baeckea elderiana* Shrubland (1.1) was located in the northern extent of the Haul Road surrounded by (1.14 ha) of vegetation association (2.1). Here, 1.26 ha of a Thicket of *Acacia effusifolia, A. heteroneura, A. sibina*, *Melaleuca hamata* (3.2) was located at the intersection between the Haul Road and the Red Legs prospect.

A small area of 1.76 ha of the vegetation association (3.1) *Acacia sibina, A. aneura* over *Baeckea elderiana* is restricted to a small area on the proposed Haul Road. As this association was restricted to a small area on the Haul Road only one quadrat and two relevé sites were used to describe this association. Vegetation association 3.1 was only recorded within the Haul Road alignment but extends outside this alignment in the local area. Five of the six vegetation associations recorded within the proposed Haul Road alignment were also present within the Fiddleback and Red Legs prospects.

The six vegetation associations of the Haul Road alignment lay wholly outside the PEC boundary. However, four of the associations recorded within the Haul Road alignment are also found within the Priority one PEC vegetation complex boundary. Table 18 provides the proposed impact figures for each of the vegetation associations within the proposed Haul Road alignment.

Table 18. Vegetation Associations within the Haul Road Alignment with proposed Mine Infrastructure Impacts

Vegetation Association Code	Area impacted within Haul Road Alignment (ha)	Total area with in Haul Road Alignment (ha)	% Impacted within Haul Road Alignment
1.1	0.09	0.58	14.70
2.1	0.091	1.14	8.30
2.2	2.19	19.93	11.01
2.7	1.20	11.92	10.07
3.1	0.17	1.76	9.58
3.2	0.11	1.26	8.71
Totals	**3.85 ha**	**36.60 ha**	**10.53%**

4.2 Threatened and Priority Ecological Communities

No Threatened Ecological communities (TECs) were located within the project area. The Marda East Project area intersects the Priority One (P1) Die Hardy Range / Diemals vegetation complex (banded ironstone formation), with 107.18 ha across the project. The Red Legs prospect is

almost entirely within the PEC and has 52.84 ha within the PEC boundary (representing 0.5% of the overall area of the PEC), and the Fiddleback prospect has 53.63 ha within the PEC boundary PEC (0.51% of the overall area of the PEC) (Table 13).

Ten of the twelve vegetation associations described were located within the Priority One PEC vegetation complex only vegetation associations 3.1 and 2.7 were outside the PEC boundary. The proposed project will impact 13.33 ha of the Priority one PEC, which is the equivalent of 0.17% of the total Priority one PEC.

At a local level within the project area vegetation association 3.3 (7.15 ha) the *Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket forms 53.63% of the projects total impacts to the Priority 1 PEC. With 17.61 ha of vegetation association 3.3 mapped across the project area resulting in 40.6% of this mapped vegetation association impacted within the project area. The next most significant impact at a local level is vegetation association 1.2 *Dryandra arborea etal.* Shrubland with 1.64 ha (19.34%) proposed as impacted of the 8.48 ha mapped (Table 19.).

Table 19. Mapped Vegetation associations within the Priority 1 PEC and Proposed impacts from Mine Infrastructure.

Vegetation Association Code	Location	Total area mapped within Marda East Project (ha)	Total mapped within Priority 1 PEC (ha)	Proposed Impacts on Priority 1 PEC (ha)	Proposed Impacts on Priority 1 PEC within the Marda East Project area (%)	% Proposed Impacts on the Entire Priority 1 PEC (%)
1.1	Fiddleback/ Haul Road	12.37	5.92	0.73	12.31	0.009
1.2	Red Legs	8.48	8.48	1.64	19.34	0.021
1.4	Red Legs	0.79	0.79	0.00	0.00	0.000
2.1	Fiddleback/ Haul Road	16.99	11.31	1.50	13.26	0.019
2.2	Fiddleback/ Haul Road/ Red Legs	124.31	39.30	1.01	2.57	0.013
2.3	Red Legs	11.28	11.28	1.02	9.04	0.013
2.4	Red Legs	6.97	3.60	0.00	0.04	0.000
2.6	Red Legs	4.73	4.73	0.14	2.96	0.002
2.7	Fiddleback/ Haul Road	26.32	0	0.00	0.00	0.000
3.1	Haul Road	1.76	0	0.00	0.00	0.000
3.2	Red Legs/ Haul Road	13.68	4.23	0.14	3.19	0.002
3.3	Red Legs	17.61	17.54	7.15	40.77	0.091
Total	**Fiddleback/ Haul Road/ Red Legs**	**245.29 ha**	**107.18 ha**	**13.33 ha**	**12.43%**	**0.170%**

4.3 Flora of Conservation Significance

4.3.1 Rare Flora and Threatened Flora Species

No Rare Flora species declared under the Wildlife Conservation Act 1950 (WA) or Threatened flora species listed under the Environment Protection and Biodiversity Conservation Act 1999 (C'th) were recorded within the project area. Based on the survey intensity across the project area together with the desktop review, the probability of any Threatened flora occurring on the site is considered minimal.

4.3.2 Priority Flora

Four Priority flora were recorded within the survey area, presented below:

- 2347 *Grevillea georgeana;*
- 1356 *Eucalyptus formanii*
- 308 *Mirbelia ferricola;* and
- 287 *Dryandra arborea.*

The most significant impacts to Priority flora of conservation significance were within the Red Legs prospect. The Red Legs prospect accounts for 708 (98.7%) of the 717 proposed impacts to priority flora within the Marda East Project area. All of the impacts to *Grevillea georgeana* and *Mirbelia ferricola* plants, 32 of 33 *Dryandra arborea* trees and 36 of 44 *Eucalyptus formanii* trees are proposed as impacted within the Red Legs prospect.

The impacts to *Mirbelia ferricola* (P3) and *Grevillea georgeana* (P3) are considered locally significant with over 52.93% and 20.32% respectively of the local population within the Red Legs prospect proposed to be taken. The potential impacts to the Priority flora within the Haul Road alignment and the Fiddleback prospect are not considered significant at a local scale.

Both *Mirbelia ferricola* (P3) and *Grevillea georgeana* (P3) are known to be found on other BIF ranges in the region including the Die Hardy Range, Mt Manning Range, Jackson Range, Koolyanobbing Range, Helena and Aurora Range and Mt Finnerty. In an overall regional sense, both species are reasonably well represented elsewhere.

However, the lack of quantitative or systematic information of the populations of these species that may occur in the adjacent Die Hardy Range and Yokradine Hills means we are unable to make a numerical assessment of impacts on these species in a local – regional context.

4.3.3 Range Extensions

There were six taxa recorded within the project area representing range extensions from their current known distribution within Australia. None of these range extensions are considered significant, with five of the six representing a new population within the current known distribution ranges.

One taxon *Sclerolaena eriacantha* that has a wide distribution across Australia was recorded at relevé 3 within the 2.7 *Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland vegetation

association, at the Fiddleback prospect. This collection represents the most southerly record within Western Australia and is between 50 -100 km south of the next closest record within the Coolgardie IBRA region.

5 Recommendations

The following recommendations arise from the vegetation and flora survey of the Marda East project area.

- The locations of the four Priority flora species should be taken into consideration during mine planning and direct impacts to these species should be avoided or minimised where possible during the mine development.

- Survey works following average to above average winter rainfall will be useful in gaining a full species list inclusive of the annual / ephemeral and geophyte species located within the project area.

- Weed hygiene measures should be implemented to minimize the risk of introduction of weeds to the project area during mine development.

- Standard dust suppression should be implemented to minimize the potential for dust impacts on vegetation and flora during construction and operation. Most of the vegetation associations recorded within the Project area are not tolerant of saline conditions and the management of saline water, if used, should be carefully controlled and monitored.

- Construction and operational personnel should be made aware of the vegetation and flora with conservation significance occurring on site. Clearing boundaries should be clearly marked on site and there should be no clearing beyond these set limits.

- The collection of seed from the conservation-significant species, as well as the common species within the project footprint, should be implemented prior to clearing for mine development. Seed from the *Eucalyptus*, *Dryandra* and other bradysporous species can be collected at most time of the year while those of the *Acacia* and other geosporous species need to be collected in late spring to early summer.

- Implement procedures to remove and separately stockpile topsoil and surface materials from areas to be cleared for future rehabilitation programs.

6 Acknowledgements

Mr Allan White, Craig White and Brian White from CAD Resources Pty Ltd produced all maps presented and calculated the impacts for proposed infrastructure upon Priority flora and Priority Ecological Communities.

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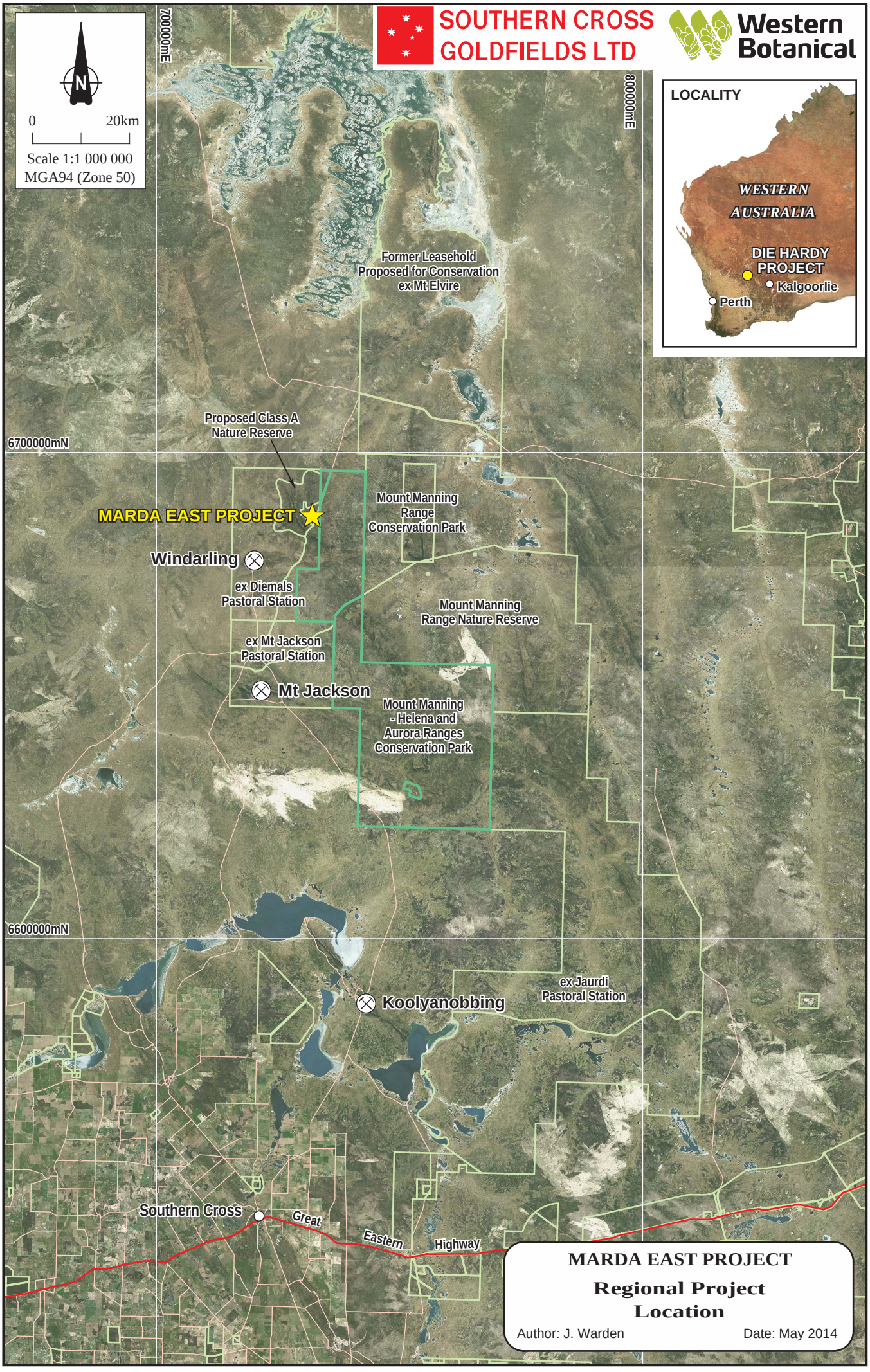
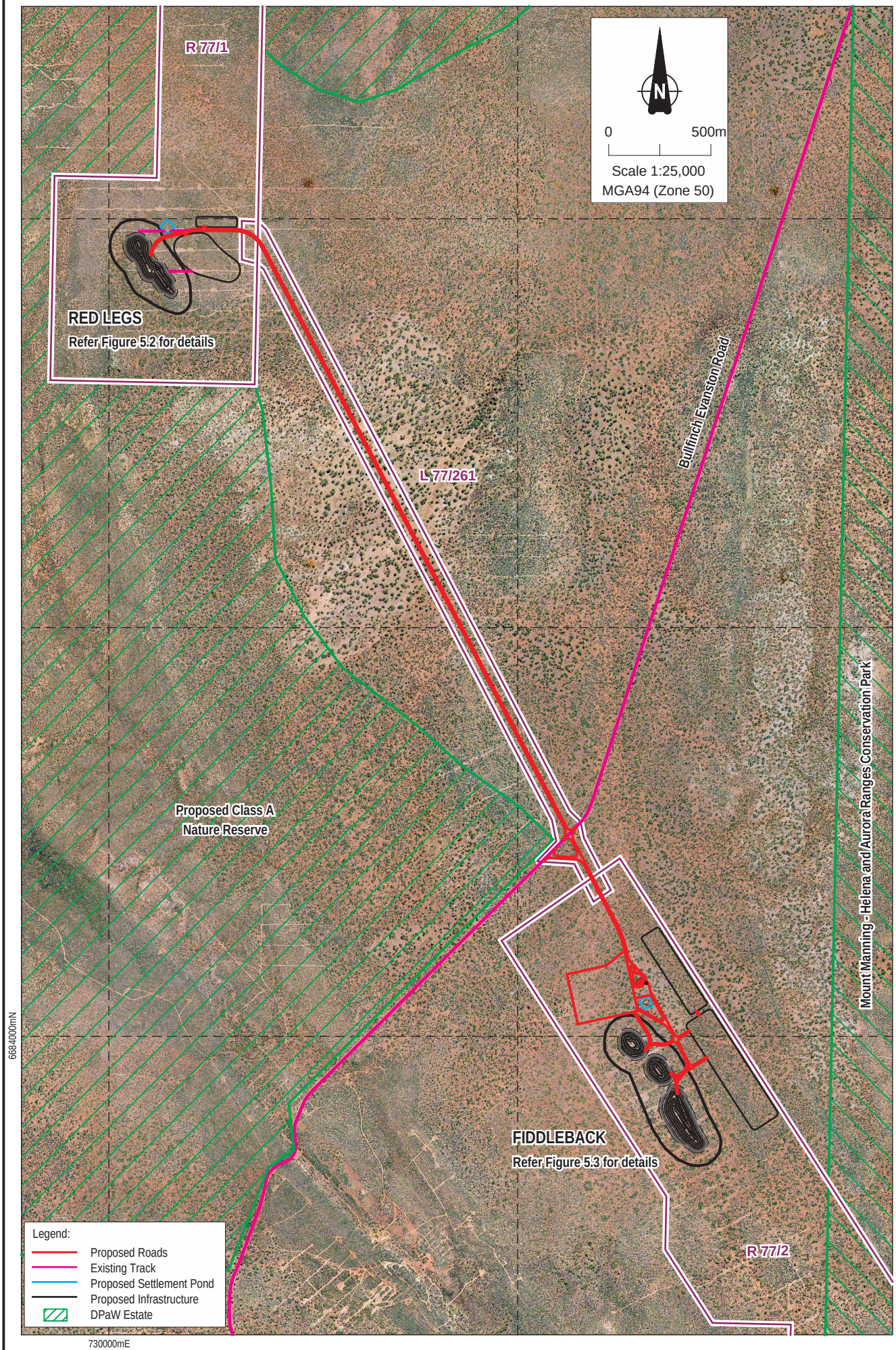
Appendix 1. Regional Maps showing the Locality of the Project area



Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: D ~ CAD Ref g2083_WB_R01_01B.dgn



Source:
Conservation Areas: DPaW
Tenements: DMP
Infrastructure layout: SXG (18/12/2013)

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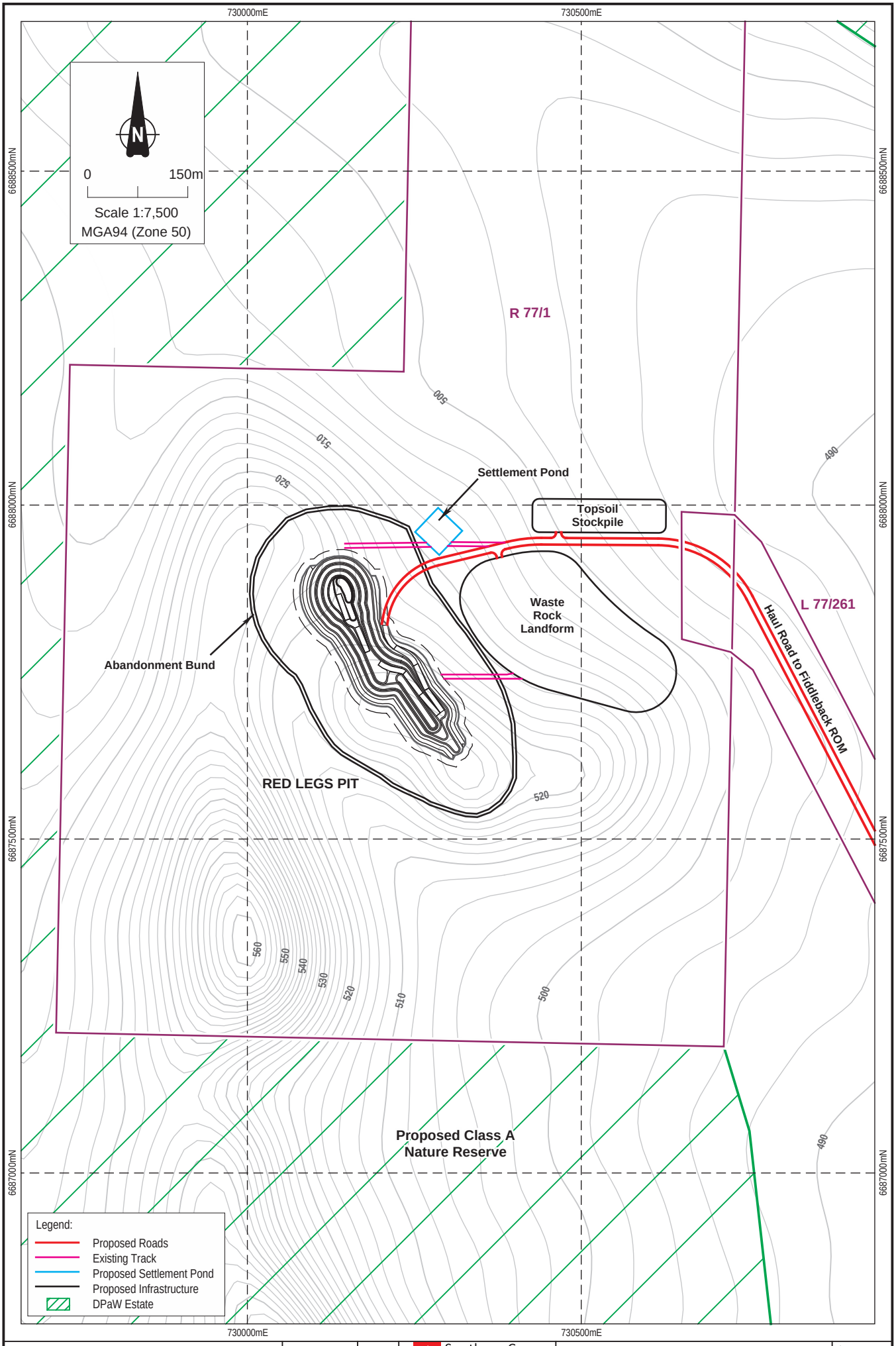
Southern Cross Goldfields Ltd

Marda Gold Project

Marda East Project
Infrastructure Layout

Figure No: **5.1**



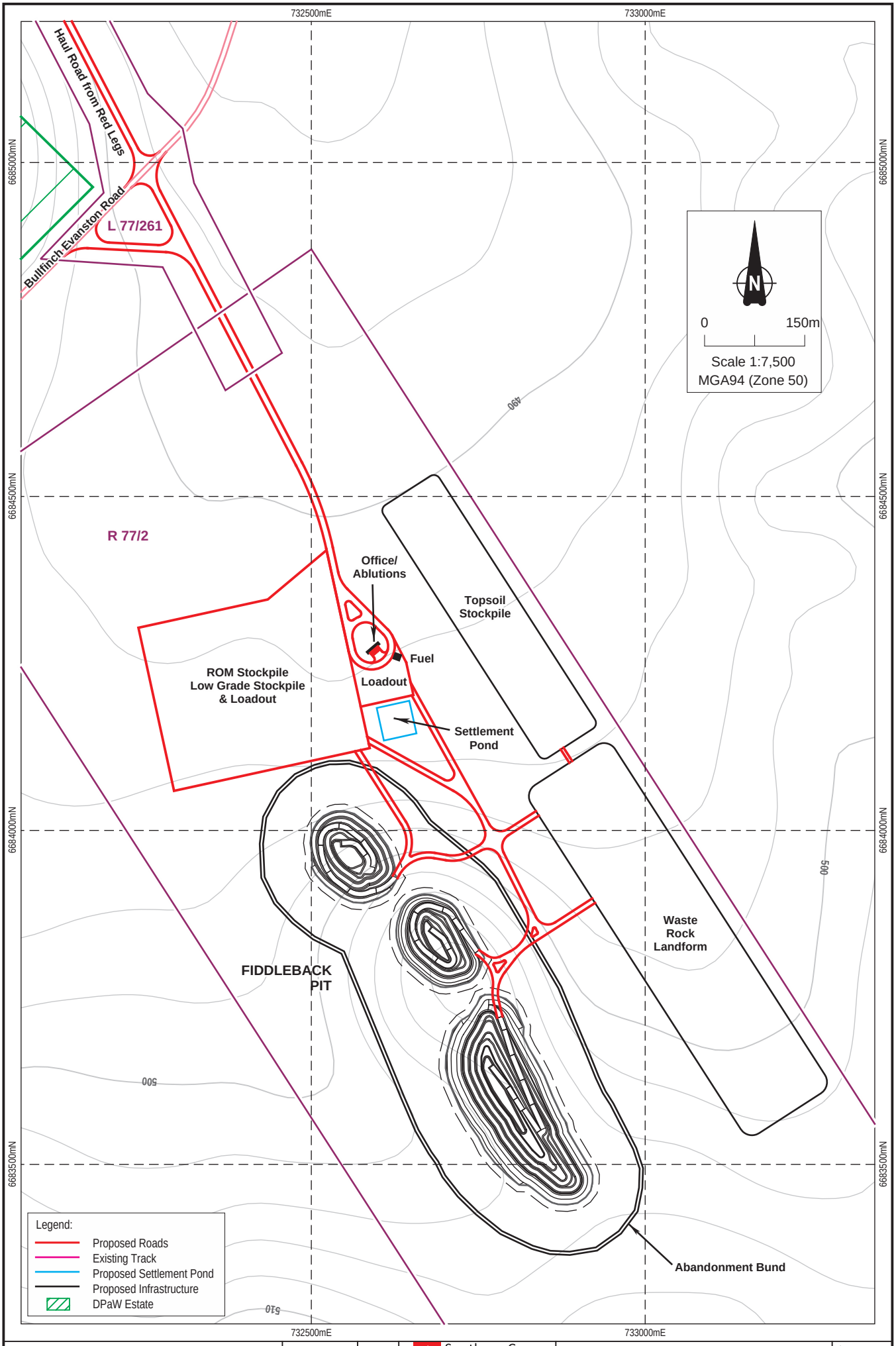
Source:
Conservation Areas: DPaW
Tenements: DMP
2m Contours: Landgate
Infrastructure layout: SXG (18/12/2013)

Drawn: CAD Resources
Rev: A
File No: g2103_mep_f04_02

Southern Cross Goldfields Ltd
Marda Gold Project

Marda East Project
Red Legs Layout

Figure No: 5.2



Source:
Conservation Areas: DPaW
Tenements: DMP
2m Contours: Landgate
Infrastructure layout: SXG (18/12/2013)

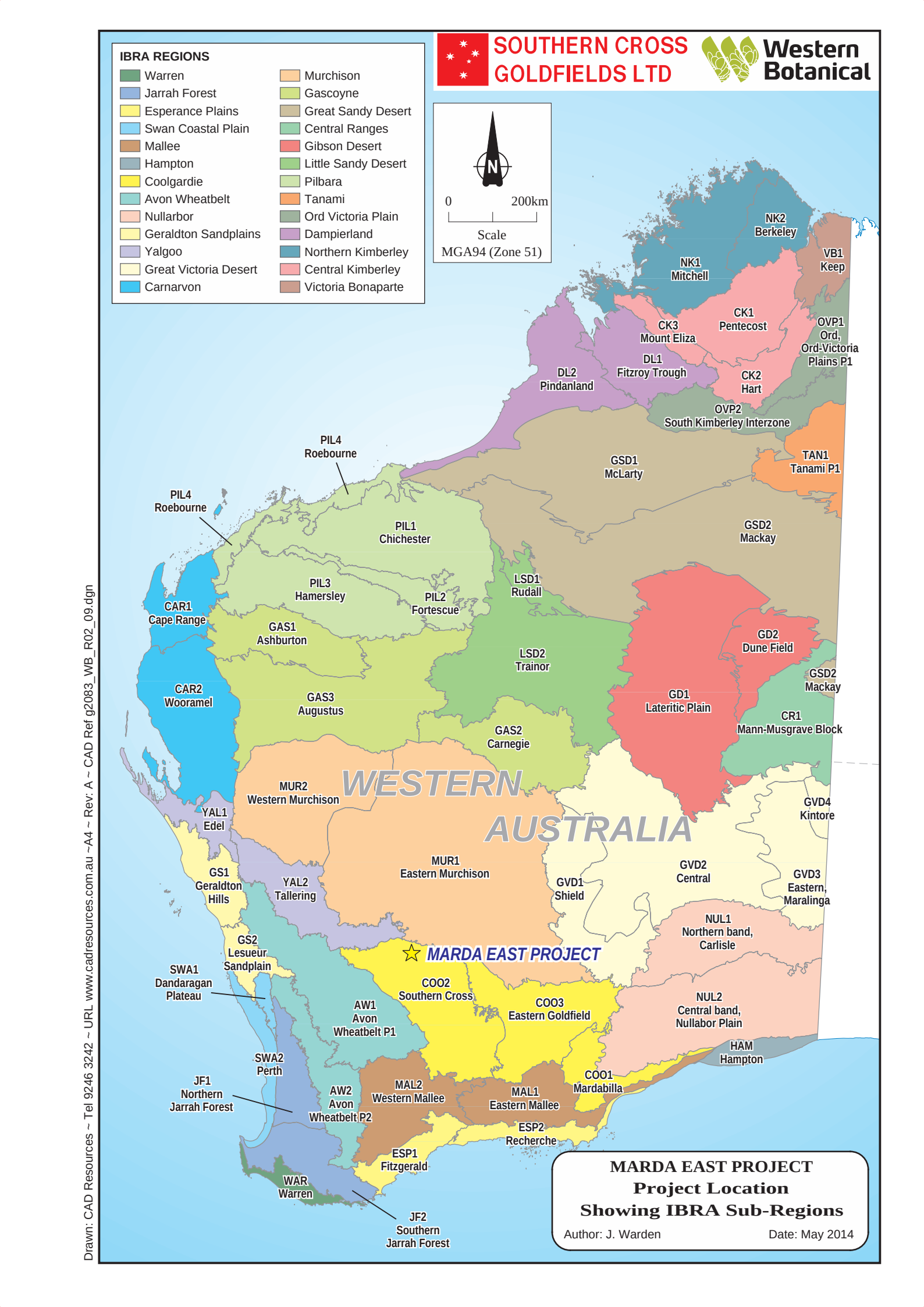
Drawn: CAD Resources
Rev: A
File No: g2103_mep_f04_03

Southern Cross Goldfields Ltd
Marda Gold Project

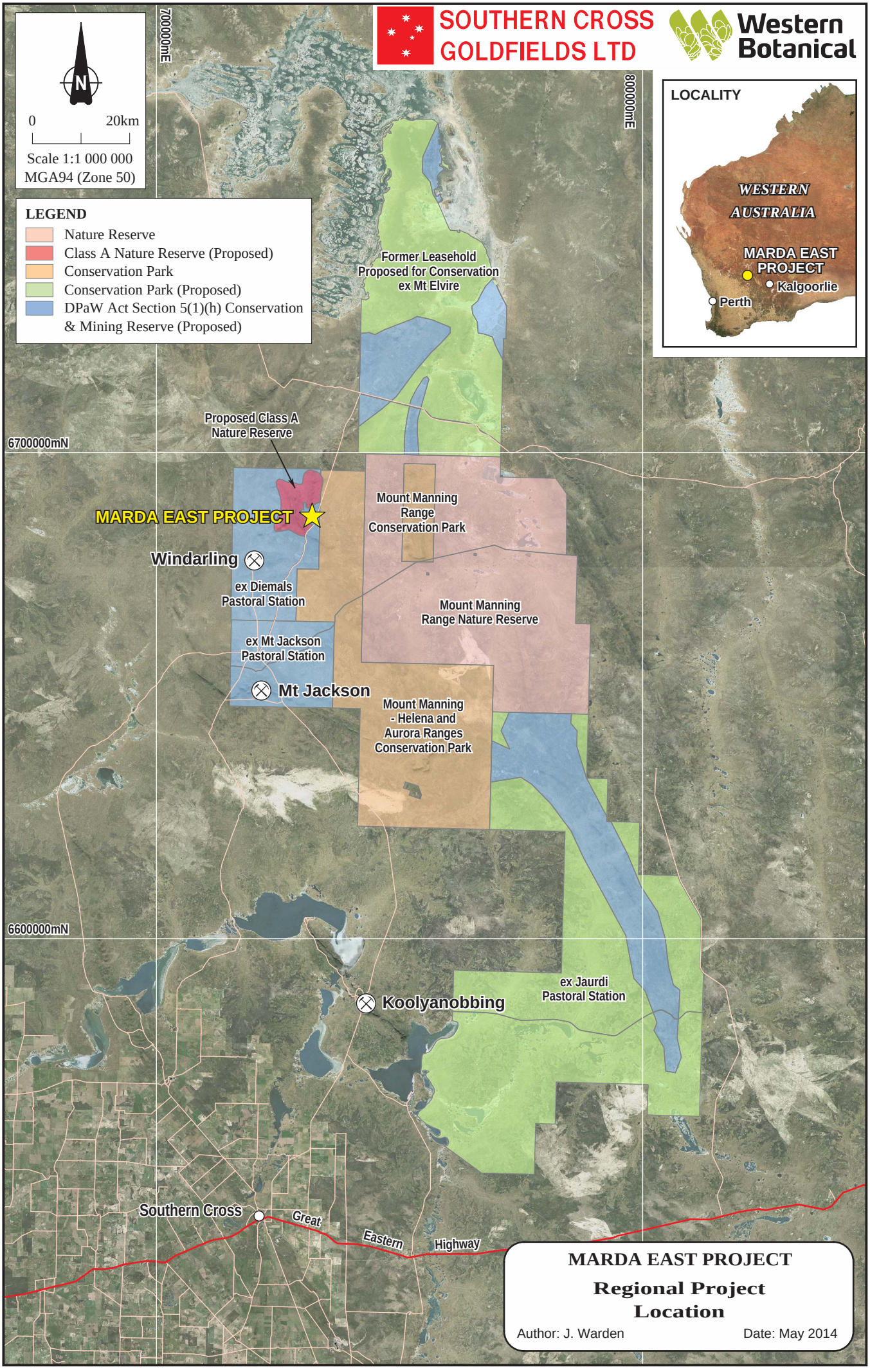
Marda East Project
Fiddleback Layout

Figure No: 5.3

Appendix 2. IBRA Map Showing Project area

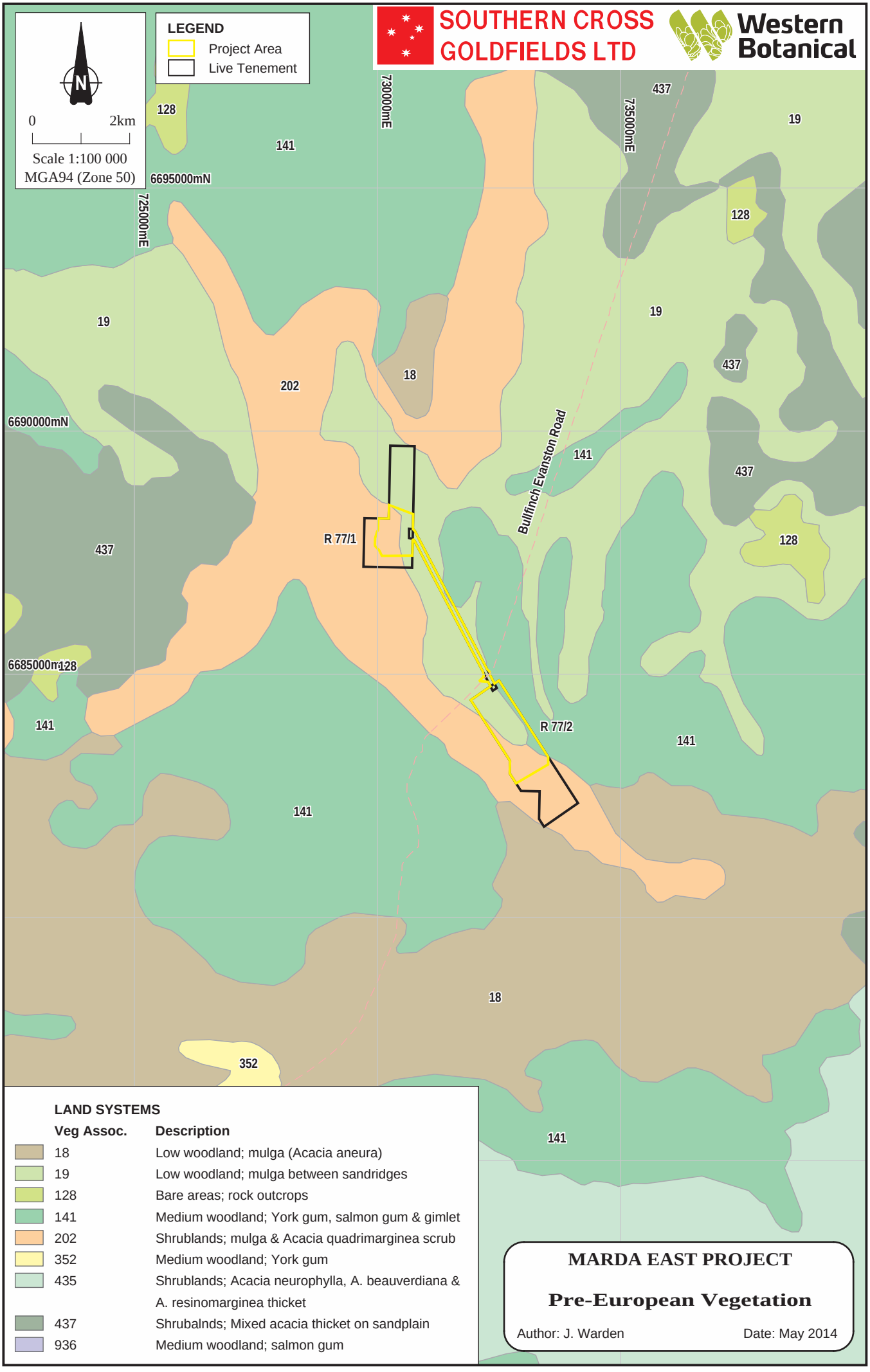

IBRA REGIONS
Warren
Jarrah Forest
Esperance Plains
Swan Coastal Plain
Mallee
Hampton
Coolgardie
Avon Wheatbelt
Nullarbor
Geraldton Sandplains
Yalgoo
Great Victoria Desert
Carnarvon
Murchison
Gascoyne
Great Sandy Desert
Central Ranges
Gibson Desert
Little Sandy Desert
Pilbara
Tanami
Ord Victoria Plain
Dampierland
Northern Kimberley
Central Kimberley
Victoria Bonaparte
SOUTHERN CROSS GOLDFIELDS LTD
Western Botanical
N
0
200km
Scale
MGA94 (Zone 51)
NK2 Berkeley
NK1 Mitchell
VB1 Keep
CK1 Pentecost
CK3 Mount Eliza
OVP1 Ord, Ord-Victoria Plains P1
DL1 Fitzroy Trough
DL2 Pindanland
CK2 Hart
OVP2 South Kimberley Interzone
PIL4 Roebourne
GSD1 McLarty
TAN1 Tanami P1
PIL1 Chichester
GSD2 Mackay
PIL3 Hamersley
PIL2 Fortescue
LSD1 Rudall
CAR1 Cape Range
GAS1 Ashburton
LSD2 Trainor
GD2 Dune Field
CAR2 Wooramel
GAS3 Augustus
GD1 Lateritic Plain
GSD2 Mackay
CR1 Mann-Musgrave Block
GAS2 Carnegie
WESTERN AUSTRALIA
MUR2 Western Murchison
YAL1 Edel
GVD4 Kintore
MUR1 Eastern Murchison
GVD2 Central
GVD3 Eastern, Maralinga
GS1 Geraldton Hills
YAL2 Tallering
GVD1 Shield
NUL1 Northern band, Carlisle
GS2 Lesueur Sandplain
MARDA EAST PROJECT
SWA1 Dandaragan Plateau
COO2 Southern Cross
COO3 Eastern Goldfield
NUL2 Central band, Nullabor Plain
AW1 Avon Wheatbelt P1
HAM Hampton
SWA2 Perth
COO1 Mardabilla
JF1 Northern Jarrah Forest
MAL2 Western Mallee
MAL1 Eastern Mallee
AW2 Avon Wheatbelt P2
ESP2 Recherche
ESP1 Fitzgerald
WAR Warren
JF2 Southern Jarrah Forest
MARDA EAST PROJECT
Project Location
Showing IBRA Sub-Regions
Author: J. Warden
Date: May 2014
Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_09.dgn

Appendix 3. Map showing Conservation Parks and Reserves in relation to the Marda East Project Area.



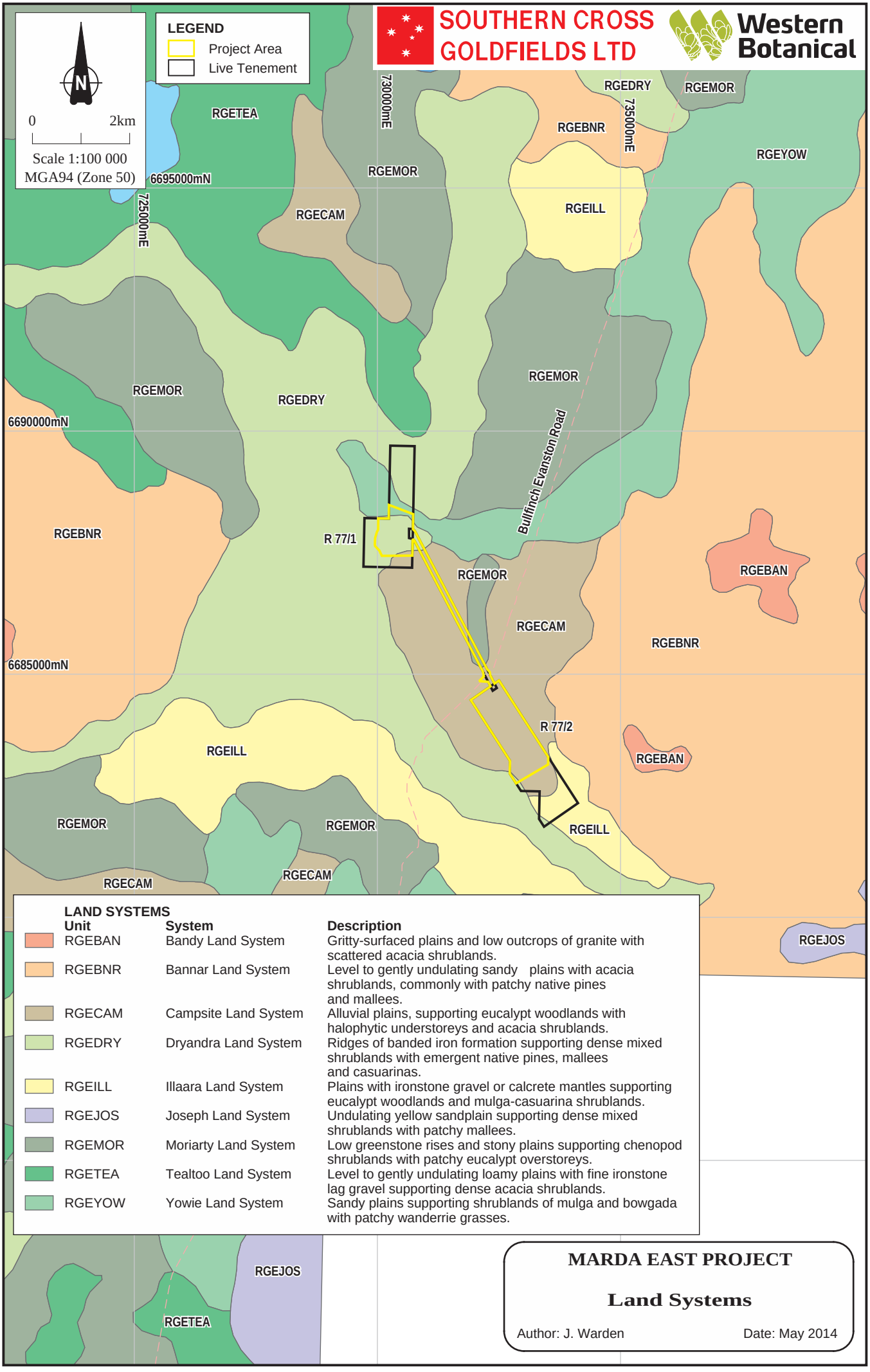
Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: D ~ CAD Ref g2083_WB_R01_01.dgn

Appendix 4. Vegetation Mapping units according to Beard (1976) present within the Project area



Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_08.dgn

Appendix 5. Land Systems According to Payne *et al* (1998) present within the project area



LAND SYSTEMS

Unit	System	Description
RGEBAN	Bandy Land System	Gritty-surfaced plains and low outcrops of granite with scattered acacia shrublands.
RGEBNR	Bannar Land System	Level to gently undulating sandy plains with acacia shrublands, commonly with patchy native pines and mallees.
RGECAM	Campsite Land System	Alluvial plains, supporting eucalypt woodlands with halophytic understoreys and acacia shrublands.
RGEDRY	Dryandra Land System	Ridges of banded iron formation supporting dense mixed shrublands with emergent native pines, mallees and casuarinas.
RGEILL	Illaara Land System	Plains with ironstone gravel or calcrete mantles supporting eucalypt woodlands and mulga-casuarina shrublands.
RGEJOS	Joseph Land System	Undulating yellow sandplain supporting dense mixed shrublands with patchy mallees.
RGEMOR	Moriarty Land System	Low greenstone rises and stony plains supporting chenopod shrublands with patchy eucalypt overstoreys.
RGETEA	Tealtoo Land System	Level to gently undulating loamy plains with fine ironstone lag gravel supporting dense acacia shrublands.
RGEYOW	Yowie Land System	Sandy plains supporting shrublands of mulga and bowgada with patchy wanderrie grasses.

MARDA EAST PROJECT

Land Systems

Author: J. Warden Date: May 2014

Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_03.dgn

Appendix 6. The Department of Parks and Wildlife Framework For Ranking Flora Species of Conservation Significance

Department of Parks and Wildlife

CONSERVATION CODES

for Western Australian Flora and Fauna

T: **Threatened species -** Specially protected under the *Wildlife Conservation Act 1950,* listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Species* 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.

X: **Presumed extinct species -** Specially protected under the *Wildlife Conservation Act 1950,* listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).

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

IA: **Migratory birds protected under an international agreement -** Specially protected under the *Wildlife Conservation Act 1950,* listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.

Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.

S: **Other specially protected fauna -** Specially protected under the *Wildlife Conservation Act 1950,* listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.

Threatened Fauna and Flora are further recognised by the Department according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorynchus latirostris* is specially protected under the *Wildlife Conservation Act 1950* as a threatened species with a ranking of endangered.

Ranking:

CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.

EN: Endangered – considered to be facing a very high risk of extinction in the wild.

VU: Vulnerable - considered to be facing a high risk of extinction in the wild.

A list of the current rankings can be downloaded from the Listing of species and ecological communities webpage http://dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/84-listing-of-species-and-ecological-communities .

Species that have not yet been adequately surveyed to be listed under Schedule 1 or 2 are added to the Priority Flora and Priority Fauna Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna. Species that are adequately known, are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Conservation Dependent species are placed in Priority 5.

1: Priority One: Poorly-known species

Species 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, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species 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.

2: Priority Two: Poorly-known species

Species 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, unallocated Crown land, water reserves, etc. Species 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.

3: Priority Three: Poorly-known species

Species 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. Species 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.

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

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

5: Priority Five: Conservation Dependent species

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

*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies, variety or forma).

Appendix 7. Nature Map search results 2012 and 2013

NatureMap
Mapping Western Australia's biodiversity

Marda East NatureMap Species Report

Created By Guest user on 15/10/2012

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	119°23' 32" E,29°57' 28" S
Buffer	20km
Group By	Kingdom

Kingdom	Species	Records
Animalia	160	1202
Plantae	345	1690
TOTAL	**505**	**2892**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Animalia					
1.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
2.	24260	*Acanthiza apicalis (Broad-tailed Thornbill)*			
3.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
4.	24264	*Acanthiza robustirostris (Slaty-backed Thornbill)*			
5.	24265	*Acanthiza uropygialis (Chestnut-rumped Thornbill)*			
6.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
7.	25536	*Accipiter fasciatus (Brown Goshawk)*			
8.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
9.	33902	*Aganippe castellum (Tree-stem Trapdoor Spider)*		P4	
10.	25241	*Antaresia stimsoni subsp. stimsoni*			
11.	24561	*Anthochaera carunculata (Red Wattlebird)*			
12.	25528	*Aphelocephala leucopsis (Southern Whiteface)*			
13.	24266	*Aphelocephala leucopsis subsp. castaneiventris*			
14.	24285	*Aquila audax (Wedge-tailed Eagle)*			
15.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
16.	24355	*Artamus minor (Little Woodswallow)*			
17.	24251	*Bos taurus (European Cattle)*			
18.	25245	*Brachyurophis semifasciata*			
19.	25715	*Cacatua roseicapilla (Galah)*			
20.	24732	*Calyptorhynchus banksii subsp. samueli*			
21.	24039	*Canis lupus subsp. dingo (Dingo)*			
22.	24564	*Certhionyx variegatus (Pied Honeyeater)*			
23.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
24.	24187	*Chalinolobus morio (Chocolate Wattled Bat)*			
25.	24431	*Chrysococcyx basalis (Horsfield's Bronze Cuckoo)*			
26.	24434	*Chrysococcyx osculans (Black-eared Cuckoo)*			
27.	25580	*Cinclosoma castaneothorax (Chestnut-breasted Quail-thrush)*			
28.	24392	*Cinclosoma castaneothorax subsp. marginatum*			
29.	30956	*Cinclosoma castanotus (Chestnut Quail-thrush)*			
30.	25581	*Climacteris affinis (White-browed Treecreeper)*			
31.	24393	*Climacteris affinis subsp. superciliosa*			
32.	24396	*Climacteris rufa (Rufous Treecreeper)*			
33.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
34.	24613	*Colluricincla harmonica subsp. rufiventris*			
35.	24361	*Coracina maxima (Ground Cuckoo-shrike)*			
36.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
37.	24416	*Corvus bennetti (Little Crow)*			
38.	25592	*Corvus coronoides (Australian Raven)*			
39.	24417	*Corvus coronoides subsp. perplexus*			
40.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
41.	25595	*Cracticus tibicen (Australian Magpie)*			
42.	24422	*Cracticus tibicen subsp. dorsalis (White-backed Magpie)*			

NatureMap is a collaborative project of the Department of Environment and Conservation, Western Australia, and the Western Australian Museum.

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NatureMap
Mapping Western Australia's biodiversity

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
43.	25596	*Cracticus torquatus (Grey Butcherbird)*			
44.	24424	*Cracticus torquatus subsp. torquatus*			
45.	24918	*Crenadactylus ocellatus subsp. ocellatus*			
46.	30893	*Cryptoblepharus buchananii*			
47.	24871	*Ctenophorus cristatus (Bicycle Dragon)*			
48.	24873	*Ctenophorus fordi (Mallee Sand Dragon)*			
49.	24883	*Ctenophorus ornatus (Ornate Crevice Dragon)*			
50.	24886	*Ctenophorus reticulatus (Western Netted Dragon)*			
51.	24889	*Ctenophorus scutulatus*			
52.	25026	*Ctenotus atlas*			
53.	25054	*Ctenotus mimetes*			
54.	25074	*Ctenotus schomburgkii*			
55.	25075	*Ctenotus severus*			
56.	25465	*Ctenotus uber*			
57.	25080	*Ctenotus uber subsp. uber*			
58.	24606	*Daphoenositta chrysoptera subsp. pileata (Varied Sittella)*			
59.	24995	*Delma australis*			
60.	24997	*Delma butleri*			
61.	25295	*Demansia psammophis subsp. cupreiceps*			
62.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
63.	24929	*Diplodactylus granariensis subsp. granariensis*			
64.	24940	*Diplodactylus pulcher*			
65.	24470	*Dromaius novaehollandiae (Emu)*			
66.	24650	*Drymodes brunneopygia (Southern Scrub-robin)*			
67.	25092	*Egernia depressa (Pygmy Spiny-tailed Skink)*			
68.	24651	*Eopsaltria australis subsp. griseogularis (Western Yellow Robin)*			
69.	25109	*Eremiascincus richardsonii (Broad-banded Sand Swimmer)*			
70.	24368	*Eurostopodus argus (Spotted Nightjar)*			
71.	25621	*Falco berigora (Brown Falcon)*			
72.	24471	*Falco berigora subsp. berigora*			
73.	25622	*Falco cenchroides (Australian Kestrel)*			
74.	24472	*Falco cenchroides subsp. cenchroides*			
75.	25623	*Falco longipennis (Australian Hobby)*			
76.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
77.	24475	*Falco peregrinus subsp. macropus (Australian Peregrine Falcon)*		S	
78.	24957	*Gehyra purpurascens*			
79.	24959	*Gehyra variegata*			
80.	25530	*Gerygone fusca (Western Gerygone)*			
81.	24735	*Glossopsitta porphyrocephala (Purple-crowned Lorikeet)*			
82.	25408	*Heleioporus albopunctatus (Western Spotted Frog)*			
83.	25115	*Hemiergis initialis subsp. initialis*			
84.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
85.	24492	*Hirundo nigricans subsp. nigricans*			
86.	24557	*Leipoa ocellata (Malleefowl)*		T	
87.	25149	*Lerista macropisthopus subsp. macropisthopus*			
88.	30923	*Lerista rhodonoides*			
89.	25659	*Lichenostomus leucotis (White-eared Honeyeater)*			
90.	24576	*Lichenostomus leucotis subsp. novaenorciae*			
91.	24577	*Lichenostomus ornatus (Yellow-plumed Honeyeater)*			
92.	24581	*Lichenostomus virescens (Singing Honeyeater)*			
93.	25661	*Lichmera indistincta (Brown Honeyeater)*			
94.	24582	*Lichmera indistincta subsp. indistincta*			
95.	30935	*Lucasium maini*			
96.	24544	*Malurus lamberti subsp. assimilis*			
97.	25654	*Malurus splendens (Splendid Fairy-wren)*			
98.	24552	*Malurus splendens subsp. splendens*			
99.	24583	*Manorina flavigula (Yellow-throated Miner)*			
100.	25663	*Melithreptus brevirostris (Brown-headed Honeyeater)*			
101.	24586	*Melithreptus brevirostris subsp. leucogenys*			
102.	25184	*Menetia greyii*			
103.	24598	*Merops ornatus (Rainbow Bee-eater)*		IA	
104.	25693	*Microeca fascinans (Jacky Winter)*			
105.	24904	*Moloch horridus (Thorny Devil)*			
106.	25190	*Morethia butleri*			
107.	24184	*Mormopterus planiceps (Southern Freetail-bat)*			
108.	24223	*Mus musculus (House Mouse)*			
109.	24737	*Neophema bourkii (Bourke's Parrot)*			
110.	30941	*Nephrurus milii (Barking Gecko)*			
111.	24094	*Ningaui ridei (Wongai Ningaui)*			
112.	24096	*Ningaui yvonneae (Southern Ningaui)*			

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Western Botanical

NatureMap
Mapping Western Australia's biodiversity

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
113.	25748	*Ninox novaeseelandiae (Boobook Owl)*			
114.	24224	*Notomys alexis (Spinifex Hopping-mouse)*			
115.	24229	*Notomys mitchellii (Mitchell's Hopping-mouse)*			
116.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
117.	24618	*Oreoica gutturalis (Crested Bellbird)*			
118.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
119.	24624	*Pachycephala rufiventris subsp. rufiventris*			
120.	25254	*Parasuta monachus*			
121.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
122.	25682	*Pardalotus striatus (Striated Pardalote)*			
123.	24630	*Pardalotus striatus subsp. westraliensis*			
124.	24658	*Petroica cucullata (Hooded Robin)*			
125.	24659	*Petroica goodenovii (Red-capped Robin)*			
126.	24409	*Phaps chalcoptera (Common Bronzewing)*			
127.	24748	*Platycercus varius (Mulga Parrot)*			
128.	24751	*Platycercus zonarius subsp. zonarius*			
129.	24679	*Podargus strigoides subsp. brachypterus*			
130.	25722	*Polytelis anthopeplus (Regent Parrot)*			
131.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
132.	24106	*Pseudantechinus woolleyae (Woolley's Pseudantechinus)*			
133.	24230	*Pseudomys albocinereus (Ash-grey Mouse)*			
134.	24232	*Pseudomys bolami (Bolam's Mouse)*			
135.	25434	*Pseudophryne occidentalis (Western Toadlet)*			
136.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
137.	25009	*Pygopus nigriceps*			
138.	24278	*Pyrrholaemus brunneus (Redthroat)*			
139.	30824	*Ramphotyphlops bicolor*			
140.	25285	*Ramphotyphlops pinguis*			
141.	24452	*Rhipidura fuliginosa subsp. preissi*			
142.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
143.	24454	*Rhipidura leucophrys subsp. leucophrys*			
144.	24982	*Rhynchoedura ornata (Beaked Gecko)*			
145.	24199	*Scotorepens balstoni (Inland Broad-nosed Bat)*			
146.	30948	*Smicrornis brevirostris (Weebill)*			
147.	24109	*Sminthopsis dolichura (Little long-tailed Dunnart)*			
148.	24114	*Sminthopsis hirtipes (Hairy-footed Dunnart)*			
149.	24116	*Sminthopsis macroura (Stripe-faced Dunnart)*			
150.	25597	*Strepera versicolor (Grey Currawong)*			
151.	24426	*Strepera versicolor subsp. plumbea*			
152.	24185	*Tadarida australis (White-striped Freetail-bat)*			
153.	30870	*Taeniopygia guttata (Zebra Finch)*			
154.	30871	*Taeniopygia guttata subsp. castanotis*			
155.	24851	*Turnix velox (Little Button-quail)*			
156.	25211	*Varanus caudolineatus*			
157.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
158.	25222	*Varanus panoptes subsp. panoptes*			
159.	24202	*Vespadelus baverstocki (Inland Forest Bat)*			
160.	24206	*Vespadelus regulus (Southern Forest Bat)*			
Plantae					
161.	4889	*Abutilon cryptopetalum*			
162.	14613	*Acacia acanthoclada subsp. glaucescens*			
163.	3200	*Acacia acuminata (Jam)*			
164.	3216	*Acacia andrewsii*			
165.	3217	*Acacia aneura (Mulga)*			
166.	3226	*Acacia assimilis*			
167.	15467	*Acacia assimilis subsp. assimilis*			
168.	3248	*Acacia burkittii (Sandhill Wattle)*			
169.	36417	*Acacia caesaneura*			
170.	23977	*Acacia cockertoniana*			
171.	3269	*Acacia coolgardiensis (Spinifex Wattle)*			
172.	32118	*Acacia effusifolia*			
173.	3324	*Acacia erinacea*			
174.	3366	*Acacia hemiteles*			
175.	36418	*Acacia incurvaneura*			
176.	3419	*Acacia ligulata (Umbrella Bush)*			
177.	3426	*Acacia longispinea*			
178.	15290	*Acacia neurophylla subsp. erugata*			
179.	3495	*Acacia prainii (Prain's Wattle)*			
180.	3507	*Acacia quadrimarginea*			
181.	3510	*Acacia ramulosa (Horse Mulga)*			

NatureMap

	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
182.	19499	*Acacia ramulosa var. ramulosa*			
183.	3545	*Acacia sibina*			
184.	30717	*Acacia sp. Mt Jackson (B. Ryan 176)*			
185.	29110	*Acacia sp. narrow phyllode (B.R. Maslin 7831)*			
186.	23525	*Acacia steedmanii subsp. steedmanii*			
187.	3577	*Acacia tetragonophylla (Kurara)*			
188.	7817	*Actinobole uliginosum (Flannel Cudweed)*			
189.	1720	*Allocasuarina acutivalvis*			
190.	13904	*Allocasuarina acutivalvis subsp. acutivalvis*			
191.	13905	*Allocasuarina acutivalvis subsp. prinsepiana*			
192.	1722	*Allocasuarina corniculata*			
193.	1725	*Allocasuarina dielsiana (Northern Sheoak)*			
194.	13906	*Allocasuarina eriochlamys subsp. eriochlamys*			
195.	1738	*Allocasuarina tessellata*		P1	
196.	19467	*Aluta aspiressa*			
197.	19466	*Aluta aspera subsp. aspera*			
198.	6565	*Alyxia buxifolia (Dysentery Bush)*			
199.	199	*Amphipogon strictus (Greybeard Grass)*			
200.	2369	*Amyema benthamii*			
201.	2382	*Amyema nestor*			
202.	40910	*Androcalva luteiflora (Yellow-flowered Rulingia)*			
203.	7836	*Anglanthus tomentosus (Camel-grass)*			
204.	1265	*Arthropodium curvipes*			
205.	11516	*Atriplex nummularia subsp. spathulata (Old Man Saltbush)*			
206.	11791	*Atriplex quadrivalvata var. quadrivalvata*			
207.	2481	*Atriplex vesicaria (Bladder Saltbush)*			
208.	17232	*Austrostipa blackii*		P3	
209.	17237	*Austrostipa elegantissima*			
210.	19588	*Austrostipa nodosa*			
211.	17251	*Austrostipa scabra*			
212.	17255	*Austrostipa trichophylla*			
213.	5344	*Baeckea elderiana*			
214.	5356	*Baeckea muricata*			
215.	5357	*Baeckea ochropetala*		P1	
216.	20616	*Baeckea sp. Die Hardy Range (E. Mattiske J91)*		P1	Y
217.	20804	*Baeckea sp. Parker Range (M. Hislop & F. Hort MH 2966)*		P3	
218.	20681	*Baeckea sp. Pigeon Rocks (D. Grace DJP 261)*		P1	Y
219.	32685	*Banksia arborea (Yilgarn Dryandra)*		P4	
220.	7852	*Bellida graminea (Rosy Bellida)*			
221.	1267	*Borya constricta*			
222.	4999	*Brachychiton gregorii (Desert Kurrajong)*			
223.	7871	*Brachyscome ciliaris*			
224.	18431	*Brachyscome ciliaris var. ciliaris*			
225.	11884	*Brachyscome ciliaris var. lanuginosa*			
226.	7872	*Brachyscome ciliocarpa*			
227.	7880	*Brachyscome lineariloba*			
228.	7882	*Brachyscome parpusilla*			
229.	7883	*Brachyscome pusilla*			
230.	247	*Bromus arenarius (Sand Brome)*			
231.	249	*Bromus diandrus (Great Brome)*	Y		
232.	7413	*Brunonia australis (Native Cornflower)*			
233.	3167	*Bursaria occidentalis*			
234.	15357	*Caladenia incrassata*			
235.	19219	*Caladenia mesocera*			
236.	20478	*Calandrinia sp. Blackberry (D.M. Porter 171)*			
237.	8496	*Callitris columellaris (White Cypress Pine)*			
238.	96	*Callitris preissii (Rottnest Island Pine)*			
239.	7903	*Calotis hispidula (Bindy Eye)*			
240.	16492	*Calycopeplus paucifolius*			
241.	5470	*Calytrix paucicostata*		P2	
242.	12658	*Casuarina pauper (Black Oak)*			
243.	7924	*Ceratogyne obionoides (Wingwort)*			
244.	1215	*Chamaexeros fimbriata*			
245.	1216	*Chamaexeros macranthera*			
246.	12796	*Cheilanthes adiantoides*			
247.	31	*Cheilanthes austrotenuifolia*			
248.	32	*Cheilanthes brownii*			
249.	37	*Cheilanthes lasiophylla (Woolly Cloak Fern)*			
250.	4555	*Comesperma integerrimum*			
251.	7943	*Cotula australis (Common Cotula)*			

Western Botanical

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Mapping Western Australia's biodiversity

	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
252.	3137	*Crassula colorata (Dense Stonecrop)*			
253.	11709	*Crassula colorata var. acuminata*			
254.	11563	*Crassula colorata var. colorata*			
255.	11349	*Crassula decumbens var. decumbens*			
256.	3139	*Crassula exserta*			
257.	20268	*Crassula tetramera*			
258.	4791	*Cryptandra apetala*			
259.	16185	*Cryptandra granilicola*			
260.	6663	*Cuscuta epithymum (Lesser Dodder)*	Y		
261.	15400	*Cyanicula amplexans*			
262.	6218	*Daucus glochidiatus (Australian Carrot)*			
263.	3836	*Daviesia purpurascens (Purple-leaved Daviesia)*			
264.	1259	*Dianella revoluta (Blueberry Lily)*			
265.	11636	*Dianella revoluta var. divaricata*			
266.	29315	*Dicrastylis rugosifolia*			
267.	15436	*Diuris pomifolia*			
268.	4766	*Dodonaea inaequifolia*			
269.	4769	*Dodonaea lobulata (Bead Hopbush)*			
270.	4775	*Dodonaea pinifolia*			
271.	4779	*Dodonaea rigida*			
272.	4782	*Dodonaea viscosa (Sticky Hopbush)*			
273.	11674	*Dodonaea viscosa subsp. mucronata*			
274.	11202	*Dodonaea viscosa subsp. spatulata (Sticky Hop-bush)*			
275.	14298	*Drosera macrantha subsp. macrantha*			
276.	33479	*Dysphania melanocarpa (Black Crumbweed)*			
277.	33597	*Dysphania melanocarpa forma melanocarpa (Black Goosefoot)*			
278.	2511	*Enchylaena tomentosa (Barrier Saltbush)*			
279.	12064	*Enchylaena tomentosa var. tomentosa (Barrier Saltbush)*			
280.	357	*Enneapogon caerulescens (Limestone Grass)*			
281.	13807	*Eremophila caperata*			
282.	7189	*Eremophila clarkei (Turpentine Bush)*			
283.	14895	*Eremophila decipiens subsp. decipiens*			
284.	7204	*Eremophila eriocalyx (Desert Pride)*			
285.	15052	*Eremophila forrestii subsp. forrestii*			
286.	14191	*Eremophila glabra subsp. tomentosa*			
287.	7219	*Eremophila granitica (Thin-leaved Poverty Bush)*			
288.	7230	*Eremophila latrobei (Warty Fuchsia Bush)*			
289.	17576	*Eremophila latrobei subsp. latrobei*			
290.	7246	*Eremophila oldfieldii (Pixie Bush)*			
291.	15003	*Eremophila oldfieldii subsp. angustifolia*			
292.	18570	*Eremophila oppositifolia subsp. angustifolia*			
293.	7250	*Eremophila pantonii*			
294.	7267	*Eremophila scoparia (Broom Bush ()*			
295.	7269	*Eremophila serrulata (Serrate-leaved Eremophila)*			
296.	417	*Eriachne pulchella (Pretty Wanderrie)*			
297.	16486	*Eriachne pulchella subsp. pulchella*			
298.	20718	*Ericksonella saccharata*			
299.	2514	*Eriochiton sclerolaenoides (Woolly Bindi)*			
300.	4331	*Erodium aureum*	Y		
301.	4333	*Erodium cicutarium (Common Storksbill)*	Y		
302.	4334	*Erodium crinitum (Corkscrew)*			
303.	4335	*Erodium cygnorum (Blue Heronsbill)*			
304.	12903	*Eucalyptus capillosa subsp. capillosa (Wheatbelt Wandoo)*			
305.	5592	*Eucalyptus clelandi (Cleland's Blackbutt)*			
306.	5585	*Eucalyptus comitae-vallis (Comet Vale Mallee)*			
307.	5596	*Eucalyptus concinna (Victoria Desert Mallee)*			
308.	5605	*Eucalyptus cornuta (Yate)*			
309.	5607	*Eucalyptus corrugata (Rough-fruited Mallee)*			
310.	13549	*Eucalyptus ebbanoensis subsp. ebbanoensis*			
311.	5641	*Eucalyptus ewartiana (Ewart's Mallee)*			
312.	5651	*Eucalyptus formanii*		P4	
313.	5665	*Eucalyptus griffithsii (Griffith's Grey Gum)*			
314.	19523	*Eucalyptus kochii subsp. amaryssia*			
315.	15670	*Eucalyptus kochii subsp. plenissima*			
316.	13056	*Eucalyptus leptopoda subsp. subluta*			
317.	20602	*Eucalyptus longissima*			
318.	13037	*Eucalyptus loxophleba subsp. lissophloia*			
319.	13038	*Eucalyptus loxophleba subsp. supralaevis*			
320.	19323	*Eucalyptus moderata*			
321.	5725	*Eucalyptus oldfieldii (Oldfield's Mallee)*			

NatureMap is a collaborative project of the Department of Environment and Conservation, Western Australia, and the Western Australian Museum.

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	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
322.	5726	*Eucalyptus oleosa (Giant Mallee)*			
323.	20091	*Eucalyptus oleosa subsp. oleosa*			
324.	5731	*Eucalyptus orbifolia (Round-leaved Mallee)*			
325.	5742	*Eucalyptus petraea (Granite Rock Box)*			
326.	5766	*Eucalyptus salmonophloia (Salmon Gum)*			
327.	5802	*Eucalyptus yilgarnensis (Yorrell)*			
328.	16722	*Euryomyrtus maideni*			
329.	19723	*Euryomyrtus patricklae*			
330.	25797	*Galium spurium*	Y		
331.	12780	*Gilberta tenuifolia*			
332.	7977	*Gilruthia osbornei*			
333.	19925	*Glycine peratosa*			
334.	7988	*Gnephosis arachnoidea (Cobwebby-headed Gnephosis)*			
335.	6159	*Gonocarpus nodulosus*			
336.	7495	*Goodenia berardiana*			
337.	7514	*Goodenia havilandii*			
338.	8830	*Grevillea ceratocarpa*			
339.	1996	*Grevillea erectiloba*		P4	
340.	2000	*Grevillea eriobotrya (Woolly Cluster Grevillea)*		P3	
341.	2009	*Grevillea georgeana*		P3	
342.	19541	*Grevillea nematophylla subsp. nematophylla*			
343.	2051	*Grevillea obliquistigma*			
344.	15981	*Grevillea obliquistigma subsp. obliquistigma*			
345.	2057	*Grevillea paradoxa (Bottlebrush Grevillea)*			
346.	15982	*Grevillea zygoloba*			
347.	2182	*Hakea minyma*			
348.	17557	*Hakea recurva subsp. recurva*			
349.	29840	*Halgania cyanea var. Allambi Stn (B.W. Strong 676)*			
350.	6180	*Haloragis trigonocarpa*			
351.	17725	*Hemiandia bissilii subsp. latifolia*			
352.	3016	*Hemichroa pusilla*	Y		
353.	5122	*Hibbertia eatoniae*			
354.	5124	*Hibbertia exasperata*			
355.	5165	*Hibbertia rostellata*			
356.	5166	*Hibbertia rupicola*			
357.	12742	*Hyalosperma demissum*			
358.	11973	*Hybanthus floribundus subsp. curvifolius*			
359.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
360.	1503	*Hypoxis occidentalis*			
361.	8087	*Isoetopsis graminifolia (Cushion Grass)*			
362.	7397	*Isotoma petraea (Rock Isotome)*			
363.	4044	*Kennedia prostrata (Scarlet Runner)*			
364.	13729	*Keraudrania velutina*			
365.	5840	*Kunzea pulchella (Granite Kunzea)*			
366.	13284	*Lawrencella rosea*			
367.	19726	*Leiocarpa semicalva*			
368.	12628	*Lemooria burkittii*			
369.	3033	*Lepidium oxytrichum*			
370.	31770	*Lepidosperma ferricola*		P3	
371.	29136	*Lepidosperma sp. Pigeon Rocks (H. Pringle 30237)*		P3	
372.	16049	*Leucopogon sp. Clyde Hill (M.A. Burgman 1207)*			
373.	7670	*Levenhookia dubia (Hairy Stylewort)*			
374.	7676	*Levenhookia pusilla (Midget Stylewort)*			
375.	2538	*Maireana carnosa (Cottony Bluebush)*			
376.	2543	*Maireana eriosphaera*			
377.	2544	*Maireana georgei (Satiny Bluebush)*			
378.	11662	*Maireana tomentosa subsp. tomentosa*			
379.	2568	*Maireana trichoptera (Downy Bluebush)*			
380.	5865	*Malleostemon roseus*			
381.	16295	*Malleostemon sp. Adelong (G.J. Keighery 11825)*		P2	
382.	5866	*Malleostemon tuberculatus*			
383.	5896	*Melaleuca cordata*			
384.	5908	*Melaleuca eleuterostachya*			
385.	5929	*Melaleuca leiocarpa*			
386.	5958	*Melaleuca radula (Graceful Honeymyrtle)*			
387.	19787	*Micromyrtus monotaxis*			
388.	8105	*Millotia myosotidifolia*			
389.	12631	*Millotia perpusilla*			
390.	4089	*Mirbelia depressa*			
391.	41443	*Mirbelia ferricola*		P3	

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	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
392.	490	*Monachather paradoxus*			
393.	6976	*Nicotiana occidentalis (Native Tobacco)*			
394.	6978	*Nicotiana rotundifolia (Round-leaved Tobacco)*			
395.	8134	*Olearia exiguifolia (Small-leaved Daisy Bush)*			
396.	12734	*Olearia humilis*			
397.	8140	*Olearia muelleri (Goldfields Daisy)*			
398.	8145	*Olearia pimeleoides (Pimelea Daisybush)*			
399.	8152	*Olearia subspicata (Spiked Daisy Bush)*			
400.	12670	*Parietaria cardiostegia*			
401.	10975	*Paspalidium basicladum*			
402.	516	*Paspalidium clementii (Clements Paspalidium)*			
403.	3674	*Petalostylis cassioides*			
404.	4497	*Phebalium canaliculatum*			
405.	18537	*Philotheca brucei subsp. brucei*			
406.	16833	*Philotheca costiana*		P3	
407.	18519	*Philotheca coccinea*			
408.	18386	*Philotheca deserti subsp. brevifolia*		P1	
409.	16177	*Phyllangium paradoxum*			
410.	5245	*Pimelea forrestiana*			
411.	5256	*Pimelea microcephala (Shrubby Riceflower)*			
412.	12104	*Pimelea spiculigera var. thesioides*			
413.	7299	*Plantago debilis*			
414.	8172	*Podolepis canescens*			
415.	8177	*Podolepis lessonii*			
416.	8181	*Podolepis tepperi*			
417.	8184	*Podotheca gnaphaloides (Golden Long-heads)*			
418.	6912	*Prostanthera campbellii*			
419.	6916	*Prostanthera gryllioana*			
420.	18390	*Pseudactinia sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)*		P3	
421.	18155	*Psydrax suaveolens*			
422.	18657	*Pterostylis sp. inland (A.C. Beauglehole 11880)*			
423.	2718	*Ptilotus drummondii (Narrowleaf Mulla Mulla)*			
424.	2732	*Ptilotus holosericeus*			
425.	2747	*Ptilotus obovatus (Cotton Bush)*			
426.	15855	*Ptilotus schwartzii var. schwartzii*			
427.	2581	*Rhagodia drummondii*			
428.	11254	*Rhagodia preissii subsp. preissii*			
429.	13306	*Rhodanthe battii*			
430.	13241	*Rhodanthe chlorocephala subsp. rosea*			
431.	13300	*Rhodanthe citrina*			
432.	13294	*Rhodanthe laevis*			
433.	13234	*Rhodanthe manglesii*			
434.	13248	*Rhodanthe oppositifolia*			
435.	13249	*Rhodanthe oppositifolia subsp. oppositifolia*			
436.	13296	*Rhodanthe polycephala*			
437.	13252	*Rhodanthe pygmaea*			
438.	13254	*Rhodanthe stricta*			
439.	6599	*Rhyncharrhena linearis (Bush Bean)*			
440.	14225	*Ricinocarpos brevis*		T	
441.	2359	*Santalum spicatum (Sandalwood)*			
442.	13008	*Sarcostemma viminale*			
443.	7639	*Scaevola restiacea*			
444.	12586	*Scaevola spinigera*			
445.	7644	*Scaevola spinescens (Currant Bush)*			
446.	8200	*Schoenia cassiniana (Schoenia)*			
447.	2609	*Sclerolaena diacantha (Grey Copperburr)*			
448.	8205	*Senecio glomeratus (Cluster-headed Fireweed)*			
449.	8207	*Senecio glossanthus (Slender Groundsel)*			
450.	20161	*Senecio pinnatifolius*			
451.	8217	*Senecio quadridentatus*			
452.	17645	*Senna artemisioides*			
453.	17558	*Senna artemisioides subsp. x artemisioides*			
454.	12314	*Senna pleurocarpa var. pleurocarpa*			
455.	4970	*Sida calyxhymenia (Tall Sida)*			
456.	31854	*Sida sp. Excedentifolia (J.L. Egan 1925)*			
457.	31857	*Sida sp. Golden calyces glabrous (H.N. Foote 32)*			
458.	19712	*Sida sp. dark green fruits (S. van Leeuwen 2260)*			
459.	2909	*Silene gallica (French Catchfly)*	Y		
460.	7016	*Solanum lasiophyllum (Flannel Bush)*			
461.	7023	*Solanum nummularium (Money-leaved Solanum)*			

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462.	7028	*Solanum petrophilum (Rock Nightshade)*			
463.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
464.	20767	*Spartothamnella sp. Helena & Aurora Range (P.G. Armstrong 155-109)*		P3	
465.	4733	*Stackhousia monogyna*			
466.	14797	*Stenanthemum newbeyi*		P3	
467.	16200	*Stenanthemum stipulosum*			
468.	3076	*Stenopetalum filifolium*			
469.	3077	*Stenopetalum lineare (Narrow Thread Petal)*			
470.	30212	*Stenopetalum lineare var. lineare*			
471.	7714	*Stylidium dielsianum (Tangle Triggerplant)*			
472.	7719	*Stylidium ecorne (Foot Triggerplant)*			
473.	7740	*Stylidium induratum (Desert Triggerplant)*			
474.	33018	*Styphelia sp. Bullfinch (M. Hislop 3574)*		P3	
475.	4221	*Swainsona colutoides (Bladder Vetch)*			
476.	4231	*Swainsona kingii*			
477.	2822	*Tetragonia eremaea*			
478.	16287	*Tetragonia moorei*			
479.	23987	*Tetratheca paynterae subsp. cremnobata*		T	Y
480.	23988	*Tetratheca paynterae subsp. paynterae*		T	Y
481.	6050	*Thryptomene australis (Hook-leaf Thryptomene)*			
482.	19696	*Thryptomene australis subsp. australis*			
483.	6056	*Thryptomene kochii*			
484.	6058	*Thryptomene urceolaris*			
485.	674	*Thyridolepis mitchelliana (Mulga Grass)*			
486.	1338	*Thysanotus manglesianus (Fringed Lily)*			
487.	1343	*Thysanotus patersonii*			
488.	1352	*Thysanotus speckii*			
489.	19253	*Trachymene ceratocarpa*			
490.	6279	*Trachymene ornata (Spongefruit)*			
491.	13041	*Triodia tomentosa*			
492.	16986	*Tymalium myrtillus subsp. myrtillus*			
493.	7656	*Vellela cyanopotamica*			
494.	7664	*Vellela rosea (Pink Vellela)*			
495.	8268	*Vittadinia humerata*			
496.	724	*Vulpia myuros (Rat's Tail Fescue)*	Y		
497.	33101	*Vulpia myuros forma myuros*	Y		
498.	7386	*Wahlenbergia gracilenta (Annual Bluebell)*			
499.	8275	*Waitzia acuminata (Orange Immortelle)*			
500.	6938	*Westringia cephalantha*			
501.	6942	*Wilsonia prostantheroides*			
502.	4386	*Zygophyllum aurantiacum (Shrubby Twinleaf)*			
503.	4389	*Zygophyllum eremaeum*			
504.	4392	*Zygophyllum iodocarpum*			
505.	4394	*Zygophyllum ovatum (Dwarf Twinleaf)*			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

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Marda East NatureMap Species Report

Created By Guest user on 13/11/2013

Kingdom Plantae
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 119°24' 21" E,29°56' 35" S
Buffer 10km

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1.	3200	*Acacia acuminata (Jam, Mangard)*			
2.	3217	*Acacia aneura (Mulga, Wanari)*			
3.	15467	*Acacia assimilis subsp. assimilis*			
4.	3248	*Acacia burkittii (Sandhill Wattle)*			
5.	23977	*Acacia cockertoniana*			
6.	32118	*Acacia effusifolia*			
7.	3366	*Acacia hemiteles*			
8.	3419	*Acacia ligulata (Umbrella Bush, Watarka)*			
9.	3426	*Acacia longispinea*			
10.	15290	*Acacia neurophylla subsp. erugata*			
11.	3507	*Acacia quadrimarginea*			
12.	19499	*Acacia ramulosa var. ramulosa*			
13.	3545	*Acacia sibina*			
14.	23525	*Acacia steedmanii subsp. steedmanii*			
15.	3577	*Acacia tetragonophylla (Kurara, Wakalpuka)*			
16.	1720	*Allocasuarina acutivalvis*			
17.	13904	*Allocasuarina acutivalvis subsp. acutivalvis*			
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32.	5344	*Baeckea elderiana*			
33.	5356	*Baeckea muricata*			
34.	20616	*Baeckea sp. Die Hardy Range (E. Mattiske J91)*		P1	Y
35.	32685	*Banksia arborea (Yilgarn Dryandra)*		P4	
36.	7852	*Bellida graminea (Rosy Bellida)*			
37.	4999	*Brachychiton gregorii (Desert Kurrajong, Ngalta)*			
38.	7871	*Brachyscome ciliaris*			
39.	11884	*Brachyscome ciliaris var. lanuginosa*			
40.	247	*Bromus arenarius (Sand Brome)*			
41.	7413	*Brunonia australis (Native Cornflower)*			
42.	3167	*Bursaria occidentalis*			
43.	15357	*Caladenia incrassata*			
44.	8466	*Callitris columellaris (White Cypress Pine)*			
45.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			
46.	7903	*Calotis hispidula (Bindy Eye)*			
47.	16492	*Calycopeplus paucifolius*			
48.	5470	*Calytrix paucicostata*		P2	
49.	12658	*Casuarina pauper (Black Oak)*			
50.	7924	*Ceratogyne obionoides (Wingwort)*			
51.	1216	*Chamaexeros macranthera*			
52.	12796	*Cheilanthes adiantoides*			

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NatureMap
Mapping Western Australia's Biodiversity

	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
53.	31	*Chaetanthes australenulifolia*			
54.	32	*Chaetanthes browni*			
55.	37	*Chaetanthes lasiophylla (Woolly Cloak Fern)*			
56.	4555	*Comesperma integerrimum*			
57.	3137	*Crassula colorata (Dense Stonecrop)*			
58.	11709	*Crassula colorata var. acuminata*			
59.	11563	*Crassula colorata var. colorata*			
60.	11349	*Crassula decumbens var. decumbens*			
61.	20268	*Crassula tetramera*			
62.	4791	*Cryptandra apetala*			
63.	16185	*Cryptandra graniticola*			
64.	15400	*Cyanicula amplexans*			
65.	6218	*Daucus glochidiatus (Australian Carrot)*			
66.	11636	*Dianella revoluta var. divaricata*			
67.	29315	*Dicrastylis rugosifolia*			
68.	4769	*Dodonaea lobulata (Bead Hopbush)*			
69.	4775	*Dodonaea pinifolia*			
70.	4782	*Dodonaea viscosa (Sticky Hopbush)*			
71.	11674	*Dodonaea viscosa subsp. mucronata*			
72.	14298	*Drosera macrantha subsp. macrantha*			
73.	2511	*Enchylaena tomentosa (Barrier Saltbush)*			
74.	357	*Enneapogon caerulescens (Limestone Grass)*			
75.	7189	*Eremophila clarkei (Turpentine Bush)*			
76.	14895	*Eremophila decipiens subsp. decipiens*			
77.	7204	*Eremophila eriocalyx (Desert Pride)*			
78.	7219	*Eremophila granitica (Thin-leaved Poverty Bush)*			
79.	7230	*Eremophila latrobei (Warty Fuchsia Bush, Mintjingka)*			
80.	17576	*Eremophila latrobei subsp. latrobei*			
81.	7246	*Eremophila oldfieldii (Pixie Bush)*			
82.	7267	*Eremophila scoparia (Broom Bush ()*			
83.	7269	*Eremophila serrulata (Serrate-leaved Eremophila)*			
84.	20718	*Ericksonella saccharata*			
85.	4334	*Erodium crinitum (Corkscrew)*			
86.	4335	*Erodium cygnorum (Blue Heronsbill)*			
87.	12903	*Eucalyptus capillosa subsp. capillosa (Wheatbelt Wandoo)*			
88.	5595	*Eucalyptus comitae-valis (Comet Vale Mallee)*			
89.	5596	*Eucalyptus concinna (Victoria Desert Mallee)*			
90.	13549	*Eucalyptus ebbanoensis subsp. ebbanoensis*			
91.	5641	*Eucalyptus ewartiana (Ewart's Mallee)*			
92.	5651	*Eucalyptus formanii*		P4	
93.	5665	*Eucalyptus griffithsii (Griffith's Grey Gum)*			
94.	19523	*Eucalyptus kochii subsp. amaryssia*			
95.	15670	*Eucalyptus kochii subsp. plenissima*			
96.	13056	*Eucalyptus leptopoda subsp. subluta*			
97.	20602	*Eucalyptus longissima*			
98.	13037	*Eucalyptus loxophleba subsp. lissophloia*			
99.	13038	*Eucalyptus loxophleba subsp. supralaevis*			
100.	19323	*Eucalyptus moderata*			
101.	5725	*Eucalyptus oldfieldii (Oldfield's Mallee)*			
102.	20091	*Eucalyptus oleosa subsp. oleosa*			
103.	5766	*Eucalyptus salmonophloia (Salmon Gum, Wurak)*			
104.	5802	*Eucalyptus yilgarnensis (Yorrell)*			
105.	16722	*Euryomyrtus maidenii*			
106.	19723	*Euryomyrtus patrickiae*			
107.	12780	*Gilberta tenuifolia*			
108.	6159	*Gonocarpus nodulosus*			
109.	2000	*Grevillea eriobotrya (Woolly Cluster Grevillea)*			
110.	2009	*Grevillea georgeana*		P3	
111.	19541	*Grevillea nematophylla subsp. nematophylla*			
112.	2051	*Grevillea obliquistigma*			
113.	15981	*Grevillea obliquistigma subsp. obliquistigma*			
114.	2057	*Grevillea paradoxa (Bottlebrush Grevillea)*			
115.	15982	*Grevillea zygoloba*			
116.	2182	*Hakea minyma*			
117.	29840	*Halgania cyanea var. Allambi Stn (B.W. Strong 676)*			
118.	6180	*Haloragis trigonocarpa*			
119.	5122	*Hibbertia aetoniae*			
120.	5124	*Hibbertia exasperata*			
121.	5165	*Hibbertia rostellata*			
122.	12742	*Hyalosperma demissum*			

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Western Botanical

NatureMap

	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
123.	7397	*Isotoma petraea (Rock Isotome, Tundiwari)*			
124.	13729	*Keraudrenia velutina*			
125.	13284	*Lawrencella rosea*			
126.	19726	*Leiocarpa semicalva*			
127.	3033	*Lepidium oxytrichum*			
128.	31770	*Lepidosperma ferricola*		P3	
129.	16049	*Leucopogon sp. Clyde Hill (M.A. Burgman 1207)*			
130.	2568	*Maireana trichoptera (Downy Bluebush)*			
131.	5865	*Malleostemon roseus*			
132.	5929	*Melaleuca leiocarpa*			
133.	5958	*Melaleuca radula (Graceful Honeymyrtle)*			
134.	41785	*Melichrus sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)*		P3	
135.	8105	*Millotia myosotidifolia*			
136.	4089	*Mirbelia depressa*			
137.	41443	*Mirbelia ferricola*		P3	
138.	490	*Monachathar paradoxus*			
139.	6976	*Nicotiana occidentalis (Native Tobacco)*			
140.	6978	*Nicotiana rotundifolia (Round-leaved Tobacco)*			
141.	12734	*Olearia humilis*			
142.	8140	*Olearia muelleri (Goldfields Daisy)*			
143.	8145	*Olearia pimeleoides (Pimelea Daisybush, Burroburga)*			
144.	8152	*Olearia subspicata (Spiked Daisy Bush)*			
145.	12670	*Parietaria cardiostegia*			
146.	518	*Paspalidium clementii (Clements Paspalidium)*			
147.	3674	*Petalostylis cassioides*			
148.	4497	*Phebalium canaliculatum*			
149.	18537	*Philotheca brucei subsp. brucei*			
150.	18519	*Philotheca coccinea*			
151.	18386	*Philotheca deserti subsp. brevifolia*		P3	
152.	16177	*Phyllangium paradoxum*			
153.	5245	*Pimelea forrestiana*			
154.	5256	*Pimelea microcephala (Shrubby Riceflower, Banjina)*			
155.	12104	*Pimelea spiculigera var. thesioides*			
156.	8172	*Podolepis canescens (Bright Podolepis, Grey Podolepis)*			
157.	8177	*Podolepis lessonii*			
158.	6912	*Prostanthera campbellii*			
159.	6916	*Prostanthera grylloana*			
160.	18657	*Pterostylis sp. inland (A.C. Beauglehole 11880)*			
161.	2747	*Ptilotus obovatus (Cotton Bush)*			
162.	15855	*Ptilotus schwartzii var. schwartzii*			
163.	13306	*Rhodanthe battii*			
164.	13300	*Rhodanthe citrina*			
165.	13294	*Rhodanthe laevis*			
166.	13248	*Rhodanthe oppositifolia*			
167.	13249	*Rhodanthe oppositifolia subsp. oppositifolia*			
168.	13296	*Rhodanthe polycephala*			
169.	6599	*Rhynchorrhena linearis (Bush Bean, Wintjulanypa)*			
170.	2359	*Santalum spicatum (Sandalwood, Wilarak)*			
171.	7639	*Scaevola restiacea*			
172.	7644	*Scaevola spinescens (Currant Bush, Maroon)*			
173.	8207	*Senecio glossanthus (Slender Groundsel)*			
174.	17645	*Senna artemisioides*			
175.	4970	*Sida calyxhymenia (Tall Sida)*			
176.	31854	*Sida sp. Exocalantifolia (J.L. Egan 1925)*			
177.	31857	*Sida sp. Golden calyces glabrous (H.N. Foote 32)*			
178.	19712	*Sida sp. dark green fruits (S. van Leeuwen 2260)*			
179.	2909	*Silene gallica (French Catchfly)*	Y		
180.	7018	*Solanum lasiophyllum (Flannel Bush, Mingulu)*			
181.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
182.	20767	*Spartothamnella sp. Helena & Aurora Range (P.G. Armstrong 155-109)*		P3	
183.	14797	*Stenanthemum newbeyi*		P3	
184.	16200	*Stenanthemum stipulosum*			
185.	3076	*Stenopetalum filifolium*			
186.	7719	*Stylidium ecorne (Foot Triggerplant)*			
187.	7740	*Stylidium induratum (Desert Triggerplant)*			
188.	33018	*Styphelia sp. Bullfinch (M. Hislop 3574)*		P3	
189.	4221	*Swainsona colutoides (Bladder Vetch)*			
190.	4231	*Swainsona kingii*			
191.	23987	*Tetratheca paynterae subsp. cremnobata*		T	
192.	23988	*Tetratheca paynterae subsp. paynterae*		T	

NatureMap
Mapping Western Australia's Biodiversity

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
193.	6050	*Thryptomene australis (Hook-leaf Thryptomene)*			
194.	19698	*Thryptomene australis subsp. australis*			
195.	6058	*Thryptomene kochii*			
196.	1343	*Thysanotus patersonii*			
197.	6279	*Trachymene ornata (Spongefruit)*			
198.	13041	*Triodia tomentosa*			
199.	16986	*Tymelium myrtillus subsp. myrtillus*			
200.	7656	*Velleia cycnopotamica*			
201.	7664	*Velleia rosea (Pink Velleia)*			
202.	8275	*Waitzia acuminata (Orange Immortelle)*			
203.	6938	*Westringia cephalantha*			
204.	4392	*Zygophyllum iodocarpum*			
205.	4394	*Zygophyllum ovatum (Dwarf Twinleaf)*			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

Appendix 8. EPBC Act Protected Matters search results

Australian Government
Department of the Environment

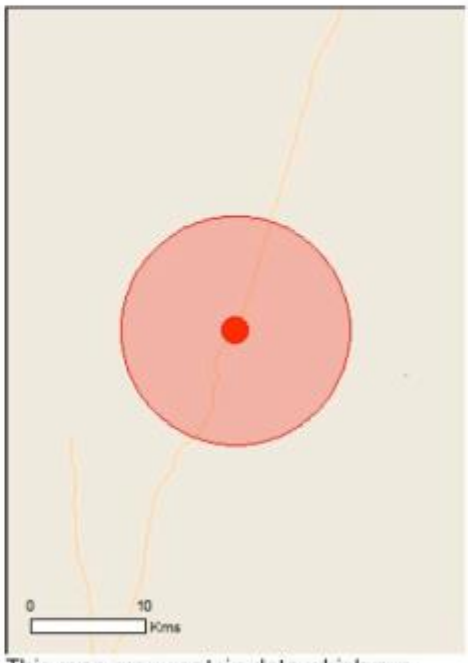
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 13/11/13 19:20:03



Coordinates
Buffer: 10.0Km

Western Botanical

Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	4
Listed Migratory Species:	5

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

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

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	4
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine	None

Extra Information

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

Place on the RNE:	None
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	10
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Acanthiza iredalei iredalei		
Slender-billed Thornbill (western) [25967]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Plants		
Ricinocarpos brevis		
[82879]	Endangered	Species or species habitat likely to occur within area
Tetratheca paynterae		
Paynter's Tetratheca [66451]	Endangered	Species or species habitat likely to occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		

Name	Threatened	Type of Presence
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Mount Manning Range	WA

Invasive Species		[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.		
Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Mammals		
Camelus dromedarius Dromedary, Camel [7]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Equus asinus Donkey, Ass [4]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Carrichtera annua Ward's Weed [9511]		Species or species habitat likely to occur within area

Coordinates

-29.94333 119.40611

Caveat

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

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

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

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

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

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

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

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

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

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

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

Acknowledgements

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

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Geoscience Australia
-CSIRO
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Appendix 9. Amended BIF Protocol Data Sheets

Amended BIF Protocol

LOCATION	RECORDERS
QUADRAT NO.	DATE / TIME

LOCATION OF DATUM (WGS84)

mE (NW) -	mE (SE) -	Habitat Unit
mN (NW) -	mN (SE) -	Photo No.
Veg Condition (type of disturbance) -		Fire Age -

LANDFORM ELEMENT

Morphological type 13

C	*Crest*	F	*Flat*
U	*Upper slope*	R	*Ridge*
M	*Mid slope*	FOO	*Foot Slope*
L	*Lower slope*		

Location within landform element **20**

T	*Top third of the height of the landform element*
M	*Middle third of the height of the landform element*
B	*Bottom third of the height of the landform element*

LAND SURFACE **87**

Disturbance of site 88

0	*No effective disturbance*
1	*No effective disturbance except grazing by hoofed animals*
2	*Limited clearing*
3	*Extensive clearing*
8	*Highly disturbed, e.g. mining, urban*

ROCK OUTCROP

Abundance 101

0	*No bedrock exposed*	
1	*Very slightly rocky*	*<2%*
2	*Slightly rocky*	*2-10%*
3	*Rocky*	*10-20%*
4	*Very rocky*	*20-50%*
5	*Rockland*	*>50%*

Runoff 101

0	*No runoff*	3	*Moderately rapid*
1	*Very slow*	4	*Rapid*
2	*Slow*	5	*Very rapid*

LOCAL GEOLOGY

Igneous/ Sedimentary/ Metamorphic – I S M

Description – Subcropping (rock is below the surface and presence is known)
Outcropping (rock is above the surface)

BIF –	Sub	Out
Weathered Basalt –	Sub	Out
Weathered Duricrust –	Sub	Out
Calcrete –	Sub	Out
Granite (general terms) –	Sub	Out

COARSE FRAGMENTS ON THE SURFACE

Ferruginous lag gravel – discontinuous YES / NO
-- continuous YES / NO

Other description –

Abundance 97

0	*No coarse fragments*	0
1	*Very slightly; very few*	<2%
2	*Slightly; few*	2%-10%
3	*No qualifier; common*	10%-20%
4	*Moderately; many*	20%-50%
5	*Very; abundant*	50%-90%
6	*Extremely; very abundant*	>90%

Size 99

1	*Fine gravelly; small pebbles*	2-6 mm
2	*Medium gravelly; medium pebbles*	6-20 mm
3	*Coarse gravelly; large pebbles*	20-60 mm
4	*Cobbly; or cobbles*	60-200 mm
5	*Stony; stones*	200-600 mm
6	*Bouldery; or boulders*	600 mm-2 m
7	*Large boulders*	>2m

Shape 99

A	*Angular*	S	*Subangular*
U	*Subrounded*	R	*Rounded*
AT	*Angular tabular*	ST	*Subangular tabular*
UT	*Subrounded tabular*	RT	*Rounded tabular*
AP	*Angular platy*	SP	*Subangular platy*
UP	*Subrounded platy*	RP	*Rounded platy*

SOIL

Soil Surface (dry) **141**

G	*Cracking*
M	*Self-mulching*
L	*Loose*
S	*Soft*
F	*Firm*
H	*Hard setting*
C	*Surface crust*
X	*Surface flake*

NON-VEG GROUND COVER

% Cover Leaf Litter -

% Cover Bare Ground (including litter, rock cover and bare soil, excluding live vegetation) -

POSITION ON SLOPE

Bearing -

Relief -

Length -

Angle -

Est. distance to highest point -

DEFINITIONS

Bearing is the direction the slope is facing taken from a Compass (downslope).

Relief is the vertical distance from the quadrat to the highest point of the local slope affecting drainage through the quadrat (estimated in metres).

Length is a measure of the slope in metres. Distance from the start of the slope to the point where there is a significant change in the slope gradient.

Angle of the slope determined with a Clinometer (facing upslope in percentage). Gives the steepness of the ground surface in the local area of the quadrat.

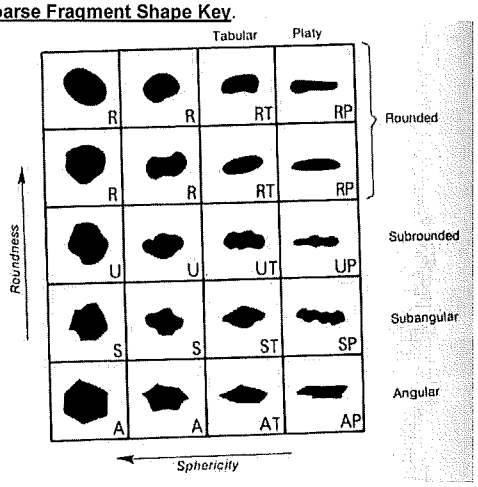
Estimated distance from the quadrat to the highest point in view (on the Range).

Cryptogam cover (%) – **Total PFC (all strata) (%) –**

Dead wood/timber on ground (%) –

Dead Standing timber (%) –

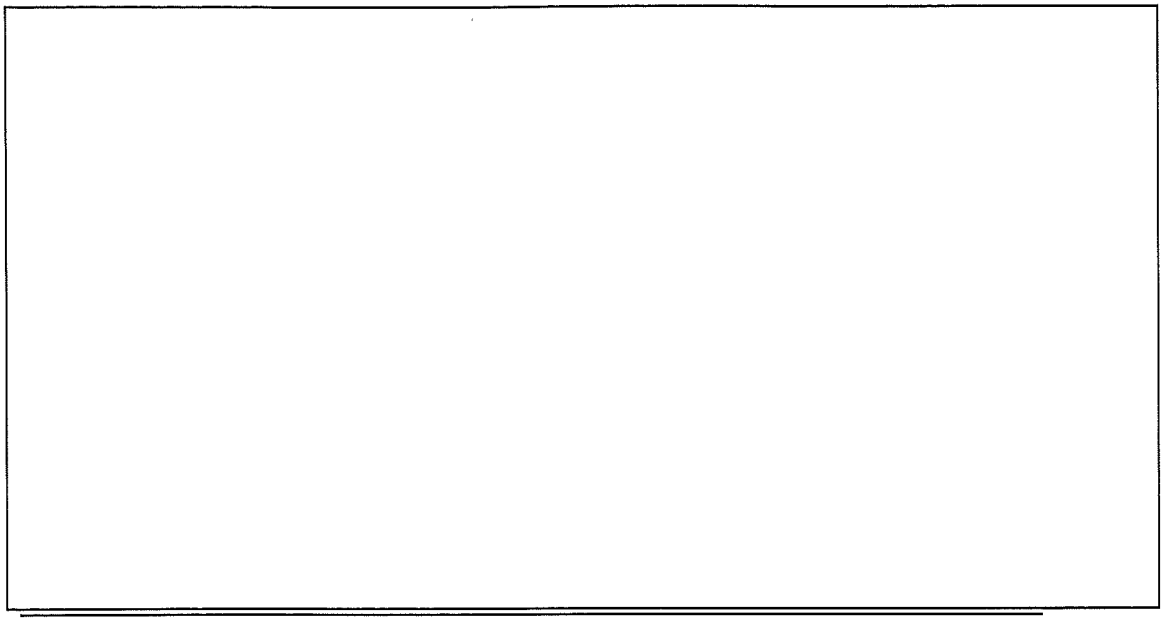
Coarse Fragment Shape Key.



Amended BIF Protocol

Species	Plant specimen coll. No.	Inside Quadrat +	Outside Quadrat +	Height (m)	PFC %

MUD MAP



Appendix 10. Vegetation Structural Classes and Vegetation Condition Scale used in Vegetation Association descriptions

Structural Classes

Stratum	Canopy Cover (%)				
	70-100%	30-70%	10-30%	2-10%	<2%
Trees over 30m	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland	Scattered tall trees
Trees 10-30m	Closed forest	Open forest	Woodland	Open woodland	Scattered trees
Trees under 10m	Low closed forest	Low open forest	Low woodland	Low open woodland	Scattered low trees
Tree Mallee	Closed tree mallee	Tree mallee	Open tree mallee	Very open tree mallee	Scattered tree mallee
Shrub Mallee	Closed shrub mallee	Shrub mallee	Open shrub mallee	Very open shrub mallee	Scattered shrub mallee
Shrubs over 2m	Tall closed scrub	Tall open scrub	Tall shrubland	Tall open shrubland	Scattered tall shrubs
Shrubs 1-2m	Closed heath	Open heath	Shrubland	Open shrubland	Scattered shrubs
Shrubs under 1m	Low closed heath	Low open heath	Low shrubland	Low open shrubland	Scattered low shrubs
Hummock grasses	Closed hummock grassland	Hummock grassland	Open hummock grassland	Very open hummock grassland	Scattered hummock grasses
Grasses, Sedges, Herbs	Closed tussock grassland/ bunch grassland/ sedgeland/ herbland	Tussock grassland/ bunch grassland/ sedgeland/ herbland	Open tussock grassland/ bunch grassland/ sedgeland/ herbland	Very open tussock grassland/ bunch grassland/ sedgeland/ herbland	Scattered tussock grasses/ bunch grasses/ sedges/ herbs

Condition Scale

P = Pristine
Pristine or nearly so; no obvious signs of disturbance.

E = Excellent
Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.

VG = 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.

G = Good
Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.

D = 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.

CD = Completely Degraded
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.

Appendix 11. Definitions and Criteria for TEC's, PECs and DPaW Conservation Codes

Department of Environment and Conservation
December 2010

DEFINITIONS, CATEGORIES AND CRITERIA FOR THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

1. GENERAL DEFINITIONS

Ecological Community
A naturally occurring biological assemblage that occurs in a particular type of habitat.

Note: The scale at which ecological communities are defined will often depend on the level of detail in the information source, therefore no particular scale is specified.

A **threatened ecological community** (TEC) is one which is found to fit into one of the following categories; "presumed totally destroyed", "critically endangered", "endangered" or "vulnerable".

Possible threatened ecological communities that do not meet survey criteria are added to DEC's Priority Ecological Community Lists under Priorities 1, 2 and 3. Ecological Communities that are adequately known, are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

An **assemblage** is a defined group of biological entities.

Habitat is defined as the areas in which an organism and/or assemblage of organisms lives. It includes the abiotic factors (eg. substrate and topography), and the biotic factors.

Occurrence: a discrete example of an ecological community, separated from other examples of the same community by more than 20 metres of a different ecological community, an artificial surface or a totally destroyed community.

By ensuring that every discrete occurrence is recognised and recorded future changes in status can be readily monitored.

Adequately Surveyed is defined as follows:
"An ecological community that has been searched for thoroughly in most likely habitats, by relevant experts."

Community structure is defined as follows:
"The spatial organisation, construction and arrangement of the biological elements comprising a biological assemblage" (eg. *Eucalyptus salmonophloia* woodland over scattered small shrubs over dense herbs; structure in a faunal assemblage could refer to trophic structure, eg. dominance by feeders on detritus as distinct from feeders on live plants).

Definitions of Modification and Destruction of an ecological community:

Modification: "changes to some or all of ecological processes (including abiotic processes such as hydrology), species composition and community structure as a direct or indirect result of human activities. The level of damage involved could be ameliorated naturally or by human intervention."

Destruction: "modification such that reestablishment of ecological processes, species composition and community structure within the range of variability exhibited by the original community is unlikely within the foreseeable future even with positive human intervention."

Note: Modification and destruction are difficult concepts to quantify, and their application will be determined by scientific judgement. Examples of modification and total destruction are cited below:

Modification of ecological processes: The hydrology of Toolibin Lake has been altered by clearing of the catchment such that death of some of the original flora has occurred due to dependence on fresh water. The system may be bought back to a semblance of the original state by redirecting saline runoff and pumping waters of the rising watertable away to restore the hydrological balance. Total destruction of downstream lakes has occurred due to hydrology being altered to the point that few of the original flora or fauna species are able to tolerate the level of salinity and/or water logging.

Modification of structure: The understorey of a plant community may be altered by weed invasion due to nutrient enrichment by addition of fertiliser. Should the additional nutrients be removed from the system the balance may be restored, and the original plant species better able to compete. Total destruction may occur if additional nutrients continue to be added to the system causing the understorey to be completely replaced by weed species, and death of overstorey species due to inability to tolerate high nutrient levels.

Modification of species composition: Pollution may cause alteration of the invertebrate species present in a freshwater lake. Removal of pollutants may allow the return of the original inhabitant species. Addition of residual highly toxic substances may cause permanent changes to water quality, and total destruction of the community.

Threatening processes are defined as follows:
"Any process or activity that threatens to destroy or significantly modify the ecological community and/or affect the continuing evolutionary processes within any ecological community."

Examples of some of the continuing threatening processes in Western Australia include: general pollution; competition, predation and change induced in ecological communities as a result of introduced animals; competition and displacement of native plants by introduced species; hydrological changes; inappropriate fire regimes; diseases resulting from introduced microorganisms; direct human exploitation and disturbance of ecological communities.

Restoration is defined as returning an ecological community to its pre-disturbance or natural state in terms of abiotic conditions, community structure and species composition.

Rehabilitation is defined as the re-establishment of ecological attributes in a damaged ecological community although the community will remain modified.

2. DEFINITIONS AND CRITERIA FOR PRESUMED TOTALLY DESTROYED, CRITICALLY ENDANGERED, ENDANGERED AND VULNERABLE ECOLOGICAL COMMUNITIES

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

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

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

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

Critically Endangered (CR)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. DEFINITIONS AND CRITERIA FOR PRIORITY ECOLOGICAL COMMUNITIES

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

Priority One: Poorly-known ecological communities

Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha). Occurrences are believed to be under threat either due

to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Priority Two: Poorly-known ecological communities

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

Priority Three: Poorly known ecological communities

(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:
(ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;
(iii) communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.

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

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

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

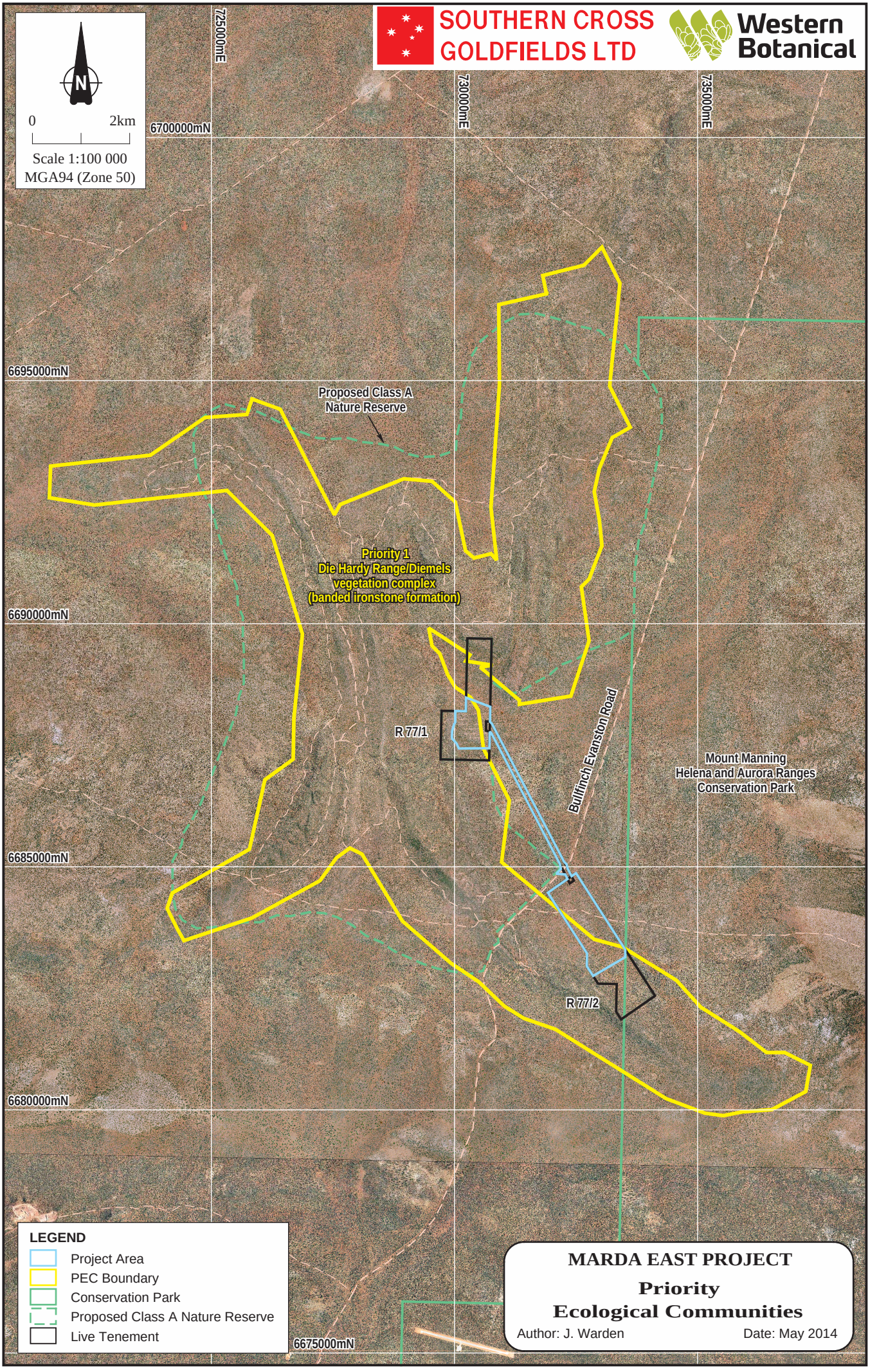
(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.

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

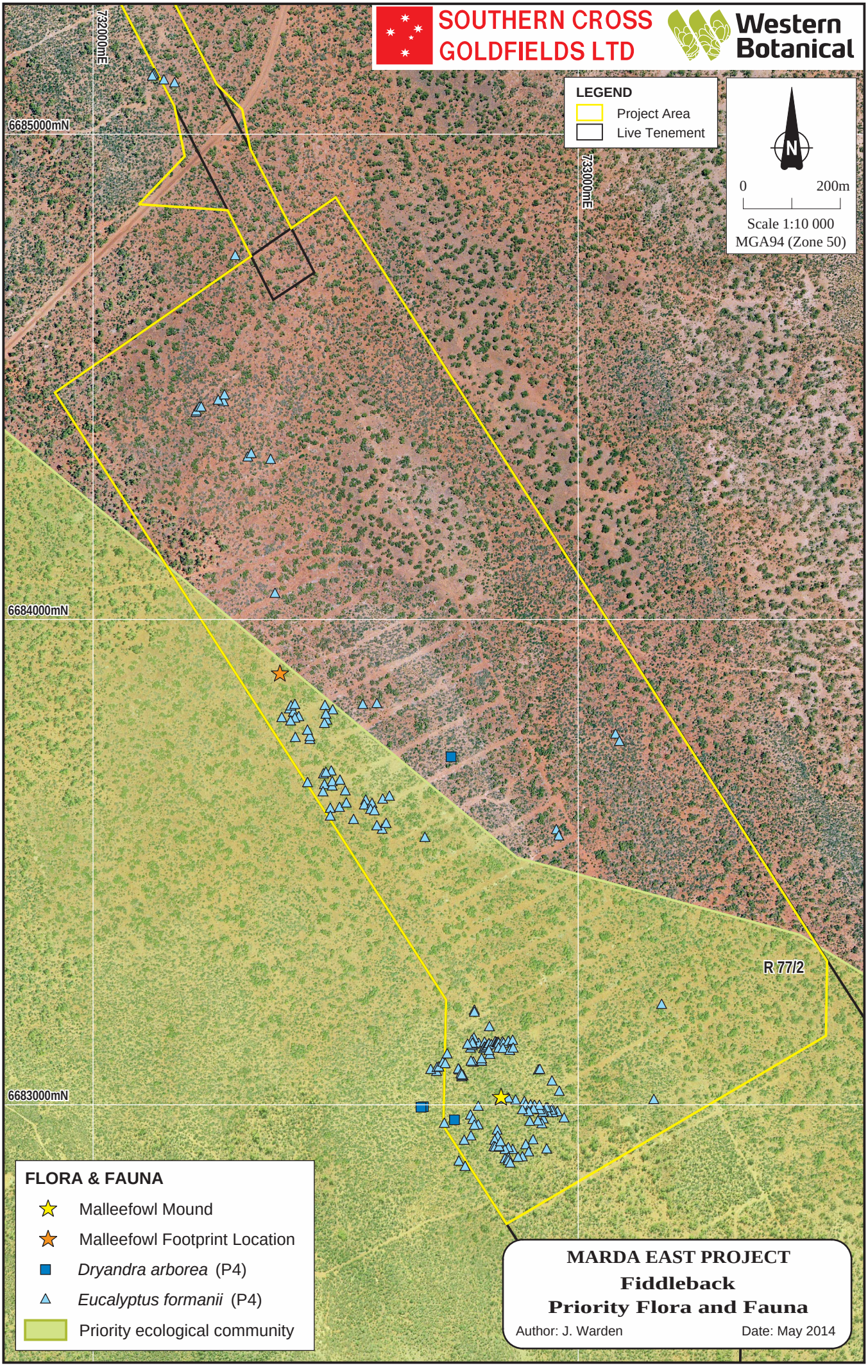
Priority Five: Conservation Dependent ecological communities

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

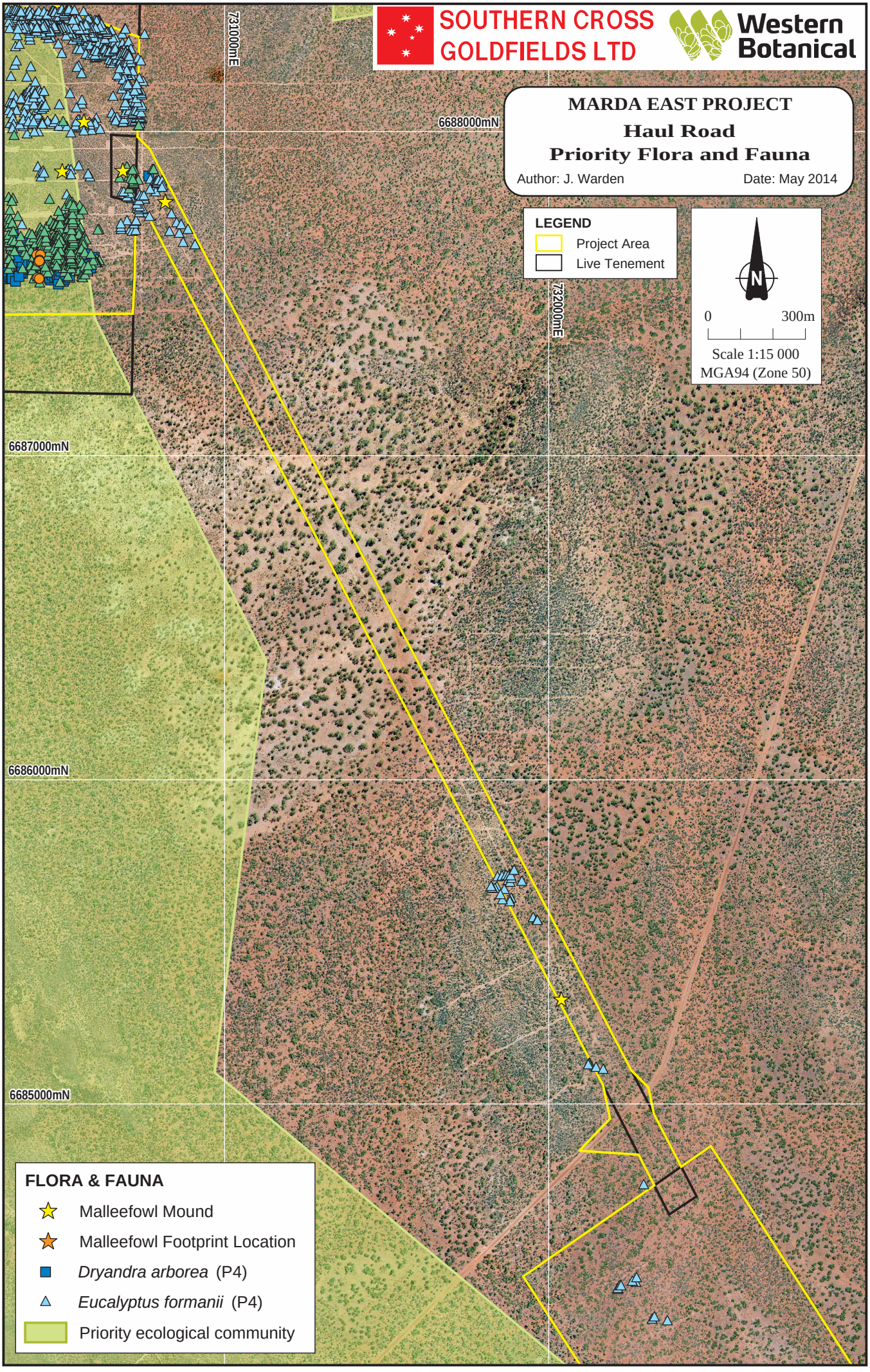
Appendix 12. Maps showing The Priority One (P1) Die Hardy Range / Diemals vegetation complex (banded ironstone formation) in relation to the Project area



Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_02.dgn



Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_05_03.dgn



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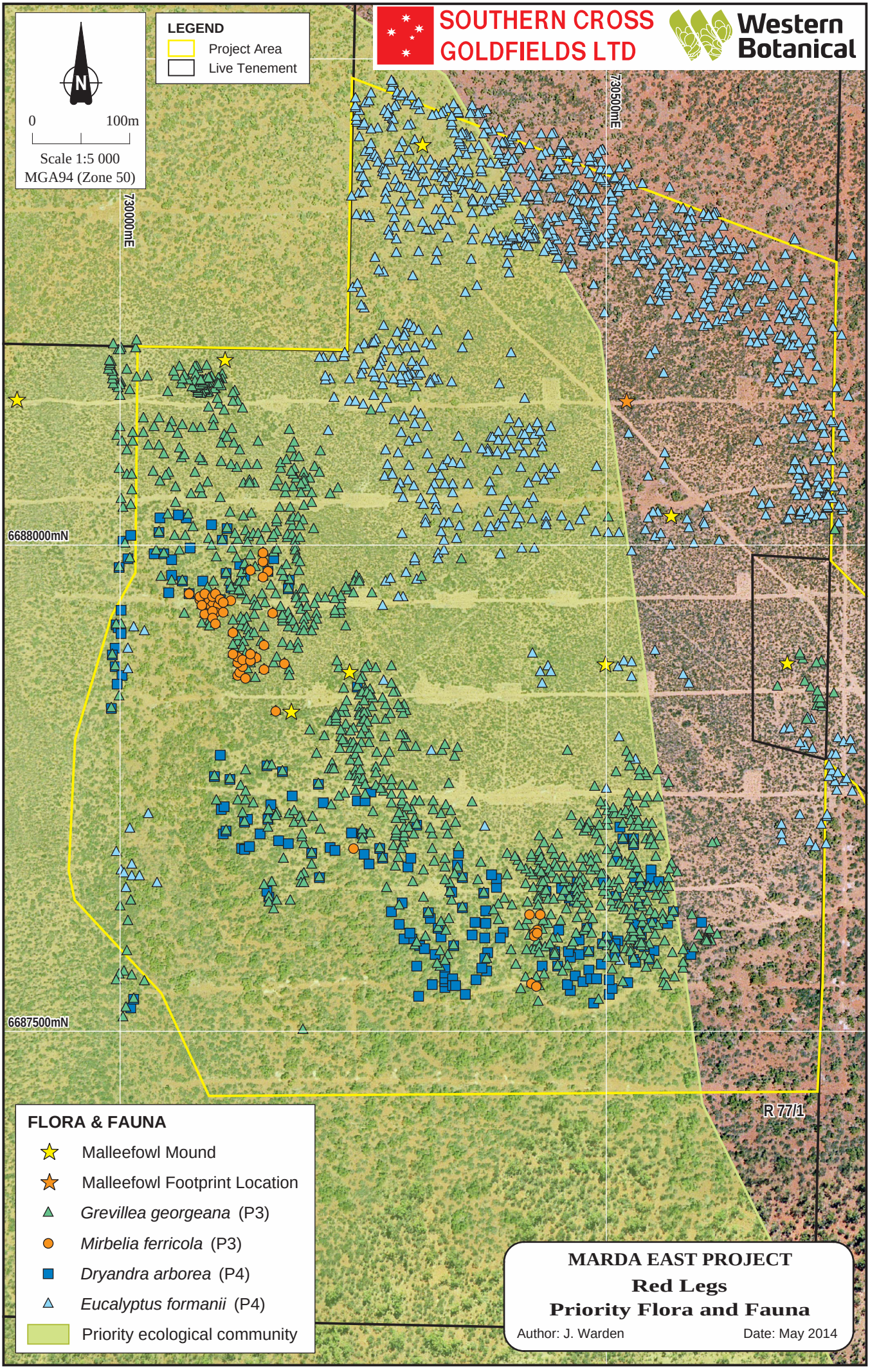

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Appendix 13. Systematic List of species recorded within the Marda East Project area

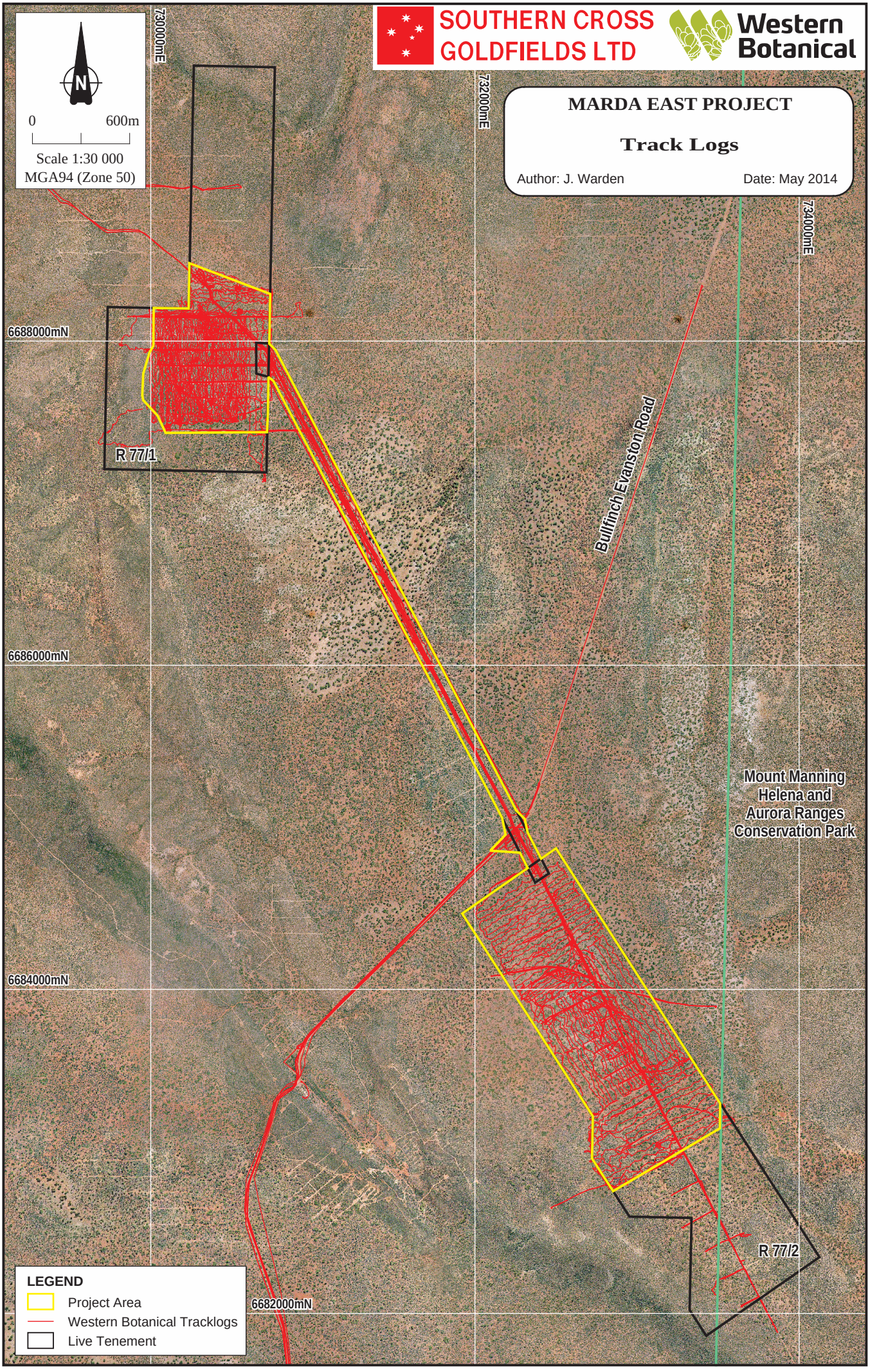
Family	Genus	Species	Conservation significance
Amaranthaceae	*Ptilotus*	*drummondii*	
	Ptilotus	*obovatus* var. *obovatus* (Typical form)	
	Ptilotus	sp. Goldfields (R. Davis 10796)	
Apocynaceae	*Alyxia*	*buxifolia*	
	Marsdenia	*australis*	
	Rhyncharrhena	*linearis*	
Asparagaceae	*Lomandra*	*effusa*	
	Thysanotus	*manglesianus*	
Asteraceae	*Erymophyllum*	*ramosum* subsp. *ramosum*	
	Olearia	*dampieri* subsp. *eremicola*	
	Olearia	*exiguifolia*	
	Olearia	*humilis*	
	Olearia	*muelleri*	
	Olearia	*pimeleoides*	
Boraginaceae	*Halgania*	*cyanea*	
Casuarinaceae	*Allocasuarina*	*acutivalvis* subsp. *acutivalvis*	
	Allocasuarina	*corniculata*	
	Allocasuarina	*dielsiana*	
	Allocasuarina	*eriochlamys* subsp. *eriochlamys*	
	Casuarina	*pauper*	
Chenopodiaceae	*Atriplex*	*nummularia*	
	Atriplex	*stipitata*	
	Atriplex	*vesicaria* subsp.*apendiculata*	
	Enchylaena	*tomentosa*	
	Maireana	*georgei*	
	Maireana	*tomentosa*	
	Maireana	*trichoptera*	
	Maireana	*triptera*	
	Rhagodia	*drummondii*	
	Sclerolaena	*cuneata*	
	Sclerolaena	*diacantha*	
	Sclerolaena	*eriacantha*	
	Sclerolaena	*fusiformis*	
Cupressaceae	*Callitris*	*columellaris*	
Dilleniaceae	*Hibbertia*	*eatoniae*	
	Hibbertia	*exasperata*	
Ericaceae	*Leucopogon*	sp. Clyde Hill (MA Burgman 1207)	
Euphorbiaceae	*Beyeria*	*sulcata* subsp. *brevipes*	
	Calycopeplus	*paucifolius*	
Fabaceae	*Acacia*	*andrewsii*	
	Acacia	*assimilis* subsp. *assimilis*	
	Acacia	*caesaneura*	
	Acacia	*cockertoniana*	
	Acacia	*colletioides*	

Family	Genus	Species	Conservation significance
	Acacia	*daviesioides*	
	Acacia	*effusifolia*	
	Acacia	*erinacea* (green upright form)	
	Acacia	*erinacea* (grey prostrate form)	
	Acacia	*hemiteles*	
	Acacia	*heteroneura*	
	Acacia	*inceana* subsp. *conformis*	
	Acacia	*inceana* subsp. *inceana*	
	Acacia	*incurvaneura*	
	Acacia	*jennerae*	
	Acacia	*ligulata*	
	Acacia	*mulganeura*	
	Acacia	*neurophylla* subsp. *erugata*	
	Acacia	*obtecta*	
	Acacia	*prainii*	
	Acacia	*ramulosa* subsp. *ramulosa*	
	Acacia	*resinimarginea*	
	Acacia	*sibina*	
	Acacia	sp. Mt Jackson (B Ryan 176)	
	Acacia	sp. narrow phyllode (BR Maslin 7831)	
	Acacia	*steedmanii*	
	Acacia	*tetragonophylla*	
	Bossiaea	*walkeri*	
	Daviesia	*purpurascens*	
	Leptosema	*daviesioides*	
	Mirbelia	*ferricola*	P3
	Mirbelia	*microphylla*	
	Senna	*artemisioides* subsp. *filifolia*	
	Senna	*cardiosperma*	
	Templetonia	*sulcata*	
Frankeniaceae	*Frankenia*	*pauciflora* var. *pauciflora*	
Goodeniaceae	*Dampiera*	*lavandulacea*	
	Scaevola	*spinescens* (broad leaf non-spiny form)	
	Scaevola	*spinescens* (narrow leaf spiny form)	
Hemerocallidaceae	*Dianella*	*revoluta* var. *divaricata*	
Lamiaceae	*Prostanthera*	*althoferi* subsp. *althoferi*	
	Prostanthera	*campbellii*	
	Prostanthera	*grylloana*	
	Prostanthera	*prostantheroides*	
	Westringia	*cephalantha*	
Loranthaceae	*Amyema*	*gibberula* subsp. *gibberula*	
	Lysiana	*casuarinae*	
Malvaceae	*Androcalva*	*luteiflora*	
	Brachychiton	*gregorii*	

Family	Genus	Species	Conservation significance
	Hannafordia	*bissellii* subsp. *bissellii*	
	Keraudrenia	*velutina* subsp. *velutina*	
	Sida	sp. dark green fruits (S. van Leeuwen 2260)	
	Sida	sp. Golden calyces glabrous (H.N. Foote 32)	
Myrtaceae	*Aluta*	*aspera* subsp. *aspera*	
	Baeckea	*elderiana*	
	Calothamnus	*gilesii*	
	Eucalyptus	*brachycorys*	
	Eucalyptus	*corrugata*	
	Eucalyptus	*ewartiana*	
	Eucalyptus	*formanii*	P4
	Eucalyptus	*kochii* subsp. *plenissima*	
	Eucalyptus	*leptopoda* subsp. *subluta*	
	Eucalyptus	*loxophleba* subsp. *lissophloia*	
	Eucalyptus	*moderata*	
	Eucalyptus	*oldfieldii*	
	Eucalyptus	*oleosa* subsp. *oleosa*	
	Eucalyptus	*salmonophloia*	
	Eucalyptus	*salubris*	
	Eucalyptus	*yilgarnensis*	
	Euryomyrtus	*patrickiae*	
	Leptospermum	*fastigiatum*	
	Melaleuca	*hamata*	
	Melaleuca	*leiocarpa* (BIF Form)	
	Thryptomene	*urceolaris*	
Pittosporaceae	*Bursaria*	*occidentalis*	
	Cheiranthera	*filifolia*	
	Pittosporum	*angustifolium*	
Poaceae	*Amphipogon*	*caricinus*	
	Aristida	*contorta*	
	Austrostipa	*elegantissima*	
	Austrostipa	*platychaeta*	
	Austrostipa	*scabra* subsp. *scabra*	
	Austrostipa	*trichophylla*	
	Monachather	*paradoxus*	
	Triodia	*rigidissima*	
	Triodia	*tomentosa*	
Polygalaceae	*Comesperma*	*integerrimum*	
Portulacaceae	*Calandrinia*	*transluscens*	
Proteaceae	*Dryandra*	*arborea*	P4
	Grevillea	*berryana*	
	Grevillea	*georgeana*	P3

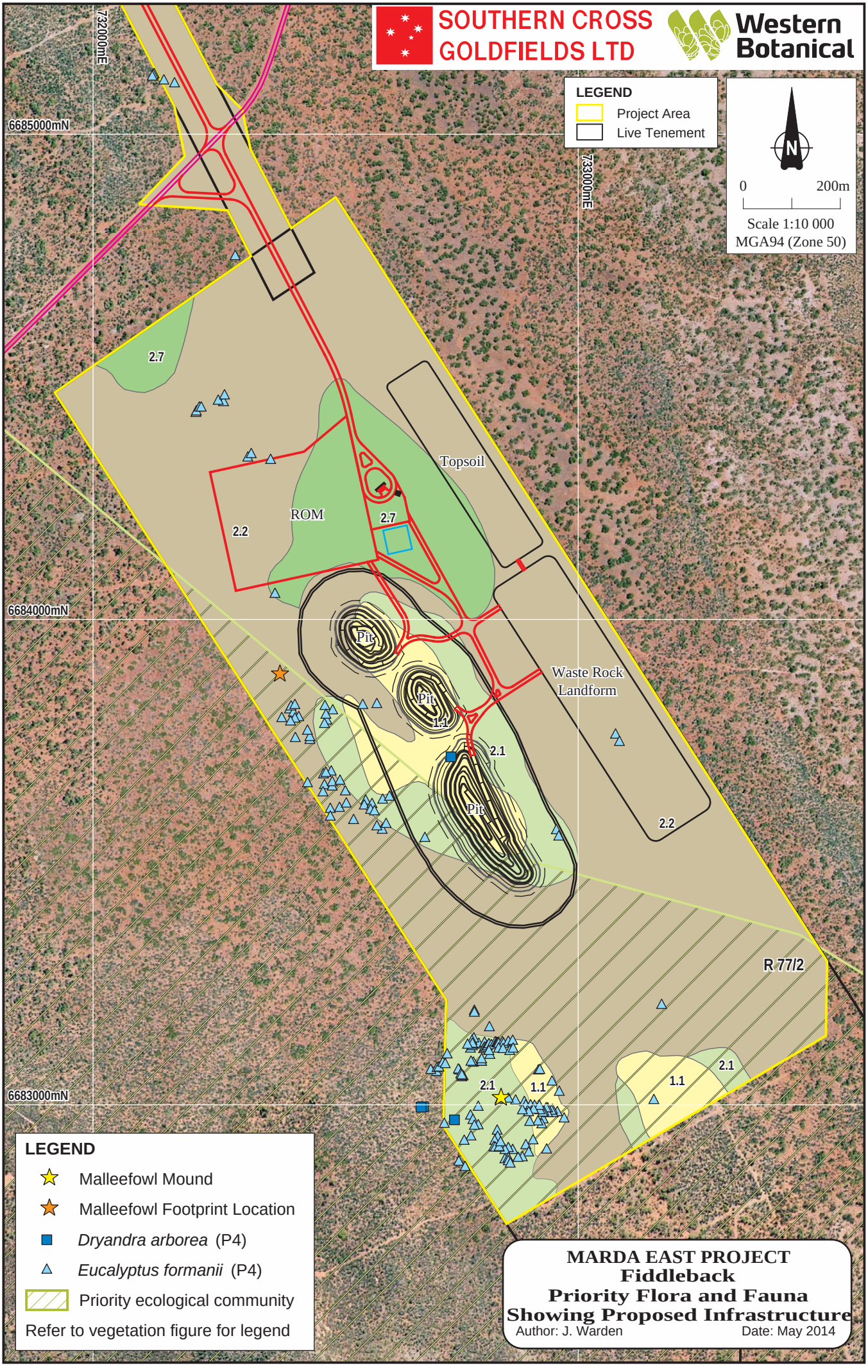
Family	Genus	Species	Conservation significance
	Grevillea	*obliquistigma* subsp. *obliquistigma*	
	Grevillea	*paradoxa*	
	Hakea	*minyma*	
	Hakea	*recurva* subsp.*recurva*	
Pteridaceae	*Cheilanthes*	*brownii*	
	Cheilanthes	*sieberi* subsp. *sieberi*	
Rhamnaceae	*Stenanthemum*	*stipulosum*	
Rubiaceae	*Psydrax*	*suaveolens*	
Rutaceae	*Phebalium*	*canaliculatum*	
	Phebalium	*lepidotum*	
	Phebalium	*megaphyllum*	
	Phebalium	*tuberculosum*	
	Philotheca	*brucei* subsp. *brucei*	
	Philotheca	*tomentella*	
Santalaceae	*Exocarpos*	*aphyllus*	
	Santalum	*acuminatum*	
	Santalum	*spicatum*	
Sapindaceae	*Dodonaea*	*adenophora*	
	Dodonaea	*inaequifolia*	
	Dodonaea	*microzyga*	
	Dodonaea	*pinifolia*	
	Dodonaea	*rigida*	
Scrophulariaceae	*Eremophila*	*caperata*	
	Eremophila	*clarkei*	
	Eremophila	*decipiens* subsp. *decipiens*	
	Eremophila	*eriocalyx*	
	Eremophila	*forrestii* subsp. *forrestii*	
	Eremophila	*forrestii x latrobei*	
	Eremophila	*glabra* subsp. *glabra*	
	Eremophila	*granitica*	
	Eremophila	*ionantha*	
	Eremophila	*latrobei* subsp. *latrobei*	
	Eremophila	*metallicorum*	
	Eremophila	*oldfieldii subsp. angustifolia*	
	Eremophila	*oppositifolia subsp. angustifolia*	
	Eremophila	*scoparia*	
	Eremophila	*sp.* Mt Jackson (G.J.Keighery 4372)	
Solanaceae	*Solanum*	*cleistogamum*	
	Solanum	*lasiophyllum* (ovoid fruit form)	
	Solanum	*nummularium*	
Violaceae	*Hybanthus*	*floribundus* subsp. *curvifolius*	
Zygophyllaceae	*Zygophyllum*	*apiculatum*	

Appendix 14 Map demonstrating Survey intensity across the Marda East Project area.

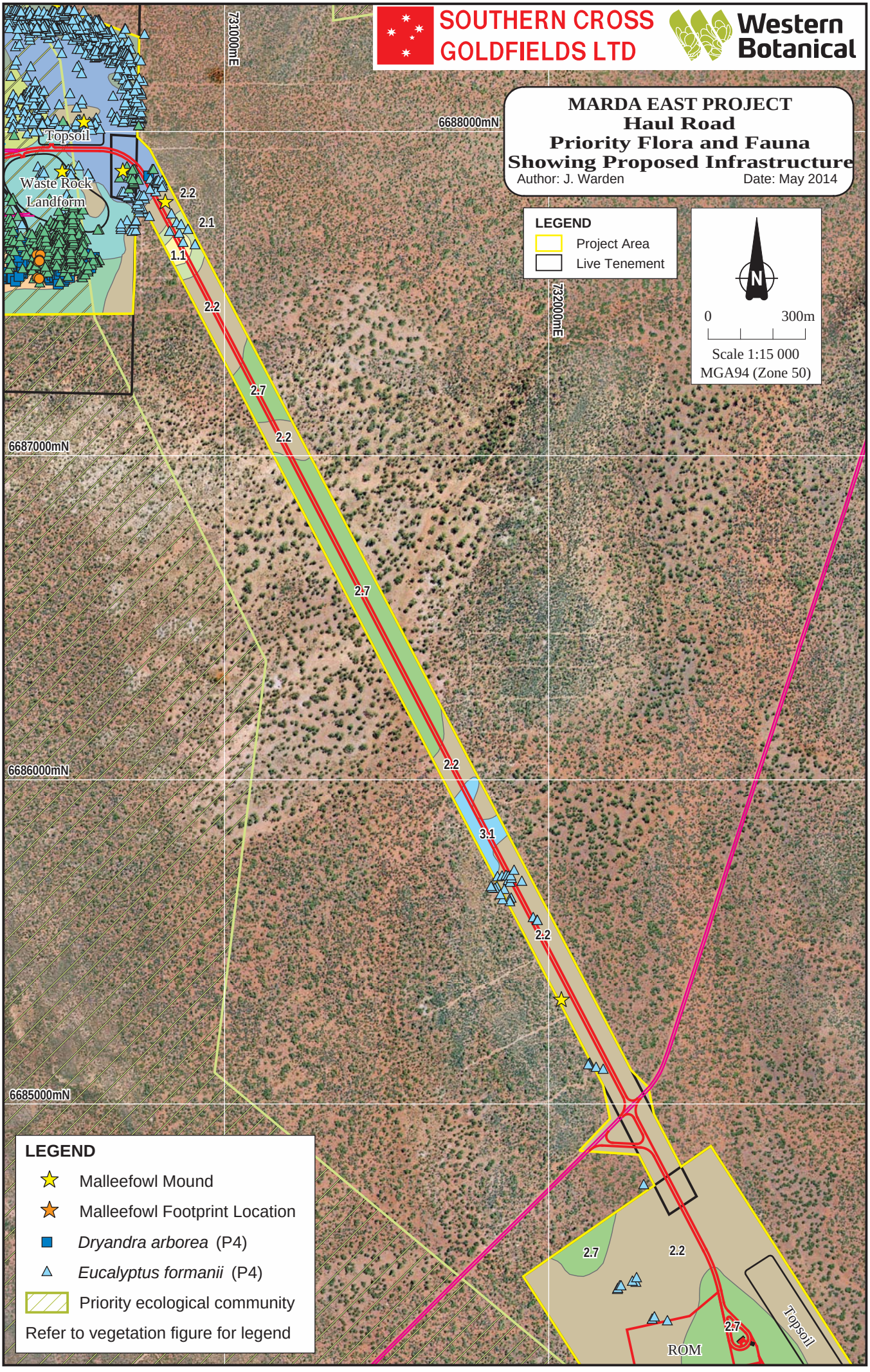


Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_04.dgn

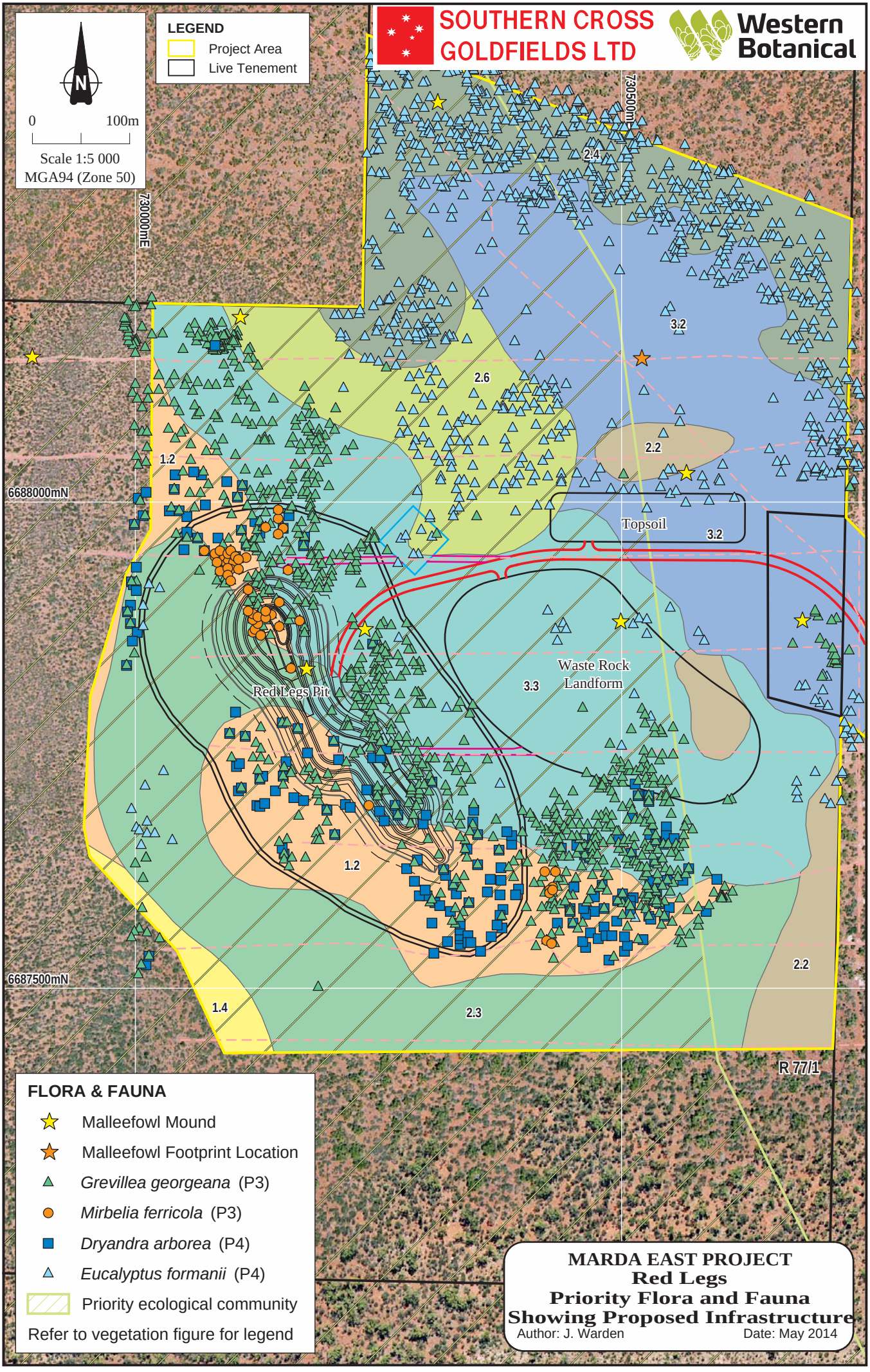
Appendix 15 Maps showing distribution of Priority Flora and Fauna located across the Marda East Project Area during the Flora of Conservation Significance Search.



Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_10_02.dgn



Author: J. Warden ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ May 2014 ~ A4 ~ Rev: A ~ CAD Ref g2083_WB_R02_10_03.dgn



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Appendix 16 GPS Locations of Priority Flora species recorded during the Flora of Conservation Significance Search (all records presented as MGA Zone 50J)

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
729988	6688180	1	Red Legs	730242	6687768	1	Red Legs
729989	6688184	1	Red Legs	730242	6687784	1	Red Legs
729989	6688189	1	Red Legs	730242	6687790	2	Red Legs
729990	6688186	1	Red Legs	730243	6687968	1	Red Legs
729991	6687832	1	Red Legs	730244	6687756	3	Red Legs
729991	6688188	1	Red Legs	730244	6687854	1	Red Legs
729992	6687887	5	Red Legs	730245	6687762	2	Red Legs
729992	6688170	1	Red Legs	730245	6687777	2	Red Legs
729992	6688178	1	Red Legs	730245	6687790	2	Red Legs
729993	6688165	1	Red Legs	730246	6687824	7	Red Legs
729993	6688174	1	Red Legs	730246	6687827	2	Red Legs
729993	6688178	1	Red Legs	730246	6687833	5	Red Legs
729993	6688206	1	Red Legs	730246	6687845	2	Red Legs
729995	6687875	1	Red Legs	730246	6687962	1	Red Legs
729996	6687552	2	Red Legs	730246	6687965	1	Red Legs
729996	6687918	1	Red Legs	730247	6687768	1	Red Legs
729997	6688112	1	Red Legs	730247	6687861	1	Red Legs
729997	6688163	1	Red Legs	730248	6687796	2	Red Legs
729998	6688161	1	Red Legs	730248	6687805	3	Red Legs
729998	6688200	2	Red Legs	730248	6687817	3	Red Legs
729999	6687558	1	Red Legs	730249	6687697	1	Red Legs
729999	6687844	1	Red Legs	730249	6687703	2	Red Legs
729999	6687977	1	Red Legs	730249	6687707	1	Red Legs
729999	6688078	2	Red Legs	730249	6687827	3	Red Legs
730000	6687628	1	Red Legs	730249	6687848	2	Red Legs
730000	6688121	1	Red Legs	730249	6687864	2	Red Legs
730000	6688153	1	Red Legs	730250	6687759	1	Red Legs
730000	6688164	1	Red Legs	730251	6687811	2	Red Legs
730000	6688166	1	Red Legs	730251	6687820	2	Red Legs
730000	6688200	2	Red Legs	730251	6687827	3	Red Legs
730001	6687918	1	Red Legs	730251	6687839	4	Red Legs
730001	6688047	2	Red Legs	730252	6687743	3	Red Legs
730001	6688167	1	Red Legs	730252	6687753	9	Red Legs
730001	6688202	2	Red Legs	730252	6687848	2	Red Legs
730002	6688106	4	Red Legs	730252	6687851	1	Red Legs
730003	6687514	2	Red Legs	730252	6687873	8	Red Legs
730003	6688038	1	Red Legs	730254	6687817	1	Red Legs
730003	6688149	1	Red Legs	730254	6687827	1	Red Legs
730004	6687561	1	Red Legs	730254	6687848	2	Red Legs
730005	6688001	1	Red Legs	730255	6687876	6	Red Legs
730006	6687524	1	Red Legs	730256	6687796	5	Red Legs
730007	6687582	2	Red Legs	730256	6687805	3	Red Legs
730007	6688072	2	Red Legs	730257	6687703	2	Red Legs
730007	6688097	1	Red Legs	730257	6687845	4	Red Legs
730007	6688180	1	Red Legs	730257	6687851	4	Red Legs
730008	6687613	1	Red Legs	730258	6688138	1	Red Legs
730010	6687986	1	Red Legs	730259	6687833	2	Red Legs
730010	6688159	1	Red Legs	730259	6687950	1	Red Legs
730011	6687634	1	Red Legs	730260	6687725	1	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730011	6688041	6	Red Legs	730260	6687842	8	Red Legs
730011	6688152	2	Red Legs	730262	6687820	7	Red Legs
730012	6687557	2	Red Legs	730263	6687752	4	Red Legs
730012	6688056	4	Red Legs	730263	6687765	2	Red Legs
730012	6688072	2	Red Legs	730263	6687771	4	Red Legs
730013	6688106	7	Red Legs	730263	6687873	9	Red Legs
730013	6688115	6	Red Legs	730264	6687786	8	Red Legs
730014	6687533	3	Red Legs	730267	6687688	1	Red Legs
730016	6688202	2	Red Legs	730268	6687749	6	Red Legs
730017	6688172	1	Red Legs	730270	6687678	4	Red Legs
730017	6688210	3	Red Legs	730270	6687842	5	Red Legs
730024	6688115	2	Red Legs	730271	6687746	3	Red Legs
730024	6688130	2	Red Legs	730271	6687758	2	Red Legs
730025	6687551	5	Red Legs	730272	6687777	8	Red Legs
730028	6688173	1	Red Legs	730272	6687802	4	Red Legs
730029	6688102	7	Red Legs	730273	6687820	2	Red Legs
730034	6688075	3	Red Legs	730273	6687835	4	Red Legs
730035	6688121	3	Red Legs	730274	6687647	4	Red Legs
730037	6687994	1	Red Legs	730277	6687786	1	Red Legs
730040	6688013	2	Red Legs	730278	6687826	3	Red Legs
730040	6688102	2	Red Legs	730279	6687734	1	Red Legs
730040	6688130	2	Red Legs	730279	6687743	4	Red Legs
730041	6688065	1	Red Legs	730279	6687752	10	Red Legs
730042	6687967	1	Red Legs	730279	6687758	1	Red Legs
730045	6687991	1	Red Legs	730279	6687857	3	Red Legs
730045	6688093	1	Red Legs	730279	6687875	1	Red Legs
730046	6688154	1	Red Legs	730281	6687690	2	Red Legs
730047	6688071	2	Red Legs	730281	6687848	2	Red Legs
730049	6688031	2	Red Legs	730283	6687669	1	Red Legs
730049	6688157	1	Red Legs	730283	6687700	3	Red Legs
730050	6688074	2	Red Legs	730284	6687703	1	Red Legs
730051	6688120	3	Red Legs	730284	6687706	2	Red Legs
730053	6687963	2	Red Legs	730284	6687718	3	Red Legs
730053	6688126	3	Red Legs	730284	6687848	1	Red Legs
730055	6688178	1	Red Legs	730286	6687678	1	Red Legs
730056	6688009	3	Red Legs	730286	6687835	1	Red Legs
730057	6688043	1	Red Legs	730287	6687629	3	Red Legs
730057	6688059	3	Red Legs	730287	6687724	3	Red Legs
730057	6688173	3	Red Legs	730288	6687804	2	Red Legs
730059	6688114	4	Red Legs	730289	6687687	4	Red Legs
730061	6687994	2	Red Legs	730289	6687718	3	Red Legs
730061	6688099	6	Red Legs	730289	6687832	1	Red Legs
730061	6688183	2	Red Legs	730290	6687733	3	Red Legs
730063	6688089	2	Red Legs	730290	6687736	2	Red Legs
730063	6688165	1	Red Legs	730290	6687743	4	Red Legs
730064	6687963	2	Red Legs	730290	6687752	8	Red Legs
730064	6688123	4	Red Legs	730291	6687693	1	Red Legs
730064	6688170	1	Red Legs	730291	6687792	4	Red Legs
730066	6687929	1	Red Legs	730291	6687804	1	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730066	6688092	1	Red Legs	730291	6687826	1	Red Legs
730066	6688174	1	Red Legs	730292	6687699	3	Red Legs
730067	6688009	1	Red Legs	730292	6687703	3	Red Legs
730070	6688031	1	Red Legs	730292	6687709	2	Red Legs
730070	6688169	1	Red Legs	730292	6687721	3	Red Legs
730071	6687950	1	Red Legs	730292	6687835	1	Red Legs
730073	6688052	3	Red Legs	730293	6687792	1	Red Legs
730074	6688162	1	Red Legs	730294	6687801	2	Red Legs
730075	6688018	1	Red Legs	730294	6687829	1	Red Legs
730075	6688120	1	Red Legs	730295	6687730	1	Red Legs
730075	6688179	1	Red Legs	730297	6687709	2	Red Legs
730077	6688074	5	Red Legs	730300	6687727	1	Red Legs
730077	6688168	2	Red Legs	730301	6687653	1	Red Legs
730077	6688183	1	Red Legs	730301	6687752	1	Red Legs
730078	6688161	1	Red Legs	730302	6687702	1	Red Legs
730078	6688175	6	Red Legs	730303	6687588	1	Red Legs
730079	6688183	1	Red Legs	730303	6687718	3	Red Legs
730080	6688156	1	Red Legs	730303	6687736	1	Red Legs
730080	6688158	1	Red Legs	730304	6687792	1	Red Legs
730080	6688160	1	Red Legs	730305	6687591	1	Red Legs
730080	6688163	1	Red Legs	730305	6687712	1	Red Legs
730080	6688181	1	Red Legs	730308	6687736	4	Red Legs
730082	6688058	1	Red Legs	730310	6687967	5	Red Legs
730082	6688089	1	Red Legs	730312	6687637	2	Red Legs
730082	6688164	1	Red Legs	730312	6687665	1	Red Legs
730083	6688120	1	Red Legs	730314	6687597	1	Red Legs
730083	6688155	1	Red Legs	730317	6687622	1	Red Legs
730083	6688155	1	Red Legs	730319	6687708	2	Red Legs
730083	6688169	2	Red Legs	730321	6687687	2	Red Legs
730084	6687919	2	Red Legs	730321	6687702	1	Red Legs
730084	6687938	4	Red Legs	730322	6687727	2	Red Legs
730084	6688052	1	Red Legs	730322	6687736	1	Red Legs
730084	6688157	1	Red Legs	730323	6687674	1	Red Legs
730084	6688163	1	Red Legs	730326	6687569	2	Red Legs
730085	6688086	1	Red Legs	730327	6687606	1	Red Legs
730085	6688166	1	Red Legs	730329	6687566	1	Red Legs
730085	6688169	1	Red Legs	730329	6687582	1	Red Legs
730086	6688161	1	Red Legs	730330	6687612	1	Red Legs
730086	6688168	1	Red Legs	730330	6687723	1	Red Legs
730087	6687929	2	Red Legs	730331	6687788	1	Red Legs
730087	6688158	1	Red Legs	730334	6687572	1	Red Legs
730087	6688159	1	Red Legs	730334	6687655	2	Red Legs
730087	6688160	1	Red Legs	730334	6687668	2	Red Legs
730087	6688168	1	Red Legs	730334	6687677	1	Red Legs
730088	6688159	1	Red Legs	730334	6687794	1	Red Legs
730088	6688165	1	Red Legs	730335	6687603	1	Red Legs
730088	6688170	1	Red Legs	730335	6687711	1	Red Legs
730089	6688184	1	Red Legs	730335	6687732	2	Red Legs
730090	6687956	1	Red Legs	730337	6687578	1	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730090	6688064	1	Red Legs	730337	6687702	1	Red Legs
730090	6688156	1	Red Legs	730338	6687615	1	Red Legs
730090	6688166	1	Red Legs	730338	6687754	1	Red Legs
730091	6688006	1	Red Legs	730339	6687643	2	Red Legs
730091	6688141	1	Red Legs	730339	6687652	2	Red Legs
730091	6688157	1	Red Legs	730340	6687726	1	Red Legs
730091	6688171	1	Red Legs	730341	6687634	1	Red Legs
730091	6688171	1	Red Legs	730343	6687588	1	Red Legs
730092	6687916	1	Red Legs	730344	6687661	2	Red Legs
730092	6687922	2	Red Legs	730344	6687782	1	Red Legs
730092	6688166	1	Red Legs	730345	6687714	2	Red Legs
730092	6688171	1	Red Legs	730347	6687668	2	Red Legs
730093	6687938	4	Red Legs	730347	6687791	1	Red Legs
730094	6687999	1	Red Legs	730348	6687689	1	Red Legs
730094	6688173	1	Red Legs	730351	6687985	2	Red Legs
730095	6687925	1	Red Legs	730352	6687627	1	Red Legs
730095	6687941	7	Red Legs	730352	6687658	1	Red Legs
730095	6687947	2	Red Legs	730362	6687735	2	Red Legs
730096	6687962	2	Red Legs	730368	6687655	1	Red Legs
730096	6688122	4	Red Legs	730371	6687673	1	Red Legs
730096	6688129	2	Red Legs	730374	6687642	2	Red Legs
730097	6687762	1	Red Legs	730377	6687574	1	Red Legs
730097	6688160	1	Red Legs	730384	6687624	1	Red Legs
730098	6687919	6	Red Legs	730389	6687614	2	Red Legs
730098	6687931	4	Red Legs	730389	6687630	1	Red Legs
730098	6687950	5	Red Legs	730395	6687636	1	Red Legs
730098	6688160	1	Red Legs	730398	6687660	3	Red Legs
730099	6687737	1	Red Legs	730398	6687682	2	Red Legs
730099	6687987	3	Red Legs	730402	6687583	3	Red Legs
730100	6688150	3	Red Legs	730403	6687629	1	Red Legs
730100	6688166	1	Red Legs	730406	6687679	2	Red Legs
730101	6687938	1	Red Legs	730407	6687568	1	Red Legs
730101	6688165	1	Red Legs	730409	6687675	7	Red Legs
730101	6688171	1	Red Legs	730410	6687608	1	Red Legs
730102	6688144	3	Red Legs	730412	6687543	1	Red Legs
730102	6688171	1	Red Legs	730412	6687669	6	Red Legs
730102	6688171	1	Red Legs	730416	6687608	1	Red Legs
730103	6687944	8	Red Legs	730417	6687555	1	Red Legs
730103	6688048	2	Red Legs	730417	6687651	3	Red Legs
730103	6688165	1	Red Legs	730417	6687666	1	Red Legs
730104	6688085	2	Red Legs	730418	6687583	6	Red Legs
730104	6688104	1	Red Legs	730419	6687614	1	Red Legs
730104	6688163	1	Red Legs	730419	6687632	2	Red Legs
730104	6688163	1	Red Legs	730421	6687598	5	Red Legs
730105	6688005	6	Red Legs	730422	6687663	1	Red Legs
730105	6688170	1	Red Legs	730423	6687549	1	Red Legs
730105	6688175	1	Red Legs	730423	6687583	2	Red Legs
730106	6687931	9	Red Legs	730423	6687678	1	Red Legs
730106	6687941	5	Red Legs	730423	6687681	2	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730107	6688113	5	Red Legs	730425	6687647	2	Red Legs
730107	6688138	1	Red Legs	730425	6687660	1	Red Legs
730109	6687706	3	Red Legs	730426	6687583	2	Red Legs
730109	6687971	10	Red Legs	730426	6687598	2	Red Legs
730110	6688017	4	Red Legs	730426	6687601	1	Red Legs
730110	6688110	7	Red Legs	730428	6687555	2	Red Legs
730112	6687962	6	Red Legs	730429	6687592	2	Red Legs
730113	6687759	1	Red Legs	730429	6687598	3	Red Legs
730113	6688033	2	Red Legs	730430	6687530	1	Red Legs
730114	6687956	7	Red Legs	730430	6687629	1	Red Legs
730114	6688082	2	Red Legs	730430	6687635	2	Red Legs
730115	6687996	4	Red Legs	730430	6687638	2	Red Legs
730115	6688119	2	Red Legs	730430	6687666	2	Red Legs
730116	6687888	2	Red Legs	730431	6687546	2	Red Legs
730116	6687897	1	Red Legs	730431	6687580	3	Red Legs
730116	6687910	7	Red Legs	730431	6687586	2	Red Legs
730116	6687922	7	Red Legs	730431	6687675	2	Red Legs
730116	6688147	2	Red Legs	730431	6687684	2	Red Legs
730116	6688156	1	Red Legs	730431	6687700	2	Red Legs
730117	6687953	3	Red Legs	730432	6687620	1	Red Legs
730117	6688104	1	Red Legs	730433	6687647	2	Red Legs
730118	6687888	1	Red Legs	730433	6687653	2	Red Legs
730118	6687894	1	Red Legs	730433	6687663	4	Red Legs
730118	6688011	1	Red Legs	730433	6687678	1	Red Legs
730118	6688158	1	Red Legs	730434	6687604	5	Red Legs
730120	6687959	2	Red Legs	730435	6687613	1	Red Legs
730120	6687986	1	Red Legs	730435	6687641	3	Red Legs
730120	6688079	1	Red Legs	730435	6687653	5	Red Legs
730121	6687737	2	Red Legs	730436	6687558	1	Red Legs
730121	6687866	1	Red Legs	730436	6687660	2	Red Legs
730121	6687879	5	Red Legs	730436	6687672	4	Red Legs
730121	6687900	2	Red Legs	730436	6687693	3	Red Legs
730121	6687906	1	Red Legs	730437	6687586	2	Red Legs
730121	6688005	1	Red Legs	730438	6687644	8	Red Legs
730121	6688147	2	Red Legs	730438	6687656	3	Red Legs
730122	6687953	1	Red Legs	730440	6687610	2	Red Legs
730122	6687956	1	Red Legs	730440	6687635	2	Red Legs
730123	6687869	2	Red Legs	730441	6687666	3	Red Legs
730123	6687962	5	Red Legs	730442	6687589	1	Red Legs
730123	6688097	1	Red Legs	730443	6687619	3	Red Legs
730124	6687752	2	Red Legs	730444	6687662	2	Red Legs
730124	6687916	2	Red Legs	730444	6687687	1	Red Legs
730124	6687916	2	Red Legs	730445	6687595	2	Red Legs
730124	6687925	1	Red Legs	730446	6687635	4	Red Legs
730125	6687949	1	Red Legs	730447	6687579	1	Red Legs
730125	6687952	1	Red Legs	730447	6687582	1	Red Legs
730125	6687971	4	Red Legs	730447	6687672	2	Red Legs
730126	6687724	8	Red Legs	730447	6687681	6	Red Legs
730126	6687875	5	Red Legs	730449	6687656	11	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730126	6687882	1	Red Legs	730449	6687668	2	Red Legs
730126	6687894	2	Red Legs	730450	6687567	4	Red Legs
730126	6688140	1	Red Legs	730450	6687595	1	Red Legs
730127	6687900	1	Red Legs	730450	6687702	1	Red Legs
730127	6687922	1	Red Legs	730453	6687613	1	Red Legs
730127	6688029	1	Red Legs	730454	6687638	5	Red Legs
730127	6688063	1	Red Legs	730454	6687656	2	Red Legs
730128	6687715	1	Red Legs	730455	6687561	2	Red Legs
730128	6687962	1	Red Legs	730455	6687678	1	Red Legs
730128	6687980	3	Red Legs	730457	6687644	1	Red Legs
730129	6687737	2	Red Legs	730457	6687653	4	Red Legs
730129	6687746	2	Red Legs	730457	6687668	3	Red Legs
730129	6687768	1	Red Legs	730459	6687625	2	Red Legs
730129	6687888	1	Red Legs	730460	6687567	1	Red Legs
730129	6688014	1	Red Legs	730460	6687788	1	Red Legs
730130	6687915	2	Red Legs	730462	6687637	2	Red Legs
730130	6687925	3	Red Legs	730462	6687647	3	Red Legs
730130	6687943	1	Red Legs	730462	6687662	9	Red Legs
730130	6688082	1	Red Legs	730464	6687588	1	Red Legs
730131	6687872	1	Red Legs	730464	6687721	1	Red Legs
730131	6687974	1	Red Legs	730465	6687668	3	Red Legs
730131	6688002	2	Red Legs	730466	6687591	2	Red Legs
730132	6687906	4	Red Legs	730467	6687634	3	Red Legs
730132	6687912	1	Red Legs	730468	6687647	2	Red Legs
730132	6688008	1	Red Legs	730469	6687600	1	Red Legs
730133	6688063	2	Red Legs	730470	6687616	1	Red Legs
730133	6688066	3	Red Legs	730470	6687631	1	Red Legs
730134	6687878	1	Red Legs	730470	6687637	4	Red Legs
730134	6687881	4	Red Legs	730470	6687643	2	Red Legs
730134	6687888	1	Red Legs	730470	6687653	3	Red Legs
730134	6687974	3	Red Legs	730472	6687711	1	Red Legs
730134	6687989	1	Red Legs	730473	6687646	2	Red Legs
730135	6687909	2	Red Legs	730473	6687653	4	Red Legs
730135	6688032	1	Red Legs	730473	6687659	4	Red Legs
730137	6687734	1	Red Legs	730474	6687677	2	Red Legs
730137	6688011	1	Red Legs	730474	6687714	1	Red Legs
730138	6687909	4	Red Legs	730475	6687625	1	Red Legs
730138	6687928	1	Red Legs	730475	6687637	1	Red Legs
730138	6687937	2	Red Legs	730476	6687656	3	Red Legs
730138	6687943	2	Red Legs	730476	6687668	2	Red Legs
730138	6688063	1	Red Legs	730477	6687603	1	Red Legs
730139	6687863	1	Red Legs	730477	6687705	1	Red Legs
730139	6687977	5	Red Legs	730479	6687677	2	Red Legs
730140	6687884	7	Red Legs	730480	6687606	2	Red Legs
730141	6687937	2	Red Legs	730480	6687708	1	Red Legs
730141	6688082	2	Red Legs	730480	6687711	3	Red Legs
730142	6688011	1	Red Legs	730481	6687631	1	Red Legs
730142	6688106	5	Red Legs	730481	6687649	4	Red Legs
730145	6687900	3	Red Legs	730482	6687582	3	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730145	6688004	2	Red Legs	730482	6687714	1	Red Legs
730146	6687949	6	Red Legs	730483	6687618	2	Red Legs
730147	6687967	6	Red Legs	730484	6687665	5	Red Legs
730147	6687983	7	Red Legs	730484	6687674	7	Red Legs
730147	6687983	7	Red Legs	730484	6687680	2	Red Legs
730147	6687992	2	Red Legs	730485	6687600	1	Red Legs
730148	6687650	6	Red Legs	730486	6687615	6	Red Legs
730148	6687872	8	Red Legs	730488	6687705	7	Red Legs
730148	6687897	7	Red Legs	730488	6687751	1	Red Legs
730148	6687915	5	Red Legs	730489	6687652	1	Red Legs
730149	6687940	1	Red Legs	730489	6687665	8	Red Legs
730150	6688017	2	Red Legs	730489	6687668	3	Red Legs
730151	6687773	1	Red Legs	730490	6687677	3	Red Legs
730152	6687709	1	Red Legs	730490	6687702	1	Red Legs
730152	6687718	6	Red Legs	730491	6687723	1	Red Legs
730152	6687973	9	Red Legs	730492	6687532	2	Red Legs
730153	6687632	3	Red Legs	730492	6687532	2	Red Legs
730153	6687638	2	Red Legs	730493	6687695	1	Red Legs
730153	6687727	1	Red Legs	730493	6687711	5	Red Legs
730155	6687958	3	Red Legs	730494	6687628	1	Red Legs
730156	6687653	8	Red Legs	730494	6687735	1	Red Legs
730156	6687773	1	Red Legs	730495	6687661	2	Red Legs
730156	6688007	2	Red Legs	730495	6687661	5	Red Legs
730156	6688007	2	Red Legs	730496	6687590	1	Red Legs
730157	6687930	1	Red Legs	730497	6687643	1	Red Legs
730158	6687625	1	Red Legs	730497	6687649	3	Red Legs
730158	6687878	4	Red Legs	730497	6687661	4	Red Legs
730158	6687992	1	Red Legs	730499	6687732	2	Red Legs
730158	6688010	1	Red Legs	730501	6687575	1	Red Legs
730159	6688060	3	Red Legs	730501	6687587	3	Red Legs
730160	6687721	1	Red Legs	730501	6687597	1	Red Legs
730160	6687829	6	Red Legs	730501	6687686	2	Red Legs
730160	6687949	6	Red Legs	730501	6687711	1	Red Legs
730161	6687634	1	Red Legs	730501	6687717	2	Red Legs
730161	6687724	1	Red Legs	730501	6687726	2	Red Legs
730161	6687884	2	Red Legs	730502	6687640	2	Red Legs
730161	6687995	2	Red Legs	730502	6687649	5	Red Legs
730161	6688013	4	Red Legs	730502	6688028	1	Red Legs
730161	6688023	1	Red Legs	730503	6687652	2	Red Legs
730161	6688026	2	Red Legs	730505	6687633	2	Red Legs
730162	6688066	3	Red Legs	730506	6687563	2	Red Legs
730164	6688038	2	Red Legs	730506	6687673	2	Red Legs
730165	6687936	1	Red Legs	730507	6687587	4	Red Legs
730165	6687936	2	Red Legs	730507	6687627	1	Red Legs
730165	6688078	1	Red Legs	730507	6687723	3	Red Legs
730165	6688084	4	Red Legs	730507	6687729	1	Red Legs
730166	6687973	2	Red Legs	730508	6687652	7	Red Legs
730167	6687767	1	Red Legs	730509	6687575	1	Red Legs
730167	6687899	1	Red Legs	730509	6687584	1	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730167	6687921	1	Red Legs	730509	6687689	1	Red Legs
730167	6687924	4	Red Legs	730509	6687723	3	Red Legs
730167	6687927	3	Red Legs	730510	6687639	2	Red Legs
730168	6687677	5	Red Legs	730510	6687766	1	Red Legs
730168	6687930	1	Red Legs	730511	6687683	1	Red Legs
730168	6687967	1	Red Legs	730513	6687630	4	Red Legs
730169	6687878	1	Red Legs	730513	6687646	1	Red Legs
730170	6688053	1	Red Legs	730513	6687655	5	Red Legs
730170	6688059	4	Red Legs	730514	6687673	1	Red Legs
730171	6687979	2	Red Legs	730515	6687723	4	Red Legs
730171	6688087	3	Red Legs	730516	6687630	1	Red Legs
730172	6688007	1	Red Legs	730517	6687550	2	Red Legs
730172	6688010	1	Red Legs	730517	6687698	3	Red Legs
730173	6687915	3	Red Legs	730517	6687713	2	Red Legs
730173	6687930	3	Red Legs	730518	6687624	4	Red Legs
730173	6687955	2	Red Legs	730519	6687673	2	Red Legs
730173	6687955	1	Red Legs	730520	6687584	2	Red Legs
730174	6687723	3	Red Legs	730520	6687726	1	Red Legs
730174	6687865	1	Red Legs	730521	6687624	3	Red Legs
730174	6687871	1	Red Legs	730521	6687636	7	Red Legs
730174	6687964	1	Red Legs	730521	6687787	1	Red Legs
730174	6688118	1	Red Legs	730523	6687596	5	Red Legs
730175	6687634	2	Red Legs	730523	6687615	4	Red Legs
730175	6687896	1	Red Legs	730523	6687735	1	Red Legs
730175	6687924	1	Red Legs	730523	6687744	1	Red Legs
730175	6688025	3	Red Legs	730524	6687642	4	Red Legs
730175	6688038	3	Red Legs	730524	6687648	2	Red Legs
730176	6688075	1	Red Legs	730524	6687670	4	Red Legs
730176	6688099	3	Red Legs	730524	6687772	2	Red Legs
730177	6688010	3	Red Legs	730524	6687781	1	Red Legs
730177	6688019	1	Red Legs	730525	6687581	3	Red Legs
730178	6687921	1	Red Legs	730525	6687584	4	Red Legs
730178	6688028	1	Red Legs	730525	6687593	7	Red Legs
730178	6688059	3	Red Legs	730525	6687716	2	Red Legs
730178	6688072	1	Red Legs	730525	6687722	3	Red Legs
730179	6687714	1	Red Legs	730526	6687605	4	Red Legs
730179	6687726	2	Red Legs	730526	6687618	5	Red Legs
730179	6688078	1	Red Legs	730526	6687624	4	Red Legs
730179	6688090	3	Red Legs	730526	6687728	5	Red Legs
730179	6688105	3	Red Legs	730527	6687661	2	Red Legs
730180	6687994	3	Red Legs	730527	6687679	9	Red Legs
730180	6687998	2	Red Legs	730528	6687574	1	Red Legs
730180	6688004	2	Red Legs	730528	6687596	5	Red Legs
730181	6687914	2	Red Legs	730528	6687602	3	Red Legs
730181	6687945	2	Red Legs	730528	6687692	1	Red Legs
730181	6687948	1	Red Legs	730528	6687698	3	Red Legs
730181	6688068	2	Red Legs	730528	6687698	1	Red Legs
730182	6687985	1	Red Legs	730528	6687710	4	Red Legs
730182	6687988	3	Red Legs	730529	6687645	1	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730183	6687893	1	Red Legs	730530	6687673	8	Red Legs
730183	6687899	1	Red Legs	730531	6687725	3	Red Legs
730183	6688028	1	Red Legs	730531	6687741	1	Red Legs
730184	6687939	4	Red Legs	730532	6687636	3	Red Legs
730184	6687973	1	Red Legs	730532	6687667	6	Red Legs
730184	6688090	1	Red Legs	730533	6687590	5	Red Legs
730185	6687720	2	Red Legs	730533	6687710	4	Red Legs
730185	6687982	2	Red Legs	730533	6687716	6	Red Legs
730185	6688007	3	Red Legs	730534	6687602	4	Red Legs
730185	6688019	4	Red Legs	730534	6687630	2	Red Legs
730186	6687652	2	Red Legs	730534	6687762	3	Red Legs
730186	6687659	1	Red Legs	730534	6687768	1	Red Legs
730186	6687911	2	Red Legs	730535	6687651	2	Red Legs
730186	6687933	1	Red Legs	730535	6687657	2	Red Legs
730186	6688053	2	Red Legs	730536	6687587	8	Red Legs
730186	6688062	3	Red Legs	730536	6687590	3	Red Legs
730187	6687699	1	Red Legs	730536	6687599	1	Red Legs
730187	6687702	2	Red Legs	730537	6687611	5	Red Legs
730187	6687714	1	Red Legs	730537	6687617	5	Red Legs
730187	6687954	2	Red Legs	730537	6687627	5	Red Legs
730188	6687501	10	Red Legs	730537	6687642	1	Red Legs
730188	6688025	2	Red Legs	730539	6687577	2	Red Legs
730189	6687652	1	Red Legs	730539	6687587	5	Red Legs
730189	6687662	2	Red Legs	730539	6687734	3	Red Legs
730189	6687692	2	Red Legs	730540	6687765	4	Red Legs
730189	6687911	6	Red Legs	730541	6687565	1	Red Legs
730189	6687917	5	Red Legs	730541	6687697	2	Red Legs
730189	6687923	4	Red Legs	730541	6687710	1	Red Legs
730189	6687945	7	Red Legs	730541	6687713	1	Red Legs
730189	6687954	2	Red Legs	730542	6687605	5	Red Legs
730189	6688040	3	Red Legs	730542	6687633	2	Red Legs
730189	6688065	1	Red Legs	730542	6687740	2	Red Legs
730189	6688068	4	Red Legs	730542	6687762	1	Red Legs
730189	6688074	2	Red Legs	730543	6687648	3	Red Legs
730192	6687926	4	Red Legs	730544	6687574	6	Red Legs
730192	6687936	4	Red Legs	730544	6687589	6	Red Legs
730192	6688059	5	Red Legs	730544	6687691	1	Red Legs
730195	6687809	1	Red Legs	730545	6687623	3	Red Legs
730195	6688068	2	Red Legs	730546	6687697	1	Red Legs
730197	6687671	2	Red Legs	730546	6687700	2	Red Legs
730197	6687683	5	Red Legs	730547	6687611	7	Red Legs
730197	6687911	1	Red Legs	730547	6687713	4	Red Legs
730197	6688043	2	Red Legs	730548	6687648	3	Red Legs
730197	6688053	4	Red Legs	730549	6687691	3	Red Legs
730198	6687720	4	Red Legs	730550	6687599	3	Red Legs
730199	6687917	4	Red Legs	730550	6687620	6	Red Legs
730199	6688016	5	Red Legs	730551	6687639	5	Red Legs
730200	6687939	8	Red Legs	730551	6687679	1	Red Legs
730200	6688080	4	Red Legs	730552	6687568	2	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730202	6687785	1	Red Legs	730553	6687608	5	Red Legs
730202	6687923	13	Red Legs	730553	6687740	2	Red Legs
730202	6687929	12	Red Legs	730553	6687768	2	Red Legs
730203	6687945	6	Red Legs	730555	6687700	2	Red Legs
730204	6687754	1	Red Legs	730556	6687639	3	Red Legs
730205	6687658	1	Red Legs	730556	6687648	1	Red Legs
730205	6688074	5	Red Legs	730558	6687614	3	Red Legs
730206	6687707	5	Red Legs	730558	6687620	3	Red Legs
730206	6688096	8	Red Legs	730559	6687549	3	Red Legs
730210	6687803	5	Red Legs	730559	6687635	3	Red Legs
730211	6687945	5	Red Legs	730559	6687645	4	Red Legs
730215	6687769	1	Red Legs	730560	6687558	5	Red Legs
730216	6687818	2	Red Legs	730560	6687592	3	Red Legs
730216	6688052	1	Red Legs	730562	6687546	1	Red Legs
730217	6687732	1	Red Legs	730564	6687648	5	Red Legs
730218	6687769	1	Red Legs	730564	6687657	3	Red Legs
730218	6687775	2	Red Legs	730564	6687755	1	Red Legs
730219	6687951	1	Red Legs	730565	6687666	1	Red Legs
730220	6687769	1	Red Legs	730566	6687617	2	Red Legs
730221	6687929	1	Red Legs	730567	6687672	1	Red Legs
730221	6687932	5	Red Legs	730568	6687580	7	Red Legs
730221	6687944	2	Red Legs	730569	6687623	2	Red Legs
730222	6687818	7	Red Legs	730570	6687555	1	Red Legs
730222	6687821	5	Red Legs	730573	6687663	1	Red Legs
730222	6687824	2	Red Legs	730579	6687564	1	Red Legs
730222	6687827	3	Red Legs	730579	6687570	1	Red Legs
730223	6687880	1	Red Legs	730579	6687583	3	Red Legs
730224	6688058	1	Red Legs	730588	6687619	4	Red Legs
730225	6687741	1	Red Legs	730590	6687585	4	Red Legs
730225	6687873	1	Red Legs	730595	6687598	3	Red Legs
730226	6687790	1	Red Legs	730602	6687593	1	Red Legs
730226	6687929	1	Red Legs	730602	6687595	1	Red Legs
730227	6687802	2	Red Legs	730603	6687592	1	Red Legs
730227	6687809	8	Red Legs	730603	6687594	1	Red Legs
730227	6687827	2	Red Legs	730604	6687594	1	Red Legs
730227	6687932	2	Red Legs	730606	6687604	1	Red Legs
730227	6687938	1	Red Legs	730608	6687592	1	Red Legs
730227	6687944	1	Red Legs	730609	6687693	1	Red Legs
730227	6687947	2	Red Legs	730613	6687694	1	Red Legs
730229	6687799	2	Red Legs	730614	6687599	1	Red Legs
730229	6687809	4	Red Legs	730676	6687854	1	Red Legs
730230	6687833	4	Red Legs	730699	6687886	1	Red Legs
730230	6687852	1	Red Legs	730699	6687888	1	Red Legs
730231	6687744	1	Red Legs	730702	6687882	1	Red Legs
730232	6687796	2	Red Legs	730704	6687859	1	Red Legs
730232	6687815	5	Red Legs	730706	6687820	1	Red Legs
730232	6687827	4	Red Legs	730710	6687853	1	Red Legs
730232	6687916	1	Red Legs	730716	6687834	1	Red Legs
730232	6687956	1	Red Legs	730716	6687878	1	Red Legs

Grevillea georgeana – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730233	6687839	3	Red Legs	730717	6687842	1	Red Legs
730235	6687953	2	Red Legs	730717	6687849	1	Red Legs
730236	6687762	1	Red Legs	730719	6687834	1	Red Legs
730237	6687778	1	Red Legs	730720	6687837	1	Red Legs
730237	6687790	1	Red Legs	730720	6687842	1	Red Legs
730237	6687796	1	Red Legs	730721	6687880	1	Red Legs
730237	6687808	2	Red Legs	730722	6687833	1	Red Legs
730240	6687796	2	Red Legs	730722	6687836	1	Red Legs
730240	6687811	1	Red Legs	730734	6687847	1	Red Legs
730240	6687950	1	Red Legs	730735	6688015	1	Red Legs
730241	6687962	1	Red Legs	730777	6687880	1	Haul Road
730242	6687747	1	Red Legs	730781	6687880	1	Haul Road
730242	6687762	1	Red Legs				

Mirbelia ferricola – Priority 3							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730071	6687950	2	Red Legs	730126	6687875	20	Red Legs
730082	6687944	1	Red Legs	730126	6687882	1	Red Legs
730082	6687947	3	Red Legs	730129	6687863	4	Red Legs
730084	6687938	33	Red Legs	730134	6687881	14	Red Legs
730087	6687929	10	Red Legs	730134	6687888	1	Red Legs
730087	6687944	3	Red Legs	730134	6687974	1	Red Legs
730087	6687950	3	Red Legs	730140	6687884	9	Red Legs
730093	6687938	5	Red Legs	730147	6687967	5	Red Legs
730095	6687925	2	Red Legs	730147	6687983	6	Red Legs
730095	6687932	4	Red Legs	730147	6687992	3	Red Legs
730095	6687941	8	Red Legs	730148	6687872	30	Red Legs
730095	6687947	4	Red Legs	730148	6687897	9	Red Legs
730098	6687919	4	Red Legs	730152	6687973	12	Red Legs
730098	6687931	6	Red Legs	730157	6687930	2	Red Legs
730098	6687950	2	Red Legs	730160	6687829	9	Red Legs
730101	6687938	5	Red Legs	730169	6687878	1	Red Legs
730103	6687944	2	Red Legs	730240	6687688	1	Red Legs
730106	6687931	11	Red Legs	730421	6687620	2	Red Legs
730106	6687941	2	Red Legs	730423	6687549	2	Red Legs
730114	6687943	1	Red Legs	730426	6687598	1	Red Legs
730116	6687888	1	Red Legs	730426	6687601	1	Red Legs
730116	6687910	13	Red Legs	730428	6687546	1	Red Legs
730121	6687866	1	Red Legs	730429	6687601	1	Red Legs
730121	6687879	20	Red Legs	730429	6687601	1	Red Legs
730121	6687885	3	Red Legs	730429	6687604	2	Red Legs
730123	6687869	20	Red Legs	730432	6687620	1	Red Legs

***Dryandra arborea* – Priority 4** **D. arborea* is a synonym of *Banksia arborea*							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
729991	6687832	2	Red Legs	730337	6687551	1	Red Legs
729992	6687887	3	Red Legs	730341	6687643	1	Red Legs
729995	6687875	3	Red Legs	730342	6687547	1	Red Legs
729995	6687894	3	Red Legs	730342	6687554	1	Red Legs
729996	6687918	1	Red Legs	730343	6687588	1	Red Legs
729997	6687857	1	Red Legs	730345	6687547	1	Red Legs
729998	6687915	1	Red Legs	730347	6687671	1	Red Legs
729999	6687977	1	Red Legs	730348	6687683	1	Red Legs
730001	6687909	1	Red Legs	730352	6687627	1	Red Legs
730001	6687933	1	Red Legs	730352	6687658	2	Red Legs
730002	6687866	1	Red Legs	730355	6687538	1	Red Legs
730003	6688004	1	Red Legs	730362	6687599	1	Red Legs
730008	6687986	1	Red Legs	730365	6687612	2	Red Legs
730011	6687524	1	Red Legs	730366	6687553	1	Red Legs
730011	6688010	1	Red Legs	730372	6687565	1	Red Legs
730014	6687533	3	Red Legs	730374	6687642	1	Red Legs
730035	6687991	1	Red Legs	730375	6687575	1	Red Legs
730040	6688013	1	Red Legs	730375	6687596	1	Red Legs
730041	6688028	1	Red Legs	730376	6687611	1	Red Legs
730045	6687991	1	Red Legs	730376	6687624	1	Red Legs
730050	6687951	1	Red Legs	730377	6687562	2	Red Legs
730053	6687969	1	Red Legs	730378	6687581	1	Red Legs
730053	6687985	1	Red Legs	730382	6687661	1	Red Legs
730060	6688031	1	Red Legs	730387	6687648	2	Red Legs
730064	6687963	4	Red Legs	730387	6687657	2	Red Legs
730068	6688028	1	Red Legs	730391	6687596	1	Red Legs
730071	6687950	3	Red Legs	730394	6687602	1	Red Legs
730072	6687997	1	Red Legs	730434	6687567	1	Red Legs
730082	6688161	1	Red Legs	730438	6687644	1	Red Legs
730085	6687963	1	Red Legs	730447	6687579	1	Red Legs
730094	6688021	3	Red Legs	730447	6687582	1	Red Legs
730097	6687762	2	Red Legs	730450	6687567	1	Red Legs
730103	6687784	1	Red Legs	730451	6687604	1	Red Legs
730103	6687944	1	Red Legs	730454	6687647	1	Red Legs
730104	6687728	1	Red Legs	730457	6687644	1	Red Legs
730105	6688005	1	Red Legs	730460	6687548	1	Red Legs
730106	6687703	1	Red Legs	730461	6687582	1	Red Legs
730107	6687731	1	Red Legs	730462	6687637	1	Red Legs
730109	6687706	1	Red Legs	730463	6687542	1	Red Legs
730109	6687971	3	Red Legs	730463	6687576	1	Red Legs
730110	6688017	3	Red Legs	730467	6687634	2	Red Legs
730113	6687759	2	Red Legs	730468	6687557	2	Red Legs
730114	6687956	1	Red Legs	730468	6687647	3	Red Legs
730123	6687980	1	Red Legs	730470	6687653	1	Red Legs
730125	6687688	5	Red Legs	730472	6687579	1	Red Legs
730128	6687687	1	Red Legs	730472	6687594	1	Red Legs
730128	6687715	1	Red Legs	730472	6687597	1	Red Legs

***Dryandra arborea* – Priority 4** **D. arborea* is a synonym of *Banksia arborea*							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730128	6687968	1	Red Legs	730476	6687551	1	Red Legs
730131	6687718	1	Red Legs	730480	6687606	1	Red Legs
730133	6687690	1	Red Legs	730482	6687563	3	Red Legs
730144	6687703	1	Red Legs	730482	6687582	1	Red Legs
730151	6687644	1	Red Legs	730484	6687554	1	Red Legs
730151	6687773	1	Red Legs	730487	6687529	1	Red Legs
730152	6687718	1	Red Legs	730490	6687554	1	Red Legs
730152	6687973	1	Red Legs	730495	6687569	1	Red Legs
730153	6687638	1	Red Legs	730496	6687590	1	Red Legs
730155	6687733	1	Red Legs	730497	6687655	1	Red Legs
730158	6687986	1	Red Legs	730501	6687590	1	Red Legs
730163	6687696	1	Red Legs	730501	6687597	1	Red Legs
730167	6687767	1	Red Legs	730501	6687597	1	Red Legs
730173	6687693	1	Red Legs	730503	6687538	3	Red Legs
730173	6687955	1	Red Legs	730503	6687553	1	Red Legs
730174	6687964	1	Red Legs	730506	6687544	4	Red Legs
730177	6687742	1	Red Legs	730509	6687578	1	Red Legs
730197	6687683	2	Red Legs	730509	6687584	1	Red Legs
730204	6687754	1	Red Legs	730509	6687590	1	Red Legs
730205	6687658	1	Red Legs	730510	6687639	1	Red Legs
730209	6687735	1	Red Legs	730511	6687676	1	Red Legs
730216	6687689	1	Red Legs	730512	6687593	1	Red Legs
730221	6687686	1	Red Legs	730514	6687710	1	Red Legs
730238	6687704	1	Red Legs	730517	6687698	1	Red Legs
730244	6687737	1	Red Legs	730522	6687550	1	Red Legs
730244	6687854	1	Red Legs	730528	6687574	1	Red Legs
730249	6687703	2	Red Legs	730528	6687692	1	Red Legs
730251	6687682	1	Red Legs	730528	6687698	1	Red Legs
730252	6687737	1	Red Legs	730528	6687698	1	Red Legs
730256	6687672	3	Red Legs	730529	6687611	1	Red Legs
730258	6687746	2	Red Legs	730529	6687658	1	Red Legs
730267	6687688	1	Red Legs	730530	6687571	1	Red Legs
730270	6687678	1	Red Legs	730531	6687599	1	Red Legs
730279	6687623	1	Red Legs	730533	6687590	2	Red Legs
730287	6687610	1	Red Legs	730534	6687599	5	Red Legs
730290	6687632	1	Red Legs	730534	6687602	1	Red Legs
730292	6687595	1	Red Legs	730534	6687630	2	Red Legs
730296	6687669	1	Red Legs	730535	6687651	1	Red Legs
730298	6687601	1	Red Legs	730536	6687599	1	Red Legs
730299	6687678	3	Red Legs	730539	6687587	3	Red Legs
730300	6687595	1	Red Legs	730543	6687648	1	Red Legs
730305	6687567	1	Red Legs	730544	6687574	6	Red Legs
730305	6687712	1	Red Legs	730546	6687657	3	Red Legs
730307	6687536	4	Red Legs	730546	6687666	3	Red Legs
730308	6687588	1	Red Legs	730547	6687611	3	Red Legs
730313	6687585	1	Red Legs	730549	6687583	4	Red Legs
730317	6687622	1	Red Legs	730554	6687654	2	Red Legs
730319	6687616	1	Red Legs	730563	6687611	1	Red Legs

***Dryandra arborea* – Priority 4** **D. arborea* is a synonym of *Banksia arborea*							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730321	6687548	4	Red Legs	730569	6687623	2	Red Legs
730324	6687579	2	Red Legs	730587	6687579	1	Red Legs
730327	6687606	1	Red Legs	730598	6687610	1	Red Legs
730330	6687597	1	Red Legs	730598	6687612	1	Red Legs
730334	6687545	2	Red Legs	730766	6687863	1	Haul Road
730334	6687551	1	Red Legs	732676	6682995	2	Fiddleback
730334	6687554	1	Red Legs	732681	6682996	1	Fiddleback
730334	6687560	1	Red Legs	732738	6683717	1	Fiddleback
730334	6687566	1	Red Legs	732745	6682969	1	Fiddleback

***Eucalyptus formanii* – Priority 4**							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
729996	6687684	2	Red Legs	730494	6688405	1	Red Legs
730001	6687665	1	Red Legs	730495	6688315	1	Red Legs
730004	6687662	1	Red Legs	730495	6688393	1	Red Legs
730006	6687647	1	Red Legs	730496	6688406	1	Red Legs
730008	6687872	4	Red Legs	730497	6688405	1	Red Legs
730008	6687893	2	Red Legs	730498	6688238	1	Red Legs
730010	6687708	1	Red Legs	730498	6688374	1	Red Legs
730011	6687634	2	Red Legs	730499	6688309	1	Red Legs
730012	6687659	1	Red Legs	730500	6687749	1	Red Legs
730012	6687671	1	Red Legs	730500	6688319	1	Red Legs
730014	6687915	1	Red Legs	730500	6688353	1	Red Legs
730020	6687659	4	Red Legs	730500	6688372	1	Red Legs
730025	6687911	3	Red Legs	730500	6688385	1	Red Legs
730029	6687723	1	Red Legs	730502	6688012	1	Red Legs
730038	6687652	1	Red Legs	730503	6688385	1	Red Legs
730205	6688192	1	Red Legs	730504	6688323	1	Red Legs
730209	6688192	1	Red Legs	730504	6688328	2	Red Legs
730211	6688169	1	Red Legs	730504	6688361	1	Red Legs
730211	6688173	1	Red Legs	730506	6688338	1	Red Legs
730214	6688117	3	Red Legs	730506	6688353	1	Red Legs
730216	6688170	1	Red Legs	730507	6688311	1	Red Legs
730219	6688192	1	Red Legs	730507	6688333	1	Red Legs
730220	6688151	2	Red Legs	730507	6688357	1	Red Legs
730230	6688193	1	Red Legs	730507	6688376	1	Red Legs
730231	6688197	1	Red Legs	730509	6688344	1	Red Legs
730236	6688147	2	Red Legs	730509	6688377	1	Red Legs
730236	6688170	1	Red Legs	730510	6688315	1	Red Legs
730238	6688358	1	Red Legs	730511	6688292	1	Red Legs
730239	6688264	1	Red Legs	730511	6688367	1	Red Legs
730242	6688147	2	Red Legs	730512	6687874	4	Red Legs
730242	6688449	1	Red Legs	730513	6687802	1	Red Legs
730242	6688451	1	Red Legs	730513	6688012	1	Red Legs
730242	6688459	1	Red Legs	730513	6688362	1	Red Legs
730243	6688339	2	Red Legs	730514	6687572	1	Red Legs
730243	6688436	1	Red Legs	730514	6688319	1	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730243	6688440	1	Red Legs	730514	6688367	1	Red Legs
730244	6688268	1	Red Legs	730514	6688370	1	Red Legs
730244	6688434	1	Red Legs	730514	6688387	1	Red Legs
730245	6688201	1	Red Legs	730518	6687880	1	Red Legs
730245	6688361	1	Red Legs	730518	6688375	1	Red Legs
730246	6688387	1	Red Legs	730519	6688300	1	Red Legs
730246	6688419	1	Red Legs	730519	6688371	1	Red Legs
730246	6688446	1	Red Legs	730520	6688312	1	Red Legs
730248	6688175	1	Red Legs	730520	6688374	1	Red Legs
730248	6688246	1	Red Legs	730521	6688296	1	Red Legs
730248	6688259	1	Red Legs	730521	6688369	1	Red Legs
730248	6688379	1	Red Legs	730521	6688391	1	Red Legs
730249	6688180	1	Red Legs	730523	6688114	1	Red Legs
730249	6688431	1	Red Legs	730526	6687864	2	Red Legs
730250	6688144	4	Red Legs	730526	6687879	1	Red Legs
730250	6688362	1	Red Legs	730526	6687993	1	Red Legs
730250	6688378	1	Red Legs	730527	6688369	1	Red Legs
730251	6688185	1	Red Legs	730529	6688296	1	Red Legs
730251	6688206	1	Red Legs	730530	6687779	1	Red Legs
730251	6688243	1	Red Legs	730530	6688298	1	Red Legs
730251	6688338	1	Red Legs	730531	6688341	1	Red Legs
730251	6688433	1	Red Legs	730532	6688279	1	Red Legs
730252	6688373	1	Red Legs	730532	6688326	1	Red Legs
730252	6688404	1	Red Legs	730533	6687590	1	Red Legs
730252	6688454	1	Red Legs	730537	6688300	1	Red Legs
730253	6688372	1	Red Legs	730537	6688307	1	Red Legs
730253	6688390	1	Red Legs	730537	6688371	1	Red Legs
730256	6688338	1	Red Legs	730538	6688292	1	Red Legs
730256	6688456	1	Red Legs	730540	6688015	1	Red Legs
730257	6688336	1	Red Legs	730540	6688322	1	Red Legs
730257	6688406	1	Red Legs	730541	6688310	1	Red Legs
730258	6688399	1	Red Legs	730542	6688303	1	Red Legs
730258	6688412	1	Red Legs	730543	6688027	1	Red Legs
730258	6688427	1	Red Legs	730543	6688070	1	Red Legs
730258	6688464	1	Red Legs	730543	6688291	1	Red Legs
730259	6688207	1	Red Legs	730543	6688336	3	Red Legs
730260	6688177	1	Red Legs	730545	6688195	1	Red Legs
730261	6688153	1	Red Legs	730545	6688251	1	Red Legs
730261	6688208	1	Red Legs	730545	6688287	1	Red Legs
730262	6688172	1	Red Legs	730548	6688033	1	Red Legs
730262	6688295	1	Red Legs	730548	6688293	1	Red Legs
730262	6688401	1	Red Legs	730548	6688345	1	Red Legs
730263	6688211	1	Red Legs	730549	6688348	1	Red Legs
730264	6688398	1	Red Legs	730550	6687891	3	Red Legs
730265	6688393	1	Red Legs	730550	6688008	1	Red Legs
730265	6688428	1	Red Legs	730550	6688200	1	Red Legs
730266	6688184	1	Red Legs	730550	6688292	1	Red Legs
730266	6688282	1	Red Legs	730552	6688330	1	Red Legs
730268	6688140	2	Red Legs	730553	6688033	1	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730268	6688188	1	Red Legs	730553	6688262	1	Red Legs
730269	6688192	1	Red Legs	730553	6688311	1	Red Legs
730270	6687937	1	Red Legs	730554	6688322	1	Red Legs
730270	6688164	1	Red Legs	730555	6688250	1	Red Legs
730270	6688171	1	Red Legs	730555	6688259	1	Red Legs
730270	6688383	1	Red Legs	730555	6688265	1	Red Legs
730270	6688387	1	Red Legs	730556	6688011	1	Red Legs
730271	6687860	1	Red Legs	730557	6688257	1	Red Legs
730271	6688225	1	Red Legs	730557	6688322	1	Red Legs
730271	6688280	1	Red Legs	730558	6688329	1	Red Legs
730272	6688070	2	Red Legs	730559	6688176	1	Red Legs
730272	6688199	1	Red Legs	730559	6688282	1	Red Legs
730272	6688380	1	Red Legs	730560	6688082	1	Red Legs
730272	6688446	1	Red Legs	730560	6688094	1	Red Legs
730273	6687962	1	Red Legs	730560	6688268	1	Red Legs
730273	6688097	1	Red Legs	730561	6688276	1	Red Legs
730273	6688355	1	Red Legs	730562	6688256	1	Red Legs
730273	6688362	1	Red Legs	730562	6688259	1	Red Legs
730273	6688385	1	Red Legs	730563	6688264	1	Red Legs
730274	6688150	2	Red Legs	730563	6688288	1	Red Legs
730275	6688082	1	Red Legs	730564	6688264	1	Red Legs
730275	6688367	1	Red Legs	730564	6688319	1	Red Legs
730275	6688443	1	Red Legs	730565	6688367	1	Red Legs
730276	6688323	1	Red Legs	730566	6687999	2	Red Legs
730276	6688395	1	Red Legs	730566	6688303	1	Red Legs
730276	6688448	1	Red Legs	730566	6688321	1	Red Legs
730277	6688318	1	Red Legs	730569	6688312	1	Red Legs
730277	6688401	1	Red Legs	730569	6688327	1	Red Legs
730277	6688440	1	Red Legs	730570	6688292	1	Red Legs
730278	6687965	1	Red Legs	730572	6688236	1	Red Legs
730279	6688182	1	Red Legs	730572	6688279	1	Red Legs
730279	6688206	1	Red Legs	730572	6688326	1	Red Legs
730279	6688430	1	Red Legs	730574	6688345	1	Red Legs
730279	6688470	1	Red Legs	730575	6688309	1	Red Legs
730279	6688477	1	Red Legs	730576	6688289	1	Red Legs
730280	6688072	1	Red Legs	730577	6688279	1	Red Legs
730280	6688344	1	Red Legs	730578	6688274	1	Red Legs
730280	6688393	1	Red Legs	730578	6688322	1	Red Legs
730280	6688429	1	Red Legs	730579	6687866	1	Red Legs
730280	6688438	1	Red Legs	730579	6688345	1	Red Legs
730281	6688170	1	Red Legs	730581	6688316	1	Red Legs
730281	6688437	1	Red Legs	730583	6688026	1	Red Legs
730281	6688475	1	Red Legs	730583	6688284	1	Red Legs
730282	6688128	1	Red Legs	730584	6688334	1	Red Legs
730282	6688326	1	Red Legs	730585	6687857	1	Red Legs
730282	6688336	1	Red Legs	730585	6688017	1	Red Legs
730282	6688450	1	Red Legs	730585	6688232	1	Red Legs
730283	6688375	1	Red Legs	730586	6688263	1	Red Legs
730284	6688300	1	Red Legs	730586	6688300	3	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730284	6688314	1	Red Legs	730586	6688327	1	Red Legs
730284	6688452	1	Red Legs	730587	6688342	1	Red Legs
730285	6688199	1	Red Legs	730588	6688315	1	Red Legs
730285	6688218	1	Red Legs	730588	6688334	1	Red Legs
730285	6688462	1	Red Legs	730589	6688281	2	Red Legs
730285	6688465	1	Red Legs	730590	6688001	1	Red Legs
730286	6687946	1	Red Legs	730592	6688302	1	Red Legs
730286	6688057	1	Red Legs	730593	6688237	2	Red Legs
730286	6688094	1	Red Legs	730596	6688020	1	Red Legs
730286	6688368	1	Red Legs	730596	6688287	1	Red Legs
730287	6688201	1	Red Legs	730597	6688288	1	Red Legs
730287	6688408	1	Red Legs	730597	6688300	1	Red Legs
730288	6688063	1	Red Legs	730599	6688038	1	Red Legs
730288	6688173	1	Red Legs	730600	6688023	1	Red Legs
730288	6688461	1	Red Legs	730600	6688224	1	Red Legs
730289	6688115	1	Red Legs	730600	6688233	1	Red Legs
730289	6688169	1	Red Legs	730600	6688247	1	Red Legs
730289	6688352	1	Red Legs	730600	6688310	1	Red Legs
730289	6688367	1	Red Legs	730600	6688340	1	Red Legs
730289	6688395	1	Red Legs	730601	6688021	1	Red Legs
730290	6688011	1	Red Legs	730602	6688257	1	Red Legs
730290	6688166	1	Red Legs	730602	6688316	1	Red Legs
730290	6688414	1	Red Legs	730602	6688316	1	Red Legs
730291	6687946	1	Red Legs	730602	6688336	1	Red Legs
730291	6688048	1	Red Legs	730604	6688038	1	Red Legs
730291	6688182	1	Red Legs	730604	6688277	2	Red Legs
730291	6688464	1	Red Legs	730605	6688226	1	Red Legs
730292	6688131	1	Red Legs	730605	6688252	1	Red Legs
730292	6688214	1	Red Legs	730605	6688338	1	Red Legs
730293	6688172	1	Red Legs	730605	6688339	1	Red Legs
730293	6688218	1	Red Legs	730605	6688339	1	Red Legs
730293	6688343	1	Red Legs	730606	6688307	1	Red Legs
730293	6688366	1	Red Legs	730606	6688312	1	Red Legs
730294	6687971	1	Red Legs	730607	6688244	1	Red Legs
730294	6688389	1	Red Legs	730607	6688276	1	Red Legs
730295	6688202	1	Red Legs	730608	6688259	1	Red Legs
730295	6688227	1	Red Legs	730608	6688284	1	Red Legs
730295	6688385	1	Red Legs	730609	6688263	1	Red Legs
730295	6688456	1	Red Legs	730609	6688310	1	Red Legs
730296	6688066	1	Red Legs	730610	6688267	1	Red Legs
730296	6688174	1	Red Legs	730610	6688300	1	Red Legs
730296	6688177	1	Red Legs	730610	6688338	1	Red Legs
730296	6688328	1	Red Legs	730611	6688341	1	Red Legs
730296	6688431	1	Red Legs	730612	6688290	1	Red Legs
730297	6688081	1	Red Legs	730613	6688271	1	Red Legs
730297	6688106	1	Red Legs	730613	6688286	1	Red Legs
730297	6688169	1	Red Legs	730613	6688341	1	Red Legs
730297	6688379	1	Red Legs	730614	6688229	1	Red Legs
730297	6688405	1	Red Legs	730615	6688319	1	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730298	6688226	2	Red Legs	730616	6688004	1	Red Legs
730298	6688326	1	Red Legs	730616	6688304	1	Red Legs
730299	6688358	1	Red Legs	730618	6688284	1	Red Legs
730299	6688432	1	Red Legs	730618	6688306	1	Red Legs
730300	6688176	1	Red Legs	730620	6688231	1	Red Legs
730300	6688188	1	Red Legs	730620	6688303	1	Red Legs
730300	6688461	1	Red Legs	730620	6688327	1	Red Legs
730301	6688276	1	Red Legs	730621	6688243	1	Red Legs
730301	6688388	1	Red Legs	730622	6688289	1	Red Legs
730302	6688060	1	Red Legs	730623	6688312	1	Red Legs
730302	6688223	1	Red Legs	730624	6688249	1	Red Legs
730302	6688381	1	Red Legs	730625	6688234	1	Red Legs
730303	6687983	1	Red Legs	730625	6688266	1	Red Legs
730303	6687986	1	Red Legs	730625	6688303	1	Red Legs
730303	6688124	1	Red Legs	730626	6688249	1	Red Legs
730303	6688137	1	Red Legs	730630	6688305	1	Red Legs
730303	6688202	1	Red Legs	730631	6688251	1	Red Legs
730303	6688203	1	Red Legs	730631	6688282	1	Red Legs
730303	6688384	1	Red Legs	730631	6688310	1	Red Legs
730303	6688416	1	Red Legs	730634	6688268	1	Red Legs
730303	6688452	1	Red Legs	730634	6688297	1	Red Legs
730304	6688162	1	Red Legs	730636	6688239	1	Red Legs
730304	6688378	1	Red Legs	730636	6688297	1	Red Legs
730305	6687964	1	Red Legs	730637	6688266	1	Red Legs
730305	6688109	1	Red Legs	730638	6688304	1	Red Legs
730305	6688183	1	Red Legs	730641	6688303	1	Red Legs
730306	6688154	1	Red Legs	730643	6688242	1	Red Legs
730306	6688155	1	Red Legs	730644	6688219	1	Red Legs
730306	6688174	1	Red Legs	730645	6688244	1	Red Legs
730307	6688220	1	Red Legs	730646	6688271	1	Red Legs
730307	6688301	1	Red Legs	730648	6688208	1	Red Legs
730307	6688350	1	Red Legs	730648	6688274	1	Red Legs
730307	6688454	1	Red Legs	730650	6688309	1	Red Legs
730308	6688447	1	Red Legs	730651	6688216	1	Red Legs
730309	6688047	1	Red Legs	730652	6688054	1	Red Legs
730309	6688134	1	Red Legs	730653	6688274	1	Red Legs
730309	6688176	1	Red Legs	730655	6688207	1	Red Legs
730310	6688395	1	Red Legs	730655	6688286	1	Red Legs
730311	6688331	1	Red Legs	730656	6688106	1	Red Legs
730311	6688372	1	Red Legs	730656	6688274	1	Red Legs
730311	6688386	1	Red Legs	730657	6688210	1	Red Legs
730312	6688041	2	Red Legs	730658	6688249	1	Red Legs
730312	6688188	1	Red Legs	730660	6688041	1	Red Legs
730312	6688363	1	Red Legs	730661	6688215	1	Red Legs
730314	6688022	1	Red Legs	730661	6688272	1	Red Legs
730314	6688026	1	Red Legs	730662	6688209	1	Red Legs
730315	6688207	1	Red Legs	730663	6688234	1	Red Legs
730315	6688324	1	Red Legs	730663	6688252	1	Red Legs
730315	6688373	1	Red Legs	730663	6688286	1	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730316	6688093	1	Red Legs	730664	6688030	1	Red Legs
730316	6688121	2	Red Legs	730668	6688042	2	Red Legs
730319	6688166	1	Red Legs	730668	6688220	1	Red Legs
730319	6688169	1	Red Legs	730669	6688171	1	Red Legs
730319	6688323	1	Red Legs	730670	6688265	1	Red Legs
730319	6688395	1	Red Legs	730672	6688267	1	Red Legs
730320	6687788	1	Red Legs	730676	6688166	1	Red Legs
730320	6688056	1	Red Legs	730676	6688191	1	Red Legs
730320	6688205	1	Red Legs	730676	6688213	1	Red Legs
730321	6688078	1	Red Legs	730678	6688211	1	Red Legs
730321	6688441	1	Red Legs	730678	6688232	1	Red Legs
730323	6688047	1	Red Legs	730679	6688170	1	Red Legs
730323	6688062	4	Red Legs	730679	6688245	1	Red Legs
730323	6688171	1	Red Legs	730680	6687702	1	Red Legs
730323	6688365	1	Red Legs	730680	6687712	1	Red Legs
730324	6688379	1	Red Legs	730680	6688215	1	Red Legs
730324	6688390	1	Red Legs	730681	6687695	1	Red Legs
730325	6688035	1	Red Legs	730682	6688170	1	Red Legs
730325	6688041	1	Red Legs	730682	6688240	1	Red Legs
730325	6688292	1	Red Legs	730682	6688245	1	Red Legs
730325	6688344	1	Red Legs	730683	6687810	1	Red Legs
730325	6688442	1	Red Legs	730683	6688128	1	Red Legs
730326	6688220	1	Red Legs	730684	6688298	1	Red Legs
730326	6688301	1	Red Legs	730685	6688025	1	Red Legs
730327	6687985	1	Red Legs	730685	6688269	1	Red Legs
730327	6687991	1	Red Legs	730686	6688209	1	Red Legs
730327	6688169	1	Red Legs	730687	6688026	1	Red Legs
730327	6688328	1	Red Legs	730687	6688157	1	Red Legs
730329	6688071	1	Red Legs	730687	6688179	1	Red Legs
730329	6688381	1	Red Legs	730687	6688237	1	Red Legs
730330	6688013	1	Red Legs	730688	6688182	1	Red Legs
730330	6688344	1	Red Legs	730688	6688204	1	Red Legs
730330	6688443	1	Red Legs	730688	6688230	1	Red Legs
730331	6688377	1	Red Legs	730689	6687811	1	Red Legs
730331	6688390	1	Red Legs	730690	6688035	1	Red Legs
730332	6688081	1	Red Legs	730691	6688077	1	Red Legs
730332	6688445	1	Red Legs	730692	6688162	1	Red Legs
730333	6687994	1	Red Legs	730692	6688204	1	Red Legs
730333	6688004	1	Red Legs	730692	6688256	1	Red Legs
730333	6688022	1	Red Legs	730693	6688108	1	Red Legs
730333	6688364	1	Red Legs	730693	6688214	1	Red Legs
730333	6688387	1	Red Legs	730693	6688238	1	Red Legs
730334	6688062	1	Red Legs	730693	6688315	1	Red Legs
730334	6688062	1	Red Legs	730694	6688056	1	Red Legs
730334	6688334	1	Red Legs	730694	6688086	1	Red Legs
730334	6688373	1	Red Legs	730694	6688138	1	Red Legs
730334	6688392	1	Red Legs	730694	6688313	1	Red Legs
730336	6688361	1	Red Legs	730695	6688241	1	Red Legs
730336	6688364	1	Red Legs	730697	6688050	1	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730336	6688448	1	Red Legs	730697	6688071	1	Red Legs
730337	6688087	1	Red Legs	730697	6688177	1	Red Legs
730337	6688315	1	Red Legs	730698	6688077	1	Red Legs
730337	6688356	1	Red Legs	730698	6688186	1	Red Legs
730338	6688022	1	Red Legs	730698	6688207	1	Red Legs
730339	6688378	1	Red Legs	730699	6687722	1	Red Legs
730340	6688333	1	Red Legs	730699	6687796	1	Red Legs
730340	6688333	1	Red Legs	730699	6688030	1	Red Legs
730340	6688377	1	Red Legs	730699	6688033	1	Red Legs
730341	6688167	1	Red Legs	730699	6688067	1	Red Legs
730341	6688380	1	Red Legs	730699	6688236	1	Red Legs
730341	6688431	1	Red Legs	730700	6688034	1	Red Legs
730341	6688434	1	Red Legs	730700	6688129	1	Red Legs
730341	6688440	1	Red Legs	730700	6688235	1	Red Legs
730342	6688053	3	Red Legs	730700	6688247	1	Red Legs
730342	6688062	1	Red Legs	730702	6688110	1	Red Legs
730342	6688084	1	Red Legs	730702	6688142	1	Red Legs
730342	6688395	1	Red Legs	730703	6688076	1	Red Legs
730343	6688368	1	Red Legs	730703	6688170	1	Red Legs
730343	6688453	1	Red Legs	730703	6688259	1	Red Legs
730344	6688423	1	Red Legs	730704	6687793	1	Red Legs
730346	6688006	1	Red Legs	730704	6688050	1	Red Legs
730346	6688386	1	Red Legs	730704	6688232	1	Red Legs
730347	6688037	1	Red Legs	730704	6688237	1	Red Legs
730347	6688346	2	Red Legs	730704	6688274	1	Red Legs
730347	6688447	1	Red Legs	730705	6688201	1	Red Legs
730348	6688111	2	Red Legs	730706	6688026	1	Red Legs
730348	6688367	1	Red Legs	730706	6688061	1	Red Legs
730348	6688403	1	Red Legs	730706	6688063	1	Red Legs
730348	6688417	1	Red Legs	730706	6688229	1	Red Legs
730348	6688443	1	Red Legs	730707	6687806	1	Red Legs
730348	6688444	1	Red Legs	730707	6687822	1	Red Legs
730349	6688019	2	Red Legs	730707	6688131	1	Red Legs
730349	6688414	1	Red Legs	730707	6688140	1	Red Legs
730350	6688083	1	Red Legs	730708	6688036	1	Red Legs
730350	6688411	1	Red Legs	730709	6687694	1	Red Legs
730350	6688421	1	Red Legs	730709	6688204	1	Red Legs
730351	6688373	1	Red Legs	730710	6688195	1	Red Legs
730351	6688383	1	Red Legs	730711	6687820	1	Red Legs
730352	6688202	1	Red Legs	730711	6688031	1	Red Legs
730352	6688365	1	Red Legs	730711	6688121	1	Red Legs
730352	6688423	1	Red Legs	730711	6688219	1	Red Legs
730353	6688409	1	Red Legs	730711	6688251	1	Red Legs
730354	6688361	1	Red Legs	730712	6687790	1	Red Legs
730355	6688259	1	Red Legs	730712	6688132	1	Red Legs
730355	6688373	1	Red Legs	730712	6688169	1	Red Legs
730355	6688421	1	Red Legs	730712	6688210	1	Red Legs
730356	6688099	2	Red Legs	730715	6687689	1	Red Legs
730356	6688401	1	Red Legs	730715	6688086	1	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730356	6688422	1	Red Legs	730716	6688029	1	Red Legs
730358	6688062	4	Red Legs	730717	6688052	1	Red Legs
730358	6688215	1	Red Legs	730717	6688064	1	Red Legs
730358	6688382	1	Red Legs	730717	6688183	1	Red Legs
730358	6688385	1	Red Legs	730718	6688054	1	Red Legs
730360	6688370	1	Red Legs	730718	6688069	1	Red Legs
730360	6688443	1	Red Legs	730718	6688101	1	Red Legs
730361	6688293	1	Red Legs	730719	6688058	1	Red Legs
730361	6688407	1	Red Legs	730720	6688053	1	Red Legs
730361	6688419	1	Red Legs	730721	6687712	1	Red Legs
730361	6688445	1	Red Legs	730721	6688057	1	Red Legs
730362	6688313	1	Red Legs	730722	6688052	1	Red Legs
730362	6688341	1	Red Legs	730722	6688122	1	Red Legs
730362	6688355	1	Red Legs	730723	6688030	1	Red Legs
730362	6688451	1	Red Legs	730724	6688088	1	Red Legs
730363	6688352	4	Red Legs	730724	6688114	1	Red Legs
730363	6688353	1	Red Legs	730725	6688050	1	Red Legs
730363	6688354	1	Red Legs	730726	6687692	1	Red Legs
730363	6688354	1	Red Legs	730726	6688037	1	Red Legs
730364	6688324	1	Red Legs	730726	6688062	1	Red Legs
730367	6688266	1	Red Legs	730727	6687720	1	Red Legs
730367	6688369	1	Red Legs	730727	6687722	1	Red Legs
730367	6688370	1	Red Legs	730727	6688037	1	Red Legs
730368	6688018	2	Red Legs	730727	6688040	1	Red Legs
730368	6688443	1	Red Legs	730727	6688072	1	Red Legs
730369	6688410	1	Red Legs	730728	6688038	1	Red Legs
730370	6688367	1	Red Legs	730728	6688050	1	Red Legs
730370	6688443	1	Red Legs	730728	6688099	1	Red Legs
730371	6688386	1	Red Legs	730729	6687761	1	Red Legs
730371	6688393	1	Red Legs	730729	6687773	1	Red Legs
730372	6688098	2	Red Legs	730729	6688142	1	Red Legs
730372	6688353	1	Red Legs	730731	6688127	1	Red Legs
730372	6688366	1	Red Legs	730732	6687762	1	Red Legs
730372	6688383	1	Red Legs	730732	6687767	1	Red Legs
730372	6688444	1	Red Legs	730732	6687784	1	Red Legs
730373	6688400	1	Red Legs	730732	6688086	1	Red Legs
730374	6688342	1	Red Legs	730733	6688047	1	Red Legs
730374	6688422	1	Red Legs	730733	6688223	1	Red Legs
730375	6687710	1	Red Legs	730734	6688059	1	Red Legs
730375	6688432	1	Red Legs	730734	6688125	1	Red Legs
730377	6688314	1	Red Legs	730735	6687756	1	Red Legs
730377	6688352	1	Red Legs	730735	6688015	1	Red Legs
730377	6688447	1	Red Legs	730735	6688016	1	Red Legs
730377	6688447	1	Red Legs	730736	6687784	1	Red Legs
730378	6688095	1	Red Legs	730737	6687747	1	Red Legs
730378	6688098	2	Red Legs	730737	6688161	1	Red Legs
730378	6688343	1	Red Legs	730738	6687765	1	Red Legs
730378	6688427	1	Red Legs	730738	6687801	1	Red Legs
730379	6688012	1	Red Legs	730739	6688022	1	Red Legs

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730379	6688033	2	Red Legs	730739	6688040	1	Red Legs
730380	6688064	1	Red Legs	730742	6688122	1	Red Legs
730380	6688095	1	Red Legs	730742	6688215	1	Red Legs
730380	6688344	1	Red Legs	730743	6688035	1	Red Legs
730380	6688354	1	Red Legs	730743	6688055	1	Red Legs
730381	6688018	1	Red Legs	730743	6688073	1	Red Legs
730381	6688110	1	Red Legs	730743	6688115	1	Red Legs
730381	6688392	1	Red Legs	730744	6687756	1	Red Legs
730382	6688055	1	Red Legs	730744	6687797	1	Red Legs
730383	6688110	1	Red Legs	730744	6688038	1	Red Legs
730383	6688425	1	Red Legs	730745	6688078	1	Red Legs
730384	6688320	1	Red Legs	730745	6688110	1	Red Legs
730384	6688348	1	Red Legs	730747	6687759	1	Red Legs
730385	6688364	1	Red Legs	730749	6688152	1	Red Legs
730386	6688312	1	Red Legs	730751	6687799	1	Red Legs
730387	6688413	1	Red Legs	730753	6687746	1	Red Legs
730388	6688076	2	Red Legs	730753	6687789	1	Red Legs
730388	6688095	1	Red Legs	730753	6688297	1	Red Legs
730389	6688021	2	Red Legs	730768	6687735	1	Haul Road
730389	6688107	2	Red Legs	730770	6687819	1	Haul Road
730389	6688116	1	Red Legs	730771	6687850	1	Haul Road
730389	6688354	1	Red Legs	730778	6687832	1	Haul Road
730389	6688391	1	Red Legs	730779	6687832	1	Haul Road
730389	6688405	1	Red Legs	730781	6687823	1	Haul Road
730390	6688165	1	Red Legs	730782	6687826	1	Haul Road
730390	6688401	1	Red Legs	730788	6687811	1	Haul Road
730390	6688428	1	Red Legs	730788	6687843	1	Haul Road
730391	6687990	1	Red Legs	730791	6687837	1	Haul Road
730391	6688316	1	Red Legs	730791	6687840	1	Haul Road
730392	6688018	1	Red Legs	730791	6687844	1	Haul Road
730392	6688351	1	Red Legs	730793	6687839	1	Haul Road
730393	6688413	1	Red Legs	730796	6687847	1	Haul Road
730394	6688359	1	Red Legs	730807	6687825	1	Haul Road
730394	6688359	1	Red Legs	730807	6687845	1	Haul Road
730394	6688362	1	Red Legs	730810	6687830	1	Haul Road
730394	6688365	1	Red Legs	730830	6687689	1	Haul Road
730395	6688027	1	Red Legs	730836	6687743	1	Haul Road
730395	6688039	1	Red Legs	730852	6687716	1	Haul Road
730395	6688397	1	Red Legs	730860	6687683	1	Haul Road
730395	6688412	1	Red Legs	730866	6687710	1	Haul Road
730396	6688092	1	Red Legs	730872	6687655	1	Haul Road
730396	6688414	1	Red Legs	730887	6687695	1	Haul Road
730397	6688107	2	Red Legs	730909	6687648	1	Haul Road
730397	6688312	1	Red Legs	731822	6685668	1	Haul Road
730397	6688378	1	Red Legs	731826	6685663	1	Haul Road
730397	6688394	1	Red Legs	731834	6685662	1	Haul Road
730398	6688045	1	Red Legs	731840	6685667	1	Haul Road
730398	6688289	1	Red Legs	731842	6685698	1	Haul Road
730398	6688308	1	Red Legs	731851	6685643	1	Haul Road

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730399	6688369	1	Red Legs	731856	6685700	1	Haul Road
730399	6688400	1	Red Legs	731857	6685627	1	Haul Road
730400	6688129	6	Red Legs	731863	6685659	1	Haul Road
730400	6688279	1	Red Legs	731868	6685702	1	Haul Road
730400	6688300	1	Red Legs	731875	6685687	1	Haul Road
730400	6688416	1	Red Legs	731875	6685700	1	Haul Road
730401	6688313	1	Red Legs	731879	6685627	1	Haul Road
730401	6688356	1	Red Legs	731880	6685621	1	Haul Road
730402	6688098	4	Red Legs	731881	6685681	1	Haul Road
730402	6688116	4	Red Legs	731883	6685701	1	Haul Road
730402	6688197	1	Red Legs	731884	6685632	1	Haul Road
730402	6688386	1	Red Legs	731885	6685693	1	Haul Road
730402	6688412	1	Red Legs	731893	6685718	1	Haul Road
730402	6688412	1	Red Legs	731917	6685684	1	Haul Road
730403	6688318	1	Red Legs	731952	6685572	1	Haul Road
730403	6688395	1	Red Legs	731964	6685564	1	Haul Road
730403	6688419	1	Red Legs	731965	6685563	1	Haul Road
730404	6688316	1	Red Legs	732122	6685118	1	Haul Road
730405	6688397	1	Red Legs	732124	6685121	1	Haul Road
730406	6688036	3	Red Legs	732126	6685123	1	Haul Road
730406	6688307	1	Red Legs	732146	6685110	1	Haul Road
730407	6688362	1	Red Legs	732168	6685104	1	Haul Road
730407	6688421	1	Red Legs	732212	6684425	1	Fiddleback
730408	6688021	1	Red Legs	732213	6684428	1	Fiddleback
730408	6688314	1	Red Legs	732219	6684436	1	Fiddleback
730410	6688101	2	Red Legs	732223	6684436	1	Fiddleback
730410	6688125	1	Red Legs	732258	6684450	1	Fiddleback
730410	6688315	1	Red Legs	732269	6684447	1	Fiddleback
730410	6688338	1	Red Legs	732271	6684461	1	Fiddleback
730410	6688406	1	Red Legs	732293	6684748	1	Fiddleback
730411	6688027	1	Red Legs	732319	6684333	1	Fiddleback
730411	6688334	1	Red Legs	732326	6684340	1	Fiddleback
730411	6688408	1	Red Legs	732366	6684328	1	Fiddleback
730411	6688429	1	Red Legs	732375	6684052	2	Fiddleback
730412	6688079	2	Red Legs	732389	6683796	1	Fiddleback
730412	6688386	1	Red Legs	732405	6683814	1	Fiddleback
730412	6688407	1	Red Legs	732407	6683789	1	Fiddleback
730413	6687996	1	Red Legs	732408	6683820	1	Fiddleback
730413	6688113	1	Red Legs	732413	6683807	1	Fiddleback
730414	6688334	1	Red Legs	732416	6683795	1	Fiddleback
730415	6688094	1	Red Legs	732416	6683823	1	Fiddleback
730416	6688113	1	Red Legs	732417	6683755	1	Fiddleback
730416	6688150	1	Red Legs	732424	6683798	1	Fiddleback
730416	6688310	1	Red Legs	732442	6683662	2	Fiddleback
730416	6688353	1	Red Legs	732442	6683770	1	Fiddleback
730417	6688307	1	Red Legs	732447	6683751	1	Fiddleback
730418	6688107	1	Red Legs	732447	6683757	1	Fiddleback
730418	6688317	1	Red Legs	732474	6683643	1	Fiddleback
730418	6688320	1	Red Legs	732475	6683680	1	Fiddleback

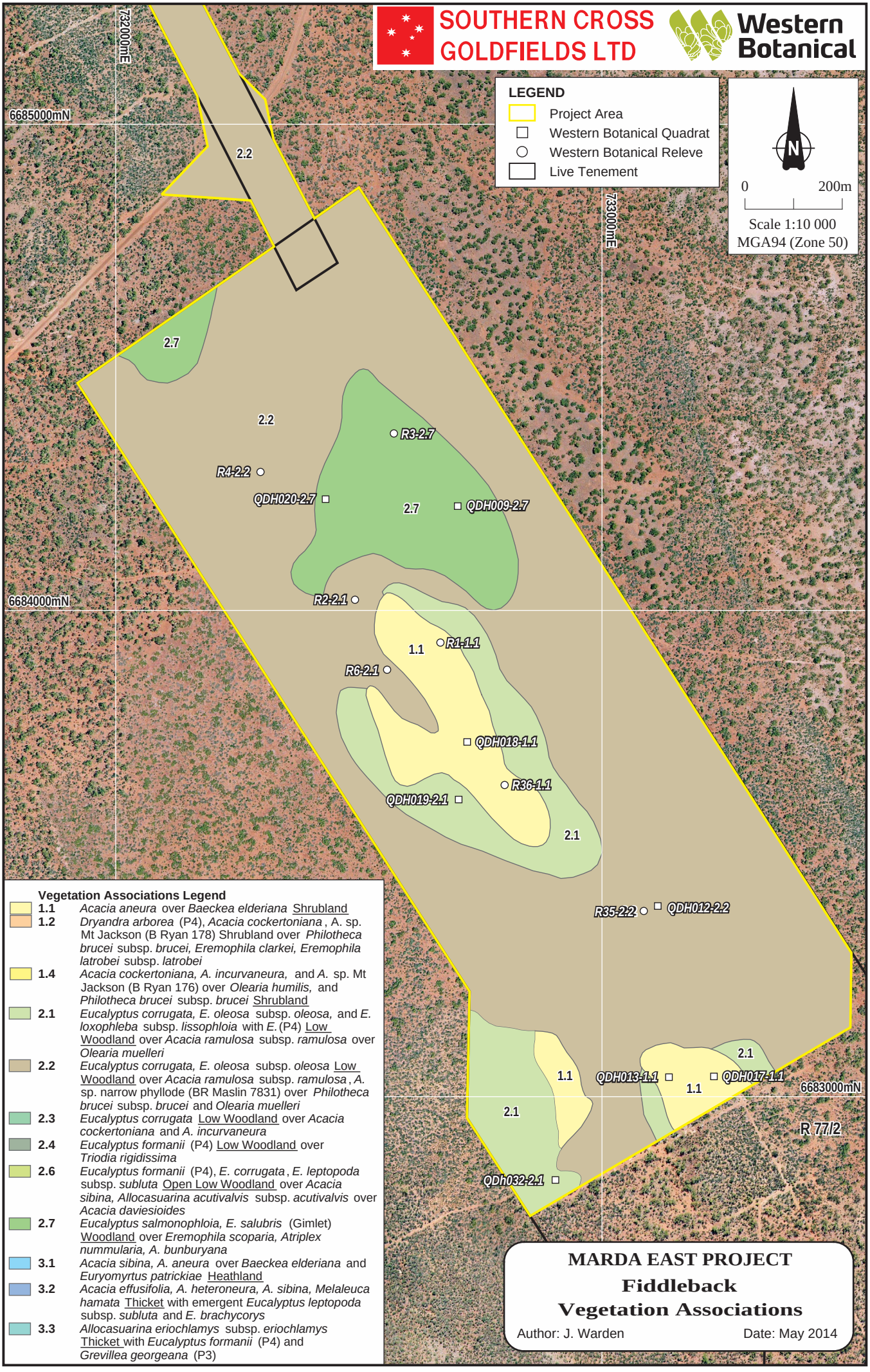
Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730419	6688042	2	Red Legs	732477	6683658	1	Fiddleback
730419	6688329	1	Red Legs	732477	6683784	1	Fiddleback
730419	6688357	1	Red Legs	732478	6683821	2	Fiddleback
730420	6688063	1	Red Legs	732480	6683683	1	Fiddleback
730420	6688306	1	Red Legs	732480	6683803	1	Fiddleback
730420	6688331	1	Red Legs	732482	6683791	1	Fiddleback
730421	6688119	1	Red Legs	732489	6683593	2	Fiddleback
730421	6688317	1	Red Legs	732489	6683609	1	Fiddleback
730421	6688411	1	Red Legs	732491	6683686	1	Fiddleback
730422	6688340	1	Red Legs	732493	6683655	2	Fiddleback
730422	6688358	1	Red Legs	732493	6683664	1	Fiddleback
730422	6688382	1	Red Legs	732494	6683812	1	Fiddleback
730422	6688389	1	Red Legs	732508	6683611	4	Fiddleback
730424	6687888	1	Red Legs	732509	6683667	3	Fiddleback
730424	6688026	1	Red Legs	732520	6683645	3	Fiddleback
730425	6688048	1	Red Legs	732522	6683620	2	Fiddleback
730425	6688315	1	Red Legs	732537	6683586	1	Fiddleback
730425	6688378	1	Red Legs	732556	6683823	4	Fiddleback
730426	6687996	1	Red Legs	732559	6683616	3	Fiddleback
730426	6688094	1	Red Legs	732562	6683626	4	Fiddleback
730426	6688113	1	Red Legs	732572	6683607	4	Fiddleback
730426	6688319	1	Red Legs	732575	6683619	1	Fiddleback
730426	6688324	2	Red Legs	732580	6683604	2	Fiddleback
730427	6688314	1	Red Legs	732585	6683573	1	Fiddleback
730427	6688368	1	Red Legs	732585	6683825	2	Fiddleback
730428	6688069	1	Red Legs	732596	6683566	1	Fiddleback
730429	6688125	2	Red Legs	732597	6683628	1	Fiddleback
730430	6688354	1	Red Legs	732604	6683578	1	Fiddleback
730430	6688357	1	Red Legs	732611	6683634	1	Fiddleback
730432	6687869	1	Red Legs	732684	6683549	1	Fiddleback
730432	6688116	1	Red Legs	732696	6683071	1	Fiddleback
730433	6688400	1	Red Legs	732708	6683067	1	Fiddleback
730433	6688422	1	Red Legs	732709	6683075	1	Fiddleback
730434	6687857	1	Red Legs	732713	6683076	1	Fiddleback
730434	6688100	1	Red Legs	732721	6683086	1	Fiddleback
730434	6688106	1	Red Legs	732724	6682960	1	Fiddleback
730436	6688066	1	Red Legs	732726	6683083	1	Fiddleback
730436	6688078	1	Red Legs	732730	6683103	1	Fiddleback
730436	6688301	1	Red Legs	732753	6683072	1	Fiddleback
730436	6688378	1	Red Legs	732754	6682882	1	Fiddleback
730437	6688381	1	Red Legs	732755	6683070	1	Fiddleback
730437	6688403	1	Red Legs	732758	6683062	1	Fiddleback
730438	6688020	1	Red Legs	732760	6683056	1	Fiddleback
730438	6688023	1	Red Legs	732760	6683060	1	Fiddleback
730438	6688029	1	Red Legs	732763	6683058	1	Fiddleback
730438	6688305	1	Red Legs	732765	6682925	1	Fiddleback
730438	6688381	1	Red Legs	732767	6682871	1	Fiddleback
730439	6688329	1	Red Legs	732772	6683123	2	Fiddleback
730439	6688378	1	Red Legs	732778	6682977	1	Fiddleback

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730439	6688385	1	Red Legs	732778	6683115	1	Fiddleback
730440	6687875	2	Red Legs	732779	6682934	1	Fiddleback
730440	6688319	1	Red Legs	732779	6683088	1	Fiddleback
730440	6688335	1	Red Legs	732781	6683131	1	Fiddleback
730441	6688309	1	Red Legs	732782	6683120	1	Fiddleback
730441	6688380	1	Red Legs	732782	6683125	1	Fiddleback
730442	6688072	1	Red Legs	732783	6682968	1	Fiddleback
730442	6688380	1	Red Legs	732784	6683086	1	Fiddleback
730442	6688405	1	Red Legs	732785	6683128	1	Fiddleback
730443	6687869	1	Red Legs	732785	6683136	1	Fiddleback
730443	6688121	1	Red Legs	732786	6682956	1	Fiddleback
730443	6688366	1	Red Legs	732786	6683123	1	Fiddleback
730444	6688323	1	Red Legs	732786	6683189	1	Fiddleback
730444	6688422	1	Red Legs	732786	6683193	1	Fiddleback
730445	6688306	1	Red Legs	732794	6682957	1	Fiddleback
730446	6688303	1	Red Legs	732794	6682995	1	Fiddleback
730446	6688317	1	Red Legs	732795	6683125	1	Fiddleback
730446	6688423	1	Red Legs	732800	6683088	1	Fiddleback
730447	6688078	1	Red Legs	732801	6683088	1	Fiddleback
730447	6688336	1	Red Legs	732801	6683093	1	Fiddleback
730449	6688294	1	Red Legs	732805	6683114	1	Fiddleback
730449	6688302	1	Red Legs	732807	6683117	1	Fiddleback
730450	6688296	1	Red Legs	732807	6683127	1	Fiddleback
730450	6688313	1	Red Legs	732810	6683117	1	Fiddleback
730450	6688356	1	Red Legs	732813	6683120	1	Fiddleback
730450	6688385	1	Red Legs	732816	6683110	1	Fiddleback
730451	6688332	1	Red Legs	732816	6683124	1	Fiddleback
730451	6688403	1	Red Legs	732817	6683159	1	Fiddleback
730452	6688394	1	Red Legs	732818	6683102	1	Fiddleback
730453	6688357	1	Red Legs	732821	6683122	1	Fiddleback
730454	6688029	1	Red Legs	732826	6682912	1	Fiddleback
730454	6688401	1	Red Legs	732828	6682925	1	Fiddleback
730454	6688411	1	Red Legs	732829	6682911	1	Fiddleback
730455	6688337	1	Red Legs	732829	6683128	1	Fiddleback
730455	6688413	1	Red Legs	732832	6683127	1	Fiddleback
730456	6688389	1	Red Legs	732833	6682946	1	Fiddleback
730456	6688410	1	Red Legs	732833	6683126	1	Fiddleback
730457	6688284	1	Red Legs	732834	6682933	1	Fiddleback
730458	6688386	1	Red Legs	732835	6683127	1	Fiddleback
730461	6688403	1	Red Legs	732836	6683115	1	Fiddleback
730462	6688019	1	Red Legs	732836	6683125	1	Fiddleback
730463	6688305	1	Red Legs	732837	6682911	1	Fiddleback
730463	6688313	1	Red Legs	732837	6682912	1	Fiddleback
730464	6688363	1	Red Legs	732839	6683010	1	Fiddleback
730465	6688288	1	Red Legs	732840	6682922	1	Fiddleback
730465	6688302	1	Red Legs	732844	6683128	1	Fiddleback
730465	6688355	1	Red Legs	732845	6683114	1	Fiddleback
730466	6688339	1	Red Legs	732845	6683114	1	Fiddleback
730467	6688353	1	Red Legs	732846	6683125	1	Fiddleback

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730467	6688354	1	Red Legs	732849	6682887	1	Fiddleback
730468	6688344	1	Red Legs	732849	6682906	1	Fiddleback
730468	6688369	1	Red Legs	732856	6682883	1	Fiddleback
730469	6688342	1	Red Legs	732856	6682889	1	Fiddleback
730469	6688384	1	Red Legs	732856	6682910	1	Fiddleback
730469	6688393	1	Red Legs	732856	6683012	1	Fiddleback
730470	6688334	1	Red Legs	732856	6683129	1	Fiddleback
730470	6688339	1	Red Legs	732859	6683110	1	Fiddleback
730470	6688397	1	Red Legs	732860	6682878	1	Fiddleback
730471	6688352	1	Red Legs	732865	6682906	1	Fiddleback
730471	6688369	1	Red Legs	732865	6683131	1	Fiddleback
730473	6688025	1	Red Legs	732866	6683115	1	Fiddleback
730474	6688321	1	Red Legs	732871	6683008	1	Fiddleback
730476	6688312	1	Red Legs	732876	6682890	1	Fiddleback
730476	6688329	2	Red Legs	732885	6682891	1	Fiddleback
730476	6688334	1	Red Legs	732885	6682988	2	Fiddleback
730476	6688334	1	Red Legs	732889	6683005	1	Fiddleback
730476	6688367	1	Red Legs	732892	6682916	1	Fiddleback
730477	6688316	1	Red Legs	732892	6682998	1	Fiddleback
730477	6688352	1	Red Legs	732898	6682901	1	Fiddleback
730477	6688365	1	Red Legs	732898	6682984	1	Fiddleback
730478	6688034	1	Red Legs	732900	6682964	1	Fiddleback
730478	6688311	1	Red Legs	732902	6682998	1	Fiddleback
730478	6688315	1	Red Legs	732907	6682926	1	Fiddleback
730478	6688365	1	Red Legs	732908	6682989	1	Fiddleback
730479	6688318	3	Red Legs	732910	6682997	1	Fiddleback
730479	6688322	1	Red Legs	732917	6682965	1	Fiddleback
730479	6688327	1	Red Legs	732918	6683070	1	Fiddleback
730480	6688325	1	Red Legs	732920	6682997	1	Fiddleback
730480	6688385	1	Red Legs	732921	6682988	1	Fiddleback
730483	6688381	1	Red Legs	732921	6683071	1	Fiddleback
730483	6688394	1	Red Legs	732925	6682959	1	Fiddleback
730483	6688398	1	Red Legs	732927	6682983	1	Fiddleback
730484	6688350	1	Red Legs	732928	6682969	1	Fiddleback
730485	6688307	1	Red Legs	732929	6682985	1	Fiddleback
730485	6688326	3	Red Legs	732934	6682992	1	Fiddleback
730485	6688353	1	Red Legs	732935	6682907	1	Fiddleback
730485	6688398	1	Red Legs	732937	6682982	1	Fiddleback
730487	6688267	1	Red Legs	732937	6682992	1	Fiddleback
730487	6688393	1	Red Legs	732945	6682987	1	Fiddleback
730488	6688312	1	Red Legs	732946	6683047	1	Fiddleback
730488	6688334	1	Red Legs	732947	6682989	1	Fiddleback
730489	6688013	1	Red Legs	732948	6682982	1	Fiddleback
730489	6688314	1	Red Legs	732955	6683565	1	Fiddleback
730489	6688351	1	Red Legs	732957	6682984	1	Fiddleback
730489	6688365	1	Red Legs	732960	6683552	1	Fiddleback
730490	6688080	1	Red Legs	732961	6683026	1	Fiddleback
730490	6688343	1	Red Legs	732971	6682971	1	Fiddleback
730491	6688377	1	Red Legs	733077	6683762	1	Fiddleback

Eucalyptus formanii – Priority 4							
Easting	**Northing**	**Counts**	**Prospect**	**Easting**	**Northing**	**Counts**	**Prospect**
730491	6688402	1	Red Legs	733085	6683747	1	Fiddleback
730492	6688345	1	Red Legs	733156	6683009	1	Fiddleback
730494	6688376	1	Red Legs	733172	6683205	2	Fiddleback
730494	6688386	1	Red Legs				

Appendix 17 Map showing the locations of Quadrat and Relevé survey sites across the Marda East Project area



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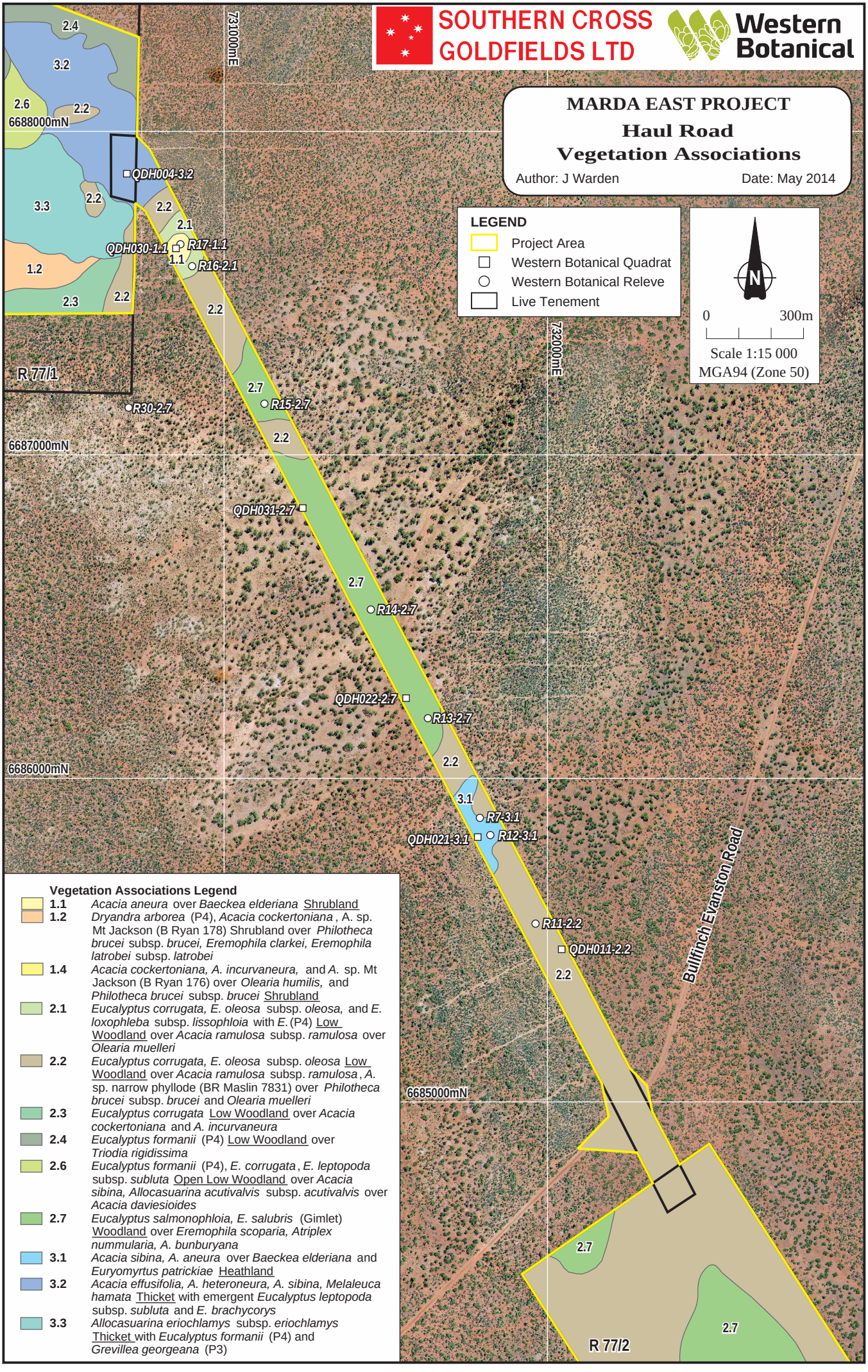

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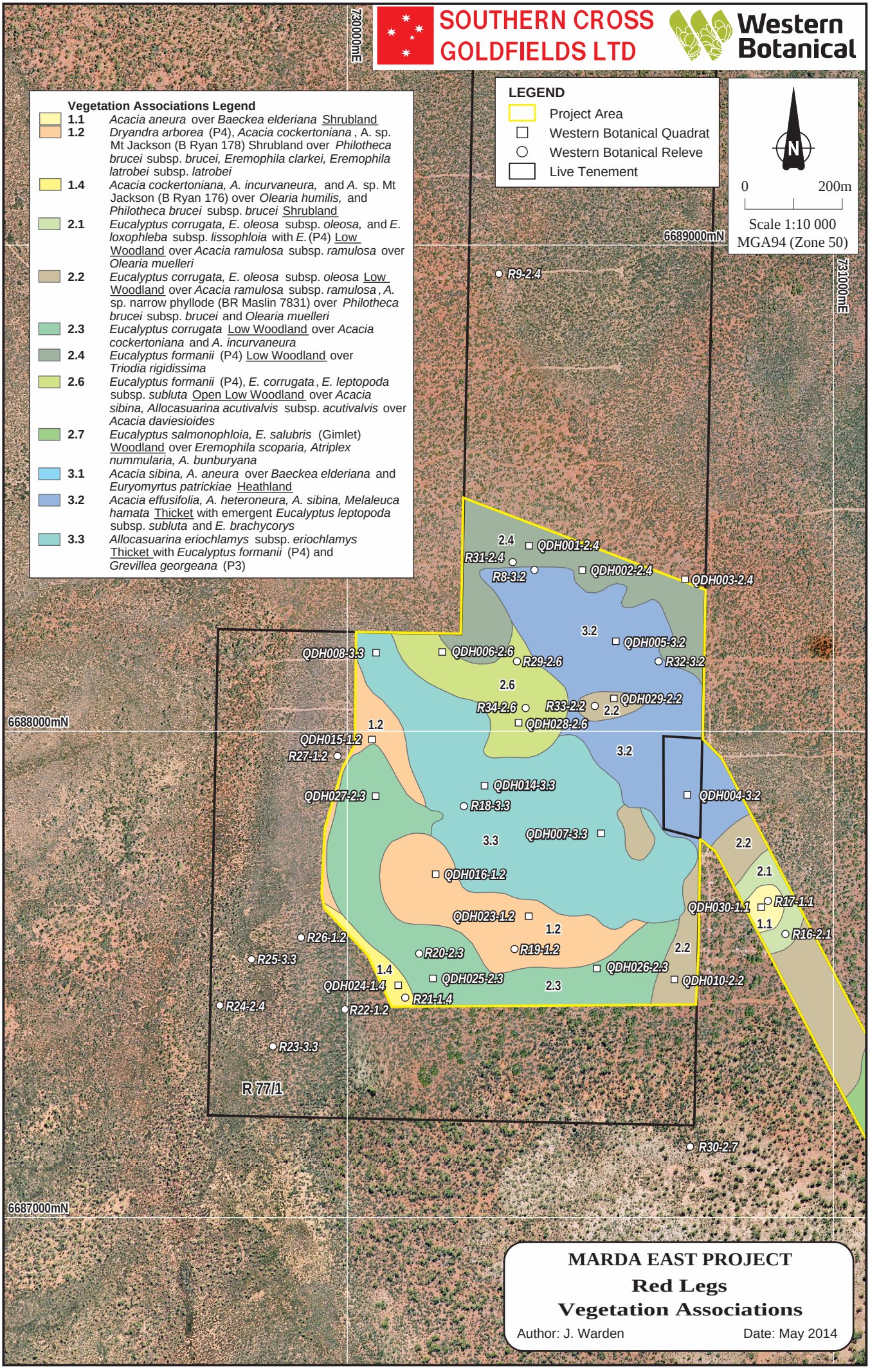

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Appendix 18 Data recorded at each of the Quadrat and Relevé Sites

Southern Cross Marda East Project Level 2
Site: DH001-2.4

Type: Quadrat 20m x 20m
Described by: JW, EA, GC
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730366 **mE** 6688393 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Flat, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 80 , relief<1m, length >100m, angle -3, estimated 2km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 2-10%, size 2-20mm, sub-angular, sub-rounded in shape. Soil soft.
Rock Type: No bedrock exposed, very slow runoff.
Vegetation: Leaf litter 20% cover, bare ground 85%, cryptogam 20% cover, dead wood/timber on ground 2%, dead standing timber 0.25%, total PFC (all strata) 30%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	out +	2.5
Acacia effusifolia	out +	2
Acacia hemiteles	out +	1.2
Acacia heteroneura	out +	2.2
Acacia inceana subsp. *inceana*	out +	1.2
Acacia sibina	out +	2.5
Beyeria sulcata var. *brevipes*	out +	0.6
Callitris columellaris	out +	2
Cheiranthera filifolia	out +	0.6
Daviesia purpurascens	1.5	1
Daviesia purpurascens	0.25	1.5
Dianella revoluta var. *divaricata*	out +	0.6
Eremophila caperata	1	2
Eremophila caperata	0.25	1
Eucalyptus brachycorys	2.5	7
Eucalyptus formanii	8.25	1-12
Hakea minyma	out +	2.5
Melaleuca hamata	2	2
Monachather paradoxus	0.1	0.2
Olearia dampieri subsp. *eremicola*	out +	0.7
Olearia muelleri	0.25	0.6
Ptilotus drummondii var. *drummondii*	0.2	0.25
Stenanthemum stipulosum	out +	0.4
Triodia rigidissima	out +	0.4
Triodia tomentosa	20	0.3
Westringia cephalantha var. *cephalantha*	0.25	0.8

Southern Cross Marda East Project Level 2
Site: DH002-2.4

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730545 **mE** 6688195 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Lower slope to flat, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 120 , relief 0.5m, length >100m, angle -1, estimated 2km to highest point.

Soil: Ferruginous lag gravel discontinuous; 20-50% abundance, 2-20mm in size, sub-rounded, sub-angular, rounded and sub-angular tabular in shape. Soil soft.

Rock Type: No bedrock exposed, no to very slow runoff.

Vegetation: Leaf litter 27% cover, bare ground 85%, cryptogam 22% cover, dead wood/timber on ground 2%, dead standing timber 0.5%, total PFC (all strata) 25%.

Species List:

Name	Cover (%)	Height (m)
Acacia effusifolia	<0.25	3
Acacia hemiteles	1.5	0.6-2.2
Acacia heteroneura	out +	
Acacia inceana subsp. *inceana*	2.5	0.6-1.7
Acacia sibina	out +	
Austrostipa trichophylla	<0.1	0.1
Daviesia purpurascens	out +	0.15
Dianella revoluta var. *divaricata*	<0.25	0.8
Eremophila caperata	1.5	0.6-2.5
Eremophila forrestii x *latrobei*	out +	
Eucalyptus brachycorys	3	3
Eucalyptus formanii	5	4-7
Exocarpos aphyllus	<0.1	0.5
Grevillea obliquistigma subsp. *obliquistigma*	2	0.8-1.8
Hakea minyma	out +	
Melaleuca hamata	1	2.4
Thryptomene urceolaris	out +	
Triodia tomentosa	5	0.3
Westringia cephalantha var. *cephalantha*	0.5	0.2-1.1

Southern Cross Marda East Project Level 2
Site: DH003-2.4

Type: Quadrat 20m x 20m
Described by: GC SC
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730688 **mE** 6688321 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Flat, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 140, relief<2m, length >100m, angle -2, estimated 1.5km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance <2%, size 2-6mm, rounded, sub-rounded in shape. Soil soft.
Rock Type: No bedrock exposed, very slow runoff.
Vegetation: Leaf litter 20% cover, bare ground 85%, cryptogam 10% cover, dead wood/timber on ground 1%, dead standing timber 0.5%, total PFC (all strata) 50%

Species List:

Name	Cover (%)	Height (m)
Acacia effusifolia	out +	2
Acacia hemiteles	out +	.2
Acacia inceana subsp. *inceana*	0.75	1.5
Acacia ramulosa var. *ramulosa*	out +	2
Alyxia buxifolia	out +	2
Austrostipa elegantissima	0.1	0.3
Austrostipa trichophylla	out +	0.2
Callitris columellaris	out +	2
Dianella revoluta var. *divaricata*	out +	0.6
Eremophila caperata	2	1-1.8
Eremophila decipiens subsp. *decipiens*	0.25	0.5
Eremophila metallicorum	out +	0.1
Eucalyptus brachycorys	3	5
Eucalyptus formanii	5	7
Eucalyptus loxophleba subsp. *lissophloia*	20	9
Olearia exiguifolia	0.75	0.6
Olearia muelleri	0.25	0.6
Olearia pimeleoides	out +	0.5
Phebalium tuberculosum	out +	0.6
Ptilotus drummondii var. *drummondii*	0.1	0.2
Santalum acuminatum	out +	4
Scaevola spinescens (broad leaf, non-spiny form)	out +	0.5
Solanum nummularium	out +	0.5
Triodia tomentosa	15	0.3
Westringia cephalantha var. *cephalantha*	out +	1

Southern Cross Marda East Project Level 2
Site: DH004-3.2

Type: Quadrat 20m x 20m
Described by: GC SC
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730690 **mE** 6687878 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Mid slope, middle third of the height of the landform element, no effective disturbance. Position on slope; bearing 350, relief 30-45m, length >200m, angle -4, estimated 400m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, sub-angular, sub-rounded in shape. Soil soft.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 30% cover, bare ground 99%, cryptogam 20% cover, dead wood/timber on ground 0.1%, dead standing timber 0%, total PFC (all strata) 60%

Species List:

Name	Cover (%)	Height (m)
Acacia cockertoniana	out +	2
Acacia effusifolia	0.25	1
Acacia sibina	50	2.2
Allocasuarina acutivalvis subsp. *acutivalvis*	0.25	2.5
Allocasuarina eriochlamys subsp. *eriochlamys*	0.5	1.5
Amphipogon caricinus var. *caricinus*	out +	0.2
Dampiera lavandulacea	out +	0.4
Eucalyptus leptopoda subsp. *subluta*	out +	3.5
Grevillea georgeana	1	1.2
Grevillea obliquistigma subsp. *obliquistigma*	1.25	1.2
Hibbertia eatoniae	0.01	0.3
Keraudrenia velutina subsp. *velutina*	0.01	0.4
Melaleuca hamata	1	1.2
Phebalium canaliculatum	1	1.5

Southern Cross Marda East Project Level 2
Site: DH005-3.2

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730545 **mE** 6688195 **mN**
Veg Condition: Pristine
Fire Age: 10-15 Years

Habitat: Flat, bottom third of height of the landform element, no effective disturbance. Position on slope; bearing 80, relief 0.5m, length >100m, angle -1, estimated 1.5km to highest point.
Soil: Ferruginous lag gravel discontinuous; 2-10% abundance, 2-60mm in size, angular, sub-rounded, angular tabular, sub-rounded tabular, sub-angular and sub-angular tabular in shape. Soil soft.
Rock Type: No bedrock exposed, no to very slow runoff.
Vegetation: Leaf litter 50% cover, bare ground 85%, cryptogam 70% cover, dead wood/timber on ground 3%, dead standing timber 0.5%. Total PFC (all stata) 60%.

Species List:

Name	Cover (%)	Height (m)
Acacia effusifolia	3	2.5
Acacia heteroneura	1	0.8-1.7
Acacia sibina	15	0.8-3
Allocasuarina acutivalvis subsp. *acutivalvis*	0.1	1.7
Aluta aspera subsp. aspera	0.5	0.6
Amphipogon caricinus var. *caricinus*	0.1	0.1
Austrostipa elegantissima	0.1	0.4
Baeckea elderiana	0.5	0.5
Brachychiton gregorii	out +	2.5
Callitris columellaris	0.25	0.8-1.3
Cheiranthera filifolia	0.1	1
Dianella revoluta var. *divaricata*	0.1	0.8
Eremophila decipiens subsp. *decipiens*	0.1	0.7
Eremophila eriocalyx	out +	1.2
Eucalyptus brachycorys	1	3-4
Euryomyrtus patrickiae	2	0.5
Hakea minyma	2.5	0.6-2.6
Hibbertia eatoniae	out +	0.4
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	out +	0.6
Melaleuca hamata	15	0.6-2.5
Phebalium canaliculatum	0.1	0.6
Phebalium lepidotum	out +	1.5
Senna artemisioides subsp. *filifolia*	0.1	0.9
Thryptomene urceolaris	7	0.4-0.8
Westringia cephalantha var. *cephalantha*	0.5	0.5

Southern Cross Marda East Project Level 2
Site: DH006-3.2

Type: Quadrat 20m x 20m
Described by: GC, SC
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730182 **mE** 6688173 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Mid slope, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 43, relief 30-40m, length >200m, angle -5, estimated 300m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, sub-angular, sub-rounded in shape. Soil soft.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 30% cover, bare ground 99%, cryptogam 10% cover, dead wood/timber on ground 1%, dead standing timber 0.5%, total PFC (all strata) 60%.

Species List:

Name	Cover (%)	Height (m)
Acacia hemiteles	out +	1.5
Acacia heteroneura	out +	1.5
Acacia sibina	50	2
Allocasuarina acutivalvis subsp. *acutivalvis*	out +	2.5
Allocasuarina corniculata	0.5	1.8
Allocasuarina eriochlamys subsp. *eriochlamys*	1	1.5
Aluta aspera subsp. *aspera*	out +	0.8
Baeckea elderiana	0.25	1
Eucalyptus brachycorys	out +	5
Eucalyptus formanii	out +	6-8
Euryomyrtus patrickiae	0.01	0.4
Grevillea obliquistigma subsp. *obliquistigma*	2	1
Hakea minyma	out +	1
Keraudrenia velutina subsp. *velutina*	out +	0.4
Melaleuca hamata	1	2
Phebalium canaliculatum	1.5	1.5
Scaevola spinescens (spiny, fine leaf)	out +	0.7
Triodia tomentosa	0.01	0.3

Southern Cross Marda East Project Level 2
Site: DH007-3.3

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730182 **mE** 6688173 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Mid slope, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 43, relief 30-40m, length >200m, angle -5, estimated 300m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, sub-angular, sub-rounded in shape. Soil soft.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 30% cover, bare ground 99%, cryptogam 10% cover, dead wood/timber on ground 1%, dead standing timber 0.5%, total PFC (all strata) 60%

Species List:

Name	Cover (%)	Height (m)
Acacia effusifolia	1.25	0.7-3.5
Acacia sibina	12	2.5
Allocasuarina eriochlamys subsp. *eriochlamys*	38	2.4-0.7
Amphipogon caricinus var. *caricinus*	0.1	0.1
Calycopeplus paucifolius	1.5	1.3-2.2
Eremophila latrobei subsp. *latrobei*	0.1	0.2
Eucalyptus leptopoda subsp. *subluta*	out +	3
Grevillea georgeana	1	1.5
Grevillea obliquistigma subsp. *obliquistigma*	2.6	0.1-1.5
Hibbertia eatoniae	0.1	0.6
Prostanthera prostantheroides	0.25	0.4

Southern Cross Marda East Project Level 2
Site: DH008-3.3

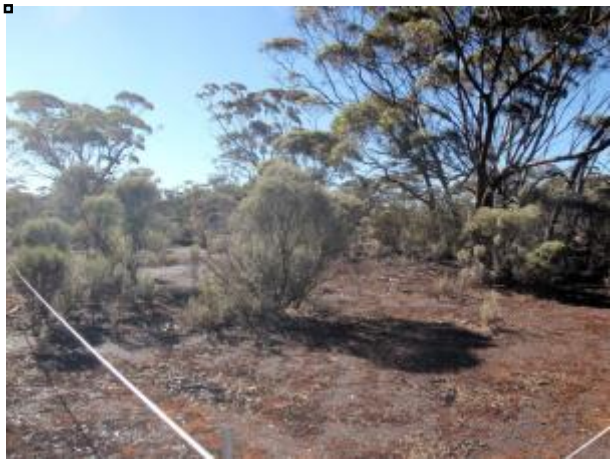
Type: Quadrat 20m x 20m
Described by: GC SC
Date: 7/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730049 **mE** 6688175 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Mid slope, middle third of the height of the landform element, no effective disturbance. Position on slope; bearing 20, relief 30m, length >200m, angle -8, estimated 300m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, sub-angular, sub-rounded in shape. Soil soft.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 30% cover, bare ground 99%, cryptogam 5% cover, dead wood/timber on ground 5%, dead standing timber 1%, total PFC (all strata) 60%.

Species List:

Name	Cover (%)	Height (m)
Acacia sibina	2	2.5
Acacia sp. narrow phyllode (B.R. Maslin 7831)	0.5	1.5
Allocasuarina eriochlamys subsp. *eriochlamys*	55	2-5
Amphipogon caricinus var. *caricinus*	out +	0.1
Calycopeplus paucifolius	out +	2
Dryandra arborea	out +	4
Eucalyptus leptopoda subsp. *subluta*	out +	4
Grevillea georgeana	2	2
Grevillea obliquistigma subsp. *obliquistigma*	2	1.8
Hibbertia eatoniae	out +	0.4
Phebalium canaliculatum	1.5	1.2
Prostanthera campbellii	out +	0.2

Southern Cross Marda East Project Level 2
Site: DH009-2.7



Type: Quadrat 50m x 50m
Described by: EA, SC
Date: 8/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 732678 **mE** 6684243 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Flat, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 353, relief 1m, length >100m, angle -1, estimated 1km to highest point.
Soil: Ferruginous lag gravel discontinuous; 20-50% abundance, 2-60mm in size, angular, sub-rounded, angular tabular, sub-angular, sub-angular tabular in shape. Soil soft.
Rock Type: No bedrock exposed, no to very slow runoff.
Vegetation: Leaf litter 6% cover, bare ground 97%, cryptogam 70% cover, dead wood/timber on ground 2%, dead standing timber 0.5%, total PFC (all strata) 12%.

Species List:

Name	Cover (%)	Height (m)
Acacia acanthoclada subsp. *glaucescens*	0.1	
Acacia erinacea	0.1	0.7
Acacia tetragonophylla	out +	1.6
Atriplex nummularia	1.5	0.6-1.1
Atriplex vesicaria subsp. *appendiculata*	1.5	0.2-0.8
Austrostipa elegantissima	0.1	0.4
Austrostipa trichophylla	0.1	0.1-0.3
Eremophila decipiens subsp. *decipiens*	0.1	1
Eremophila ionantha	0.1	0.3-1.5
Eremophila scoparia	3.25	0.6-2.2
Eremophila sp. Mt Jackson (G.J. Keighery 4372)	out +	1.6
Eucalyptus salmonophloia	1	15
Eucalyptus salubris	4	8-12
Eucalyptus yilgarnensis	out +	4
Exocarpos aphyllus	1	1.3-2
Maireana georgei	0.1	0.7
Maireana tomentosa	0.1	0.1-0.3
Olearia muelleri	0.25	0.3-0.8
Pittosporum angustifolium	0.1	0.6-2
Ptilotus obovatus var. *obovatus*	0.1	0.2-0.3
Santalum acuminatum	out +	2.8
Scaevola spinescens (spiny, fine leaf)	0.1	0.2
Sclerolaena diacantha	0.1	0.1
Sclerolaena fusiformis	0.1	0.1
Solanum nummularium	0.1	0.2
Zygophyllum aurantiacum	0.1	0.1

Southern Cross Marda East Project Level 2
Site: DH010-2.2

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 8/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730646 **mE** 6687502 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Upper slope, top third of the height of the landform element, no effective disturbance. Position on slope; bearing 123, relief 10m, length >200m, angle -3, estimated 1km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 50-90%, size 2-60mm, rounded, sub-rounded platy, rounded tabular, rounded platy in shape. Soil soft.
Rock Type: No bedrock exposed, slow runoff.
Vegetation: Leaf litter 40% cover, bare ground 95%, cryptogam 5% cover, dead wood/timber on ground 5%, dead standing timber 1%, total PFC (all strata) 45%

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	out +	4
Acacia cockertoniana	3.5	4
Acacia erinacea	0.2	1.2
Acacia ramulosa var. *ramulosa*	3	2.5
Acacia sp. Mt Jackson (B. Ryan 176)	2	4
Acacia sp. narrow phyllode (B.R. Maslin 7831)	2	3.5
Acacia tetragonophylla	0.1	2.5
Atriplex nummularia	out +	2
Austrostipa elegantissima	0.1	0.5
Comesperma integerrimum	0.1	1.5
Dodonaea inaequifolia	1.5	1.2
Dodonaea rigida	1	1.5
Eremophila clarkei	out +	2
Eremophila decipiens subsp. *decipiens*	out +	1.2
Eremophila oldfieldii subsp. *angustifolia*	2	3
Eucalyptus corrugata	10	10-15
Eucalyptus oleosa subsp. *oleosa*	15	10-15
Exocarpos aphyllus	0.2	1.5
Olearia muelleri	0.1	0.5-1
Philotheca brucei subsp. *brucei*	0.5	1.2
Ptilotus obovatus var. *obovatus*	0.1	0.7
Santalum spicatum	2	2.5
Scaevola spinescens (spiny, fine leaf)	1	1
Senna artemisioides subsp. *filifolia*	0.25	1.5

Southern Cross Marda East Project Level 2
Site: DH011-2.2

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 7/11/2013
Location: Haul Road
MGA Zone: 50J 732006 **mE** 6685486 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Lower slope, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 90, relief >20m, length >200m, angle -3, estimated >2km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 50-90%, size 2-60mm, rounded, sub-rounded, rounded tabular, in shape. Soil soft.
Rock Type: No bedrock exposed, slow to moderately rapid runoff.
Vegetation: Leaf litter 20% cover, bare ground 98%, cryptogam 10% cover, dead wood/timber on ground 5%, dead standing timber 0.5%, total PFC (all strata) 40%

Species List:

Name	Cover (%)	Height (m)
Acacia incurvaneura	4	7
Acacia mulganeura	1	7
Acacia ramulosa var. *ramulosa*	8	3-5
Acacia sp. narrow phyllode (B.R. Maslin 7831)	out +	2.5
Acacia tetragonophylla	out +	2
Amphipogon caricinus var. *caricinus*	0.1	0.2
Austrostipa elegantissima	0.1	0.5
Bursaria occidentalis	out +	4
Callitris columellaris	out +	4
Daviesia purpurascens	out +	1.8
Eremophila clarkei	out +	1.2
Eremophila decipiens subsp. *decipiens*	out +	1.8
Eremophila eriocalyx	0.1	1.2
Eremophila granitica	0.1	0.7
Eremophila metallicorum	0.6	0.5-1
Eucalyptus corrugata	out +	10
Eucalyptus ewartiana	out +	10
Eucalyptus oleosa subsp. *oleosa*	10	15
Exocarpos aphyllus	out +	2.5
Hakea recurva subsp. *recurva*	out +	2.5
Maireana georgei	out +	0.2
Monachather paradoxus	0.1	0.2
Olearia muelleri	0.1	0.5-1
Olearia pimeleoides	out +	0.5
Philotheca brucei subsp. *brucei*	4	1.5
Psydrax suaveolens	0.1	0.2-1.6
Ptilotus obovatus var. *obovatus*	out +	0.5
Rhagodia drummondii	0.1	0.5
Santalum spicatum	out +	2
Scaevola spinescens (broad leaf, non-spiny form)	out +	0.5

Scaevola spinescens (spiny, fine leaf)	0.1	1
Senna artemisioides subsp. *filifolia*	out +	1.2
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.1	0.2
Solanum lasiophyllum	0.1	0.8
Solanum nummularium	0.1	0.5
Thysanotus manglesianus	0.1	1

Southern Cross Marda East Project Level 2
Site: DH012-2.2

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 9/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 733081 **mE** 6683405 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Mid slope, middle third of the height of the landform element, no effective disturbance. Position on slope; bearing 348, relief >50m, length >200m, angle -4, estimated >1km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, rounded, sub-rounded, sub-rounded tabular, in shape. Soil soft.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 15% cover, bare ground 85%, cryptogam 15% cover, dead wood/timber on ground 1%, dead standing timber 0.5%, total PFC (all strata) 30%

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	0.1	3
Acacia incurvaneura	3	4
Acacia ramulosa var. *ramulosa*	5	3
Acacia sp. narrow phyllode (B.R. Maslin 7831)	1	3
Acacia tetragonophylla	0.2	1.5
Allocasuarina eriochlamys subsp. *eriochlamys*	0.1	2.5
Austrostipa elegantissima	0.1	0.5
Brachychiton gregorii	0.1	1.2
Daviesia purpurascens	0.2	1.5
Dodonaea inaequifolia	1	1.5
Dodonaea rigida	1.5	1.2
Eremophila clarkei	out +	1.2
Eremophila decipiens subsp. *decipiens*	out +	0.5
Eremophila oldfieldii subsp. *angustifolia*	1.2	1.5-2.5
Eucalyptus corrugata	15	15
Eucalyptus oleosa subsp. *oleosa*	5	12
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	0.1	1.2
Olearia muelleri	0.1	0.5
Olearia pimeleoides	0.1	0.8
Philotheca brucei subsp. *brucei*	1.5	1.2
Ptilotus obovatus var. *obovatus*	0.1	0.5
Rhyncharrhena linearis	0.1	1.5
Santalum spicatum	1	3
Scaevola spinescens (spiny, fine leaf)	1	1.5
Senna artemisioides subsp. *filifolia*	0.1	1

Southern Cross Marda East Project Level 2
Site: DH013-1.1

Type: Quadrat 20m x 20m
Described by: GC SC
Date: 9/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 733129 **mE** 6683052 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Upper slope, top third of the height of the landform element, no effective disturbance. Position on slope; bearing 330, relief >100m, length >200m, angle -6.5, estimated >800m to highest point.
Soil Ferruginous lag gravel discontinuous; abundance 50-90%, size 2-60mm, angular, sub-rounded, sub-angular, in shape. Soil firm.
Rock Type No bedrock exposed, slow runoff.
Vegetation Leaf litter 5% cover, bare ground 99%, cryptogam 25% cover, dead wood/timber on ground 0.25%, dead standing timber 1%, total PFC (all strata) 40%

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	0.5	5
Acacia effusifolia	5	4
Acacia mulganeura	out +	3
Acacia sp. Mt Jackson (B. Ryan 176)	4	3
Acacia sp. narrow phyllode (B.R. Maslin 7831)	1	3.5
Allocasuarina acutivalvis subsp. *acutivalvis*	0.5	3
Allocasuarina eriochlamys subsp. *eriochlamys*	0.25	2
Amphipogon caricinus var. *caricinus*	0.1	0.3
Austrostipa elegantissima	0.1	0.5-1
Baeckea elderiana	20	2
Brachychiton gregorii	out +	2
Dianella revoluta var. *divaricata*	out +	0.6
Eremophila clarkei	0.1	2
Grevillea obliquistigma subsp. *obliquistigma*	2	1.5-2.5
Grevillea paradoxa	0.25	2
Hibbertia eatoniae	3	0.5
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	out +	1
Monachather paradoxus	0.1	0.2
Olearia humilis	0.5	0.5
Phebalium canaliculatum	out +	1.5
Philotheca brucei subsp. *brucei*	2	1.5
Prostanthera campbellii	2	0.5-1
Solanum lasiophyllum	out +	1
Thysanotus manglesianus	0.1	1
Westringia cephalantha var. *cephalantha*	out +	1

Southern Cross Marda East Project Level 2
Site: DH014-3.3

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 8/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730275 **mE** 6687897 **mN**
Veg Condition: Excellent/Pristine - evidence of vehicle passing through the quadrat
Fire Age: Long unburnt

Habitat: Upper slope, middle third of the height of the landform element, with no effective disturbance. Position on slope; bearing 52, relief 20m, length 200m, angle -8, estimated 200m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, 2-60mm in size, angular, angular tabular, sub-angular, sub-angular tabular in shape. Soil soft.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 60% cover, bare ground 85%.
Species List:

Name	Cover (%)	Height (m)
Acacia inceana subsp. *inceana*	0.35	0.9-1
Acacia neurophylla subsp. *erugata*	out +	2
Acacia sibina	10	1.5-3
Allocasuarina acutivalvis subsp. *acutivalvis*	2	1.5-2.5
Allocasuarina eriochlamys subsp. *eriochlamys*	35	0.8-2.5
Amphipogon caricinus var. *caricinus*	0.1	0.1
Brachychiton gregorii	out +	4
Calycopeplus paucifolius	2	1.5-3
Dianella revoluta var. *divaricata*	0.1	0.9
Eucalyptus leptopoda subsp. *subluta*	out +	4
Grevillea georgeana	out +	1.3
Grevillea obliquistigma subsp. *obliquistigma*	7	1-1.6
Hibbertia eatoniae	0.1	0.2
Keraudrenia velutina subsp. *velutina*	out +	0.2
Phebalium canaliculatum	out +	1.7
Philotheca brucei subsp. *brucei*	out +	0.6
Prostanthera prostantheroides	out +	0.3

Southern Cross Marda East Project Level 2
Site: DH015-1.2

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 8/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730041 **mE** 6687995 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Crest/Ride, top third of height of the landform element, with no effective disturbance. Position on slope; bearing 59, relief 2m, length 20m, angle -7.5, estimated 20m to highest point.

Soil Ferruginous lag gravel discontinuous; abundance 20-50%, 2mm-2m in size, angular, angular tabular, angular platy in shape. Soil firm.

Rock Type Slightly rocky (2-10%), rapid runoff.

Vegetation Leaf litter 45% cover, bare ground 94%, cryptogam 30% cover, dead wood/timber on ground 4%, dead standing timber 1%, total PFC (all strata) 40%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	3.5	1-5
Acacia cockertoniana	7.1	0.4-5
Acacia sp. Mt Jackson (B. Ryan 176)	9.6	0.2-4
Allocasuarina acutivalvis subsp. *acutivalvis*	1.2	0.3-5
Allocasuarina eriochlamys subsp. *eriochlamys*	2	1-2.5
Amphipogon caricinus var. *caricinus*	0.1	0.2
Baeckea elderiana	out +	1.3
Calycopeplus paucifolius	3	1-3.5
Dianella revoluta var. *divaricata*	0.1	0.9
Dryandra arborea	4	6
Eremophila latrobei subsp. *latrobei*	1.25	0.1-2
Eucalyptus formanii	1	6
Grevillea georgeana	0.5	1.8
Grevillea obliquistigma subsp. *obliquistigma*	out +	1.8
Grevillea paradoxa	0.6	0.7-1.9
Hibbertia eatoniae	0.25	0.3
Hibbertia exasperata	0.1	0.6
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	out +	1.2
Olearia humilis	0.25	0.7
Phebalium canaliculatum	2	0.8-2
Philotheca brucei subsp. *brucei*	0.5	0.6-1.5
Prostanthera prostantheroides	0.25	0.4

Southern Cross Marda East Project Level 2
Site: DH016-1.2

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 8/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730174 **mE** 6687715 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Crest/Ridge, top third of the height of the landform element, no effective disturbance. Position on slope; bearing 345, relief 1m, length 20m, angle -8, estimated 5m to highest point.

Soil: Ferruginous lag gravel discontinuous; abundance 50-90%, size 2mm-2m, angular, sub-rounded, angular tabular, sub-rounded tabular, angular platy, sub-angular, sub-angular tabular in shape. Soil firm.

Rock Type: Very rocky (20-50%), very slow to slow runoff.

Vegetation: Leaf litter 12% cover, bare ground 96%, cryptogam 11% cover, dead wood/timber on ground 2.5%, dead standing timber 1%, total PFC (all strata) 20%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	out +	2.5
Acacia cockertoniana	4.1	4.5
Acacia sp. Mt Jackson (B. Ryan 176)	out +	4
Allocasuarina acutivalvis subsp. *acutivalvis*	2.1	0.7-4
Allocasuarina eriochlamys subsp. *eriochlamys*	0.1	1.4
Amphipogon caricinus var. *caricinus*	0.1	0.2
Austrostipa elegantissima	0.1	0.4
Austrostipa trichophylla	out +	0.2
Baeckea elderiana	0.25	1.6
Brachychiton gregorii	out +	5
Calycopeplus paucifolius	3	2.5-4
Dianella revoluta var. *divaricata*	0.2	0.6-1
Dryandra arborea	2	4.5
Eremophila latrobei subsp. *latrobei*	1	0.6-1.2
Grevillea georgeana	2.25	1.7-3.5
Grevillea paradoxa	1.1	0.9-1.3
Hibbertia eatoniae	0.5	0.4
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	1.25	0.7-1
Melaleuca leiocarpa	0.25	1.8
Mirbelia microphylla	0.1	0.4-0.9
Olearia humilis	0.1	0.6
Philotheca brucei subsp. *brucei*	1.1	0.8-1.2
Scaevola spinescens (spiny, fine leaf)	0.1	1.2
Thysanotus manglesianus	out +	0.5
Prostanthera prostantheroides	out +	0.4

Southern Cross Marda East Project Level 2
Site: DH017-2.1

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 9/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 733201 **mE** 6683067 **mN**
Veg Condition: Excellent/Pristine
Fire Age: Long unburnt

Habitat: Mid slope, top third of the height of the landform element, limited disturbance from vehicle tracks. Position on slope; bearing 10, relief 5m, length >200m, angle -6, estimated 800m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, rounded, sub-rounded, sub-angular in shape. Soil soft.
Rock Type: No bedrock exposed, slow runoff.
Vegetation: Leaf litter 15% cover, bare ground 98%, cryptogam 40% cover, dead wood/timber on ground 2%, dead standing timber 0.1%, total PFC (all strata) 30%.

Species List:

Name	Cover (%)	Height (m)
Acacia andrewsii	0.1	1.2
Acacia caesaneura	0.25	4
Acacia mulganeura	0.5	4
Acacia ramulosa var. *ramulosa*	1	4
Acacia sp. narrow phyllode (B.R. Maslin 7831)	0.1	1
Allocasuarina acutivalvis subsp. *acutivalvis*	0.5	4
Allocasuarina eriochlamys subsp. *eriochlamys*	0.1	2
Austrostipa elegantissima	0.1	0.5
Dianella revoluta var. *divaricata*	0.1	0.6
Eremophila latrobei subsp. *latrobei*	out +	1.2
Eucalyptus corrugata	2	10
Eucalyptus loxophleba subsp. *lissophloia*	10	10
Grevillea obliquistigma subsp. *obliquistigma*	0.25	2.5
Hibbertia eatoniae	0.1	0.5
Hibbertia exasperata	0.2	0.5-1
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	0.1	1.2
Monachather paradoxus	0.2	0.4
Olearia exiguifolia	1	0.5
Olearia muelleri	0.2	0.5-1
Phebalium canaliculatum	0.5	2
Philotheca brucei subsp. *brucei*	1	1.5
Prostanthera campbellii	0.1	1
Ptilotus drummondii var. *drummondii*	0.1	0.3
Scaevola spinescens (spiny, fine leaf)	0.1	1.2
Solanum lasiophyllum	0.1	0.7
Westringia cephalantha var. *cephalantha*	0.2	1.2

Southern Cross Marda East Project Level 2
Site: DH018-1.1

Type: Quadrat 20m x 20m
Described by: GC, SC
Date: 9/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 732711 **mE** 6683735 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Crest, top third of the height of the landform element, no effective disturbance. Position on slope; bearing 185, relief 1m, length 50m, angle-3.5, estimated 1km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 50-90%, size 2-60mm, rounded, sub-rounded, sub-angular in shape. Soil firm.
Rock Type: No bedrock exposed, slow runoff.
Vegetation: Leaf litter 5% cover, bare ground 99%, cryptogam 50% cover, dead wood/timber on ground 0.5%, dead standing timber 2%, total PFC (all strata) 20%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	3	4
Acacia ramulosa var. *ramulosa*	0.5	3
Acacia sp. Mt Jackson (B. Ryan 176)	1.5	4
Amphipogon caricinus var. *caricinus*	0.1	0.2
Baeckea elderiana	12	1.5
Dryandra arborea	out +	5
Eremophila clarkei	0.1	1.5
Eucalyptus loxophleba subsp. *lissophloia*	out +	10
Eucalyptus oleosa subsp. *oleosa*	out +	10
Grevillea obliquistigma subsp. *obliquistigma*	1.5	2
Grevillea paradoxa	0.25	1.2
Hibbertia eatoniae	0.25	0.5
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	0.25	1.0
Mirbelia microphylla	0.25	0.5
Olearia humilis	0.75	0.5
Phebalium canaliculatum	out +	1.5
Philotheca brucei subsp. *brucei*	1.5	1.5
Prostanthera campbellii	0.25	0.5
Scaevola spinescens (spiny, fine leaf)	out +	1
Thysanotus manglesianus	0.1	0.5

Southern Cross Marda East Project Level 2
Site: DH019-2.1

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 9/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 732679 **mE** 6683641 **mN**
Veg Condition: Excellent/Pristine
Fire Age: Long unburnt

Habitat: Upper slope, top third of the height of the landform element, limited disturbance from vehicle tracks and a cleared Grid line. Position on slope; bearing 35, relief 5m, length 100m, angle -4, estimated 1.5km to highest point.

Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, rounded, sub-rounded, sub-angular in shape. Soil soft.

Rock Type: No bedrock exposed, slow runoff.

Vegetation: Leaf litter 8% cover, bare ground 98%, cryptogam 5% cover, dead wood/timber on ground 10%, dead standing timber 5%, total PFC (all strata) 20%.

Species List:

Name	Cover (%)	Height (m)
Acacia ramulosa var. *ramulosa*	4	4
Acacia sp. narrow phyllode (B.R. Maslin 7831)	2	3
Acacia tetragonophylla	0.2	2
Allocasuarina acutivalvis subsp. *acutivalvis*	0.5	4
Amphipogon caricinus var. *caricinus*	0.1	0.3
Brachychiton gregorii	0.5	3
Cheiranthera filifolia	0.1	1
Eremophila clarkei	0.1	1.2
Eucalyptus loxophleba subsp. *lissophloia*	10	10-12
Grevillea obliquistigma subsp. *obliquistigma*	0.2	3
Hibbertia exasperata	0.1	0.4
Mirbelia microphylla	0.1	0.5
Monachather paradoxus	0.1	0.4
Olearia muelleri	0.1	0.5
Olearia pimeleoides	0.1	1.7
Philotheca brucei subsp. *brucei*	2	1.5
Psydrax suaveolens	0.1	2
Santalum acuminatum	out +	3
Solanum cleistogamum	out +	0.2
Solanum lasiophyllum	0.1	1
Westringia cephalantha var. *cephalantha*	1	1.2

Southern Cross Marda East Project Level 2
Site: DH020-2.2

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 9/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 732409 **mE** 6684257 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Flat, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 160, relief 0.5m, length >200m, angle -1, estimated 2km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 2-10%, size 2-6mm, rounded, sub-rounded, sub-angular in shape. Soil firm.
Rock Type: No bedrock exposed, very slow runoff.
Vegetation: Leaf litter 15% cover, bare ground 95%, cryptogam 90% cover, dead wood/timber on ground 1%, dead standing timber 1% total PFC (all strata) 40%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	0.5	7
Acacia erinacea	0.1	0.5
Acacia jennerae	0.1	2
Acacia ramulosa var. *ramulosa*	3	4
Acacia sp. narrow phyllode (B.R. Maslin 7831)	1	3
Aristida contorta	0.1	0.2
Atriplex nummularia	0.2	1.5
Atriplex stipitata	0.1	0.4
Atriplex vesicaria subsp. *appendiculata*	0.1	0.5
Austrostipa elegantissima	0.1	0.5
Austrostipa trichophylla	0.1	0.4
Brachychiton gregorii	out +	2.5
Callitris columellaris	out +	4
Comesperma integerrimum	0.1	1
Eremophila caperata	out +	2
Eremophila decipiens subsp. *decipiens*	0.1	1
Eremophila metallicorum	0.1	1
Eremophila oldfieldii subsp. *angustifolia*	0.2	2.5
Eremophila scoparia	0.2	0.5-2.5
Eucalyptus oleosa subsp. *oleosa*	10	10
Exocarpos aphyllus	0.5	2.5
Maireana triptera	0.2	0.4
Olearia muelleri	0.1	0.3
Olearia pimeleoides	0.1	1.2
Ptilotus obovatus var. *obovatus*	0.1	0.4
Rhagodia drummondii	0.1	1
Santalum spicatum	1	2.5
Scaevola spinescens (broad leaf, non-spiny form)	0.1	1
Senna artemisioides subsp. *filifolia*	0.2	1.8

Southern Cross Marda East Project Level 2
Site: DH021-3.1

Type: Quadrat 20m x 20m
Described by: GC, SC
Date: 9/11/2013
Location: Haul Road
MGA Zone: 50J 731773 **mE** 6685834 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Crest, top third of the height of the landform element, no effective disturbance. Position on slope; bearing 52, relief 1m, length 100m, angle-3, estimated >1km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 50-90%, size 2-200mm, angular, sub-angular, sub-angular tabular, angular tabular in shape. Soil firm.
Rock Type: Slightly rocky 2-10%, slow runoff.
Vegetation: Leaf litter 5% cover, bare ground 98%, cryptogam 20% cover, dead wood/timber on ground 5%, dead standing timber 0.1% total PFC (all strata) 35%

Species List:

Name	Cover (%)	Height (m)
Acacia incurvaneura	2	3
Acacia sibina	3	3
Amphipogon caricinus var. *caricinus*	0.1	0.3
Austrostipa elegantissima	out +	0.4
Baeckea elderiana	20	1.5
Dianella revoluta var. *divaricata*	out +	0.6
Euryomyrtus patrickiae	0.25	0.5
Grevillea obliquistigma subsp. *obliquistigma*	2.5	1.2-2
Hibbertia eatoniae	0.1	0.2
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	out +	1.2
Melaleuca hamata	out +	2.5
Mirbelia microphylla	0.25	0.4
Monachather paradoxus	out +	0.2
Prostanthera campbellii	0.5	1.2
Thysanotus manglesianus	0.1	1

Southern Cross Marda East Project Level 2
Site: DH022-2.7

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 9/11/2013
Location: Haul Road
MGA Zone: 50J 731528 **mE** 6686258 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Flat, bottom third of the height of the landform element, no effective disturbance. Flat, relief 10m, length 200m, angle-0, estimated >2km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 10-20%, size 2-20mm, angular, sub-angular, sub-rounded, rounded in shape. Soil soft with surface crust.
Rock Type: No bedrock exposed, very slow to no run off
Vegetation: Leaf litter 15% cover, bare ground 95%, cryptogam 95% cover, dead wood/timber on ground 1%, dead standing timber 0% total PFC (all strata) 25%.

Species List:

Name	Cover (%)	Height (m)
Acacia ramulosa var. *ramulosa*	3	4
Acacia tetragonophylla	0.1	1.5
Atriplex nummularia	1	1.5
Atriplex vesicaria subsp. *appendiculata*	10	0.5
Austrostipa elegantissima	0.1	0.5
Austrostipa trichophylla	out +	0.2
Brachychiton gregorii	out +	2.5
Enchylaena tomentosa	0.1	0.2
Eremophila glabra subsp. *glabra*	0.25	1
Eremophila scoparia	1.5	1.5-2
Erymophyllum ramosum	0.1	0.1
Eucalyptus salmonophloia	out +	15-20
Eucalyptus salubris	15	12-15
Exocarpos aphyllus	0.1	2
Maireana georgei	0.1	0.3
Maireana tomentosa	0.1	0.2
Olearia muelleri	0.1	0.5
Ptilotus obovatus var. *obovatus*	0.1	0.4
Ptilotus sp. Goldfields (R. Davis 10796) PN	0.1	0.2
Rhagodia drummondii	0.1	0.5
Scaevola spinescens (spiny, fine leaf)	0.1	0.5
Sclerolaena diacantha	0.1	0.2
Senna artemisioides subsp. *filifolia*	0.25	1.2
Solanum nummularium	0.1	0.5

Southern Cross Marda East Project Level 2
Site: DH023-1.2

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 9/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730362 **mE** 6687629 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Crest to upper slope, top third of the height of the landform element, no effective disturbance. Position on slope; bearing 35, relief 2.5m, length 50m, angle -14, estimated 50m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, 2-200mm in size, angular tabular, sub-angular, sub-angular tabular in shape. Soil firm with a surface crust.
Rock Type: Very slightly rocky (<2%), rapid runoff.
Vegetation: Leaf litter 35% cover, bare ground 98%, cryptogam 25% cover, dead wood/timber on ground 2%, dead standing timber 0.5%, total PFC (all strata) 25%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	out +	1.5
Acacia cockertoniana	4	3-6
Acacia incurvaneura	1	4-5
Acacia sibina	0.5	4
Acacia sp. Mt Jackson (B. Ryan 176)	2	3
Allocasuarina acutivalvis subsp. *acutivalvis*	3.25	1.5-4.5
Allocasuarina eriochlamys subsp. *eriochlamys*	2.25	2.5-4.5
Austrostipa elegantissima	0.1	0.7
Baeckea elderiana	out +	1.5
Brachychiton gregorii	out +	4
Calycopeplus paucifolius	1.5	1-4
Dianella revoluta var. *divaricata*	0.1	0.8
Dodonaea rigida	0.6	0.9-1.8
Dryandra arborea	2	6
Eremophila latrobei subsp. *latrobei*	0.25	1.7
Eucalyptus leptopoda subsp. *subluta*	out +	3.5
Grevillea georgeana	0.6	0.6-3
Grevillea paradoxa	1	1.3-2.5
Hibbertia eatoniae	0.1	0.3
Hibbertia exasperata	0.25	0.6-0.8
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	0.25	0.7
Mirbelia microphylla	0.35	0.6-1
Olearia humilis	0.25	0.9
Philotheca brucei subsp. *brucei*	2	0.8-1.1
Scaevola spinescens (spiny, fine leaf)	0.1	0.9
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.1	0.7
Thysanotus manglesianus	0.1	0.9
Prostanthera prostantheroides	0.25	0.3

Southern Cross Marda East Project Level 2
Site: DH024-1.4

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 0/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730096 **mE** 6687490 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Upper slope, top third if the height of the landform element, no effective disturbance. Position on slope; bearing 48, relief 10m, length 50m, angle -22, estimated 50m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 50-90%, size 2-200mm, sub-angular, angular, angular tabular in shape. Soil firm.
Rock Type: No bedrock exposed, rapid to very rapid.
Vegetation: Leaf litter 10% cover, bare ground 98%, cryptogam 9% cover, dead timber on ground 3%, dead timber standing 2%, total PFC (all strata) 30%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	out +	4-6
Acacia cockertoniana	8	1.5-5
Acacia incurvaneura	6	3-8
Acacia sp. Mt Jackson (B. Ryan 176)	out +	2-4
Acacia tetragonophylla	1.6	0.3-3
Aluta aspera subsp. *aspera*	0.1	0.6
Amphipogon caricinus var. *caricinus*	out +	0.1
Austrostipa elegantissima	0.1	0.6
Austrostipa trichophylla	0.1	0.2
Brachychiton gregorii	1	5
Cheilanthes sieberi subsp. *sieberi*	0.1	0.1
Dianella revoluta var. *divaricata*	0.1	0.7
Eremophila clarkei	1.1	0.8-2
Eremophila latrobei subsp. *latrobei*	1.1	0.5-2
Eremophila oldfieldii subsp. *angustifolia*	out +	0.3
Hakea recurva subsp. *recurva*	2	2.5
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	out +	1.2
Olearia humilis	2	0.8
Philotheca brucei subsp. *brucei*	7.5	0.6-1.5
Prostanthera althoferi subsp. *althoferi*	1.5	0.5
Scaevola spinescens (spiny, fine leaf)	2.6	0.8-2.5
Senna artemisioides subsp. *filifolia*	out +	1.4
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.1	0.1
Solanum cleistogamum	0.1	0.1
Thysanotus manglesianus	0.1	4-6

Southern Cross Marda East Project Level 2
Site: DH025-2.3

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 9/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730167 **mE** 6687503 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Lower slope to foot slope, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 40, relief 2.5m, length 50m, angle -7, estimated 200m to highest point.

Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, angular, sub-angular, angular tabular in shape. Soil soft with a surface crust.

Rock Type: No bedrock exposed, moderately rapid to slow runoff.

Vegetation: Leaf litter 20% cover, bare ground 97%, cryptogam 30% cover, dead wood/timber on ground 2.5%, dead standing timber 1%, total PFC (all strata) 20%.

Species List:

Name	Cover (%)	Height (m)
Acacia andrewsii	out +	1
Acacia caesaneura	out +	2.5
Acacia cockertoniana	7	2-4
Acacia incurvaneura	1.25	2-7
Acacia tetragonophylla	0.1	0.6
Austrostipa elegantissima	0.1	0.6
Austrostipa trichophylla	0.1	0.2
Brachychiton gregorii	out +	2.5
Dianella revoluta var. *divaricata*	0.1	1.1
Dodonaea microzyga	out +	1.5
Dodonaea rigida	0.1	0.4-0.6
Eremophila latrobei subsp. *latrobei*	2	0.4-3
Eremophila oldfieldii subsp. *angustifolia*	0.2	0.5-2
Eremophila oppositifolia subsp. *angustifolia*	0.5	0.8
Eucalyptus corrugata	8	8-9
Eucalyptus loxophleba subsp. *lissophloia*	out +	7
Maireana georgei	0.1	0.1
Marsdenia australis	out +	0.3
Monachather paradoxus	0.1	0.3
Olearia humilis	0.1	0.6
Olearia muelleri	0.25	0.7
Ptilotus obovatus var. *obovatus*	2	0.2-0.4
Scaevola spinescens (spiny, fine leaf)	0.35	0.8-1
Senna artemisioides subsp. *filifolia*	0.75	0.6-1
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.1	0.1

Southern Cross Marda East Project Level 2
Site: DH026-2.3

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 9/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730503 **mE** 6687521 **mN**
Veg Condition: Excellent/Pristine
Fire Age: Long unburnt

Habitat: Mid slope, middle third of the height of the landform element, with no effective disturbance. Position on slope; bearing 155, relief 3-4m, length 50m, angle -12, estimated 50m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-200mm, angular, sub-angular, angular tabular, sub-angular tabular, angular platy in shape. Soil soft with a surface crust.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 20% cover, bare ground 98%, cryptogam 45% cover, dead wood/timber on ground 3%, dead timber standing 0.5%, total PFC (all strata) 25%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	1	5
Acacia cockertoniana	8.1	0.7-5
Acacia ramulosa var. *ramulosa*	0.1	1.8
Acacia sp. narrow phyllode (B.R. Maslin 7831)	out +	3
Austrostipa elegantissima	0.1	0.6
Austrostipa trichophylla	0.1	0.1
Dodonaea lobulata	out +	1
Eremophila clarkei	0.2	0.8-2.2
Eremophila oldfieldii subsp. *angustifolia*	0.6	0.1-2.2
Eucalyptus corrugata	4	10
Eucalyptus oleosa subsp. *oleosa*	4	8
Olearia humilis	0.1	0.6
Olearia muelleri	0.5	0.5
Philotheca brucei subsp. *brucei*	1.25	0.5-1.5
Ptilotus obovatus var. *obovatus*	0.1	0.5
Santalum spicatum	out +	2.5
Scaevola spinescens (spiny, fine leaf)	0.2	0.3-1.5
Senna artemisioides subsp. *filifolia*	0.35	0.9-1.1
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.1	0.1

Southern Cross Marda East Project Level 2
Site: DH027-2.3

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 9/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730049 **mE** 6687880 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Lower slope, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 120, relief 3.5m, length 60m, angle -10, estimated 60m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 10-20%, size 2-60mm, angular, sub-angular in shape. Soil firm.
Rock Type: No bedrock exposed, slow runoff.
Vegetation: Leaf litter 10% cover, 98% bare ground, cryptogam 45% cover, dead wood/timber on ground 1.5%, dead standing timber 0.25%, total PFC (all strata) 18%.

Species List:

Name	Cover (%)	Height (m)
Acacia andrewsii	2	0.5-1.4
Acacia caesaneura	0.3	0.6-4
Acacia cockertoniana	3.1	0.3-3
Acacia sp. Mt Jackson (B. Ryan 176)	0.25	2.5
Acacia sp. narrow phyllode (B.R. Maslin 7831)	0.1	1.8
Acacia tetragonophylla	0.25	2.5
Allocasuarina acutivalvis subsp. *acutivalvis*	0.1	3
Alyxia buxifolia	0.1	0.8
Austrostipa elegantissima	0.1	0.6
Eremophila clarkei	0.1	1.9
Eremophila latrobei subsp. *latrobei*	0.2	0.2-1.5
Eremophila oppositifolia subsp. *angustifolia*	0.35	2-3
Eucalyptus corrugata	5.1	2.8-10
Hibbertia exasperata	0.1	0.5
Maireana georgei	0.1	0.1
Monachather paradoxus	0.1	0.2
Olearia humilis	0.25	0.6
Olearia muelleri	0.25	0.3-0.5
Olearia pimeleoides	0.1	0.3
Phebalium tuberculosum	out +	1.1
Philotheca brucei subsp. *brucei*	3	0.6-1.6
Ptilotus obovatus var. *obovatus*	0.2	0.4
Santalum spicatum	1.5	1.5-3
Scaevola spinescens (spiny, fine leaf)	0.6	0.7-2.2
Solanum cleistogamum	out +	0.3
Westringia cephalantha var. *cephalantha*	0.2	0.8-1.2

Southern Cross Marda East Project Level 2
Site: DH028-2.6

Type: Quadrat 20m x 20m
Described by: JW, EA
Date: 9/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730344 **mE** 6688030 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Lower slope, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 15, relief 2.5m, length 30m, angle -5, estimated 700m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, angular, sub-angular, sub-rounded, sub-angular tabular in shape. Soil soft, with a surface crust.
Rock Type: No bedrock exposed, slow runoff.
Vegetation: Leaf litter 30% cover, bare ground 92%, cryptogam 15% cover, dead wood/timber on ground 1.5%, dead standing timber 0.25%, total PFC (all strata) 50%.

Species List:

Name	Cover (%)	Height (m)
Acacia daviesioides	9	0.6-0.8
Acacia sibina	22.1	0.5-4
Acacia sp. narrow phyllode (B.R. Maslin 7831)	0.2	0.4-1.6
Allocasuarina acutivalvis subsp. *acutivalvis*	5.5	1.7-3.5
Allocasuarina eriochlamys subsp. *eriochlamys*	4	1.5-2.5
Baeckea elderiana	0.2	0.8-1.5
Dodonaea adenophora	0.1	0.4
Eucalyptus formanii	4	5-7
Grevillea obliquistigma subsp. *obliquistigma*	5	1.5-3
Hibbertia eatoniae	0.5	0.4
Melaleuca hamata	4	1.8-4
Phebalium canaliculatum	0.2	0.4-1.7
Scaevola spinescens (spiny, fine leaf)	0.25	0.6
Senna artemisioides subsp. *filifolia*	1	0.6
Stenanthemum stipulosum	0.1	0.3
Thysanotus manglesianus	0.1	0.5
Westringia cephalantha var. *cephalantha*	0.25	0.9

Southern Cross Marda East Project Level 2
Site: DH029-2.2

Type: Quadrat 20m x 20m
Described by: GC, SC
Date: 10/11/2013
Location: Red Legs Prospect
MGA Zone: 50J 730536 **mE** 6688074 **mN**
Veg Condition: Very Good - Regenerating after past disturbance from track clearance
Fire Age: Long unburnt

Habitat: Flat, middle third of the height of the landform element, limited disturbance from past track clearance. Position on slope; bearing 242, relief 40m, length 800m, angle-5, estimated 800m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 20-50%, size 2-60mm, sub-angular, sub-rounded, rounded in shape. Soil firm.
Rock Type: No bedrock exposed, very slow run off.
Vegetation: Leaf litter 10% cover, bare ground 90%, cryptogam 5% cover, dead wood/timber on ground 10%, dead standing timber 0% total PFC (all strata) 20%.

Species List:

Name	Cover (%)	Height (m)
Acacia hemiteles	out +	1.5
Acacia inceana subsp. *inceana*	out +	1.5
Acacia sibina	out +	1.5
Acacia sp. narrow phyllode (B.R. Maslin 7831)	0.1	1
Acacia tetragonophylla	out +	
Alyxia buxifolia	out +	
Austrostipa elegantissima	0.1	0.5
Baeckea elderiana	out +	
Cheiranthera filifolia	0.1	1.2
Eremophila glabra subsp. *glabra*	0.25	1.0
Eremophila oldfieldii subsp. *angustifolia*	0.1	0.5
Eucalyptus corrugata	13.6	1.5-8
Eucalyptus formanii	out +	
Eucalyptus leptopoda subsp. *subluta*	out +	
Euryomyrtus patrickiae	out +	
Exocarpos aphyllus	out +	
Grevillea obliquistigma subsp. *obliquistigma*	out +	
Halgania integerrima	0.1	0.3
Hibbertia eatoniae	out +	
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	out +	
Melaleuca hamata	1	1.5
Olearia muelleri	0.1	0.5
Phebalium canaliculatum	0.1	0.4
Phebalium megaphyllum	2.25	0.4-1
Ptilotus obovatus var. *obovatus*	0.1	0.3
Santalum spicatum	out +	
Scaevola spinescens (broad leaf, non-spiny form)	0.1	0.4

Senna artemisioides subsp. *filifolia*	out +	
Stenanthemum stipulosum	0.25	0.4
Triodia tomentosa	out +	
Westringia cephalantha var. *cephalantha*	0.75	0.4

Southern Cross Marda East Project Level 2
Site: DH030-1.1

Type: Quadrat 20m x 20m
Described by: GC, SC
Date: 10/11/2013
Location: Haul Road
MGA Zone: 50J 730839 **mE** 6687644 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Crest, top third of the height of the landform element, no effective disturbance. Position on slope; bearing 76, relief 0m, length 0m, angle-3.5, estimated 2km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 50-90%, size 2-200mm, angular and sub-angular, in shape. Soil firm.
Rock Type: Slightly rocky, slow run off
Vegetation: Leaf litter 5% cover, bare ground 98%, cryptogam 15% cover, dead wood/timber on ground 2%, dead standing timber 0.25% total PFC (all strata) 30%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	0.75	3
Acacia ramulosa var. *ramulosa*	out +	2.5
Acacia sibina	0.25	1.5
Acacia sp. Mt Jackson (B. Ryan 176)	2	4
Allocasuarina acutivalvis subsp. *acutivalvis*	1.75	1.2-2.5
Austrostipa elegantissima	0.1	0.5
Baeckea elderiana	25	1.5
Brachychiton gregorii	out +	4
Dianella revoluta var. *divaricata*	out +	0.7
Eremophila clarkei	out +	1-1.2
Grevillea obliquistigma subsp. *obliquistigma*	0.75	2.5
Grevillea paradoxa	0.25	1.5
Hibbertia eatoniae	1	0.5
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)	0.75	1.0
Melaleuca hamata	out +	3
Mirbelia microphylla	0.5	0.5
Phebalium canaliculatum	out +	1.8
Philotheca brucei subsp. *brucei*	0.75	1.5
Prostanthera prostantheroides	0.5	0.5

Southern Cross Marda East Project Level 2
Site: DH031-2.7

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 10/11/2013
Location: Haul Road
MGA Zone: 50J 731211 **mE** 6686852 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Flat, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 45, relief 2m, length >1km, angle-1, estimated 1km to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance 10-20%, size 2-60mm, angular and sub-angular, sub-rounded, and rounded in shape. Soil soft.
Rock Type: No bedrock exposed, very slow runoff.
Vegetation: Leaf litter 25% cover, bare ground 90%, cryptogam 70% cover, dead wood/timber on ground 2%, dead standing timber 0% total PFC (all strata) 30%.

Species List:

Name	Cover (%)	Height (m)
Acacia sp. narrow phyllode (B.R. Maslin 7831)	out +	
Atriplex nummularia	3	1.5
Atriplex vesicaria subsp. *appendiculata*	15	0.5
Enchylaena tomentosa	0.1	0.3
Eremophila scoparia	1.1	0.5-1.5
Eucalyptus salmonophloia	5	15
Eucalyptus salubris	10	8-12
Exocarpos aphyllus	0.1	1.5
Maireana tomentosa	0.1	0.3
Ptilotus obovatus var. *obovatus*	0.1	0.5
Santalum acuminatum	out +	
Santalum spicatum	out +	
Scaevola spinescens (spiny, fine leaf)	0.1	1

Southern Cross Marda East Project Level 2
Site: DH032-2.1

Type: Quadrat 50m x 50m
Described by: GC, SC
Date: 10/11/2013
Location: Fiddleback Prospect
MGA Zone: 50J 732916 **mE** 6682862 **mN**
Veg Condition: Pristine
Fire Age: Long unburnt

Habitat: Lower slope, bottom third of the height of the landform element, no effective disturbance. Position on slope; bearing 10, relief 150m, length >200m, angle-7, estimated 300m to highest point.
Soil: Ferruginous lag gravel discontinuous; abundance >90%, size 2-200mm, angular in shape. Soil firm.
Rock Type: No bedrock exposed, moderately rapid runoff.
Vegetation: Leaf litter 40% cover, bare ground 95%, cryptogam 5% cover, dead wood/timber on ground 2%, dead standing timber 2% total PFC (all strata) 40%.

Species List:

Name	Cover (%)	Height (m)
Acacia caesaneura	0.25	6
Acacia incurvaneura	2.25	4-6
Acacia ramulosa var. *ramulosa*	4	4
Acacia sp. Mt Jackson (B. Ryan 176)	1	6
Acacia tetragonophylla	out +	1.5
Allocasuarina acutivalvis subsp. *acutivalvis*	0.5	3
Amphipogon caricinus var. *caricinus*	0.1	0.2
Brachychiton gregorii	0.1	2
Callitris columellaris	0.2	8
Eremophila clarkei	0.1	1.5
Eremophila latrobei subsp. *latrobei*	1	1.5
Eucalyptus oleosa subsp. *oleosa*	15	10-15
Hibbertia exasperata	out +	0.6
Olearia humilis	0.2	0.5-1
Olearia muelleri	0.6	0.5-0.7
Philotheca brucei subsp. *brucei*	2	1.5
Prostanthera grylloana	out +	0.6
Psydrax suaveolens	out +	1.5
Ptilotus obovatus var. *obovatus*	0.1	0.3
Scaevola spinescens (spiny, fine leaf)	1.5	1.2
Senna artemisioides subsp. *filifolia*	0.25	1.5
Stenanthemum stipulosum	out +	0.8

Southern Cross Marda East Project Level 2
Site: R01-1.1

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 732668 **mE** 6683934 **mN**

Species List:

Name
Acacia incurvaneura
Acacia mulganeura
Acacia ramulosa var. *ramulosa*
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina eriochlamys subsp. *eriochlamys*
Amphipogon caricinus var. *caricinus*
Baeckea elderiana
Brachychiton gregorii
Eremophila clarkei
Eremophila latrobei subsp. *latrobei*
Erymophyllum ramosum
Grevillea obliquistigma subsp. *obliquistigma*
Grevillea paradoxa
Hannafordia bissillii subsp. *bissillii*
Hibbertia eatoniae
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)
Mirbelia microphylla
Monachather paradoxus
Olearia humilis
Olearia muelleri
Philotheca brucei subsp. *brucei*
Scaevola spinescens (spiny, fine leaf)
Sida sp. Golden calyces glabrous (H.N. Foote 32)
Solanum lasiophyllum
Solanum nummularium
Stenanthemum stipulosum

Southern Cross Marda East Project Level 2
Site: R02-2.1

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 732492 **mE** 6684022 **mN**

Species List:

Name	
Acacia andrewsii	*Eucalyptus formanii*
Acacia cockertoniana	*Eucalyptus loxophleba* subsp. *lissophloia*
Acacia colletioides	*Eucalyptus oleosa* subsp. *oleosa*
Acacia erinacea	*Grevillea obliquistigma* subsp. *obliquistigma*
Acacia incurvaneura	*Hibbertia eatoniae*
Acacia ramulosa var. *ramulosa*	*Leucopogon* sp. Clyde Hill (M.A. Burgman 1207)
Allocasuarina acutivalvis subsp. *acutivalvis*	*Maireana georgei*
Allocasuarina eriochlamys subsp. *eriochlamys*	*Olearia exiguifolia*
Amphipogon caricinus var. *caricinus*	*Olearia muelleri*
Austrostipa platychaeta	*Olearia pimeleoides*
Baeckea elderiana	*Phebalium lepidotum*
Brachychiton gregorii	*Prostanthera campbellii*
Callitris columellaris	*Prostanthera grylloana*
Daviesia purpurascens	*Ptilotus* sp. Goldfields (R. Davis 10796) PN
Dianella revoluta var. *divaricata*	*Santalum spicatum*
Dodonaea inaequifolia	*Senna artemisioides* subsp. *filifolia*
Dodonaea rigida	*Sida* sp. Golden calyces glabrous (H.N. Foote 32)
Eremophila caperata	*Solanum lasiophyllum*
Eremophila clarkei	*Solanum nummularium*
Eremophila oldfieldii subsp. *angustifolia*	*Westringia cephalantha* var. *cephalantha*
Eucalyptus corrugata	

Southern Cross Marda East Project Level 2

Site: R03-2.7

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 732572 **mE** 6684364 **mN**

Species List:

Name
Acacia erinacea
Acacia murrayana
Atriplex nummularia
Atriplex vesicaria subsp. *appendiculata*
Austrostipa elegantissima
Austrostipa platychaeta
Eremophila decipiens subsp. *decipiens*
Eremophila ionantha
Eremophila scoparia
Erymophyllum ramosum
Eucalyptus salmonophloia
Eucalyptus salubris
Exocarpos aphyllus
Maireana trichoptera
Olearia muelleri
Ptilotus obovatus var. *obovatus*
Sclerolaena cuneata
Sclerolaena eriacantha
Senna artemisioides subsp. *filifolia*
Templetonia sulcata
Acacia erinacea
Acacia murrayana
Atriplex nummularia
Atriplex vesicaria subsp. *appendiculata*
Austrostipa elegantissima
Austrostipa platychaeta
Eremophila decipiens subsp. *decipiens*

Southern Cross Marda East Project Level 2
Site: R04-2.2

Type: Releve
Described by: EA, GC, MH
Date: 22/10/2013
MGA Zone: 50J 732298 **mE** 6684285 **mN**

Species List:

Name
Acacia caesaneura
Acacia incurvaneura
Acacia murrayana
Acacia ramulosa var. *ramulosa*
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Amphipogon caricinus var. *caricinus*
Olearia muelleri

Southern Cross Marda East Project Level 2
Site: R05-1.5

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 732511 **mE** 6684604 **mN**

Species List:

Name
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Austrostipa sp.
Eremophila ionantha
Eremophila metallicorum
Hybanthus floribundus subsp. *curvifolius*
Rhagodia drummondii
Santalum spicatum
Senna artemisioides subsp. *filifolia*
Solanum nummularium
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Austrostipa sp.

Southern Cross Marda East Project Level 2
Site: R06-2.1

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 732558 **mE** 6683878 **mN**

Species List:

Name	
Acacia acanthoclada subsp. *glaucescens*	*Eremophila oldfieldii* subsp. *angustifolia*
Acacia andrewsii	*Eremophila scoparia*
Acacia caesaneura	*Eucalyptus corrugata*
Acacia cockertoniana	*Eucalyptus loxophleba* subsp. *lissophloia*
Acacia incurvaneura	*Eucalyptus oleosa* subsp. *oleosa*
Acacia mulganeura	*Exocarpos aphyllus*
Acacia ramulosa var. *ramulosa*	*Leucopogon* sp. Clyde Hill (M.A. Burgman 1207)
Acacia sp. narrow phyllode (B.R. Maslin 7831)	*Monachather paradoxus*
Acacia tetragonophylla	*Olearia muelleri*
Amphipogon caricinus var. *caricinus*	*Olearia pimeleoides*
Atriplex nummularia	*Philotheca brucei* subsp. *brucei*
Austrostipa elegantissima	*Ptilotus obovatus* var. *obovatus*
Bossiaea walkeri	*Rhagodia drummondii*
Bursaria occidentalis	*Scaevola spinescens* (broad leaf, non-spiny form)
Daviesia purpurascens	*Scaevola spinescens* (spiny, fine leaf)
Dodonaea inaequifolia	*Senna artemisioides* subsp. *filifolia*
Dodonaea rigida	*Solanum lasiophyllum*
Eremophila clarkei	*Westringia cephalantha* var. *cephalantha*
Eremophila decipiens subsp. *decipiens*	

Southern Cross Marda East Project Level 2
Site: R07-3.1

Type: Releve
Described by: EA, GC, MH
Date: 18/10/2013
MGA Zone: 50J 731791 **mE** 6685884 **mN**

No Photo Available

Species List:

Name
Amphipogon caricinus var. *caricinus*
Baeckea elderiana
Grevillea obliquistigma subsp. *obliquistigma*
Hibbertia eatoniae
Prostanthera campbellii
Rinzia carnosa

Southern Cross Marda East Project Level 2
Site: R08-3.2

Type: Releve
Described by: EA, GC, MH
Date: 18/10/2013
MGA Zone: 50J 730385 **mE** 6688232 **mN**

Species List:

Name
Acacia assimilis subsp. *assimilis*
Acacia effusifolia
Acacia heteroneura
Acacia sibina
Acacia steedmanii
Aluta aspera subsp. *aspera*
Eucalyptus ewartiana
Eucalyptus formanii
Eucalyptus leptopoda subsp. *subluta*
Grevillea obliquistigma subsp. *obliquistigma*
Hakea minyma
Hibbertia eatoniae
Melaleuca hamata
Phebalium canaliculatum
Phebalium lepidotum
Phebalium tuberculosum
Stenanthemum stipulosum

Southern Cross Marda East Project Level 2
Site: R09-2.4

Type: Releve
Described by: EA, GC, MH
Date: 18/10/2013
MGA Zone: 50J 730312 **mE**, 6688941**mN**

Species List:

Name
Acacia obtecta
Acacia sibina
Alyxia buxifolia
Daviesia purpurascens
Eucalyptus corrugata
Eucalyptus formanii
Melaleuca hamata
Olearia dampieri subsp. *eremicola*
Ptilotus drummondii var. *drummondii*
Triodia rigidissima
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R10-3.1

Type: Releve
Described by: EA, GC, MH
Date: 18/10/2013
MGA Zone: 50J

Species List:

Name
Acacia effusifolia
Allocasuarina acutivalvis subsp. *acutivalvis*
Amphipogon caricinus var. *caricinus*
Baeckea elderiana
Callitris columellaris
Dianella revoluta var. *divaricata*
Eucalyptus formanii
Eucalyptus leptopoda subsp. *subluta*
Grevillea georgeana
Grevillea obliquistigma subsp. *obliquistigma*
Hakea minyma
Hannafordia bissillii subsp. *bissillii*
Hibbertia eatoniae
Leptospermum fastigiatum
Lomandra effusa
Melaleuca hamata
Phebalium canaliculatum
Philotheca tomentella
Rinzia carnosa
Santalum acuminatum
Thryptomene urceolaris
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R011-2.2

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 731963 **mE** 6685551 **mN**

Species List:

Name
Acacia ramulosa var. *ramulosa*
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Amphipogon caricinus var. *caricinus*
Austrostipa platychaeta
Callitris columellaris
Dodonaea rigida
Eremophila eriocalyx
Eucalyptus corrugata
Eucalyptus ewartiana
Eucalyptus formanii
Eucalyptus oleosa subsp. *oleosa*
Monachather paradoxus
Olearia muelleri
Philotheca brucei subsp. *brucei*
Ptilotus obovatus var. *obovatus*
Scaevola spinescens (broad leaf, non-spiny form)
Scaevola spinescens (spiny, fine leaf)
Senna artemisioides subsp. *filifolia*
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R12-3.1

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 731823 **mE** 6685825 **mN**

Species List:

Name
Acacia caesaneura
Acacia incurvaneura
Acacia sibina
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina eriochlamys subsp. *eriochlamys*
Amphipogon caricinus var. *caricinus*
Austrostipa elegantissima
Baeckea elderiana
Dianella revoluta var. *divaricata*
Eremophila eriocalyx
Grevillea obliquistigma subsp. *obliquistigma*
Hibbertia eatoniae
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)
Mirbelia microphylla
Prostanthera campbellii
Rinzia carnosa

Southern Cross Marda East Project Level 2
Site: R13-2.7

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 731630 **mE** 6686186 **mN**

Species List:

Name
Acacia erinacea
Acacia ramulosa var. *ramulosa*
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Atriplex nummularia
Atriplex vesicaria subsp. *appendiculata*
Eremophila decipiens subsp. *decipiens*
Eremophila oldfieldii subsp. *angustifolia*
Eremophila oppositifolia subsp. *angustifolia*
Erymophyllum ramosum
Exocarpos aphyllus
Maireana trichoptera
Maireana triptera
Ptilotus obovatus var. *obovatus*
Rhagodia drummondii
Santalum acuminatum
Sclerolaena diacantha
Senna cardiosperma

Southern Cross Marda East Project Level 2
Site: R14-2.7

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 731454 **mE** 6686522 **mN**

Species List:

Name
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Atriplex nummularia
Atriplex vesicaria subsp. *appendiculata*
Eremophila decipiens subsp. *decipiens*
Eremophila scoparia
Erymophyllum ramosum
Exocarpos aphyllus
Frankenia sp.
Ptilotus obovatus var. *obovatus*
Rhagodia drummondii
Solanum lasiophyllum
Solanum nummularium

Southern Cross Marda East Project Level 2
Site: R15-2.2

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 731125 **mE** 6687158 **mN**

Species List:

Name
Acacia acanthoclada subsp. *glaucescens*
Acacia ramulosa var. *ramulosa*
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Atriplex nummularia
Atriplex stipitata
Atriplex vesicaria subsp. *appendiculata*
Austrostipa elegantissima
Casuarina pauper
Dodonaea rigida
Eremophila decipiens subsp. *decipiens*
Eremophila oldfieldii subsp. *angustifolia*
Eremophila oppositifolia subsp. *angustifolia*
Eucalyptus corrugata
Eucalyptus oleosa subsp. *oleosa*
Eucalyptus salubris
Exocarpos aphyllus
Grevillea berryana
Maireana trichoptera
Maireana triptera
Olearia muelleri
Ptilotus obovatus var. *obovatus*
Santalum spicatum
Scaevola spinescens (broad leaf, non-spiny form)
Sclerolaena diacantha
Sclerolaena fusiformis
Senna artemisioides subsp. *filifolia*
Solanum nummularium

Southern Cross Marda East Project Level 2
Site: R16-2.1

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 730901 **mE** 6687583 **mN**

Species List:

Name
Acacia andrewsii
Acacia caesaneura
Acacia cockertoniana
Acacia ramulosa var. *ramulosa*
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Alyxia buxifolia
Dodonaea inaequifolia
Dodonaea rigida
Eremophila clarkei
Eremophila latrobei subsp. *latrobei*
Eremophila oppositifolia subsp. *angustifolia*
Eucalyptus corrugata
Eucalyptus oleosa subsp. *oleosa*
Exocarpos aphyllus
Olearia muelleri
Ptilotus obovatus var. *obovatus*
Scaevola spinescens (broad leaf, non-spiny form)
Senna artemisioides subsp. *filifolia*
Prostanthera prostantheroides

Southern Cross Marda East Project Level 2
Site: R17-1.1

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 730865 **mE** 6687651 **mN**

Species List:

Name
Acacia caesaneura
Acacia mulganeura
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina eriochlamys subsp. *eriochlamys*
Baeckea elderiana
Brachychiton gregorii
Calycopeplus paucifolius
Casuarina pauper
Eremophila clarkei
Eucalyptus formanii
Grevillea obliquistigma subsp. *obliquistigma*
Grevillea paradoxa
Hibbertia eatoniae
Keraudrenia velutina subsp. *velutina*
Melaleuca hamata
Mirbelia microphylla
Phebalium canaliculatum
Philotheca brucei subsp. *brucei*
Scaevola spinescens (spiny, fine leaf)
Prostanthera prostantheroides

Southern Cross Marda East Project Level 2
Site: R18-3.3

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 730240 **mE** 6687846 **mN**

Species List:

Name
Acacia neurophylla subsp. *erugata*
Acacia sibina
Allocasuarina eriochlamys subsp. *eriochlamys*
Amphipogon caricinus var. *caricinus*
Calycopeplus paucifolius
Dampiera lavandulacea
Dianella revoluta var. *divaricata*
Eucalyptus formanii
Eucalyptus kochii subsp. *plenissima*
Eucalyptus leptopoda subsp. *subluta*
Grevillea georgeana
Keraudrenia velutina subsp. *velutina*
Phebalium canaliculatum
Philotheca brucei subsp. *brucei*

Southern Cross Marda East Project Level 2
Site: R19-1.2

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 730344 **mE** 6687552 **mN**

Species List:

Name
Acacia cockertoniana
Acacia incurvaneura
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina acutivalvis subsp. *acutivalvis*
Alyxia buxifolia
Brachychiton gregorii
Calycopeplus paucifolius
Cheilanthes sieberi subsp. *sieberi*
Dianella revoluta var. *divaricata*
Dodonaea microzyga
Dryandra arborea
Eremophila clarkei
Eremophila latrobei subsp. *latrobei*
Grevillea georgeana
Hibbertia eatoniae
Hibbertia exasperata
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)
Melaleuca leiocarpa
Olearia humilis
Philotheca brucei subsp. *brucei*
Santalum spicatum
Sida sp. dark green fruits (S. van Leeuwen 2260)
Prostanthera prostantheroides

Southern Cross Marda East Project Level 2
Site: R20-2.3

Type: Releve
Described by: EA, GC, MH
Date: 19/10/2013
MGA Zone: 50J 730148 **mE** 6687543 **mN**

Species List:

Name
Acacia andrewsii
Acacia cockertoniana
Acacia incurvaneura
Acacia tetragonophylla
Androcalva luteiflora
Brachychiton gregorii
Dodonaea inaequifolia
Dodonaea microzyga
Dodonaea rigida
Eremophila clarkei
Eremophila decipiens subsp. *decipiens*
Eremophila latrobei subsp. *latrobei*
Eremophila oldfieldii subsp. *angustifolia*
Eucalyptus corrugata
Eucalyptus oleosa subsp. *oleosa*
Maireana triptera
Marsdenia australis
Monachather paradoxus
Olearia muelleri
Ptilotus obovatus var. *obovatus*
Santalum spicatum
Scaevola spinescens (broad leaf, non-spiny form)
Senna artemisioides subsp. *filifolia*

Southern Cross Marda East Project Level 2

Site: R21-1.4

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 730119 **mE** 6687542 **mN**

Species List:

Name
Acacia andrewsii
Acacia caesaneura
Acacia cockertoniana
Acacia incurvaneura
Acacia sp. Mt Jackson (B. Ryan 176)
Acacia tetragonophylla
Brachychiton gregorii
Cheilanthes sieberi subsp. *sieberi*
Eremophila clarkei
Eremophila latrobei subsp. *latrobei*
Eremophila oldfieldii subsp. *angustifolia*
Hakea recurva subsp. *recurva*
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)
Olearia humilis
Philotheca brucei subsp. *brucei*
Prostanthera althoferi subsp. *althoferi*
Psydrax suaveolens
Ptilotus obovatus var. *obovatus*
Santalum spicatum
Scaevola spinescens (spiny, fine leaf)
Solanum lasiophyllum

Southern Cross Marda East Project Level 2
Site: R22-1.2

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 729995 **mE** 6686428 **mN**

Species List:

Name
Acacia andrewsii
Acacia cockertoniana
Acacia incurvaneura
Acacia mulganeura
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina dielsiana
Austrostipa elegantissima
Baeckea elderiana
Brachychiton gregorii
Cheilanthes sieberi subsp. *sieberi*
Comesperma integerrimum
Dampiera lavandulacea
Dianella revoluta var. *divaricata*
Dodonaea microzyga
Dodonaea rigida
Dryandra arborea
Eremophila latrobei subsp. *latrobei*
Eucalyptus formanii
Grevillea georgeana
Hibbertia eatoniae
Hibbertia exasperata
Olearia humilis
Philotheca brucei subsp. *brucei*
Ptilotus obovatus var. *obovatus*
Scaevola spinescens (spiny, fine leaf)
Sida sp. Golden calyces glabrous (H.N. Foote 32)
Prostanthera prostantheroides

Southern Cross Marda East Project Level 2
Site: R23-3.3

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 729847 **mE** 6687352 **mN**

Species List:

Name
Acacia neurophylla subsp. *erugata*
Acacia obtecta
Acacia sibina
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina eriochlamys subsp. *eriochlamys*
Baeckea elderiana
Calycopeplus paucifolius
Dianella revoluta var. *divaricata*
Eremophila latrobei var. *latrobei*
Eucalyptus leptopoda subsp. *subluta*
Eucalyptus oldfieldii
Grevillea georgeana
Grevillea obliquistigma subsp. *obliquistigma*
Hibbertia eatoniae
Phebalium canaliculatum
Stenanthemum stipulosum

Southern Cross Marda East Project Level 2
Site: R24-2.5

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 729738 **mE** 6687436 **mN**

Species List:

Name
Acacia colletioides
Acacia obtecta
Acacia sibina
Allocasuarina acutivalvis subsp. *acutivalvis*
Dodonaea pinifolia
Eremophila glabra subsp. *glabra*
Eucalyptus formanii
Eucalyptus griffithsii
Eucalyptus kochii subsp. *plenissima*
Grevillea obliquistigma subsp. *obliquistigma*
Hakea minyma
Melaleuca hamata
Prostanthera campbellii
Santalum acuminatum
Stenanthemum stipulosum
Triodia tomentosa
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2

Site: R25-3.3

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 729803 **mE** 6687531 **mN**

Species List:

Name
Acacia sibina
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina eriochlamys subsp. *eriochlamys*
Baeckea elderiana
Calothamnus gilesii
Dianella revoluta var. *divaricata*
Grevillea georgeana
Grevillea obliquistigma subsp. *obliquistigma*
Hibbertia eatoniae
Phebalium canaliculatum

Southern Cross Marda East Project Level 2
Site: R26-1.2

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 729905 **mE** 6687576 **mN**

Species List:

Name
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina acutivalvis subsp. *acutivalvis*
Brachychiton gregorii
Calycopeplus paucifolius
Dryandra arborea
Eremophila latrobei subsp. *latrobei*
Eucalyptus oldfieldii
Grevillea georgeana
Grevillea paradoxa
Hibbertia eatoniae
Hibbertia exasperata
Mirbelia ferricola
Philotheca brucei subsp. *brucei*

Southern Cross Marda East Project Level 2
Site: R27-1.2

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 729980 **mE** 6687949 **mN**

Species List:

Name
Acacia assimilis subsp. *assimilis*
Acacia caesaneura
Acacia cockertoniana
Acacia heteroneura
Acacia incurvaneura
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina eriochlamys subsp. *eriochlamys*
Baeckea elderiana
Calycopeplus paucifolius
Cheiranthera filifolia
Dianella revoluta var. *divaricata*
Dodonaea rigida
Dryandra arborea
Eremophila latrobei subsp. *latrobei*
Grevillea georgeana
Grevillea paradoxa
Hibbertia eatoniae
Hibbertia exasperata
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)
Melaleuca hamata
Mirbelia ferricola
Phebalium canaliculatum
Philotheca brucei subsp. *brucei*
Santalum spicatum
Scaevola spinescens (spiny, fine leaf)
Prostanthera prostantheroides

Southern Cross Marda East Project Level 2
Site: R28-1.3

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 729905 **mE** 6687946 **mN**

Species List:

Name
Acacia sibina
Allocasuarina acutivalvis subsp. *acutivalvis*
Calycopeplus paucifolius
Dianella revoluta var. *divaricata*
Dodonaea pinifolia
Eucalyptus leptopoda subsp. *subluta*
Grevillea georgeana
Hibbertia eatoniae
Hibbertia exasperata
Phebalium canaliculatum
Philotheca brucei subsp. *brucei*
Scaevola spinescens (spiny, fine leaf)
Prostanthera prostantheroides

Southern Cross Marda East Project Level 2
Site: R29-2.6

Type: Releve
Described by: EA, GC, MH
Date: 20/10/2013
MGA Zone: 50J 730349 **mE** 6688144 **mN**

Species List:

Name
Acacia daviesioides
Acacia effusifolia
Acacia hemiteles
Acacia heteroneura
Acacia ligulata
Acacia sibina
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina eriochlamys subsp. *eriochlamys*
Aluta aspera subsp. *aspera*
Callitris columellaris
Dampiera lavandulacea
Eremophila caperata
Eremophila caperata
Eucalyptus formanii
Eucalyptus griffithsii
Eucalyptus leptopoda subsp. *subluta*
Euryomyrtus patrickiae
Grevillea obliquistigma subsp. *obliquistigma*
Hibbertia eatoniae
Leptosema daviesioides
Phebalium canaliculatum
Rinzia carnosa
Scaevola spinescens (spiny, fine leaf)
Senna artemisioides subsp. *filifolia*
Thryptomene urceolaris
Triodia rigidissima
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R30-3/4 Ecotone

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 730705 **mE** 6687146 **mN**

Species List:

Name
Acacia erinacea
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Atriplex nummularia
Atriplex vesicaria subsp. *appendiculata*
Austrostipa elegantissima
Dodonaea inaequifolia
Eremophila decipiens subsp. *decipiens*
Eremophila oldfieldii subsp. *angustifolia*
Eremophila scoparia
Eucalyptus salmonophloia
Eucalyptus salubris
Olearia muelleri
Ptilotus obovatus var. *obovatus*
Santalum spicatum
Senna artemisioides subsp. *filifolia*
Solanum lasiophyllum

Southern Cross Marda East Project Level 2
Site: R31-2.4

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 730340 **mE** 6688348 **mN**

Species List:

Name
Acacia caesaneura
Acacia effusifolia
Acacia heteroneura
Acacia inceana subsp. *inceana*
Acacia obtecta
Acacia sibina
Acacia sp. Mt Jackson (B. Ryan 176)
Alyxia buxifolia
Austrostipa trichophylla
Beyeria sulcata var. *brevipes*
Daviesia purpurascens
Eremophila caperata
Eremophila glabra subsp. *glabra*
Eucalyptus brachycorys
Eucalyptus corrugata
Eucalyptus formanii
Eucalyptus leptopoda subsp. *subluta*
Exocarpos aphyllus
Grevillea obliquistigma subsp. *obliquistigma*
Hakea minyma
Melaleuca hamata
Olearia dampieri subsp. *eremicola*
Olearia muelleri
Ptilotus drummondii var. *drummondii*
Rinzia carnosa
Santalum acuminatum
Scaevola spinescens (spiny, fine leaf)
Stenanthemum stipulosum
Triodia rigidissima
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R32-3.2

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 730640 **mE** 6688144 **mN**

Species List:

Name
Acacia assimilis subsp. *assimilis*
Acacia effusifolia
Acacia hemiteles
Acacia heteroneura
Acacia resinimarginea
Acacia sibina
Allocasuarina eriochlamys subsp. *eriochlamys*
Aluta aspera subsp. aspera
Androcalva luteiflora
Baeckea elderiana
Callitris columellaris
Eucalyptus brachycorys
Eucalyptus leptopoda subsp. *subluta*
Grevillea obliquistigma subsp. *obliquistigma*
Hakea minyma
Melaleuca hamata
Phebalium tuberculosum
Santalum acuminatum
Thryptomene urceolaris
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R33-2.2

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 730509 **mE** 6688052 **mN**

Species List:

Name
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Alyxia buxifolia
Eremophila oppositifolia subsp. *angustifolia*
Eucalyptus corrugata
Halgania cyanea
Olearia muelleri
Phebalium drummondii
Phebalium lepidotum
Scaevola spinescens (broad leaf, non-spiny form)
Stenanthemum stipulosum
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R34-2.6

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 730367 **mE** 6688048 **mN**

Species List:

Name
Acacia daviesioides
Acacia sibina
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Allocasuarina acutivalvis subsp. *acutivalvis*
Allocasuarina eriochlamys subsp. *eriochlamys*
Calothamnus gilesii
Dodonaea inaequifolia
Dodonaea pinifolia
Eucalyptus formanii
Grevillea berryana
Grevillea obliquistigma subsp. *obliquistigma*
Hibbertia eatoniae
Phebalium canaliculatum
Rinzia carnosa
Scaevola spinescens (spiny, fine leaf)
Senna artemisioides subsp. *filifolia*
Stenanthemum stipulosum
Triodia tomentosa
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R35-2.1

Type: Releve
Described by: EA, GC, MH
Date: 21/10/2013
MGA Zone: 50J 733086 **mE** 6683382 **mN**

Species List:

Name
Acacia caesaneura
Acacia incurvaneura
Acacia ramulosa var. *ramulosa*
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Austrostipa elegantissima
Dodonaea inaequifolia
Dodonaea rigida
Eremophila clarkei
Eremophila oldfieldii subsp. *angustifolia*
Eucalyptus corrugata
Eucalyptus loxophleba subsp. *lissophloia*
Eucalyptus oleosa subsp. *oleosa*
Marsdenia australis
Monachather paradoxus
Olearia muelleri
Olearia pimeleoides
Philotheca brucei subsp. *brucei*
Santalum spicatum
Scaevola spinescens (spiny, fine leaf)
Senna artemisioides subsp. *filifolia*
Westringia cephalantha var. *cephalantha*

Southern Cross Marda East Project Level 2
Site: R36-1.1

Type: Releve
Described by: EA, GC, MH
Date: 22/10/2013
MGA Zone: 50J 732800 **mE** 6683641 **mN**

Species List:

Name
Acacia incurvaneura
Acacia mulganeura
Acacia ramulosa var. *ramulosa*
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina acutivalvis subsp. *acutivalvis*
Amphipogon caricinus var. *caricinus*
Baeckea elderiana
Brachychiton gregorii
Erymophyllum ramosum
Grevillea obliquistigma subsp. *obliquistigma*
Grevillea paradoxa
Hannafordia bissillii subsp. *bissillii*
Hibbertia eatoniae
Hibbertia exasperata
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)
Mirbelia microphylla
Monachather paradoxus
Olearia humilis
Olearia muelleri
Philotheca brucei subsp. *brucei*
Prostanthera campbellii
Scaevola spinescens (spiny, fine leaf)
Solanum nummularium

Southern Cross Marda East Project Level 2
Site: R37-3.4

Type: Releve
Described by: EA, GC, MH
Date: 22/10/2013
MGA Zone: 50J 733704 **mE** 6682486 **mN**

Species List:

Name
Acacia effusifolia
Acacia sibina
Acacia sp. Mt Jackson (B. Ryan 176)
Allocasuarina eriochlamys subsp. *eriochlamys*
Dianella revoluta var. *divaricata*
Eremophila latrobei subsp. *latrobei*
Eucalyptus formanii
Grevillea obliquistigma subsp. *obliquistigma*
Grevillea paradoxa
Hibbertia eatoniae
Hibbertia exasperata
Leucopogon sp. Clyde Hill (M.A. Burgman 1207)
Phebalium canaliculatum
Scaevola spinescens (spiny, fine leaf)

Southern Cross Marda East Project Level 2
Site: R38-2.1

Type: Releve
Described by: EA, GC, MH
Date: 22/10/2013
MGA Zone: 50J 733612 **mE** 6682376 **mN**

Species List:

Name
Acacia caesaneura
Acacia effusifolia
Acacia ramulosa var. *ramulosa*
Acacia sp. Mt Jackson (B. Ryan 176)
Brachychiton gregorii
Comesperma integerrimum
Eremophila clarkei
Eremophila latrobei subsp. *latrobei*
Eucalyptus corrugata
Eucalyptus formanii
Eucalyptus oleosa subsp. *oleosa*
Grevillea paradoxa
Hibbertia exasperata
Olearia humilis
Olearia pimeleoides
Phebalium canaliculatum
Philotheca brucei subsp. *brucei*
Prostanthera grylloana
Santalum spicatum
Scaevola spinescens (spiny, fine leaf)
Westringia cephalantha var. *cephalantha*

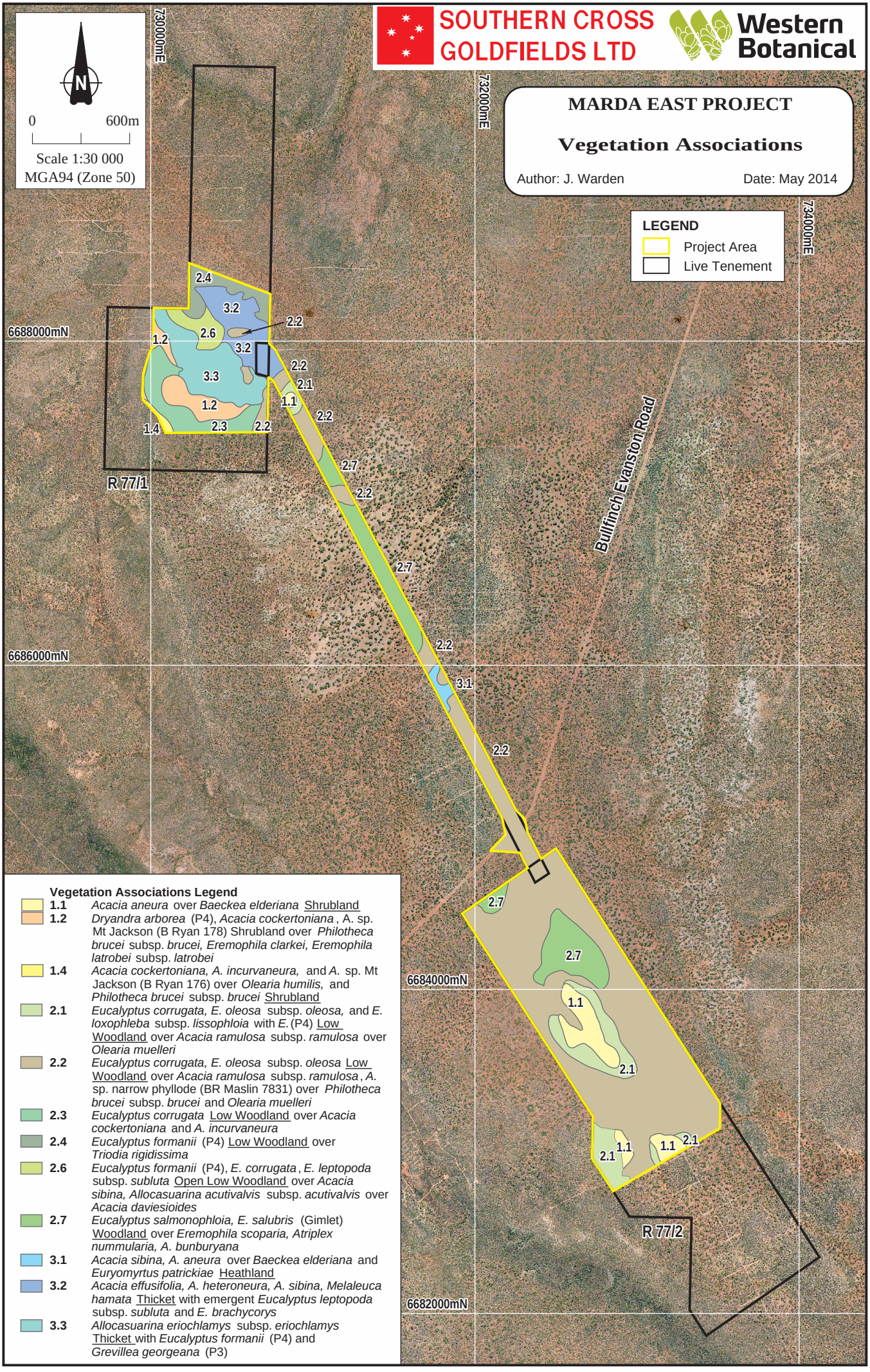
Southern Cross Marda East Project Level 2
Site: R39-1.3

Type: Releve
Described by: EA, GC, MH
Date: 22/10/2013
MGA Zone: 50J 733459 **mE** 6682153 **mN**

Species List:

Name
Acacia caesaneura
Acacia incurvaneura
Acacia sp. Mt Jackson (B. Ryan 176)
Acacia sp. narrow phyllode (B.R. Maslin 7831)
Acacia tetragonophylla
Allocasuarina acutivalvis subsp. *acutivalvis*
Alyxia buxifolia
Austrostipa elegantissima
Brachychiton gregorii
Dianella revoluta var. *divaricata*
Eremophila clarkei
Eremophila latrobei subsp. *latrobei*
Eucalyptus oleosa subsp. *oleosa*
Grevillea georgeana
Olearia humilis
Philotheca brucei subsp. *brucei*
Prostanthera althoferi subsp. *althoferi*
Santalum spicatum
Scaevola spinescens (spiny, fine leaf)
Sida sp. Golden calyces glabrous (H.N. Foote 32)

Appendix 19 Vegetation Association present within the Marda East Project area.



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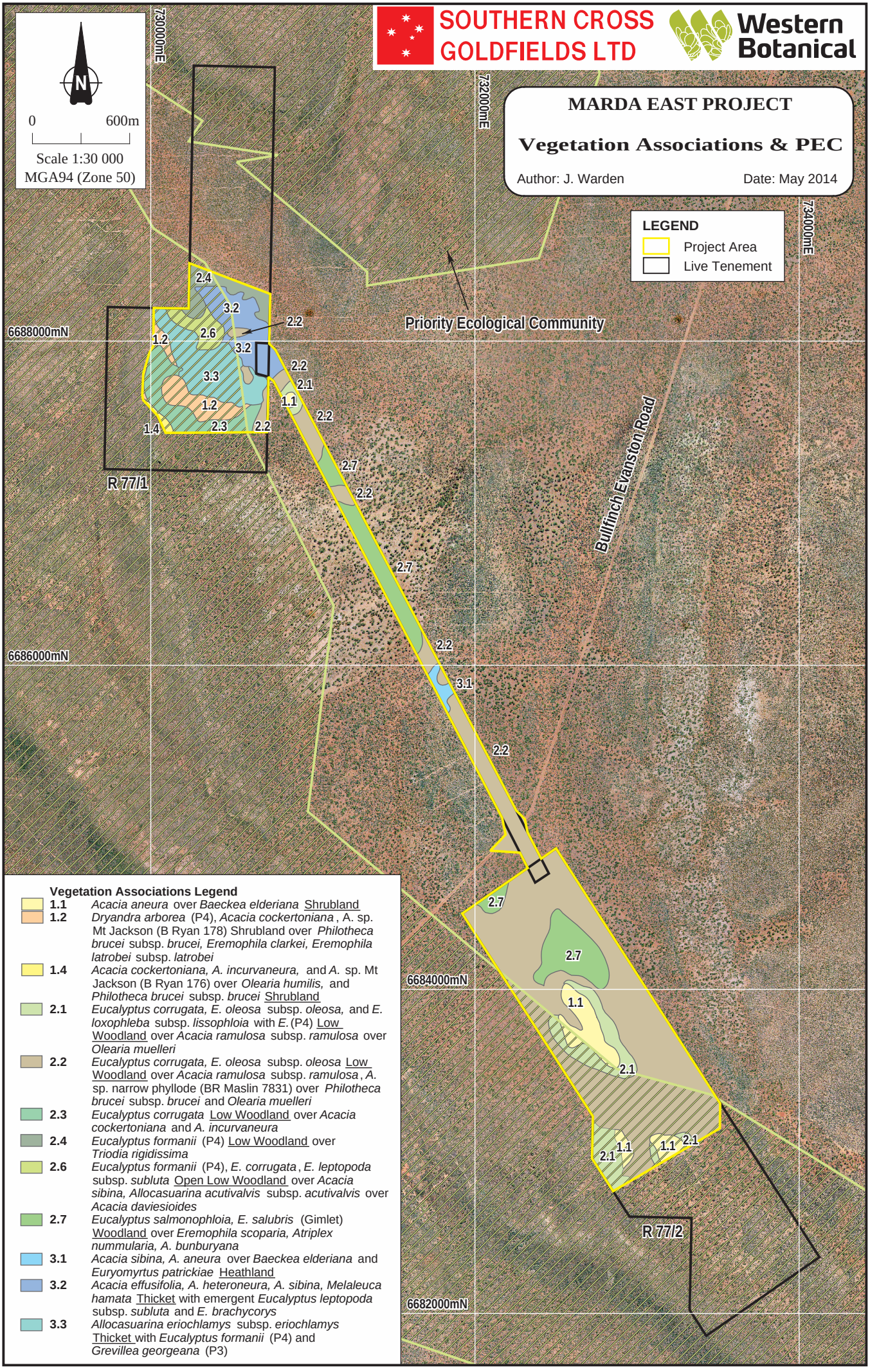

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Appendix 20 Vegetation Association Descriptions

Vegetation Association 1.1: *Acacia aneura* over *Baeckea elderiana* Shrubland

This vegetation association is characterised by a Shrubland with an over storey dominated by *Acacia* sp. Mt Jackson (B. Ryan 176) (4 m), *A. ramulosa* subsp. *ramulosa* (3 m), *A. caesaneura, A. incurvaneura* (7 m), and *Allocasuarina acutivalvis* subsp. *acutivalvis* 2.5 m to 4 m, with a Projected Foliage Cover (PFC) of 15 to 30 %. This is over a Low Shrubland B dominated by *Leucopogon* sp. Clyde Hill (MA Burgman 1207) to 1.2 m, *Baeckea elderiana* 1.2 m, *Mirbelia microphylla* 0.8 m, over a Dwarf Shrubland C dominated by *Hibbertia eatoniae* 0.4 m, with a PFC of 20 to 40 %. (See Plate 1)

This vegetation association was found to grow on Rocky Hills to Stony Chert Hilltops, on the upper slope to crest of low hills, on yellowish-orange gravely silty sand with outcropping and subcropping chert, and stony weathered lateritic duricrust. It was encountered within the Fiddleback Prospect and the proposed Haul Road alignment and described from four quadrat and three relevé sites.

Plate 1: Vegetation Association 1.1: *Acacia aneura* over *Baeckea elderiana* Shrubland
Within the Haul Road, this community lies outside the PEC boundary, however, it lies within the PEC boundary in the Fiddleback Prospect.

Vegetation Association 1.2: *Dryandra arborea* (P4), *Acacia cockertoniana*, *A.* sp. Mt Jackson (B Ryan 178) over *Philotheca brucei* subsp. *brucei*, *Eremophila clarkei,* and *E. latrobei* subsp. *latrobei* with *Mirbelia ferricola* (P3) and *Grevillea georgeana* (P3) Shrubland.

A Shrubland of *Dryandra arborea* (P4) 4 to 6 m, *Acacia* sp. Mt Jackson (B Ryan 176) 3 to 4 m, *A. cockertoniana* 3 to 4 m, *A. incurvaneura, A. mulganeura* 3 m, and *Allocasuarina acutivalvis* subsp. *acutivalvis* 2.5 to 3 m, with a Projected Foliage Cover (PFC) of 20 to 30%. This is over a Dwarf Shrubland C to Low Shrubland A dominated by *Philotheca brucei* subsp. *brucei* 1.2 m, *Eremophila latrobei* subsp. *latrobei* 1.2 m, *Grevillea georgeana* (P3) 1.5 m, *G. paradoxa* 1.5 m, *Hibbertia exasperata* 0.8 m, occasional *Phebalium canaliculatum* 1.2 m, *Olearia humilis* 0.8 m, and *Calycopeplus paucifolius* 2.5 m, with a PFC of 20-30%. (See Plate 2)

This vegetation association was found on the crest and upper slopes of large Banded Ironstone Hills, on orange silty sand with massive and outcropping BIF rocks and stones. It was present in the Red Legs Prospect, and described from three quadrat and four relevé sites. *Mirbelia ferricola* (P3) occurred in patches throughout this vegetation association. It is a defining vegetation of and regular inclusion within the PEC.

Plate 2: Vegetation Association 1.2: *Dryandra arborea* (P4), *Acacia cockertoniana*, *A.* sp. Mt Jackson (B Ryan 178) over *Philotheca brucei* subsp. *brucei*, *Eremophila clarkei,* and *E. latrobei* subsp. *latrobei* with *Mirbelia ferricola* (P3) and *Grevillea georgeana* (P3) Shrubland

Vegetation Association 1.4 *Acacia cockertoniana, A. incurvaneura,* and *A.* sp. Mt Jackson (B Ryan 176) over *Olearia humilis,* and *Philotheca brucei* subsp. *brucei* Shrubland

A Shrubland of *Acacia cockertoniana* 4 m, *A. incurvaneura* 4 m, *A.* sp. Mt Jackson (B Ryan 176) 4 m, PFC 25 to 30%, over a Dwarf Shrubland C to Low Shrubland B dominated by *Olearia humilis* 0.7 m, *Philotheca brucei* subsp. *brucei* 1.2 m, with a PFC of 20 to 30% (See Plate 3).

This vegetation association was described from one quadrat and one relevé site, and was found in an area on the mid slopes of a Banded Ironstone Hill at the Red Legs Prospect. It had angular BIF rocks and gravel to 10 cm diameter forming a continuous mantle, and a slope of 10 to 15 degrees with an easterly aspect. As the slope angle increases to between 18 to 25 degrees, higher on the hill, *Acacia* sp. Mt Jackson (B Ryan 176) becomes more dominant in the upper stratum. It lies within the PEC boundary.

Plate 3: Vegetation Association 1.4 *Acacia cockertoniana, A. incurvaneura,* and *A.* sp. Mt Jackson (B Ryan 176) over *Olearia humilis,* and *Philotheca brucei* subsp. *brucei* Shrubland

Vegetation Association 2.1 *Eucalyptus corrugata, E. oleosa* subsp. *oleosa,* and *E. loxophleba* subsp. *lissophloia* with *E. formanii* (P4) Low Woodland A over *Acacia ramulosa* subsp. *ramulosa* over *Olearia muelleri*

This vegetation association is characterised by a Low Woodland A dominated by Eucalyptus corrugata 8 to 15 m and E. oleosa subsp. oleosa 8 to 15 m, with E. loxophleba subsp. lissophloia 10 to 15 m present at times, and occasional Eucalyptus formanii (P4) 4 to 8 m, with a PFC 10 to 20%. This is over a Shrubland of Acacia ramulosa subsp. ramulosa 3.5 m, A. sp. narrow phyllode (B.R. Maslin 7831) 3 m, and Eremophila oldfieldii 3m, with a PFC 10 to 15%. Underneath this is a Low Shrubland B to Dwarf Shrubland C of Eremophila clarkei 1.8 m, Philotheca brucei subsp. brucei 1.2 m, Scaevola spinescens (narrow leaf spiny form) 1.2 m, Olearia muelleri 0.4 m, with a PFC 10 % (Plate 4).

This vegetation association was found on the midslopes of low hills, occasionally on the stony gentle midslope. The soil is a red brown silty sand and a discontinuous mantle of subangular BIF, quartz rocks and gravel. It was described at two quadrat and four relevé sites and is present within the Fiddleback Prospect and the Haul Road. It lies within the PEC boundary.

Plate 4: Vegetation Association Vegetation Association 2.1 *Eucalyptus corrugata, E. oleosa* subsp. *oleosa,* and *E. loxophleba* subsp. *lissophloia* with *E. formanii* (P4) Low Woodland A over *Acacia ramulosa* subsp. *ramulosa* over *Olearia muelleri*

Vegetation Association 2.2 *Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland A over *Acacia ramulosa* subsp. *ramulosa*, *A.* sp. narrow phyllode (BR Maslin 7831) over *Philotheca brucei* subsp. *brucei* and *Olearia muelleri*

This vegetation association is characterised by a Low Woodland A of *Eucalyptus corrugata* 8 to 12 m, and *E. oleosa* subsp. *oleosa* 8 to15 m, with a PFC of 10 to 30%. This is over a Shrubland dominated by *Acacia ramulosa* subsp. *ramulosa* 4 m, *A. incurvaneura* 8 to 10 m, and *A.* sp. narrow phyllode (BR Maslin 7831) with a PFC of 10 to 20%. The understory is a Dwarf Shrubland D dominated by *Eremophila metallicorum* 0.8 m, *Philotheca brucei* subsp. *brucei* 0.6 m, *Olearia muelleri* 0.5 m, and *Ptilotus obovatus* var. *obovatus* 0.4 m, with a PFC 10% (Plate 5). Occasional *Casuarina pauper* stands on small rises were found within this association.

This vegetation association was found on gently inclined sheet-washed plains, on red gravelly silty sand with stony mantle (lag gravel) and abundant discontinuous fine ironstone gravel. It was described from four quadrat and four relevé sites at the Haul Road, Red Legs Prospect, and Fiddleback Prospect. It lies within and outside the PEC boundary.

Plate 5: Vegetation Association 2.2 *Eucalyptus corrugata, E. oleosa* subsp. *oleosa* Low Woodland A over *Acacia ramulosa* subsp. *ramulosa*, *A.* sp. narrow phyllode (BR Maslin 7831) over *Philotheca brucei* subsp. *brucei* and *Olearia muelleri*

Vegetation Association 2.3 *Eucalyptus corrugata* Low Woodland A over *Acacia cockertoniana* and *A. incurvaneura*

A Low Woodland A of *Eucalyptus corrugata* 8 to 15 m, PFC 15 to 25 % over a Shrubland of *Acacia cockertoniana* 4 to 6 m, *A. incurvaneura* 4 to 6 m, PFC 15 to 25 %, over a Low Shrubland A to Shrubland of *Eremophila oppositifolia* subsp. *angustifolia* 2 m, *Alyxia buxifolia* 1.5 m, *Eremophila oldfieldii* subsp. *angustifolia* 2 m, *Senna artemisioides* subsp. *filifolia* 1.2 m, PFC 10 to 20 % over an Open Dwarf Shrubland of *Ptilotus obovatus* var. *obovatus* 0.5 m, PFC 5 % (Plate 6).

This vegetation association was described from three quadrat sites and one relevé site within the Red Legs prospect. It represents the colluvial slopes of a valley between two Banded Ironstone Hills with mid slopes from 10 to 20 degrees and a narrow non-incised central drainage channel. It lies within the PEC boundary.

Plate 6: Vegetation Association 2.3 *Eucalyptus corrugata* Low Woodland A over *Acacia cockertoniana* and *A. incurvaneura*

Vegetation Association 2.4 *Eucalyptus formanii* (P4) Low Woodland A over *Triodia rigidissima*

A Low Woodland A of *Eucalyptus formanii* 8 to 12 m, with a PFC of 15 to 20%, over an Open Shrubland of *Hakea minyma* 2 to 4 m, *Melaleuca hamata* 2 m, *Acacia heteroneura* 2 m, PFC 5 % over an Open Low Shrubland B of *Westringia cephalantha* 1.2m, *Olearia dampieri* subsp. *eremicola* 1.2 m, *Daviesia purpurascens* 1.5 m, with a PFC of 5% over an Open Hummock Grassland of *Triodia rigidissima* 0.3 m, with a PFC of 30 % (Plate 7).

This vegetation association was found in the Red Legs Prospect, and described from three quadrat and three relevé sites. It appears to have not been burnt for a very long time with very large resprouter shrubs and tall *E. formanii* mallees and large rings of *Triodia* to 1.2 m diameter with dead centres.

A more or less level site with red silty gravely sandy soil with a fine subrounded ironstone lag gravel. It lies within the PEC boundary in the Red Legs Prospect but probably also extends outside this to the north.

Plate 7: Vegetation Association 2.4 *Eucalyptus formanii* (P4) Low Woodland A over *Triodia rigidissima*

Vegetation Association 2.6 *Eucalyptus formanii* (P4), *E. corrugata*, *E. leptopoda* subsp. *subluta* Open Low Woodland A over *Acacia sibina, Allocasuarina acutivalvis* subsp. *acutivalvis* over *Acacia daviesioides*

An Open Low Woodland A of Eucalyptus formanii (P4), E. corrugata, E. leptopoda subsp. subluta less than 8 m, with a PFC of 5 to 10 %, over a Thicket of Acacia sibina, Allocasuarina eriochlamys subsp. eriochlamys, A. acutivalvis subsp. acutivalvis, Grevillea obliquistigma subsp. obliquistigma to 2 m, with a PFC of 40-50 %. Over an Open Dwarf Shrubland of Phebalium canaliculatum, Senna artemisioides subsp. filifolia, Scaevola spinescens 0.5 to 1 m, with a PFC of 2-5%. The understorey is an Open Dwarf Shrubland D to Very Open Hummock Grassland of Acacia daviesioides 0.6 m, and Triodia tomentosa, T. rigidissima, 0.5m, with a PFC of 2-5 % (Plate 8).

Acacia daviesioides is scattered within this vegetation association and has not been noted elsewhere. Many plants are dead but numerous live plants are present within the vegetation association. Furthermore, there are approximately 100 plants on the track and formerly cleared drill pad in this area indicating a healthy seed bank and recruitment after soil disturbance. This vegetation association was present within the Red Legs prospect and was described at two quadrat two relevé sites. It lies within the PEC boundary.

Plate 8: Vegetation Association 2.6 *Eucalyptus formanii* (P4), *E. corrugata*, *E. leptopoda* subsp. *subluta* Open Low Woodland over *Acacia sibina, Allocasuarina acutivalvis* subsp. *acutivalvis* over *Acacia daviesioides*

Vegetation Association 2.7 *Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland over *Eremophila scoparia, Atriplex nummularia, A. bunburyana*
4 quadrats and 4 relevés

A Woodland to Low Woodland A of Eucalyptus salmonophloia 15 to 20 m, E. salubris (Gimlet) 8 to 12 m, PFC 20 to 30 % over a Low Shrubland A of Eremophila scoparia 1.2 m, Atriplex nummularia 1.5 m, with a PFC of 15-20%, over a Dwarf Shrubland D of A. bunburyana/A. vesicaria 0.5 m, Ptilotus obovatus var. obovatus 0.5 m, with a PFC 15 to 20% (Plate 9).

This vegetation association was found on broad valley floors, and described from three relevé sites, from the Haul Road and the Fiddleback Prospect, outside the PEC boundary.

Plate 9: Vegetation Association 2.7 *Eucalyptus salmonophloia, E. salubris* (Gimlet) Woodland over *Eremophila scoparia, Atriplex nummularia, A. bunburyana.*

Vegetation Association 3.1 *Acacia sibina, A. aneura* over *Baeckea elderiana* and *Euryomyrtus patrickiae* Heathland A

This vegetation association is described as an Open Shrubland of *Acacia sibina* 3 m, *Acacia incurvaneura, A. caesaneura* 3 m, with a PFC of 5%, over a Heathland A of *Baeckea elderiana* 1.5 m, *Grevillea obliquistigma* subsp. *obliquistigma* 1.5 m, with a PFC 30 to 50 %, over a Scattered Low Shrubland to Open Dwarf Shrubland D of *Euryomyrtus patrickiae* 0.5 m, *Mirbelia microphylla* 0.6 m, *Hibbertia eatoniae* 0.3 m, *Amphipogon caricinus* 0.2 m with a PFC of 1 to 5 % (Plate 10).

This vegetation association occurred within the Haul Road, and described from the one quadrat and three relevé sites. The site is gently sloping and has yellow-orange silty sandy soil with abundant angular to subangular chert rocky (to 6 cm) and gravelly mantle. It lies within the PEC boundary in the Fiddleback Prospect.

Plate 10: Vegetation Association 3.1 *Acacia sibina, A. aneura* over *Baeckea elderiana* and *Euryomyrtus patrickiae* Heathland A

Vegetation Association 3.2 *Acacia effusifolia, A. heteroneura, A. sibina, Melaleuca hamata* Thicket with emergent *Eucalyptus leptopoda* subsp. *subluta* and *E. brachycorys*

A Thicket of *Acacia effusifolia, A. heteroneura, A. sibina* 3 m, *Melaleuca hamata* 3 m (co-dominant), with a PFC of 80 %, with an emergent storey of Very Open Tree Mallee consisting of *Eucalyptus formanii* (P3) 5 m, *E. leptopoda* subsp. *subluta* 4 m, *E. brachycorys* 5 m, *Callitris glaucophylla* 5 m, with a PFC 5 % over an Open Dwarf Shrubland C to Open Dwarf Shrubland D of *Phebalium canaliculatum* 1.2 m, *Euryomyrtus patrickiae* 0.5 m, with a PFC of 5 to 10 % in patches (Plate 11).

This vegetation association forms a large ecotone with 3.3, where the dominating species of the thicket changes from *Acacia sibina* in 3.2 to *Allocasuarina eriochlamys* subsp. *eriochlamys* in 3.3. As such, *Allocasuarina eriochlamys* subsp. *eriochlamys* and other vegetation 3.3 associations were found within the association**.** This vegetation association is found within the Red Legs Prospect and the Haul Road, on level gravelly lateritic sandplains with orange silty sandy soils, and was described at two quadrat and relevé sites. It lies within and outside the PEC boundary.

Plate 11: Vegetation Association 3.2 *Acacia effusifolia, A. heteroneura, A. sibina, Melaleuca hamata* Thicket with emergent *Eucalyptus leptopoda* subsp. *subluta* and *E. brachycorys*

Vegetation Association 3.3 *Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket with *Eucalyptus formanii* (P4) and *Grevillea georgeana* (P3)

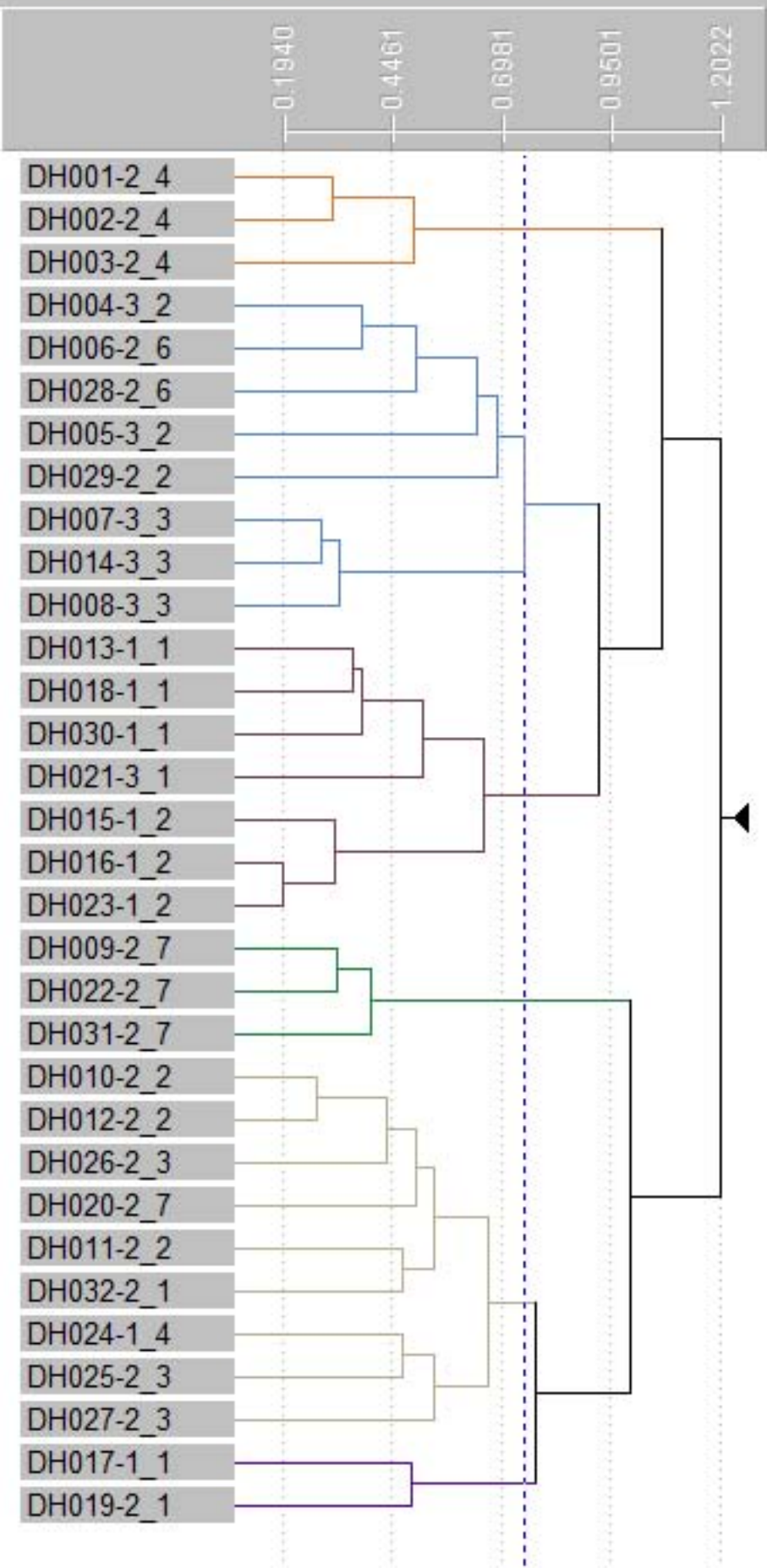
A Thicket to Dense Thicket of *Allocasuarina eriochlamys* subsp. *eriochlamys* 2 m, with *Allocasuarina acutivalvis* subsp. *acutivalvis* 2 m, and scattered *Grevillea georgeana* (P3) 0.8 to 1.5 m, with a PFC of 50 to 80 %, with a scattered emergent overstorey of Scattered Tree Mallees of *Eucalyptus leptopoda* subsp. *subluta* 3 m, *E. kochii* subsp. *plenissima* 4 m, with a PFC of less than 1 % (Plate 12).

This vegetation association is found on the eastern mid to lower slopes of Banded Ironstone Hills, within the Red Legs Prospect, and was described from three quadrat and three relevé sites. The soil is described as yellow-orange to orange gravely silty sand with abundant lag gravel and stony mantle, discontinuous sub angular to subrounded BIF gravel and stones to 5 cm. It lies within the PEC boundary. Vegetation association 3.2 formed a large ecotone with this vegetation association, as *Acacia sibina* and other associated species from 3.2 were occasionally present. Malleefowl Mounds were noted within this vegetation association.

Plate 12: Vegetation Association 3.3 *Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket with *Eucalyptus formanii* (P4) and *Grevillea georgeana* (P3)

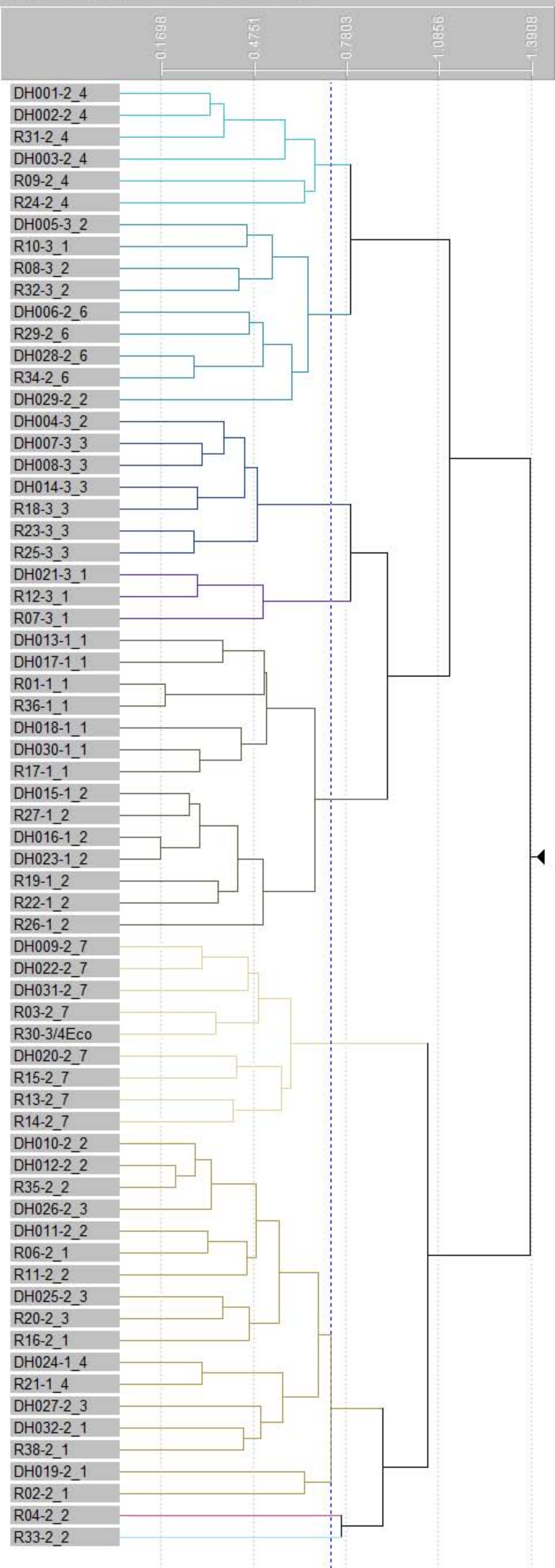
Appendix 21 Species Percentage Foliar Cover Site Dendrogram

Row Fusion Dendrogram



Appendix 22 Species Presence / Absence Site Dendrogram

Row Fusion Dendrogram



Appendix 23 Locations of Malleefowl mounds and Activity within the Marda East Project area .

Malleefowl Mound #1

Date : October 2012 Location: Red Legs Prospect

WGS 84 Zone 50J 730236mE, 6687869mN

This Malleefowl mound was active, and had recently been worked on its northern half, with leaf litter scratched out (Plate 11).

Plate 11. Malleefowl mound #1

Malleefowl Mound #2

Date : October 2012 Location: Red Legs Prospect

WGS 84 Zone 50J 730311mE, 6688411mN

An old inactive Malleefowl mound, (Plate 12).

Plate 12: Malleefowl mound #2

Malleefowl Mound #3

Date : October 2012 Location: Red Legs Prospect

WGS 84 Zone 50J 50J 729894mE, 6688149mN

An inactive Malleefowl mound located on the edge of old drill line at north west end of the Red Legs Tenement, and has been damaged by the track establishment (Plate 13).

Plate 13. Close up of Malleefowl mound #3.

Malleefowl Mound #4

Date : October 2012 Location: Red Legs Prospect

WGS 84 Zone 50J 730176mE, 6687828mN

This was an old, shallow, inactive mound (Plate 14).

Plate 14 Malleefowl mound #4

Malleefowl Mound #5

Date : October 2012 Location: Red Legs Prospect

WGS 84 Zone 50J 730499mE, 6687876mN

This Malleefowl mound was in *Acacia sibina, Allocasuarina eriochlamys* subsp. *eriochlamys* Thicket, inactive (Plate 15).

Plate 15 Malleefowl mound #5.

Malleefowl Mound #6

Date : October 2012 Location: Red Legs Prospect

WGS 84 Zone 50J 730566mE, 6688029mN

An old, inactive Malleefowl mound that has been dug out (Plate 16).

Plate 16. Malleefowl mound #6.

Malleefowl Mound #7

Date : 6th November 2013 Location: Haul Road Alignment

WGS 84 Zone 50J 730817mE 6687782mN

An old inactive Malleefowl mound (Plate 17)

Plate 17. Malleefowl mound #7

Malleefowl Mound #8

Date : 10th November 2013 Location: Fiddleback Prospect

WGS 84 Zone 50J 732841mE 6683015mN

An old inactive Malleefowl mound (Plate 18)

Plate 18. Malleefowl mound #8

Malleefowl Mound #9

Date : 6th November 2013 Location: Red Legs Prospect

WGS 84 Zone 50J 730108mE 6688190mN

A large malleefowl mound, that is approximately 5-6m in diameter, with vegetation within the mound and relatively recent soil disturbance. This mound may have been active in the last 12 months (Plate 19).

Plate 19. Malleefowl mound #9

Malleefowl Mound #10

Date : 6th November 2013 Location: Haul Road Alignment

WGS 84 Zone 50J 732039mE 6685321mN

A very old inactive Malleefowl mound, approximately 6m in diameter and 0.25m high (Plate 20)

Plate 20. Malleefowl mound #10

Malleefowl Mound #11

Date : November 2013 Location: Red Legs Prospect

WGS 84 Zone 50J 730686mE 6687878mN

An old inactive Malleefowl mound (Plate 21).

Plate 21. Malleefowl mound #11

Malleefowl Footprints #1

Location: Red Legs Prospect

WGS 84 Zone 50J 730520mE, 6688147mN

These footprints were recorded on a track within *Allocasuarina eriochlamys* subsp. *eriochlamys/ Acacia sibina* Thicket (Plate 22).

Plate 22 Malleefowl footprints at Red Legs Prospect

Malleefowl Footprints #2

Date : October 2012 Location: Fiddleback prospect

WGS 84 Zone 50J 732385mE, 6683888mN

These footprints were also recorded across a track, in the Fiddleback prospect (Plate 23).

Plate 23 Malleefowl footprints at Fiddleback Prospect

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