

**REGIONAL *HIBBERTIA CRISPULA***  
**(P1 & VULNERABLE) SURVEY,**  
**GREAT VICTORIA DESERT, WA**

**Prepared For**  
**VIMY RESOURCES LIMITED**

**October 2015**

**EMA1402/035/14**

**Prepared By**



**Mattiske** Consulting Pty Ltd

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## ABBREVIATIONS

- BOM: Bureau of Meteorology
- DotE: Department of the Environment (formerly Department of Sustainability, Environment, Water, Population and Communities – DSEWPC)
- DPaW: Department of Parks and Wildlife (formerly Department of Environment and Conservation – DEC, formerly Department of Conservation and Land Management – CALM)
- VMY: Vimy Resources Limited (formerly Energy and Minerals Australia Limited)
- EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999* (Cth)
- MCPL: Matiske Consulting Pty Ltd
- SAH: South Australian Herbarium (AD)
- WAH: Western Australian Herbarium (PERTH)
- WC Act: *Wildlife Conservation Act 1950* (WA)

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## 1. SUMMARY

Mattiske Consulting Pty Ltd (MCPL) was commissioned by Vimy Resources Limited (VMY – formerly Energy and Minerals Australia Limited) in July 2014 to conduct a targeted survey in the south-west corner of the Great Victoria Desert, around the Mulga Rock Uranium Project (MRUP) area, for the Priority 1 and Vulnerable flora species, *Hibbertia crispula* (Dilleniaceae). The survey was conducted by three experienced botanists from MCPL in August 2014 and confirms the presence of *Hibbertia crispula* initially recorded at targeted dune traverses by VMY personnel in early 2014. This report provides a summary of the findings on *Hibbertia crispula* regarding its habit, phenology, basic root structure and population size and distribution. Voucher specimens and leaf samples were collected to assist in future clarification of the key characteristics of *Hibbertia crispula* on a national scale.

The major observations from this collaboration of VMY and MCPL survey work indicate that:

- It is more likely that *Hibbertia crispula* reproduces via seeds, rather than vegetative suckering roots;
- *Hibbertia crispula* has variable, year-round phenology patterns;
- *Hibbertia crispula* is restricted to yellow sand dune crests in the south-west corner of the Great Victoria Desert that have not been burnt for at least 15 years, but more likely over 20-30 years;
- Fire may be the largest threat to the survival of *Hibbertia crispula*; and
- At least 14, 000 *Hibbertia crispula* plants (assuming they are not connected by suckering roots) are present in an approximate 20 x 25 km area around the Mulga Rock Uranium Project (with most locations to the south and east of the main project area).

In addition to *Hibbertia crispula*, other priority species numbers and geographic distribution have been expanded upon with this survey, namely *Dampiera eriantha* (P1), *Malleostemon* sp. Officer Basin (D. Pearson 350) (P2), *Styphelia* sp. Great Victoria Desert (N. Murdock 44) (P2), *Conospermum toddii* (P4) and *Grevillea secunda* (P4), to assist with impact assessment of the MRUP in a regional context.

Since the survey work, a wildfire in November 2014 has affected an estimated 10,823 of the 14,269 *Hibbertia crispula* plants recorded in the area by VMY and MCPL. Whilst potentially negative for the species' survival in the Great Victoria Desert, initial photo observations of some plants indicate some survival and possible regeneration. This fire therefore provides an opportunity to monitor and assess the sites surveyed in 2014 (prefixed with 'HIBB') to provide information on the survival and response of *Hibbertia crispula* to low-moderate intensity fires.

## 2. INTRODUCTION

Mattiske Consulting Pty Ltd (MCPL) was commissioned by Vimy Resources Ltd (VMY), formerly known as Energy and Minerals Australia Ltd, in July 2014 to undertake a targeted survey of the Priority 1 and Vulnerable flora species, *Hibbertia crispula* (Dilleniaceae), in the south-west corner of the Great Victoria Desert for the Mulga Rock Uranium Project (MRUP).

Whilst listed as Priority 1 by the Department of Parks and Wildlife (DPaW 2015b), under Western Australian legislation, *Hibbertia crispula* is not pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act 1950* and therefore not listed under the *Wildlife Conservation (rare flora) notice* (DPaW 2014b). Under South Australian legislation, *Hibbertia crispula* is listed as Vulnerable, pursuant to the *National Parks and Wildlife Act 1972*. Similarly, under federal legislation, *Hibbertia crispula* is pursuant to section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), being listed as Vulnerable by the Department of the Environment (DotE 2015a). Definitions of these Western Australian state and federal conservation categories are set out in Appendix A1 and A2.

MCPL has previously conducted vegetation mapping (MCPL 2008a; 2008b; 2010b; 2013; 2014) and threatened and priority flora surveys (MCPL 2009a; 2010a) for the Mulga Rock Uranium Project and surrounding areas. Whilst 26 vegetation communities (mostly eucalypt woodlands and mixed shrublands) have been defined around the Mulga Rock Uranium Project area, the preferred *Hibbertia crispula* habitat is associated with the S6 vegetation community, consistently recorded on the crests of yellow sand dunes (both longitudinal and inter-connected) (MCPL 2013). The S6 community has been defined as:

- Low shrubland of *Thryptomene biseriata*, *Allocasuarina spinosissima*, *Allocasuarina acutivalvis* subsp. *acutivalvis*, *Jacksonia arida*, *Calothamnus gilesii*, *Acacia fragilis*, *Conospermum toddii* (P4), *Pityrodia lepidota*, *Lomandra leucocephala*, *Anthotroche pannosa* and mixed low shrubs over *Triodia desertorum* with *Lepidobolus deserti* with emergent *Eucalyptus gongylocarpa*, *Eucalyptus youngiana*, *Eucalyptus ceratocorys* and *Eucalyptus mannensis* subsp. *mannensis*. This community occurs on yellow sand dunes (MCPL 2013).

### 2.1. Location and Scope of Proposal

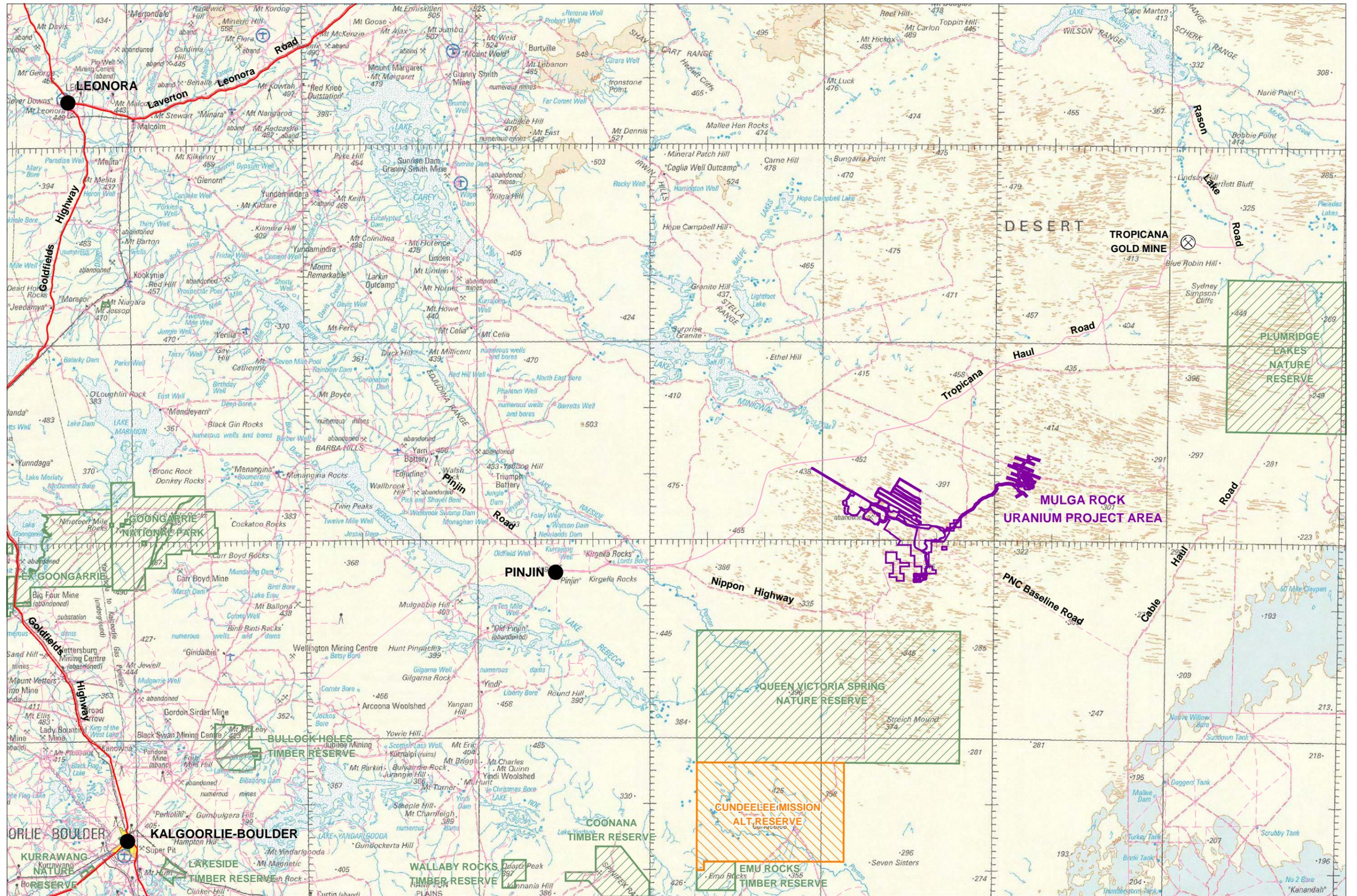
The MRUP lies approximately 240 kilometres east-north-east of Kalgoorlie-Boulder in the Shire of Menzies (Figure 1). The area is remote, located on the western flank of the Great Victoria Desert, comprising series of large, generally parallel sand dunes, with inter-dunal swales and broad flat plains. The MRUP covers approximately 102,000 hectares on granted mining tenure (primarily M39/1080 and M39/1081) within Unallocated Crown Land.

MCPL has previously conducted flora and vegetation surveys and targeted threatened and priority flora surveys within and surrounding the Mulga Rock Uranium Project area (MCPL 2008a; 2008b; 2009a; 2010a; 2010b; 2013; 2014).

The scope of this survey was to conduct targeted work on *Hibbertia crispula*, in the south-west corner of the Great Victoria Desert to enable morphological and molecular comparisons with known South Australia populations. This included confirming populations of *Hibbertia* identified by VMY personnel, surveying regional localities for its presence and collecting numerous voucher specimens and DNA samples for on-going morphological and molecular analyses. This report provides an interim summary of sampling locations, site-specific data and anecdotal field notes pertaining to the collated VMY and MCPL *Hibbertia crispula* field surveys.

Regarding the *Approved conservation advice for Hibbertia crispula (Ooldea Guinea flower)* (Threatened Species Scientific Committee 2008), this survey work aims to address the following research priorities:

- More precisely assess population size, distribution, ecological requirements and relative impacts of threatening processes including feral animals; and
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.



Notes:



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 Scale 1:1,000,000  
 MGA94 (Zone 51)  
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 Date: Oct 2015 Rev: B | A3

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**MULGA ROCK URANIUM PROJECT**  
*Hibbertia crispula* Targeted Survey  
 LOCALITY

Figure:

**1**

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## 2.2. *Hibbertia crispula* – Brief Morphology

*Hibbertia crispula* (Dilleniaceae) is a small, wiry shrub to 50 cm tall that produces yellow flowers (Jessop & Toelken 1986; Plate 1). This species is usually glabrous, except for a minute curly tomentum on the inner side of the leaf base (Jessop & Toelken 1986). Stamens, numbering from (12-) 14-30 (-35), are arranged in five groups around the ovary (H. Toelken, unpublished notes). The few available Western Australian specimens examined by Toelken were noted as having 15-17 stamens.

This *Hibbertia* often grows in clusters, apparently suckering, in deep sandy soil usually on top of dunes (H. Toelken, unpublished notes). This species has been recorded on long-unburnt yellow sand dune ridges in the Officer Basin area but also has two disjunct populations in South Australia (from where it was originally known and described) (DotE 2014).

The Vulnerable conservation status under the EPBC Act was based on the current (at the time), narrow delineation of the species based on plants recorded near Ooldea, South Australia.



**Plate 1:** *Hibbertia crispula* inflorescence, August (Photograph by E. Joyce)

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### 3. OBJECTIVES

The aim of this survey was to provide scientific information on the *Hibbertia crispula*. Specifically, the objectives were to:

- Confirm populations of previously recorded observations by VMY personnel on *Hibbertia* plants;
- Collect site data, leaf samples for molecular analysis, and herbarium specimens for identification and morphological analysis (and vouchers at the Western Australian and South Australian Herbaria (WAH; SAH));
- Search for additional (preferably regional) localities of *Hibbertia crispula* to the east of the Mulga Rock Uranium Project area;
- Record other threatened and priority species' numbers and locations, as well as any other specimens noted in past MCPL (2013; 2014) reports to be of taxonomic interest;
- Define the conservation status of all vascular plant species recorded by reference to current literature and listings by the DPaW and plant collections held at the WAH, and listed by the DotE under the EPBC Act;
- Map *Hibbertia crispula* locations and VMY and MCPL dune traverses;
- Map the location of all threatened and priority flora located within the Mulga Rock Uranium Project area;
- Quantify impacts to *Hibbertia crispula* populations based on the November 2014 fire;
- Prepare a report summarising the sampling locations, site-specific data and anecdotal field notes pertaining to the collated VMY and MCPL *Hibbertia crispula* field surveys; and

## 4. METHODS

A targeted survey was conducted for *Hibbertia crispula*, within and around the Mulga Rock Uranium Project area. The survey was undertaken by three botanists from MCPL, between the 8<sup>th</sup> to 15<sup>th</sup> August 2014, in accordance with methods outlined in *Guidance for the assessment of environmental factors – terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia, No. 51* (Environmental Protection Authority 2004). All botanists held valid collection licences to collect flora for scientific purposes, issued under the WC Act.

All plant specimens collected during the field surveys were dried and processed in accordance with the requirements of the Western Australian State Herbarium (WAH). The plant species were identified based on taxonomic literature and through comparison with pressed specimens housed at the WAH. Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded is in accordance with the DPaW (2015b).

Geographic co-ordinates defining the dune traverses were supplied by VMY and amended by MCPL where necessary. Final maps (1: 50,000 and 1: 150,000) were produced by CAD Resources (Carine, Western Australia). The closest (average and monthly) regional rainfall and temperature data to the Mulga Rock Uranium Project area, from Rawlinna Homestead and Kalgoorlie-Boulder Airport, was obtained from the Bureau of Meteorology (BOM 2015). Site specific rainfall and temperature data was also provided by VMY from the Ambassador, Emperor and Shogun resource areas within the Mulga Rock Uranium Project.

### 4.1. Site Selection

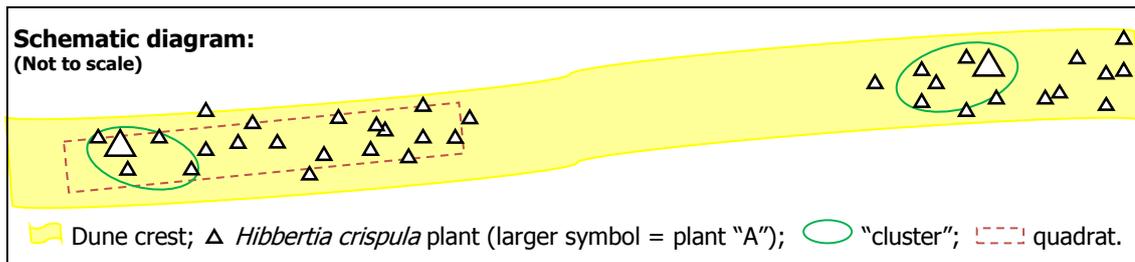
From December 2013 to mid-2014, VMY personnel traversed 89 pre-selected yellow sand dunes for a total of 85 km (based largely on dune morphology, elevation and fire history, namely long-unburnt dunes for more than 15 years) and around the Mulga Rock Uranium Project area, mostly to the south and east of the Officer Basin Airstrip. *Hibbertia crispula* was observed on 26 of the 89 dunes, with these localities providing the focus for MCPL site selection for the current survey. Information provided by VMY personnel relating to locations of traversed dunes (both recorded with and without *Hibbertia crispula*), and *Hibbertia crispula* start and end locations of counts along dunes and their estimated population sizes is provided in Appendix B.

Thirteen of the VMY traversed, *Hibbertia crispula* positive dunes were targeted by MCPL botanists based on the following criteria: high population counts of *Hibbertia crispula*; low population counts of *Hibbertia crispula*; to provide a wide distribution of confirmed locations; and a high presence of other priority species along the dune. An additional twenty dunes were selected by VMY personnel (and MCPL botanists whilst in the field) to provide more regional sites to the north-east and east of the project area (Figures 3.2 and 3.3), two of which *Hibbertia crispula* was recorded on, and ten that remain un-surveyed due to time constraints.

At each *Hibbertia crispula* positive dune, the presence and density of *Hibbertia crispula* plants was confirmed, associated species were recorded, and a soil sample was taken. Furthermore, sample specimens were taken from a selection of individuals for morphological and molecular analysis to enable the comparison of Western Australia specimens to known populations in South Australia.

### 4.2. *Hibbertia crispula* Sampling

To facilitate the potential study of finer-scale molecular patterns and decrease the chance of collecting multiple samples from the same plant (Toelken noted that *Hibbertia crispula* may reproduce vegetatively with root suckers), samples were collected from "clusters" of plants at multiple points along dunes, when possible. In the current survey, a "cluster" was defined as a patch of plants within close proximity (approximately 25 m), that had a high proportion of flowering material (see the schematic diagram below). At each cluster on a dune, a minimum of five plants were sampled. The number of clusters sampled on each dune varied based on the size of the *Hibbertia crispula* populations and the length of the dune.



Within each cluster, a reference plant "A" was selected, which generally represented the healthiest plant with most flowering material. Plant "A" of each cluster was photographed, and approximately 250 g of soil was taken from the top 10 cm of sand underneath the plant. For all plants sampled within each cluster (including plant "A"), a DNA sample was taken, two herbarium specimens with flowering material were collected (for lodgement as duplicates at the WAH and SAH), and the distance and bearing from reference plant "A" was recorded. In addition, the GPS location, height and width of the plants were recorded along with other general observations of plant health and phenology. In total, 137 DNA samples were collected.

The DNA samples taken from each *Hibbertia crispula* plant consisted of a minimum of five tips of new leaf growth and five single mature leaves. The samples were placed in porous paper bags and stored on silica gel in an airtight container. Until further notice, the leaf samples have been stored at the Conservation Science Centre Genetics Laboratory (WA), care of M. Byrne.

Along each dune where *Hibbertia crispula* individuals were located (at *one* of the sampling cluster sites), the following environmental parameters were noted:

- GPS location (based on GDA94 datum, zone 51);
- Topography;
- Soil type and colour;
- Habitat condition; and
- Fire history.

The flora associated with *Hibbertia crispula* on the dune crest was described and sampled systematically by sampling a quadrat of an area equivalent to 2,500 m<sup>2</sup> (mostly 15 m x 167 m, or 20 m x 125 m depending on the width of the dune crest). The average height and percentage cover (of both alive and dead material) was recorded for each vascular plant species. The number of adults and juveniles (alive and dead) was also recorded for all priority species within the quadrat.

All *Hibbertia crispula* sampling locations and associated information are presented in Appendix C.

Density estimations of *Hibbertia crispula* plants per m<sup>2</sup> were calculated using VMY traversed dune lengths, assuming a 15 m wide dune crest across all dunes. Estimates of average densities across locations where the plants were recorded, and across the entire length of positive dunes were calculated.

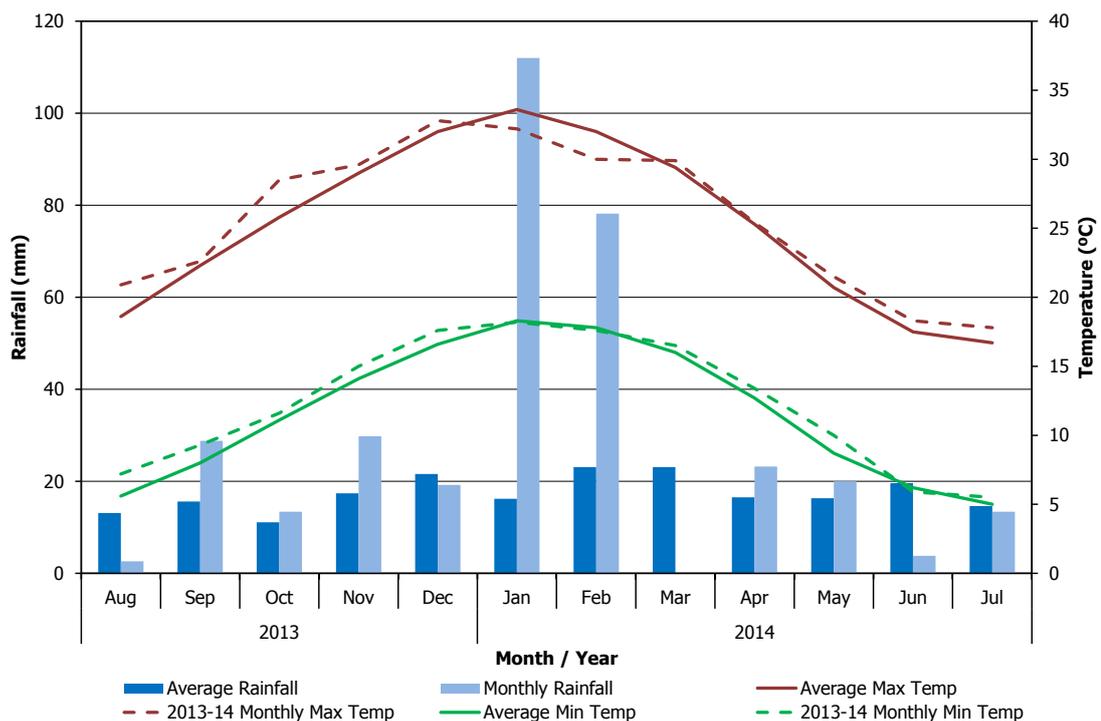
## 5. RESULTS

### 5.1. Climate

Beard (1990) described the climate of the Helms Botanical District as arid with rain during summer and winter, receiving approximately 200 mm of rainfall annually. Kalgoorlie-Boulder Airport and Rawlinna Homestead are two of the nearest active BOM weather stations to the project area. Rainfall data from Rawlinna Homestead and temperature data from Kalgoorlie-Boulder (BOM 2015) is illustrated in Figure 2.

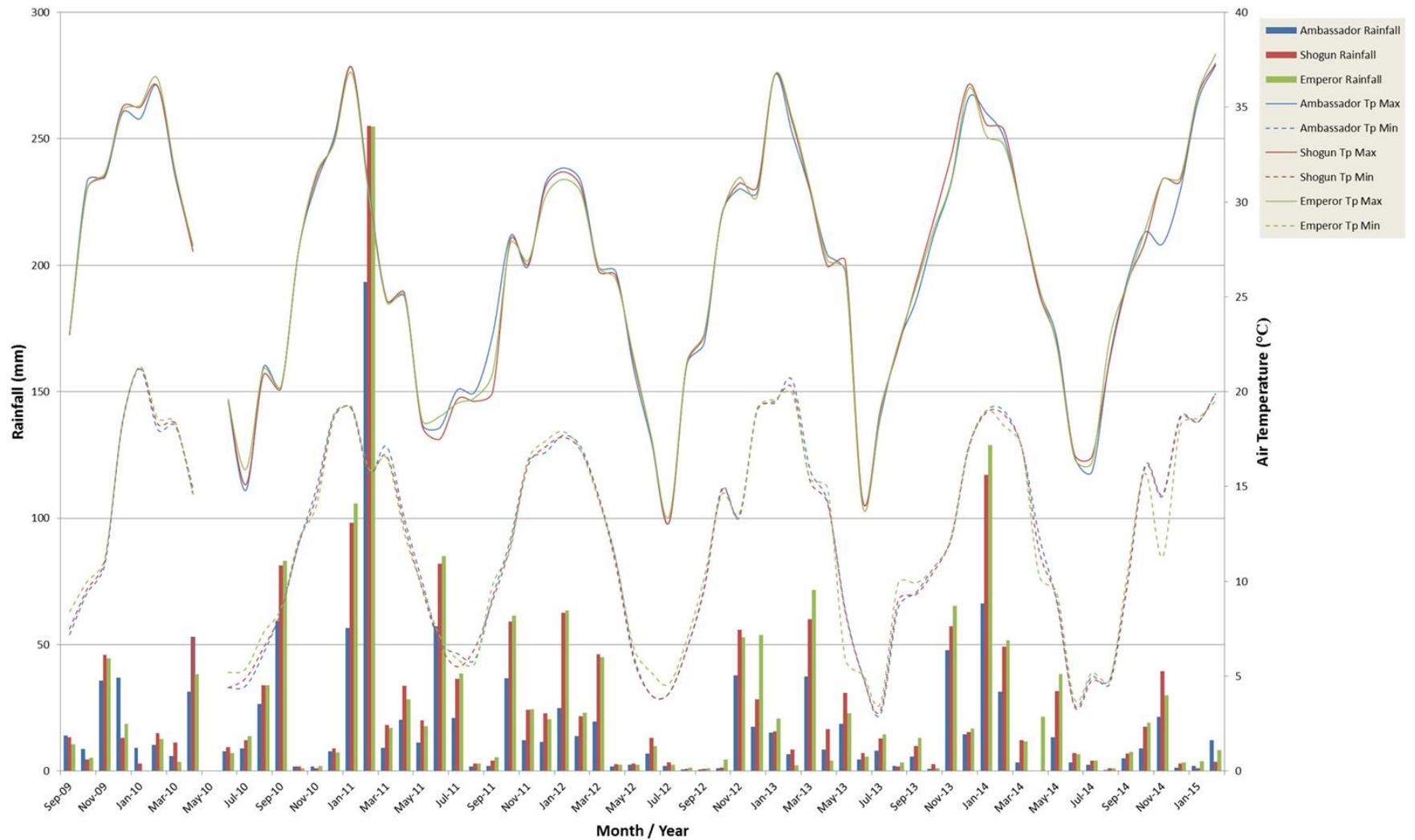
Rawlinna Homestead received approximately seven times the average rainfall in January (112 mm), and over three times the average rainfall in February (Figure 2.1), whilst the majority of the VMY dune traverses were taking place. However, for the two months prior to the August 2014 survey, Rawlinna Homestead received below average rainfall (Figure 2.1). Unpredictable and highly variable rainfall from year to year is characteristic of the Great Victoria Desert region (Beard 1990; Shephard 1995).

The site specific weather stations located at the Ambassador, Emperor and Shogun resource deposits indicate that even within the Mulga Rock Uranium Project area, the rainfall amounts vary within months (Figure 2.2). Similarly to the regional rainfall (Figure 2.1), the site weather stations received between 65-130 mm in January 2014 and less than 10 mm of rainfall in the two months prior to the August 2014 survey (Figure 2.2). The local variation in rainfall is evident from the data between the different recording stations from 2009 to 2015 (Figure 2.2).



**Figure 2.1: Rainfall and temperature data for Rawlinna Homestead and Kalgoorlie-Boulder Airport**

**Note:** Rainfall data obtained from Rawlinna Homestead. Temperature data obtained from Kalgoorlie-Boulder.



**Figure 2.2: Rainfall and temperature data for the Ambassador, Shogun and Emperor weather stations (Mulga Rock Uranium Project), 2009 to 2015**

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## 5.2. *Hibbertia crispula*

### 5.2.1. Field Observations

Site photographs representing the S6 dune community from selected sample clusters are presented in Appendix D. Photographs of habit and inflorescence associated with plant "A" of each *Hibbertia crispula* cluster are attached as a CD (Appendix E). Locations of VMY and MCPL dune traverses are presented in Figures 3.0-3.3.

Most *Hibbertia crispula* plants exhibited a "multi-stemmed" form (Plate 2a). These multi-stemmed individuals are a result of the shrub trapping moving sand and burying the lower branches below surface level. However, there were some *Hibbertia crispula* plants that exhibited a single-stemmed form, appearing to have the upper portion of their root system exposed from erosion of the sandy soil surface (Plate 2b). The largest plants recorded were up to 1.5 m wide by 1.0 m high (Appendix C).

The field surveys have confirmed that *Hibbertia crispula* grows in large clusters along the crest of yellow sand dunes (from less than 50 m to 600 m). Many of these plants were growing within a few metres of one another. A number of *Hibbertia crispula* plants were excavated partially or fully to determine the distribution of their roots and to determine any evidence of sucker roots. Both adult and juvenile plants were excavated to varying depths up to a maximum of 90 cm and lateral spread to 100 cm. None of the excavated plants showed signs of root suckering, even when in close proximity to other *Hibbertia crispula* individuals. All plants displayed similar root architecture with a main tap root and numerous lateral roots. Lateral roots were excavated and followed to a maximum length of 100 cm from the plant before breaking and tap root was followed for 90 cm before breaking (Plate 3a, 3b).

Two small seedlings of *Hibbertia crispula* were also fully excavated (Plate 4a, 4b) to a depth of 60 and 13 cm. These excavations further demonstrate they were not connected to nearby plants through lateral sucker roots. Both plants showed initial root development primarily on a single tap root. Lateral roots began to form at approximately 6 cm depth, however, these roots were very fine and broke easily.

A high proportion of "juvenile" plants less than 20 cm tall were recorded at sites HIBB001 (28.6%), HIBB014 (24.0%) and HIBB013 (22.1%; Appendix F).

No lignotubers on the *Hibbertia crispula* plants were observed by MCPL botanists. Traverse 19002 (MCPL site HIBB015) was unusual as the surrounding area was burnt in approximately 2004, however the small patch of the dune crest where *Hibbertia crispula* plants were present remained relatively unaffected by this most recent fire.

Fallen seed was observed from *Hibbertia crispula* during the current field trip, and it is thought seed production would be quite high considering the profuse flowering. Herbivory by ants or insects on *Hibbertia crispula* seed was also noted by experienced botanists from MCPL.



**Plate 2a:** "Multi-stemmed" individual of *Hibbertia crispula*. (Photograph by E. Joyce)



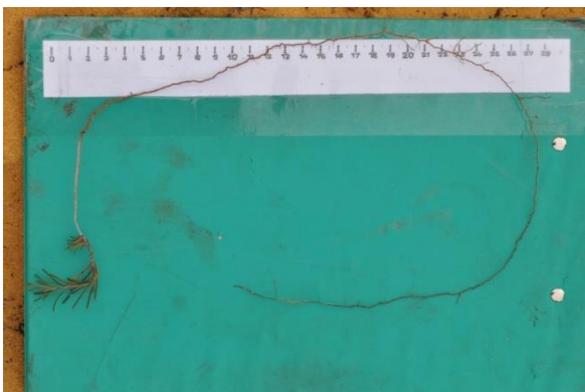
**Plate 2b:** Single-stemmed individual of *Hibbertia crispula* with roots exposed. (Photograph by E. Joyce)



**Plate 3a:** Partly excavated juvenile *Hibbertia crispula* plant showing tap and lateral roots. (Photograph by N. Murdock)



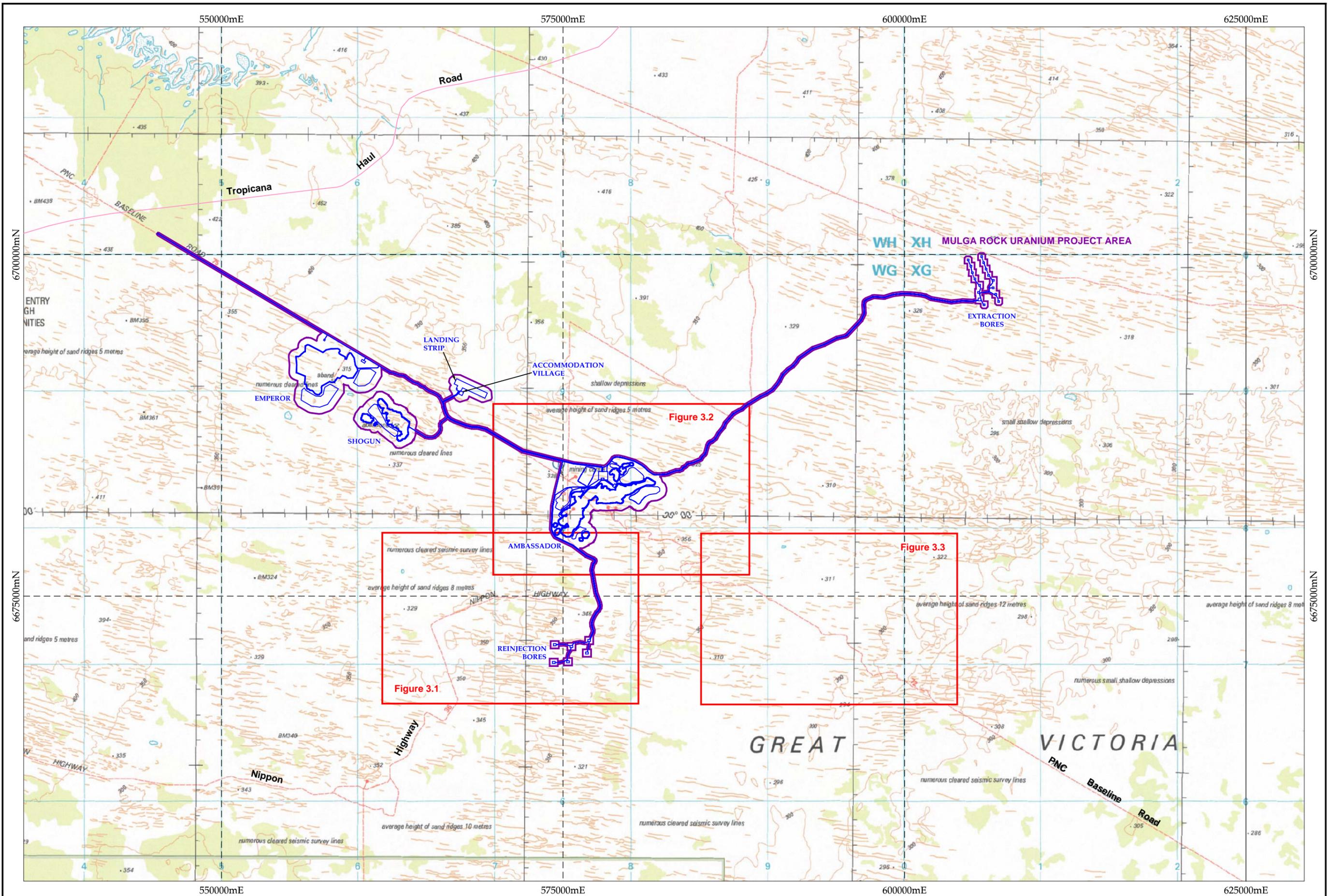
**Plate 3b:** Partly excavated *Hibbertia crispula* plant in close proximity to other plants, showing lateral roots 100 cm in length. (Photograph by N. Murdock)



**Plate 4a:** *Hibbertia crispula* seedling, 8 cm in height, excavated to a depth of 60 cm. (Photograph by E. Joyce)



**Plate 4b:** *Hibbertia crispula* seedling, 4 cm in height, excavated to a depth of 13 cm. (Photograph by N. Murdock)



Legend:  
 - Development Envelope  
 - Disturbance Footprint

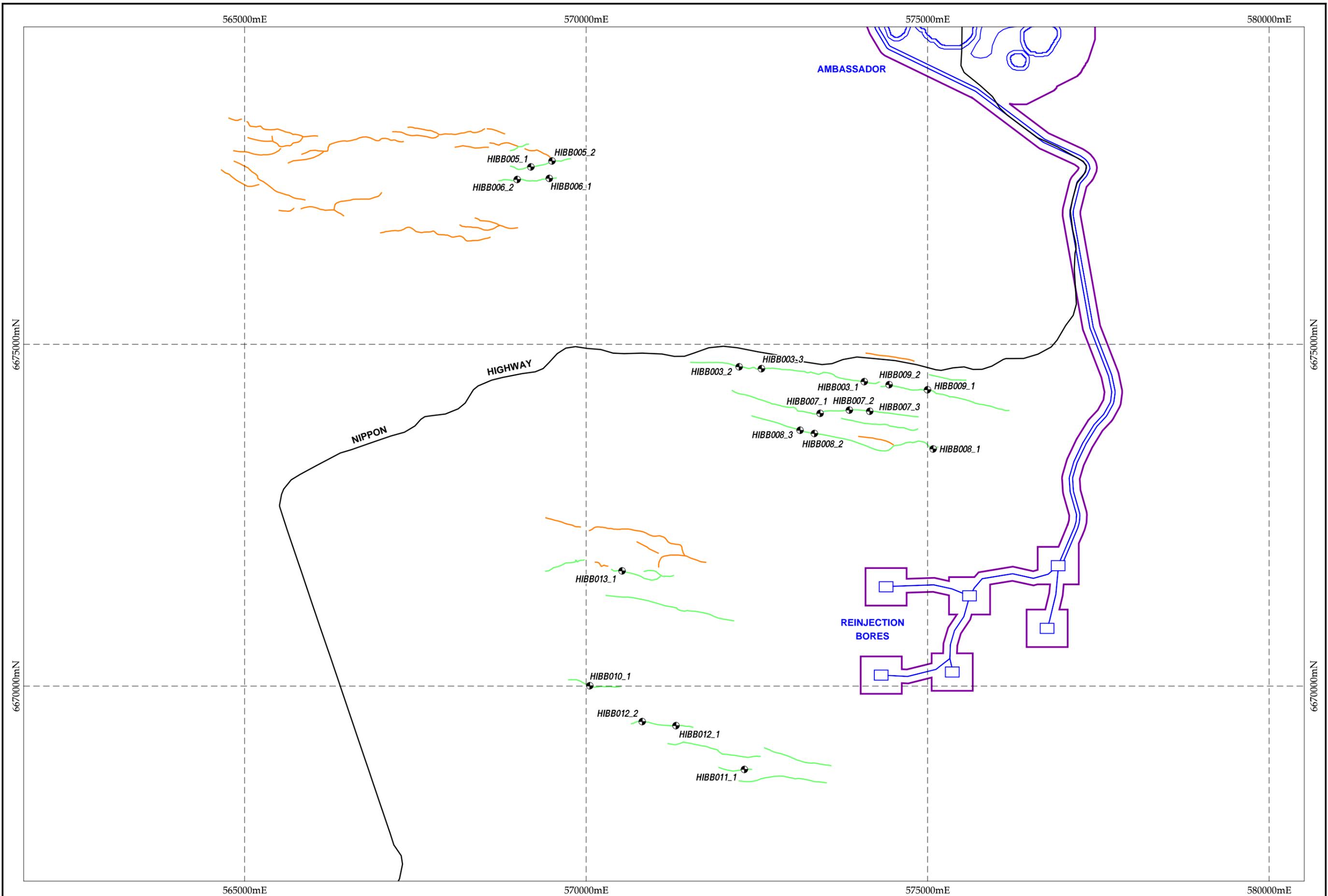


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 Scale 1:250,000  
 MGA94 (Zone 51)  
 CAD Ref: g1756\_Hc\_f01.dgn  
 Date: Oct 2015 | Rev: C | A3

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**MULGA ROCK URANIUM PROJECT**  
**Hibbertia crispula Targeted Survey**  
 VMY & MCPL Dune Traverse Locations

Figure:  
**3**



Legend		
	VMY Traverse (Hc Found)	
	VMY Traverse (No Hc Found)	
	MCPL Traverse (No Hc Found)	
	Main Access Track	
	Not Traversed	
	MCPL Hc Site Cluster	

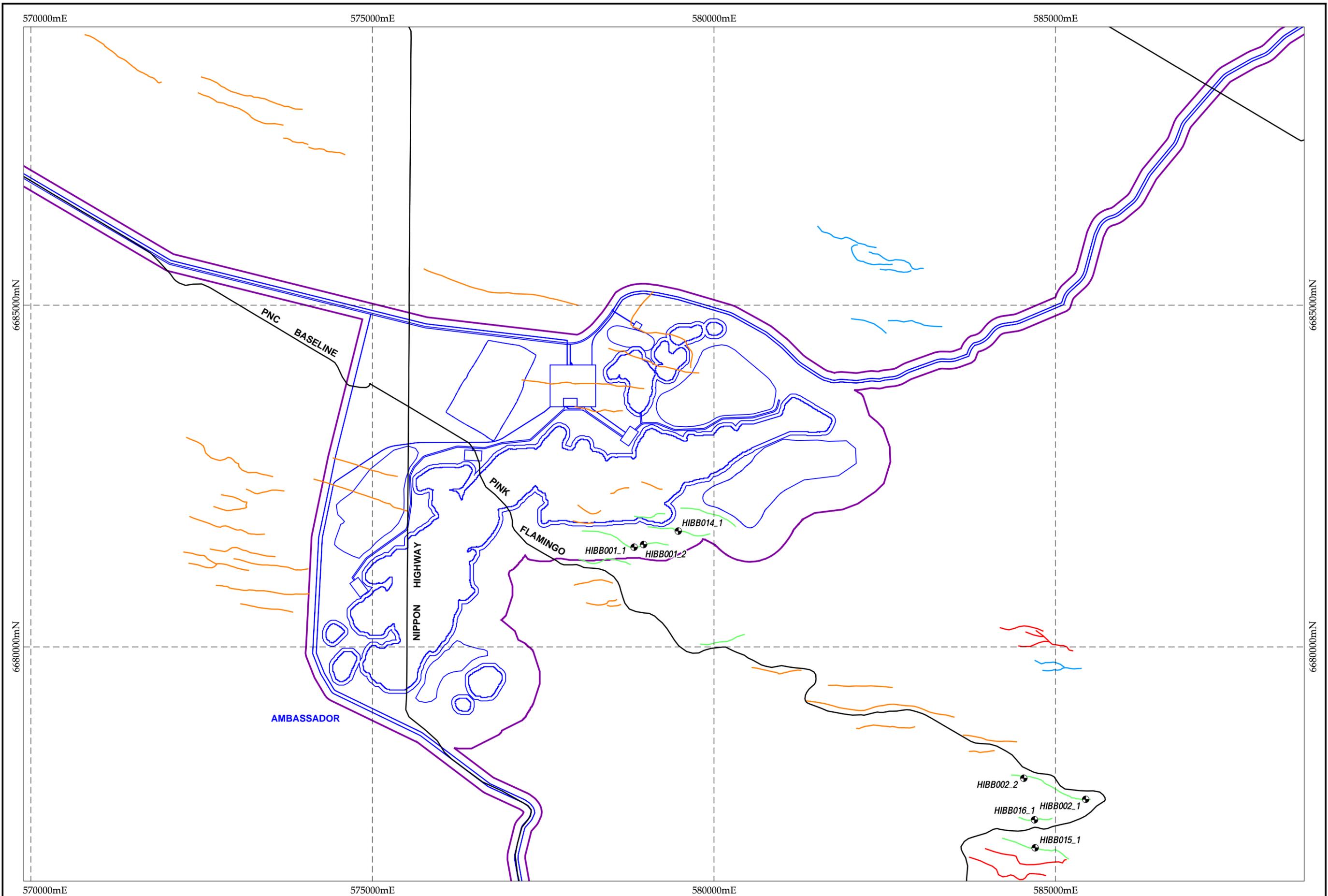


0 800m  
Scale 1:50,000  
MGA94 (Zone 51)  
CAD Ref: g1756\_Hc\_f01\_01.dgn  
Date: Oct 2015 | Rev: C | A3

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**MULGA ROCK URANIUM PROJECT**  
**Hibbertia crispula Targeted Survey**  
VMY & MCPL Dune Traverse Locations

Figure:  
**3.1**



Legend			
<span style="color: green;">—</span>	VMY Traverse (Hc Found)	<span style="color: purple;">—</span>	Development Envelope
<span style="color: orange;">—</span>	VMY Traverse (No Hc Found)	<span style="color: blue;">—</span>	Disturbance Footprint
<span style="color: red;">—</span>	MCPL Traverse (No Hc Found)	<span style="color: black;">—</span>	Main Access Track
	<span style="color: blue;">—</span>	<span style="color: black;">●</span>	MCPL Hc Site Cluster
		<span style="color: blue;">—</span>	Not Traversed



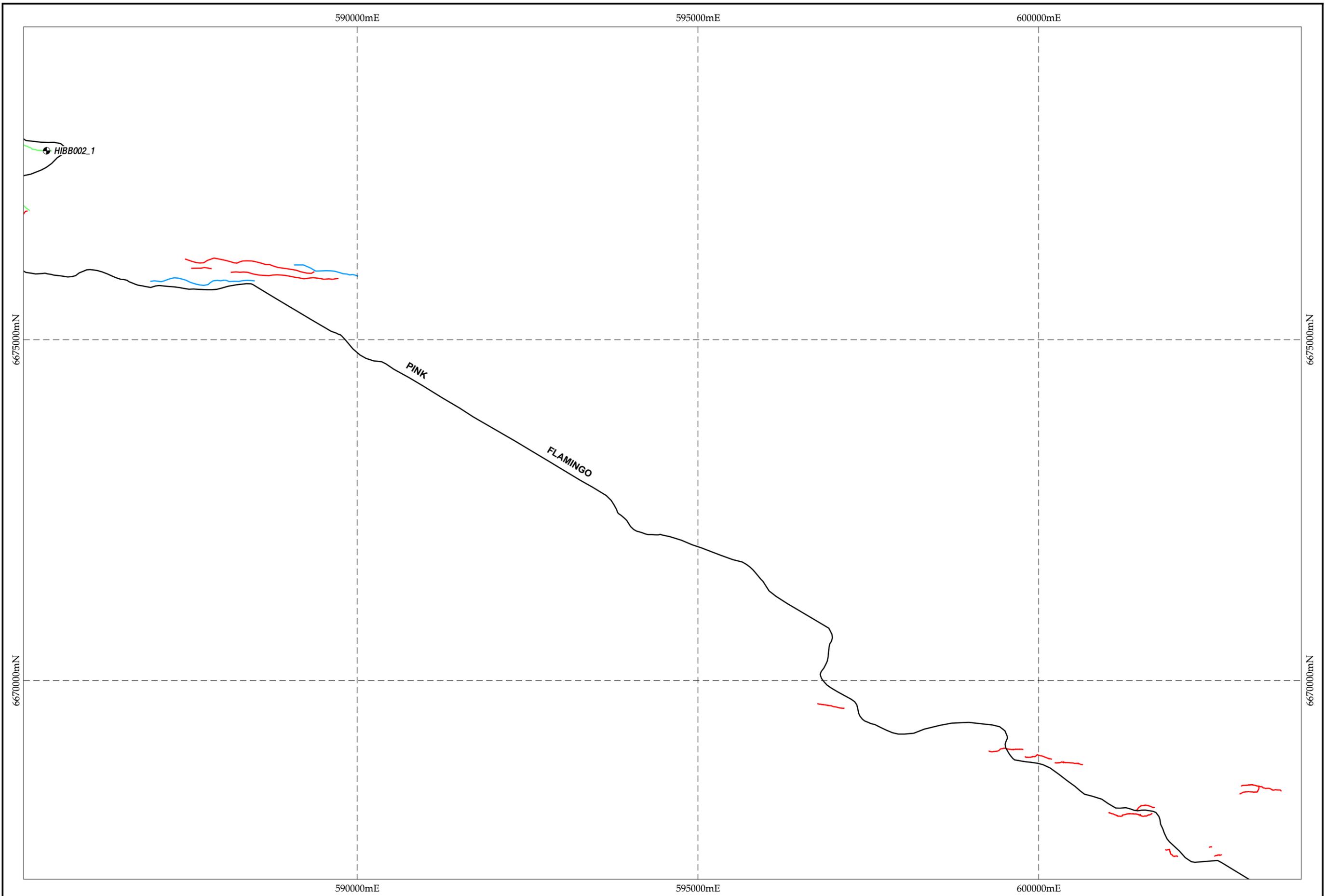
Client:

Scale 1:50,000  
 MGA94 (Zone 51)  
 CAD Ref: g1756\_Hc\_f01\_02.dgn  
 Date: Oct 2015 | Rev: C | A3

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**MULGA ROCK URANIUM PROJECT**  
**Hibbertia crispula Targeted Survey**  
 VMY & MCPL Dune Traverse Locations

Figure:  
3.2



**Legend**

- VMY Traverse (Hc Found)
- VMY Traverse (No Hc Found)
- MCPL Traverse (No Hc Found)
- ⊕ MCPL Hc Site Cluster
- Main Access Track
- Not Traversed

Client:



0 800m  
Scale 1:50,000  
MGA94 (Zone 51)  
CAD Ref: g1756\_Hc\_f01\_03.dgn  
Date: Oct 2015 | Rev: C | A3

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**MULGA ROCK URANIUM PROJECT**  
***Hibbertia crispula* Targeted Survey**  
VMY & MCPL Dune Traverse Locations

Figure:  
**3.3**

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### 5.2.2. Combined Survey Efforts

The combined survey efforts for the Mulga Rock Uranium Project have resulted in records of over 14,000 *Hibbertia crispula* plants from 30 locations (assuming each plant is different, and is not connected by suckering roots) (Table 1). These records span an area of approximately 20 x 25 km (Figures 3.0 and 4). For traverse locations, see Appendix B; or for MCPL other site locations refer to MCPL (2013).

Based on the VMY traverse data, the average density of *Hibbertia crispula* along positive dunes was estimated to be 0.03 plants/m<sup>2</sup>. The average density of *Hibbertia crispula* along only the sections where these plants were recorded was estimated to be 0.07 plants/m<sup>2</sup>.

A list of all other species associated with the S6 vegetation community, and recorded at *Hibbertia crispula* positive dunes sites is presented in Appendix G. The following species occur in more than 90% of the total number of S6 sites from combined MCPL survey data: *Lomandra leucocephala*, *Caustis dioica*, *Jacksonia arida*, *Thryptomene biseriata*, *Conospermum toddii* (P4), *Lepidobolus deserti* and *Anthotroche pannosa*. All of these species were also recorded at *Hibbertia crispula* positive dunes in the current survey.

*Hibbertia crispula* was consistently recorded on unburnt dunes, estimated by MCPL botanists to be at least 15 years unburnt, but likely more than 20-30 years unburnt. The elevation of *Hibbertia crispula* positive dunes ranged from 343-377 m, however the elevation of *Hibbertia crispula* negative dunes similarly ranged from 340-374 m (VMY traverse data, not presented).

MCPL botanists noted that *Hibbertia crispula* displayed a similar stem and root structure to *Malleostemon* sp. Officer Basin (D. Pearson 350) (P2) which also displayed exposed, long, lateral anchorage roots and tended to prefer the unburnt, yellow sand dune crests of the S6 vegetation community.

**Table 1: Summary of *Hibbertia crispula* records associated with the Mulga Rock Uranium Project area, south-west corner of the Great Victoria Desert**

**Note:** Where there are sites overlapping, the total number of plants is presented from data providing the most complete count; **Blue** numbers are based on VMY traverse data; **Green** numbers are based on MCPL traverse data; **Red** numbers are based on MCPL other site, pre-2014 data; "Pre-2014" refers to sites listed in MCPL (2013); ^ numbers are based on proportion (length) of dune burnt, assuming an even distribution of *Hibbertia* plants.

VMY TRAVERSE	MCPL HIBBERTIA SITE, 2014	MCPL OTHER SITE, PRE-2014	WAH SPECIMEN RECORD	NO. INDIVIDUALS	ESTIMATED NO. INDIVIDUALS IMPACTED BY NOVEMBER 2014 FIRE
25				30	30
26		VP043		25	25
28	HIBB014			25	25
30	HIBB001			119	119
31				20	20
35		JELLO05	PERTH 8424489	500	500
42	HIBB002		PERTH 2578751	450	0
60				250	250
62	HIBB005			950	950
63	HIBB006	VP007		1090	1090
69	HIBB003	VP036	PERTH 8424381	692	692
70	HIBB009			810	810
71	HIBB007			2400	2400
72				370	370
74	HIBB008			560	560
78		JELLO06		257	257
79		VP010		350	350
81	HIBB013	JELLO07		332	332
82				300	300
83				1089	1089
84	HIBB010			190	0
85	HIBB012			710	0
86		Heli 13		760	0
87				45	36^
88	HIBB011			865	0
89				800	338^
19002	HIBB015			66	66
N/A	HIBB016/DUNE010			113	113
61 (adjoins 62)	Near HIBB005	Heli 16		75 ± 25	75 ± 25
N/A		MURD031		26	26
<b>TOTAL NO. INDIVIDUALS (± ERROR ASSOCIATED WITH RANGE)</b>				<b>14,269 ± 25</b>	
<b>TOTAL NO. INDIVIDUALS IMPACTED BY NOVEMBER 2014 FIRE</b>					<b>10,823 ± 25</b>

Based on field observations, the phenology of *Hibbertia crispula* appears to be variable. VMY traverse photographs from January and February indicated plants with many flowers, whereas in the August survey it was estimated from observations that usually 50-60% of mature plants were in flower, but with fewer than five flowers per plant (usually 1-2 plants per cluster also with un-opened buds). According to WA and SA data sources, *Hibbertia crispula* flowers year-round (Table 2). It has been recorded flowering across 10 months of the year (Table 2).

**Table 2:** *Hibbertia crispula* flowering times collated from WA and SA data sources

**Note:** <sup>1</sup> Department of Environment, Water and Natural Resources (2007); <sup>2</sup> DPaW (2015b); <sup>3</sup> MCPL (2013; 2014).

DATA SOURCE	MONTH											
	J	F	M	A	M	J	J	A	S	O	N	D
eFlora SA <sup>1</sup>								X	X			
Dr. H. Toelken (unpublished notes)					X				X	X		
WAH records <sup>2</sup>				X			X		X			X
VMY traverse observations	X	X		X			X					
MCPL surveys <sup>3</sup>				X			X	X			X	

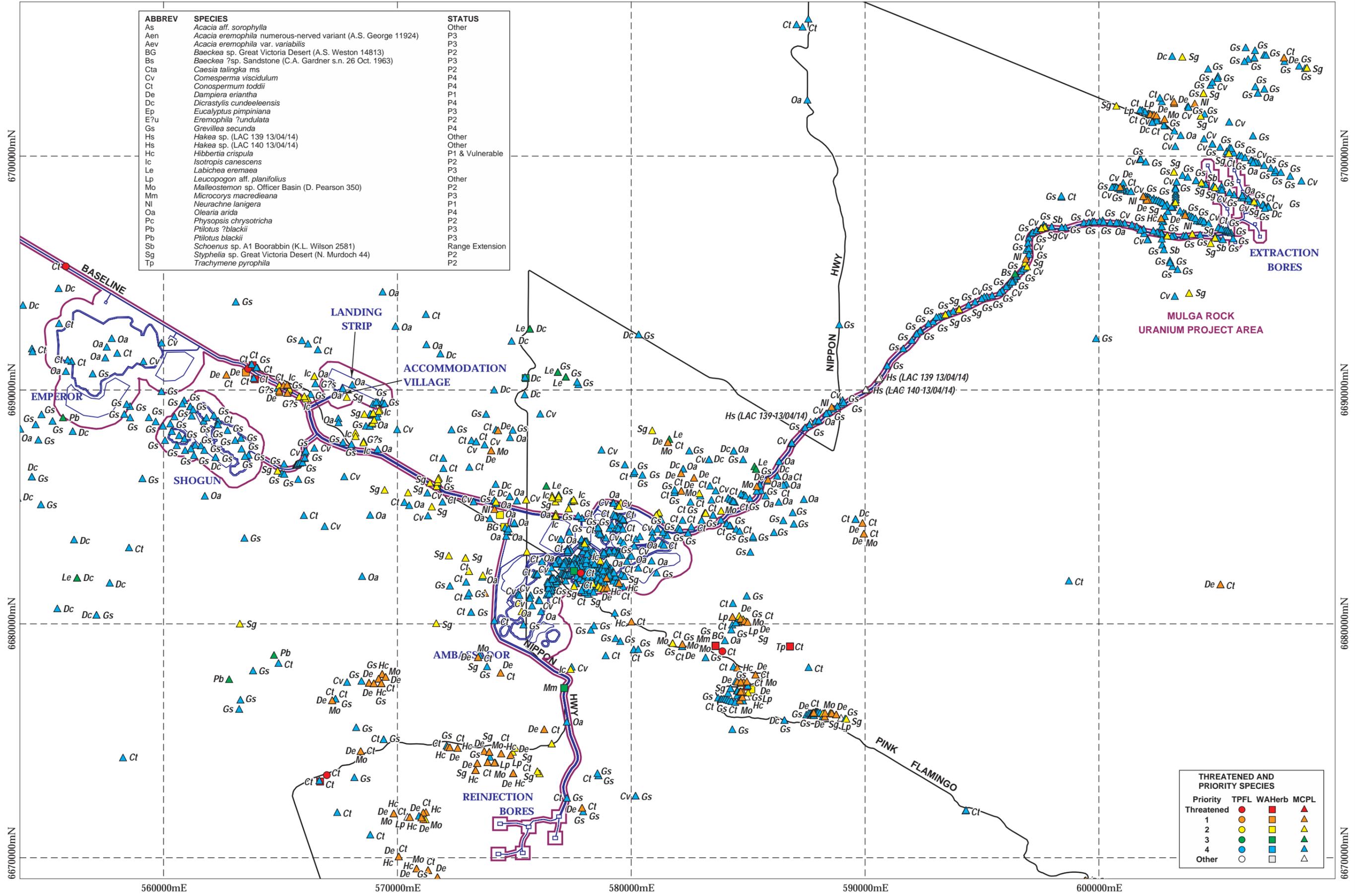
The November 2014 fire has affected approximately 74% of the recorded *Hibbertia crispula* individuals (Table 1). Field observations by VMY staff in February 2015 have indicated some survival and possible resprouting of individuals (Plate 5). The photographs in Plate 5 were from an opportunistic dune at 572555 mE, 6672935 mN (GDA94, Z51). This dune was not traversed by VMY staff or related to any MCPL HIBB sites. The impact of the fire to the *Hibbertia* plants may be related to the position on the dune crest, possibly in a depression in the dune crest, which may provide some *Hibbertia* plants with a degree of shielding from the fire front.



**Plate 5:** *Hibbertia crispula* post-November 2014 fire, February 2015 (Photographs by X. Moreau); **a)** some plants appear to have been only partially affected by fire; and **b)** others appear to be regrowing from the base

560000mE 570000mE 580000mE 590000mE 600000mE

ABBREV	SPECIES	STATUS
As	<i>Acacia aff. sorophylla</i>	Other
Aen	<i>Acacia eremophila</i> numerous-nerved variant (A.S. George 11924)	P3
Aev	<i>Acacia eremophila</i> var. <i>variabilis</i>	P3
BG	<i>Baeckea</i> sp. Great Victoria Desert (A.S. Weston 14813)	P2
Bs	<i>Baeckea</i> ?sp. Sandstone (C.A. Gardner s.n. 26 Oct. 1963)	P3
Cta	<i>Caesia talingka</i> ms	P2
Cv	<i>Comesperma viscidulum</i>	P4
Ct	<i>Conospermum toddii</i>	P4
De	<i>Dampiera eriantha</i>	P1
Dc	<i>Dicrastylis cundeleeensis</i>	P4
Ep	<i>Eucalyptus pimpiniana</i>	P3
E?u	<i>Eremophila ?undulata</i>	P2
Gs	<i>Grevillea secunda</i>	P4
Hs	<i>Hakea</i> sp. (LAC 139 13/04/14)	Other
Hs	<i>Hakea</i> sp. (LAC 140 13/04/14)	Other
Hc	<i>Hibbertia crispula</i>	P1 & Vulnerable
Ic	<i>Isotropis canescens</i>	P2
Le	<i>Labiichea eremaea</i>	P3
Lp	<i>Leucopogon aff. planifolius</i>	Other
Mo	<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2
Mm	<i>Microcorys macredieana</i>	P3
Nl	<i>Neurachne lanigera</i>	P1
Oa	<i>Olearia arida</i>	P4
Pc	<i>Physopsis chrysotricha</i>	P2
Pb	<i>Ptilotus ?blackii</i>	P3
Pb	<i>Ptilotus blackii</i>	P3
Sb	<i>Schoenus</i> sp. A1 Boorabbin (K.L. Wilson 2581)	Range Extension
Sg	<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44)	P2
Tp	<i>Trachymene pyrophila</i>	P2



Legend:  
 - Development Envelope  
 - Disturbance Footprint



Client:  
 Scale 1:150,000  
 MGA94 (Zone 51)  
 CAD Ref: g1756\_Hc\_f02.dgn  
 Date: Oct 2015 | Rev: B | A3

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**MULGA ROCK URANIUM PROJECT**  
**Priority Flora and**  
**Other Species of Interest**

### 5.3. Other Priority Flora and Species of Interest

Five other priority flora species were recorded during the August 2014 survey. The geographic locations of these records are listed in Appendix G and displayed in Figure 4. Threatened and priority flora report forms were originally submitted to the DPaW on 3<sup>rd</sup> September 2014. Forms for *Hibbertia crispula* and *Malleostemon* sp. Officer Basin (D. Pearson 350) were resubmitted to the DPaW on 4<sup>th</sup> March 2015 to reflect an upgraded threat to populations from fire. These forms are included as Appendix H. A brief description of each species is provided below:

- **PRIORITY 1:**

***Dampiera eriantha* – GOODENIACEAE** – an erect, perennial herb to 60 cm tall with purple flowers (DPaW 2015b; Plate 6a and 6b). This species is restricted to the Great Victoria Desert region, occurring on yellow sand dune ridges (DPaW 2015b). The WAH houses 14 specimens of *Dampiera eriantha* from the Great Victoria Desert region, mostly concentrated around the Mulga Rock Uranium Project area (DPaW 2015b). MCPL 2007-2010 and April 2014 surveys recorded 44 locations (MCPL 2013; MCPL 2014). *Dampiera eriantha* was recorded from a further 60 locations during the August 2014 dune traverses (plus re-confirmed at two previously recorded dunes) (Table 3). In addition to these locations, photographs taken by VMY personnel during the initial dune traverses confirm the presence of *Dampiera eriantha* at 36 locations.

- **PRIORITY 2:**

***Malleostemon* sp. Officer Basin (D. Pearson 350) – MYRTACEAE** – a shrub to 3 m tall, producing white flowers in December. This species occurs on yellow sand dune ridges (DPaW 2015b). The WAH houses 13 specimens of *Malleostemon* sp. Officer Basin (D. Pearson 350) from the Great Victoria Desert region, mostly concentrated around the Mulga Rock Uranium Project area (DPaW 2015b). MCPL 2007-2010 and April 2014 surveys recorded 21 locations (MCPL 2013; MCPL 2014). *Malleostemon* sp. Officer Basin (D. Pearson 350) was recorded from a further 27 locations during the August 2014 dune traverses (plus re-confirmed at two previously recorded dunes) (Table 3). In addition to these locations, photographs taken by VMY personnel during the initial dune traverses confirm the presence of *Malleostemon* sp. Officer Basin (D. Pearson 350) at 2 locations.

***Styphelia* sp. Great Victoria Desert (N. Murdock 44) – ERICACEAE** – a shrub to 50 cm tall, usually growing in low numbers on recently burnt and unburnt orange-yellow sandy slopes (Plate 7a and 7b; MCPL 2013). The WAH houses eight specimens of *Styphelia* sp. Great Victoria Desert (N. Murdock 44), mostly from the Mulga Rock Uranium Project area in the Officer Basin (DPaW 2014b). Four of these specimens collected by MCPL botanists in previous surveys now correspond to PERTH sheet numbers: 08214921 (NM044 21/7/2010); 08290288 (NM057 3/11/2010); 08290261 (MG022 2/11/2010); and 08290296 (NM055 2/11/2010).

MCPL 2007-2010 and April 2014 surveys recorded 38 locations (MCPL 2013; MCPL 2014). *Styphelia* sp. Great Victoria Desert (N. Murdock 44) was recorded from a further 21 locations during the August 2014 dune traverses (Table 3).

- **PRIORITY 4:**

***Conospermum toddii* – PROTEACEAE** – a spreading shrub to 2 m tall, producing white-yellow flowers from July to October (DPaW 2015b). This species occurs on the slopes and crests of yellow sand dunes mostly in the Great Victoria Desert region (and also the eastern Coolgardie region and northern Murchison region) (DPaW 2015b). The WAH houses 52 specimens of *Conospermum toddii* from areas within and surrounding the Mulga Rocks Project (DPaW 2015b). MCPL 2007-2010 and April 2014 surveys recorded 415 locations (MCPL 2013; MCPL 2014). *Conospermum toddii* was recorded from a further 50 locations during the August 2014 dune traverses (plus re-confirmed at three previously recorded dunes) (Table 3). In addition to these locations, photographs taken by VMY personnel during the initial dune traverses confirm the presence of *Conospermum toddii* at 50 locations.

***Grevillea secunda* – PROTEACEAE** – a low, spreading shrub to 80 cm tall, producing red flowers from September to October (DPaW 2015b; Plate 8a and 8b). This species occurs on yellow or red sand dunes and sandplains in the Coolgardie, Great Victoria Desert and Murchison regions (DPaW 2015b). The WAH houses 24 specimens of *Grevillea secunda* from areas to the west, north and east, as well as immediately surrounding the Mulga Rock Uranium Project (DPaW 2015b). MCPL 2007-2010 and April 2014 surveys recorded 531 locations (MCPL 2013; MCPL 2014). *Grevillea secunda* was recorded from a further 43 locations during the August 2014 dune traverses (plus re-confirmed at two previously recorded dunes) (Table 3). In addition to these locations, photographs taken by VMY personnel during the initial dune traverses confirm the presence of *Grevillea secunda* at 14 locations.



**Plate 6:** ***Dampiera eriantha* (P1)**  
**a)** habit, and **b)** inflorescence, August (Photographs by N. Murdock).



**Plate 7:** ***Styphelia* sp. Great Victoria Desert (N. Murdock 44) (P2)**  
**a)** inflorescence, April (Photograph by N. Murdock), and **b)** fruit, August (Photograph by S. Ruoss).



**Plate 8:** *Grevillea secunda* (P4)  
**a)** habit, and **b)** inflorescence, August (Photographs by N. Murdock).

Another flora species of interest, however lacking conservation status, was recorded during the August 2014 survey. The five associated specimens are awaiting further confirmation by M. Hislop at the WAH (as of 02/09/2014) but are referred to in this report and associated maps as *Leucopogon aff. planifolius*.

*Leucopogon planifolius* (ERICACEAE) is a (morphologically variable) shrub to 2 m that often occurs on grey or yellow sand over laterite in the Avon Wheatbelt, Esperance Plains, Geraldton Sandplains, Jarrah Forest, Mallee and Swan Coastal Plain regions (DPaW 2015b; Plate 9a and 9b). The specimens NM114, NM126, NM135, NM137 and NM147 (as well as specimen NM044 from the April 2014 survey) resemble this taxa, however, they represent an approximate 600 km extension to the currently known range. The MCPL (2014) survey recorded two locations. *Leucopogon aff. planifolius* was recorded from a further 14 locations during the August 2014 dune traverses (Table 3). In addition to these locations, photographs taken by VMY personnel during the initial dune traverses confirm the presence of *Leucopogon aff. planifolius* at two locations.



**Plate 9:** *Leucopogon aff. planifolius*  
**a)** habit and **b)** fruit, August (Photographs by S. Ruoss).

A more comprehensive analysis of impacts to these priority and other species and regional population numbers is provided in the *Assessment of flora and vegetation surveys conducted for the Mulga Rock Uranium Project, Great Victoria Desert, WA* (MCPL 2015).

**Table 3: Other priority flora records and species of interest associated with the Mulga Rock Uranium Project area, south-west corner of the Great Victoria Desert**

**Note:** <sup>1</sup> Data from August 2014 survey only; <sup>2</sup> Data combined from MCPL (2014) and MCPL priority species database; Number of individuals was calculated from the median (if recorded as a range), and the error associated with that range.

SPECIES	CONSERVATION STATUS	NO. LOCATIONS <sup>1</sup>	NO. INDIVIDUALS ± ERROR <sup>1</sup>	TOTAL NO. INDIVIDUALS ± ERROR FROM PREVIOUS MCPL SURVEYS <sup>2</sup>
<i>Dampiera eriantha</i>	P1	62	816 ± 0	563 ± 132
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350)	P2	29	799 ± 0	432 ± 132
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdock 44)	P2	21	50 ± 0	54 ± 0
<i>Conospermum toddii</i>	P4	53	4,591 ± 250	32,548 ± 3,252
<i>Grevillea secunda</i>	P4	45	219 ± 0	9,888 ± 674
<i>Leucopogon</i> aff. <i>planifolius</i>	Other	14	62 ± 0	6 ± 0

## 6. DISCUSSION

### 6.1. *Hibbertia crispula*

Natural events such as high rainfall and fires play a role in facilitating growth and inflorescence production, therefore the timing of surveys in this area can often be critical to a certain species being present or absent at the time of survey, or being collected with flowering or fruiting material. Based on data from the 2014 surveys only, the flowering of *Hibbertia crispula* may be reliant on heavy rainfall events. Higher than average monthly rainfall in November 2013 was experienced, followed by slightly below average rainfall in December 2013, prior to the January and February 2014 VMY dune traverses which noted a high abundance of flowering plants. This flowering appears to have been sustained until at least August 2014, when the MCPL targeted survey was conducted, and is likely to continue based on the presence of many un-opened buds on the *Hibbertia* shrubs. This fits in with the unpredictable and highly variable rainfall of the Great Victoria Desert region (Beard 1990; Shephard 1995), and may contribute to the almost year-round flowering period recorded across data sources from WA and SA surveys (Table 2).

Of the few *Hibbertia crispula* seedlings and mature shrubs partially excavated, all displayed a single, long tap-root with numerous lateral roots with no evidence of suckering roots connecting nearby plants. This does not support Toelken's hypothesis that the *Hibbertia* often grows in clusters, apparently suckering. However, no root/stem tissue was analysed in the current survey to support or reject this. Lateral and tap roots both play an important role in the plants survival on dune crests – they are required for maximal moisture and nutrient acquisition, and also for anchorage and stabilisation on the wind-blown soil surface (see an example of these root structures in Plate 10).



**Plate 10:** Exposed root structure of *Hibbertia crispula* (Photograph by A. Pratt, Soil Water Group)

MCPL field observations, whilst not conclusive, suggest that the *Hibbertia* does not reproduce vegetatively by underground sucker roots, but more likely reproduces by seeds. Whilst herbivory was noted on some seeds by insects and could be detrimental to the *Hibbertia*'s reproduction, it may also be beneficial as insects may play a role in dispersing the seed.

Some of the VMY traversed dunes had high (max. 2400) population numbers with plants recorded for up to 1100 m long areas, others had relatively low plant numbers (min. 20) within less than a 100 m length area (Table 1). No obvious differences were noted by MCPL botanists between the highly populated dunes and lower populated dunes during field surveys.

Field observations have also indicated that *Hibbertia crispula* does not tolerate fire, and no germination (or even remnant, resprouting shrubs) has been recorded on dunes burnt at least 10 years ago. The dune crests may act as a protective landform for flora (and even fauna) species occurring in this habitat, although fire scars and field observations indicate that many dunes are often affected by fire in the region. Fire, therefore may be a very high threat to the survival of these *Hibbertia* plants in and around the Mulga Rock Uranium Project area. However, in the *Approved conservation advice for Hibbertia crispula (Ooldea Guinea flower)*, the main threats outlined are exotic weeds, grazing by feral animals, and habitat fragmentation. No grazing was evident on the *Hibbertia* shrubs during the August 2014 survey.

These findings are intended to aid a morphological and molecular analysis to resolve the phylogenetic relationship between the WA and SA populations through ongoing investigations on *Hibbertia crispula*.

#### 6.1.1. Fire Impact

The impacts of the November 2014 fire on the survival and recruitment of *Hibbertia crispula* plants has not been documented as yet. Based on the November 2014 fire scar and site observations in February 2015 by VMY staff, it is estimated that approximately 76% (approximately 10,823 plants) of the combined VMY and MCPL *Hibbertia* records were potentially impacted by this fire. Observations at a single dune indicate that plants may be regenerating, or some at least surviving (with only part of the shrub affected by fire), which is encouraging but still inconclusive. It is recommended that a sub-set of the HIBB sites be re-monitored to directly compare before and after fire numbers, population distribution, health and reproduction methods.

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## 6.2. Other Priority Flora and Species of Interest

The S6 vegetation community supports a high number of priority flora species (MCPL 2013). With the exception of *Malleostemon* sp. Officer Basin (D. Pearson 350), these other priority species often occur on the sand dune crests, slopes and smaller undulating dunes. *Dampiera eriantha* (P1) and *Conospermum toddii* (P4) occur in high numbers on the yellow sand dune slopes and crests and, along with *Grevillea secunda* (P4), seem to respond well to fire, germinating and producing mass-flowers on dunes burnt five to ten years prior. *Malleostemon* sp. Officer Basin (D. Pearson 350), however, was often recorded in conjunction with the *Hibbertia crispula* on the unburnt dunes and does not appear to respond well to fire.

Localities and numbers of the Priority 2 species, *Styphelia* sp. Great Victoria Desert (N. Murdock 44), have increased greatly in recent surveys (from 54 individuals recorded in all previous MCPL surveys to 104 total after the August 2014 survey; Table 3). This highlights the rather under-surveyed nature of the Great Victoria Desert region, with many of the priority species recorded from the Mulga Rock Uranium Project area not necessarily having a restricted geographic distribution, but appearing restricted based on limited understanding of the flora and vegetation in the area.

Specimens resembling *Leucopogon planifolius* were recorded on the crest and slopes of yellow sand dunes. Whilst this taxa is not afforded any conservation status, morphological examination on a range of specimens from the survey area is required to examine whether they are consistently separable from *Leucopogon planifolius sensu lato* (in the broader sense). This will aid confirmation of whether or not these specimens represent a new taxon (pers. comm. M. Hislop - taxonomist at the WAH).

## 7. ACKNOWLEDGEMENTS

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## 8. PERSONNEL

The following MCPL personnel were involved in this project:

NAME	POSITION	PROJECT INVOLVEMENT	FLORA COLLECTION PERMIT
Dr EM Mattiske	Managing Director & Principal Ecologist	Planning, management, reporting	N/A
Ms N Murdock	Senior Botanist & Project Leader	Planning, fieldwork, data interpretation, reporting	SL010848 & 10-1314
Dr S Ruoss	Ecologist	Field work, assisting with data collation, report preparation	SL010852
Ms L Cockram	Experienced Botanist	Data interpretation	N/A
Ms E Joyce	Botanist	Field work, assisting with data collation, report preparation	SL011063
Mr B Ellery	Taxonomist	Plant identification	N/A
Ms K Tippur	Taxonomist	Plant identification	N/A

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## APPENDIX A1: DEFINITIONS OF CONSERVATION CODES FOR WESTERN AUSTRALIAN FLORA AND FAUNA

**Note:** Adapted from DPaW (2014a).

CATEGORY	DEFINITION
<b>T – Threatened species</b>	<p>Specially protected under the WC Act, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna, and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (may also be referred to as Declared Rare Flora). Includes 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.</p> <p>Threatened flora (and fauna) are further recognised by the DPaW according to their level of threat using the IUCN Red List criteria:</p> <ul style="list-style-type: none"> <li>• <b>CR:</b> Critically Endangered – considered to be facing an extremely high risk of extinction in the wild;</li> <li>• <b>EN:</b> Endangered – considered to be facing a very high risk of extinction in the wild; or</li> <li>• <b>VU:</b> Vulnerable – considered to be facing a high risk of extinction in the wild.</li> </ul>
<b>X – Presumed Extinct Flora</b>	<p>Specially protected under the WC Act, 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 (may also be referred to as Declared Rare Flora).</p> <p>Species that have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such.</p>
<b>P1 – Priority 1</b> (Poorly known species)	<p>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.</p>
<b>P2 – Priority 2</b> (Poorly known species)	<p>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.</p>
<b>P3 – Priority 3</b> (Poorly known species)	<p>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.</p>
<b>P4 – Priority 4</b> (Rare, Near Threatened and other species in need of monitoring)	<p><b>a) Rare</b> - 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.</p> <p><b>b) Near Threatened</b> - 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.</p> <p><b>c)</b> Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>
<b>P5 – Priority 5</b> (Conservation dependent species)	<p>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.</p>

## APPENDIX A2: FEDERAL DEFINITION OF THREATENED FLORA SPECIES

**Note:** Threatened flora (and fauna) may be listed in any one of the following categories as defined in Section 179 of the EPBC Act. <sup>1</sup> Species listed as 'Ex or 'CD' are not matters of national environmental significance and therefore do not trigger the EPBC Act. Adapted from DotE (2014a).

CATEGORY	DEFINITION
<b>Ex – Extinct<sup>1</sup></b>	Species are included in this category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
<b>ExW - Extinct in the Wild</b>	Species are included in this category at a particular time if, at that time, it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
<b>CE - Critically Endangered</b>	Species are included in this category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
<b>E - Endangered</b>	Species are included in this category at a particular time if, at that time, it is not critically endangered; and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.
<b>V - Vulnerable</b>	Species are included in this category at a particular time if, at that time, it is not critically endangered or endangered; and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
<b>CD – Conservation Dependent<sup>1</sup></b>	Species are included in this category at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or the following subparagraphs are satisfied: <ul style="list-style-type: none"> <li><b>i)</b> the species is a species of fish;</li> <li><b>ii)</b> the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;</li> <li><b>iii)</b> the plan of management is in force under a law of the Commonwealth or of a State or Territory;</li> <li><b>iv)</b> cessation of the plan of management would adversely affect the conservation status of the species.</li> </ul>

**APPENDIX B: SUMMARY OF VMY DUNE TRAVERSES AND ESTIMATED *HIBBERTIA CRISPULA* POPULATION NUMBERS, 2014**

**Note:** Data was collated from traverse data provided by VMY personnel. For all VMY traverses without an associated MCPL SITE, the presence of *Hibbertia crispula* was confirmed through numerous photographs of the plants along the dune.

		VMY TRAVERSE & SURVEY DATE									
		25 4/01/2014		26 5/01/2014		28 5/01/2014		30 7/01/2014		31 7/01/2014	
LOCATION		EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)
TRAVERSE	START	579543	6682129	578856	6681918	578972	6681749	578069	6681685	578031	6681276
	FINISH	510316	6681720	579210	6681949	579893	6681642	579324	6681500	578797	6681173
	TOTAL NO. INDIVIDUALS	30		25		20		25		20	
COUNT 1	START	579961	6681941	578872	6681908	579473	6681695	578770	6681455	578257	6681218
	FINISH			579148	6681934	579893	6681642	579002	6681500	578691	6681242
	NO. INDIVIDUALS	30		25		20		25		20	
COUNT 2	Start Finish NO. INDIVIDUALS										
COUNT 3	START FINISH NO. INDIVIDUALS										
COUNT 4	START FINISH NO. INDIVIDUALS										
COUNT 5	START FINISH NO. INDIVIDUALS										
COUNT 6	START FINISH NO. INDIVIDUALS										
ASSOCIATED MCPL SITE						HIBB014		HIBB001			

**APPENDIX B: SUMMARY OF VMY DUNE TRAVERSES AND ESTIMATED *HIBBERTIA CRISPULA* POPULATION NUMBERS, 2014**

**Note:** Data was collated from traverse data provided by VMY personnel. For all VMY traverses without an associated MCPL SITE, the presence of *Hibbertia crispula* was confirmed through numerous photographs of the plants along the dune.

		VRL TRAVERSE & SURVEY DATE									
		35 10/01/2014		42 13/01/2014		60 15/02/2014		62 16/02/2014		63 16/02/2014	
LOCATION		EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)
TRAVERSE	START	579838	6680046	584368	6678124	568877	6677846	568883	6677614	568722	6677406
	FINISH	580436	6680149	585511	6677777	569158	6677924	569764	6677711	569558	6677440
	TOTAL NO. INDIVIDUALS	500		450		250		950		1090	
COUNT 1	START	579872	6680036	584504	6678062	568977	6677864	568978	6677577	568745	6677404
	FINISH	580108	6680070	584588	6678091	569110	6677922	569625	6677683	569028	6677419
	NO. INDIVIDUALS	500		450		250		950		830	
COUNT 2	Start	580108	6680070	584739	6678061					569327	6677406
	Finish	580376	6680159	585467	6677766					569497	6677426
	NO. INDIVIDUALS									260	
COUNT 3	START										
	FINISH										
	NO. INDIVIDUALS										
COUNT 4	START										
	FINISH										
	NO. INDIVIDUALS										
COUNTS 5	START										
	FINISH										
	NO. INDIVIDUALS										
COUNT 6	START										
	FINISH										
	NO. INDIVIDUALS										
ASSOCIATED MCPL SITE				HIBB002				HIBB005		HIBB006	

**APPENDIX B: SUMMARY OF VMY DUNE TRAVERSES AND ESTIMATED *HIBBERTIA CRISPULA* POPULATION NUMBERS, 2014**

**Note:** Data was collated from traverse data provided by VMY personnel. For all VMY traverses without an associated MCPL SITE, the presence of *Hibbertia crispula* was confirmed through numerous photographs of the plants along the dune.

		VRL TRAVERSE & SURVEY DATE									
		69 18/01/2014		70 18/01/2014		71 19/01/2014		72 19/01/2014		74 20/01/2014	
LOCATION		EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)
TRAVERSE	START	571554	6674769	574303	6674380	572147	6674314	573750	6673906	572427	6673959
	FINISH	574294	6674442	576181	6674026	574888	6673934	574879	6673756	575152	6673498
	TOTAL NO. INDIVIDUALS	<b>692</b>		<b>810</b>		<b>2400</b>		<b>370</b>		<b>560</b>	
COUNT 1	START	572153	6674698	574438	6674406	573143	6674022	574140	6673838	573109	6673751
	FINISH	572311	6674666	575041	6674325	574419	6673997	574370	6673828	573180	6673729
	NO. INDIVIDUALS	<b>70</b>		<b>530</b>		<b>2400</b>		<b>370</b>		<b>30</b>	
COUNT 2	Start	572398	6674651	575139	6674278					573305	6673700
	Finish	572427	6674651	575479	6674207					573495	6673668
	NO. INDIVIDUALS	<b>22</b>		<b>280</b>						<b>150</b>	
COUNT 3	START	572515	6674637							573584	6673654
	FINISH	572802	6674642							573760	6673619
	NO. INDIVIDUALS	<b>260</b>								<b>170</b>	
COUNT 4	START	573694	6674512							574511	6673518
	FINISH	574102	6674440							574610	6673524
	NO. INDIVIDUALS	<b>340</b>								<b>90</b>	
COUNT 5	START									574834	6673565
	FINISH									573180	6673573
	NO. INDIVIDUALS									<b>20</b>	
COUNT 6	START									575016	6673505
	FINISH									575135	6673480
	NO. INDIVIDUALS									<b>100</b>	
ASSOCIATED MCPL SITE		<b>HIBB003</b>		<b>HIBB009</b>		<b>HIBB007</b>				<b>HIBB008</b>	

**APPENDIX B: SUMMARY OF VMY DUNE TRAVERSES AND ESTIMATED *HIBBERTIA CRISPULA* POPULATION NUMBERS, 2014**

**Note:** Data was collated from traverse data provided by VMY personnel. For all VMY traverses without an associated MCPL SITE, the presence of *Hibbertia crispula* was confirmed through numerous photographs of the plants along the dune.

		VRL TRAVERSE & SURVEY DATE									
		78 24/01/2014		79 25/01/2014		81 26/01/2014		82 26/01/2014		83 27/01/2014	
LOCATION		EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)
TRAVERSE	START	571041	6671737	569425	6671696	570375	6671701	570847	6671672	570287	6671334
	FINISH	571760	6671802	570024	6671832	571101	6671602	571268	6671610	572264	6670917
	TOTAL NO. INDIVIDUALS	257		350		332		300		1089	
COUNT 1	START	571098	6671876	569653	6671762	570517	6671681	571101	6671602	570584	6671297
	FINISH	571328	6671916	569928	6671835	570697	6671640	571236	6671605	571228	6671158
	NO. INDIVIDUALS	150		350		190		300		600	
COUNT 2	Start	571469	6671903			571008	6671550			571384	6671099
	Finish	571483	6671895			571101	6671602			571469	6671094
	NO. INDIVIDUALS	7				142				90	
COUNT 3	START	571679	6671818							571791	6671056
	FINISH	571738	6671802							571817	6671052
	NO. INDIVIDUALS	100								19	
COUNT 4	START									571846	6671009
	FINISH									572323	6670932
	NO. INDIVIDUALS									380	
COUNTS 5	START										
	FINISH										
	NO. INDIVIDUALS										
COUNT 6	START										
	FINISH										
	NO. INDIVIDUALS										
ASSOCIATED MCPL SITE						HIBB013					

**APPENDIX B: SUMMARY OF VMY DUNE TRAVERSES AND ESTIMATED *HIBBERTIA CRISPULA* POPULATION NUMBERS, 2014**

**Note:** Data was collated from traverse data provided by VMY personnel. For all VMY traverses without an associated MCPL SITE, the presence of *Hibbertia crispula* was confirmed through numerous photographs of the plants along the dune.

		VRL TRAVERSE & SURVEY DATE									
		84 29/01/2014		85 29/01/2014		86 29/01/2014		87 29/01/2014		88 30/01/2014	
LOCATION		EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)	EASTING (mE)	NORTHING (mN)
TRAVERSE	START	569751	6670104	570667	6669536	571207	6669163	572607	6669102	571883	6668819
	FINISH	570490	6669992	571431	6669425	572537	6668973	573514	6668856	572449	6668770
	TOTAL NO. INDIVIDUALS	190		710		760		45		865	
COUNT 1	START	570024	6670017	570747	6669487	571343	6669146	572763	6669029	571912	6668810
	FINISH	570244	6669991	570949	6669459	571883	6669066	572819	6669012	572416	6668784
	NO. INDIVIDUALS	190		340		510		45		865	
COUNT 2	Start			570985	6669449	572143	6668980				
	Finish			571358	6669419	572263	6688966				
	NO. INDIVIDUALS			370		150					
COUNT 3	START					572373	6668958				
	FINISH					572471	6668968				
	NO. INDIVIDUALS					100					
COUNT 4	START										
	FINISH										
	NO. INDIVIDUALS										
COUNT 5	START										
	FINISH										
	NO. INDIVIDUALS										
COUNT 6	START										
	FINISH										
	NO. INDIVIDUALS										
ASSOCIATED MCPL SITE		HIBB010		HIBB012						HIBB011	

**APPENDIX B: SUMMARY OF VMY DUNE TRAVERSES AND ESTIMATED *HIBBERTIA CRISPULA* POPULATION NUMBERS, 2014**

**Note:** Data was collated from traverse data provided by VMY personnel. For all VMY traverses without an associated MCPL SITE, the presence of *Hibbertia crispula* was confirmed through numerous photographs of the plants along the dune.

		<b>VRL TRAVERSE &amp; SURVEY DATE</b>	
		<b>89</b>	
		30/01/2014	
<b>LOCATION</b>		<b>EASTING (mE)</b>	<b>NORTHING (mN)</b>
<b>TRAVERSE</b>	<b>START</b>	572271	6668606
	<b>FINISH</b>	573509	6668590
	<b>TOTAL NO. INDIVIDUALS</b>	<b>800</b>	
<b>COUNT 1</b>	<b>START</b>	572282	6668608
	<b>FINISH</b>	572756	6668679
	<b>NO. INDIVIDUALS</b>	<b>580</b>	
<b>COUNT 2</b>	<b>Start</b>	572973	6668657
	<b>Finish</b>	573198	6668633
	<b>NO. INDIVIDUALS</b>	<b>130</b>	
<b>COUNT 3</b>	<b>START</b>	573363	6668593
	<b>FINISH</b>	573465	6668588
	<b>NO. INDIVIDUALS</b>	<b>90</b>	
<b>COUNT 4</b>	<b>START</b>		
	<b>FINISH</b>		
	<b>NO. INDIVIDUALS</b>		
<b>COUNTS</b>	<b>START</b>		
	<b>FINISH</b>		
	<b>NO. INDIVIDUALS</b>		
<b>COUNT 6</b>	<b>START</b>		
	<b>FINISH</b>		
	<b>NO. INDIVIDUALS</b>		
<b>ASSOCIATED MCPL SITE</b>			

**APPENDIX C: MCPL COLLECTED SPECIMEN LOCALITIES OF *HIBBERTIA CRISPULA* AND ASSOCIATED INFORMATION, AUGUST 2014**

**Note:** "Flw" = flowering; "Veg" = vegetative. Soil samples were collected at base of plant "A"; No *Hibbertia* was located at site HIBB004, therefore is not included in this appendix.

SITE	EAMA TRAVERSE	COLLECTION	VOUCHER SPECIMENS	DNA SAMPLE	"CLUSTER"	DISTANCE FROM A (m)	DIRECTION FROM A (°)	EASTING (mE)	NORTHING (mN)	SOIL SAMPLE	REPRODUCTIVE STAGE	PLANT WIDTH (m)	PLANT HEIGHT (m)	OTHER NOTES
HIBB001	30	LJ001 HC1A	2	Y	1	N/A	N/A	578831	6681459	SS LJ001	Flw/Veg	0.6	0.6	Only 2 mature flws
	30	LJ002 HC1B	2	Y	1	5.0	190	578832	6681456	No	Veg	-	-	
	30	LJ003 HC1C	2	Y	1	7.0	142	578837	6681454	No	Veg	-	-	
	30	LJ004 HC1D	2	Y	1	15.0	126	578845	6681453	No	Veg	-	-	
	30	LJ005 HC1E	2	Y	1	14.0	103	578844	6681457	No	Veg	-	-	
	30	LJ006 HC2A	2	Y	2	N/A	N/A	578970	6681498	SS LJ006	Flw	1.0	1.0	
	30	LJ007 HC2B	2	Y	2	6.0	141	578976	6681495	No	Flw/Veg	0.6	0.6	
	30	LJ008 HC2C	2	Y	2	10.0	64	578981	6681499	No	Flw	1.0	0.6	
	30	LJ009 HC2D	2	Y	2	10.0	71	578984	6681502	No	Flw	0.6	0.8	
	30	LJ010 HC2E	2	Y	2	20.0	72	578996	6681505	No	Flw	1.5	0.7	
HIBB002	42	LJ011 HC1A	2	Y	1	N/A	N/A	585443	6677770	SS LJ011	Flw	1.5	0.8	"Multi-stemmed"
	42	LJ012 HC1B	2	Y	1	1.0	184	585443	6677769	No	Flw/Bud	0.8	0.6	
	42	LJ013 HC1C	2	Y	1	7.0	246	585433	6677764	No	Flw	1.0	0.6	
	42	LJ014 HC1D	2	Y	1	6.5	246	585433	6677765	No	Flw	0.5	0.5	
	42	LJ015 HC1E	2	Y	1	10.0	270	585430	6677767	No	Flw	1.5	0.9	
	42	LJ016 HC2A	2	Y	2	N/A	N/A	584537	6678078	SS LJ016	Flw	0.5	0.5	
	42	LJ017 HC2B	2	Y	2	1.0	154	584535	6678078	No	Flw/Bud	0.8	0.7	
	42	LJ018 HC2C	2	Y	2	2.5	156	584535	6678078	No	Flw	0.6	0.5	
	42	LJ019 HC2D	0	Y	2	10.0	84	584550	6678078	No	Veg	0.05	0.1	
	42	LJ020 HC2E	2	Y	2	10.0	84	584550	6678078	No	-	-	-	
	42	LJ020 HC2E	2	Y	2	10.0	84	584550	6678078	No	-	-	-	Large plant; sand blown away to expose lateral roots.

**APPENDIX C: MCPL COLLECTED SPECIMEN LOCALITIES OF *HIBBERTIA CRISPULA* AND ASSOCIATED INFORMATION, AUGUST 2014**

**Note:** "Flw" = flowering; "Veg" = vegetative. Soil samples were collected at base of plant "A"; No *Hibbertia* was located at site HIBB004, therefore is not included in this appendix.

SITE	EAMA TRAVERSE	COLLECTION	VOUCHER SPECIMENS	DNA SAMPLE	"CLUSTER"	DISTANCE FROM A (m)	DIRECTION FROM A (°)	EASTING (mE)	NORTHING (mN)	SOIL SAMPLE	REPRODUCTIVE STAGE	PLANT WIDTH (m)	PLANT HEIGHT (m)	OTHER NOTES
HIBB003	69	LJ021 HC1A	2	Y	1	N/A	N/A	574073	6674454	SS LJ021	Flw	1.5	0.7	Only 1 flw Only 2 flws; poor condition Only 3 flws Only 1 flw Only 1 flw Many flws Many flws
	69	LJ022 HC1B	2	Y	1	2.0	310	574073	6674454	No	-	1.0	0.4	
	69	LJ023 HC1C	2	Y	1	5.0	217	574069	6674453	No	Flw	1.0	0.7	
	69	LJ024 HC1D	2	Y	1	5.0	142	574074	6674446	No	Flw	1.0	0.5	
	69	LJ025 HC1E	2	Y	1	10.0	290	574054	6674456	No	Flw	0.8	0.3	
	69	LJ030 HC2A	2	Y	2	N/A	N/A	572241	6674671	SS LJ030	Flw	1.0	0.6	
	69	LJ031 HC2B	2	Y	2	1.0	29	572241	6674672	No	Flw	0.8	0.6	
	69	LJ032 HC2C	2	Y	2	3.0	29	572242	6674673	No	Flw	1.0	0.8	
	69	LJ033 HC2D	2	Y	2	3.0	345	572242	6674674	No	Flw	0.8	0.7	
	69	LJ034 HC2E	2	Y	2	10.0	109	572263	6674665	No	Flw	1.0	0.5	
	69	LJ035 HC3A	2	Y	3	N/A	N/A	572567	6674644	SS LJ035	Flw	1.0	0.7	
	69	LJ036 HC3B	2	Y	3	7.0	80	572579	6674645	No	Flw	1.0	0.7	
	69	LJ037 HC3C	2	Y	3	5.5	90	572577	6674644	No	Flw	1.5	0.8	
	69	LJ038 HC3D	2	Y	3	5.5	142	572574	6674637	No	Flw	1.0	0.6	
69	LJ039 HC3E	2	Y	3	1.5	238	572566	6674642	No	Flw	0.9	0.6		
HIBB005	62	LJ040 HC1A	2	Y	1	N/A	N/A	569192	6677596	SS LJ040	Flw	1.0	0.5	Many flws Many flws Many flws Many flws Many flws Many flws
	62	LJ041 HC1B	2	Y	1	2.0	138	569199	6677598	No	Flw	1.0	0.5	
	62	LJ042 HC1C	2	Y	1	3.0	156	569198	6677597	No	Flw	0.8	0.6	
	62	LJ043 HC1D	2	Y	1	4.0	105	569200	6677599	No	Flw	0.8	0.6	
	62	LJ044 HC1E	2	Y	1	6.0	4	569199	6677609	No	Flw	0.5	0.5	
	62	LJ045 HC2A	2	Y	2	N/A	N/A	569501	6677683	SS LJ045	Flw	1.0	0.6	
	62	LJ046 HC2B	2	Y	2	12.0	42	569512	6677694	No	Flw	0.8	0.6	
	62	LJ047 HC2C	2	Y	2	16.0	42	569515	6677701	No	Flw	1.5	0.9	
	62	LJ048 HC2D	2	Y	2	16.0	50	569520	6677696	No	Flw	0.9	1.0	
	62	LJ049 HC2E	2	Y	2	20.0	80	569529	6677694	No	Flw	1.5	0.7	

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SITE	EAMA TRAVERSE	COLLECTION	VOUCHER SPECIMENS	DNA SAMPLE	"CLUSTER"	DISTANCE FROM A (m)	DIRECTION FROM A (°)	EASTING (mE)	NORTHING (mN)	SOIL SAMPLE	REPRODUCTIVE STAGE	PLANT WIDTH (m)	PLANT HEIGHT (m)	OTHER NOTES
HIBB006	63	LJ050 HC1A	2	Y	1	N/A	N/A	569461	6677428	SS LJ050	Flw	1.5	0.6	
	63	LJ051 HC1B	2	Y	1	1.5	28	569461	6677429	No	Flw	1.0	0.6	
	63	LJ052 HC1C	2	Y	1	4.0	157	569463	6677424	No	Flw	0.5	0.6	
	63	LJ053 HC1D	2	Y	1	5.0	182	569459	6677424	No	Flw	0.6	0.5	
	63	LJ054 HC1E	2	Y	1	8.0	218	569456	6677423	No	Flw	1.0	0.6	
	63	LJ055 HC2A	2	Y	2	N/A	N/A	568991	6677412	SS LJ055	Flw	1.0	1.0	
	63	LJ056 HC2B	2	Y	2	5.0	138	568994	6677407	No	Flw	1.5	1.0	
	63	LJ057 HC2C	2	Y	2	9.0	189	568991	6677406	No	Flw	1.0	0.6	Some mature leaves yellowing
	63	LJ058 HC2D	2	Y	2	3.0	133	568972	6677410	No	Flw	1.0	0.8	Only 2 flws
	63	LJ059 HC2E	2	Y	2	9.0	334	568987	6677422	No	Flw	1.5	1.0	Dead branches around base
HIBB007	71	LJ060 HC1A	2	Y	1	N/A	N/A	573426	6673990	SS LJ060	Flw	1.0	0.6	
	71	LJ061 HC1B	2	Y	1	2.5	328	573424	6673989	No	Flw	0.7	0.5	
	71	LJ062 HC1C	2	Y	1	5.0	22	573424	6673991	No	Flw	1.0	0.4	
	71	LJ063 HC1D	2	Y	1	8.0	22	573430	6673997	No	Flw	0.6	0.5	
	71	LJ064 HC1E	2	Y	1	11.0	58	573440	6674000	No	Flw	0.7	0.5	
	71	LJ065 HC2A	2	Y	2	N/A	N/A	573855	6674038	SS LJ065	Flw	2.0	0.5	
	71	LJ066 HC2B	2	Y	2	1.5	28	573855	6674038	No	Flw	0.7	0.7	
	71	LJ067 HC2C	2	Y	2	5.0	322	573853	6674039	No	Flw	0.6	0.5	
	71	LJ068 HC2D	2	Y	2	8.0	275	573847	6674039	No	Flw	0.8	0.6	
	71	LJ069 HC2E	2	Y	2	8.0	238	573849	6674032	No	Flw	1.0	0.5	
	71	LJ070 HC3A	2	Y	3	N/A	N/A	574153	6674021	SS LJ070	Flw	0.7	0.7	Many flws
	71	LJ071 HC3B	2	Y	3	1.5	332	574154	6674023	No	Flw	0.9	0.6	Many flws
	71	LJ072 HC3C	2	Y	3	1.0	294	574154	6674022	No	Flw	0.6	0.5	Many flws
	71	LJ073 HC3D	2	Y	3	3.0	160	574154	6674021	No	Flw	0.7	0.6	Many flws
71	LJ074 HC3E	2	Y	3	4.0	215	574154	6674021	No	Flw	0.6	0.6	Many flws	

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SITE	EAMA TRAVERSE	COLLECTION	VOUCHER SPECIMENS	DNA SAMPLE	"CLUSTER"	DISTANCE FROM A (m)	DIRECTION FROM A (°)	EASTING (mE)	NORTHING (mN)	SOIL SAMPLE	REPRODUCTIVE STAGE	PLANT WIDTH (m)	PLANT HEIGHT (m)	OTHER NOTES
HIBB008	74	LJ075 HC1A	2	Y	1	N/A	N/A	575081	6673469	SS LJ075	Flw	0.8	0.6	Many flws  Many flws Many flws Many flws Many flws  Many flws  Many flws  Many flws  "Multistemmed"; after digging to 15 cm depth a single tap root becomes apparent.
	74	LJ076 HC1B	2	Y	1	4.0	265	575076	6673469	No	Flw	1.0	0.4	
	74	LJ077 HC1C	2	Y	1	17.0	62	575100	6673476	No	Flw	1.0	0.8	
	74	LJ078 HC1D	2	Y	1	20.0	70	575104	6673478	No	Flw	0.9	0.9	
	74	LJ079 HC1E	2	Y	1	19.0	81	575104	6673473	No	Flw	0.7	0.8	
	74	LJ090 HC2A	2	Y	2	N/A	N/A	573343	6673396	SS LJ090	Flw	0.9	0.4	
	74	LJ091 HC2B	2	Y	2	2.0	275	573342	6673698	No	Flw	0.9	0.6	
	74	LJ092 HC2C	2	Y	2	3.0	288	573342	6673698	No	Flw	1.0	0.6	
	74	LJ093 HC2D	2	Y	2	4.0	84	573349	6673699	No	Flw	1.5	0.8	
	74	LJ094 HC2E	2	Y	2	25.0	82	573372	6673694	No	Flw	0.8	0.8	
	74	LJ095 HC3A	2	Y	3	N/A	N/A	573133	6673743	SS LJ095	Flw	1.0	0.8	
	74	LJ096 HC3B	2	Y	3	5.0	102	573136	6673741	No	Flw	0.4	0.2	
	74	LJ097 HC3C	2	Y	3	15.0	90	573148	6673743	No	Flw	1.0	0.7	
HIBB009	70	LJ080 HC1A	2	Y	1	N/A	N/A	574999	6674336	SS LJ080	Flw	0.9	0.7	Many flws Many flws  Many flws  Many flws  Many flws  Many flws  Many flws
	70	LJ081 HC1B	2	Y	1	3.5	144	574996	6674339	No	Flw	1.0	1.0	
	70	LJ082 HC1C	2	Y	1	3.5	236	574995	6674335	No	Flw	0.6	0.9	
	70	LJ083 HC1D	2	Y	1	5.5	236	574994	6674334	No	Flw	0.8	0.7	
	70	LJ084 HC1E	2	Y	1	10.0	236	574987	6674329	No	Flw	1.0	0.9	
	70	LJ085 HC2A	2	Y	2	N/A	N/A	574437	6674410	SS LJ085	Flw	0.7	0.6	
	70	LJ086 HC2B	2	Y	2	3.5	151	574440	6674407	No	Flw	0.8	0.7	
	70	LJ087 HC2C	2	Y	2	4.5	143	574442	6674406	No	Flw	0.6	0.5	
	70	LJ088 HC2D	2	Y	2	6.0	116	574444	6674407	No	Flw	0.6	0.6	
	70	LJ089 HC2E	2	Y	2	10.0	106	574448	6674408	No	Flw	1.0	0.4	

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SITE	EAMA TRAVERSE	COLLECTION	VOUCHER SPECIMENS	DNA SAMPLE	"CLUSTER"	DISTANCE FROM A (m)	DIRECTION FROM A (°)	EASTING (mE)	NORTHING (mN)	SOIL SAMPLE	REPRODUCTIVE STAGE	PLANT WIDTH (m)	PLANT HEIGHT (m)	OTHER NOTES
HIBB010	84	LJ098 HC1A	2	Y	1	N/A	N/A	570054	6670005	SS LJ098	Flw	1.0	0.8	On steep, N slope of dune; generally flowering more than plants on crest. On steep, N slope of dune; generally flowering more than plants on crest. On steep, N slope of dune; generally flowering more than plants on crest. On steep, N slope of dune; generally flowering more than plants on crest. On steep, N slope of dune; generally flowering more than plants on crest. On steep, N slope of dune; many flws
	84	LJ099 HC1B	2	Y	1	3.5	27	570056	6670007	No	Flw	0.8	0.6	
	84	LJ100 HC1C	2	Y	1	8.0	331	570053	6670013	No	Flw	0.8	0.5	
	84	LJ101 HC1D	2	Y	1	8.0	350	570052	6670013	No	Flw	1.0	0.7	
	84	LJ102 HC1E	2	Y	1	15.0	302	570049	6670014	No	Flw	0.6	0.6	
	84	LJ103 HC1F	2	Y	1	15.0	290	570049	6670016	No	Flw	0.6	0.8	
	84	LJ104 HC1G	2	Y	1	20.0	325	570047	6670017	No	Flw	0.6	0.8	
HIBB011	88	LJ105 HC1A	2	Y	1	N/A	N/A	572318	6668780	SS LJ105	Flw	0.8	0.8	Thick stem; branches not in contact with with sand like other shrubs which appear more "multistemmed".
	88	LJ106 HC1B	2	Y	1	4.0	61	572321	6668781	No	Flw	1.0	0.8	"Multi-stemmed"
	88	LJ107 HC1C	2	Y	1	5.0	70	572325	6668781	No	Flw	0.9	0.8	"Multi-stemmed"
	88	LJ108 HC1D	2	Y	1	8.0	110	572329	6668777	No	Flw	0.9	0.6	"Multi-stemmed"
	88	LJ109 HC1E	2	Y	1	8.0	150	572324	6668774	No	Flw	0.9	0.7	"Multi-stemmed"
	88	LJ110 HC1F	2	Y	1	6.0	167	572321	6668773	No	Flw	1.0	0.6	"Multi-stemmed"
	88	LJ111 HC1G	2	Y	1	5.0	266	572312	6668780	No	Flw	1.0	0.7	"Multi-stemmed"

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SITE	EAMA TRAVERSE	COLLECTION	VOUCHER SPECIMENS	DNA SAMPLE	"CLUSTER"	DISTANCE FROM A (m)	DIRECTION FROM A (°)	EASTING (mE)	NORTHING (mN)	SOIL SAMPLE	REPRODUCTIVE STAGE	PLANT WIDTH (m)	PLANT HEIGHT (m)	OTHER NOTES
HIBB012	85	LJ112 HC1A	2	Y	1	N/A	N/A	571316	6669421	SS LJ112	Flw	0.9	0.7	"Multi-stemmed"; insect egg sack on leaves
	85	LJ113 HC1B	2	Y	1	2.0	274	571316	6669422	No	Flw	0.9	0.8	"Multi-stemmed"
	85	LJ114 HC1C	2	Y	1	5.0	149	571314	6669419	No	Flw	0.6	0.7	Many flws; "multi-stemmed"
	85	LJ115 HC1D	2	Y	1	6.0	55	571316	6669419	No	Flw	0.6	0.6	"Multi-stemmed"
	85	LJ116 HC1E	2	Y	1	6.0	80	571318	6669421	No	Flw	0.6	0.7	"Multi-stemmed"
	85	LJ117 HC2A	2	Y	2	N/A	N/A	570822	6669480	? SS LJ117	Flw	0.7	0.7	"Multi-stemmed"
	85	LJ118 HC2B	2	Y	2	4.0	127	570825	6669476	No	Flw	1.0	1.0	Exposed roots, has many stems connected to thick taproot; does not appear to be connected to other plants
	85	LJ119 HC2C	2	Y	2	9.0	117	570829	6669473	No	Flw	0.6	0.4	Single-stemmed
	85	LJ120 HC2D	2	Y	2	11.0	85	570833	6669479	No	Flw	0.8	0.9	"Multi-stemmed"; connected to thick single root/stem with taproot
85	LJ121 HC2E	2	Y	2	15.0	72	570837	6669483	No	-	1.5	0.6	"Multi-stemmed"	
HIBB013	81	LJ122 HC1A	2	Y	1	N/A	N/A	570527	6671685	SS LJ122	Flw	0.9	0.5	"Multi-stemmed"
	81	LJ123 HC1B	2	Y	1	1.0	213	570527	6671685	No	Flw	1.0	0.6	"Multi-stemmed"
	81	LJ124 HC1C	2	Y	1	2.5	208	570526	6671682	No	Flw	0.6	0.6	"Multi-stemmed"
	81	LJ125 HC1D	2	Y	1	7.0	258	570517	6671684	No	Flw	1.0	0.7	"Multi-stemmed"
	81	LJ126 HC1E	2	Y	1	5.0	264	570519	6671685	No	Flw	0.9	0.7	"Multi-stemmed"
HIBB014	28	LJ127 HC1A	2	Y	1	N/A	N/A	579478	6681695	SS LJ127	Veg	0.9	0.6	"Multi-stemmed"
	28	LJ128 HC1B	2	Y	1	5.0	252	579471	6681695	No	-	0.7	0.6	"Multi-stemmed"
	28	LJ129 HC1C	2	Y	1	8.0	120	579487	6681688	No	Veg	0.6	0.6	"Multi-stemmed"
	28	LJ130 HC1D	2	Y	1	10.0	107	579492	6681689	No	Veg	1.0	0.8	"Multi-stemmed"
	28	LJ131 HC1E	2	Y	1	13.0	110	579498	6681688	No	Veg	0.5	0.4	"Multi-stemmed"

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SITE	EAMA TRAVERSE	COLLECTION	VOUCHER SPECIMENS	DNA SAMPLE	"CLUSTER"	DISTANCE FROM A (m)	DIRECTION FROM A (°)	EASTING (mE)	NORTHING (mN)	SOIL SAMPLE	REPRODUCTIVE STAGE	PLANT WIDTH (m)	PLANT HEIGHT (m)	OTHER NOTES
HIBB015	19002	LJ132 HC1A	2	Y	1	N/A	N/A	584703	6677060	SS LJ132	Flw	0.8	0.8	Single stemmed
	19002	LJ133 HC1B	2	Y	1	4.0	75	584701	6677058	No	Flw	0.8	0.7	"Multi-stemmed"
	19002	LJ134 HC1C	2	Y	1	4.0	94	584707	6677054	No	Flw	1.0	0.7	"Multi-stemmed"
	19002	LJ135 HC1D	2	Y	1	15.0	107	584720	6677050	No	Flw	1.0	0.9	"Multi-stemmed"
	19002	LJ136 HC1E	2	Y	1	20.0	100	584729	6677050	No	-	1.2	0.9	"Multi-stemmed"
HIBB016	NEW	LJ137 HC1A	2	Y	1	N/A	N/A	584694	6677470	SS LJ137	Flw	0.9	0.7	"Multi-stemmed"
	NEW	LJ138 HC1B	2	Y	1	1.0	96	584695	6677470	No	Flw	0.7	0.7	"Multi-stemmed"
	NEW	LJ139 HC1C	2	Y	1	7.0	254	584687	6677468	No	Flw	0.8	0.8	Many flws; "multi-stemmed"
	NEW	LJ140 HC1D	2	Y	1	6.0	240	584689	6677468	No	Flw	0.5	0.6	Many flws; "multi-stemmed"
	NEW	LJ141 HC1E	2	Y	1	5.0	290	584689	6677472	No	Flw	1.5	1.0	"Multi-stemmed"

**APPENDIX D: PHOTOGRAPHIC RECORDS OF MCPL *HIBBERTIA CRISPULA* SITES, AUGUST 2014**



**Site:** HIBB001  
**Corner:** NW  
**Photograph facing:** E-NE



**Site:** HIBB001  
**Corner:** NE  
**Photograph facing:** W-SW



**Site:** HIBB002  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB002  
**Corner:** NE  
**Photograph facing:** W



**Site:** HIBB003  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB003  
**Corner:** NE  
**Photograph facing:** W

**APPENDIX D: PHOTOGRAPHIC RECORDS OF MCPL *HIBBERTIA CRISPULA* SITES, AUGUST 2014**



**Site:** HIBB005  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB005  
**Corner:** NE  
**Photograph facing:** W



**Site:** HIBB006  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB006  
**Corner:** NE  
**Photograph facing:** W



**Site:** HIBB007  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB007  
**Corner:** NE  
**Photograph facing:** W

**APPENDIX D: PHOTOGRAPHIC RECORDS OF MCPL *HIBBERTIA CRISPULA* SITES, AUGUST 2014**



**Site:** HIBB008  
**Corner:** NW  
**Photograph facing:** SE



**Site:** HIBB008  
**Corner:** NE  
**Photograph facing:** W-SW



**Site:** HIBB009  
**Corner:** NW  
**Photograph facing:** E-NE



**Site:** HIBB009  
**Corner:** NE  
**Photograph facing:** W-SW



**Site:** HIBB010  
**Corner:** NW  
**Photograph facing:** E-SE



**Site:** HIBB010  
**Corner:** NE  
**Photograph facing:** W-SW

**APPENDIX D: PHOTOGRAPHIC RECORDS OF MCPL *HIBBERTIA CRISPULA* SITES, AUGUST 2014**



**Site:** HIBB011  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB011  
**Corner:** NE  
**Photograph facing:** W-SW



**Site:** HIBB012  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB012  
**Corner:** NE  
**Photograph facing:** W



**Site:** HIBB013  
**Corner:** NW  
**Photograph facing:** E-SE



**Site:** HIBB013  
**Corner:** NE  
**Photograph facing:** E

**APPENDIX D: PHOTOGRAPHIC RECORDS OF MCPL *HIBBERTIA CRISPULA* SITES, AUGUST 2014**



**Site:** HIBB014  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB014  
**Corner:** NE  
**Photograph facing:** W



**Site:** HIBB015  
**Corner:** NW  
**Photograph facing:** E



**Site:** HIBB015  
**Corner:** NE  
**Photograph facing:** W



**Site:** HIBB016  
**Corner:** NW  
**Photograph facing:** E-NE



**Site:** HIBB016  
**Corner:** NE  
**Photograph facing:** W-NW

**APPENDIX F: PRIORITY (AND OTHER) FLORA SPECIES LOCATIONS RECORDED DURING THE MCPL SURVEY, AUGUST 2014**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); V - denotes Vulnerable flora species (DotE 2015); <sup>1</sup> Habitat condition is based on categories P - Pristine, E - Excellent defined in Keighery (1994); <sup>2</sup> Reproductive stage includes Flw - flowering, Bud - flower buds, Frt - Fruiting, Veg - vegetative; <sup>3</sup> Plant health was categorised as either H - healthy or SS - slightly stressed.

GDA94 Z51							NO. OF INDIVIDUALS				HABITAT CONDITION <sup>1</sup>	COUNT AREA (ha)	REPRODUCTIVE STAGE <sup>2</sup>	PLANT HEALTH <sup>3</sup>
SPECIES	EASTING (mE)	NORTHING (mN)	DATE	MCPL SURVEY TYPE	MCPL SITE	VMY TRAVERSE	TOTAL	ALIVE	DEAD	JUVENILE				
<i>Hibbertia crispula</i> (P1 & Vulnerable)	569496	6677683	11/08/2014	Dune Traverse	HIBB005_2	62	-	-	-	-	-	-	-	-
	568992	6677410	11/08/2014	Dune Traverse	HIBB006_2	63	32	32	0	0	-	-	Flw/Bud	-
	572581	6674645	10/08/2014	Dune Traverse	HIBB003_3	69	-	-	-	-	-	-	-	-
	574440	6674407	12/08/2014	Dune Traverse	HIBB009_2	70	26	26	0	0	-	0.1000	Flw/Bud	-
	573862	6674037	11/08/2014	Dune Traverse	HIBB007_2	71	40	40	0	0	-	0.4000	Flw/Bud	-
	574154	6674023	11/08/2014	Dune Traverse	HIBB007_3	71	38	35	3	0	-	-	Flw/Bud	SS/H
	573346	6673699	12/08/2014	Dune Traverse	HIBB008_2	74	15	15	0	0	-	0.1000	Flw/Bud	-
	571312	6669423	13/08/2014	Dune Traverse	HIBB012_1	85	27	25	0	2	-	0.1000	Flw/Bud	-
	584532	6677480	14/08/2014	Dune Traverse	HIBB016_1/DUNE010	N/A	106	102	0	4	-	0.3200	-	-
	584948	6677492	14/08/2014	Dune Traverse	HIBB016_1/DUNE010	N/A	231	219	0	12	-	0.2800	-	-
	578970	6681498	9/08/2014	Hc Sample Site	HIBB001_2	30	-	-	-	-	-	-	-	-
	584537	6678078	9/08/2014	Hc Sample Site	HIBB002_2	42	-	-	-	-	-	-	-	-
	572241	6674671	10/08/2014	Hc Sample Site	HIBB003_2	69	-	-	-	-	-	-	-	-
	579481	6681700	13/08/2014	Vegetation Site	HIBB014	28	25	19	0	6	E	0.2500	-	-
	578829	6681464	9/08/2014	Vegetation Site	HIBB001	30	119	85	0	34	E	0.2500	-	-
	585316	6677779	9/08/2014	Vegetation Site	HIBB002	42	138	138	0	0	P	0.2500	-	-
	569199	6677607	11/08/2014	Vegetation Site	HIBB005	62	179	169	0	10	P	0.2500	-	-
	569315	6677414	11/08/2014	Vegetation Site	HIBB006	63	194	186	0	8	P	0.2500	-	-
	573929	6674479	9/08/2014	Vegetation Site	HIBB003	69	92	92	0	0	P	0.2500	-	-
	574848	6674343	12/08/2014	Vegetation Site	HIBB009	70	111	104	0	7	P	0.2500	-	-
	573417	6673998	11/08/2014	Vegetation Site	HIBB007	71	228	217	0	11	P	0.2500	-	-
	574954	6673568	12/08/2014	Vegetation Site	HIBB008	74	13	12	0	1	P	0.2500	-	-
	570530	6671688	13/08/2014	Vegetation Site	HIBB013	81	131	102	0	29	P	0.2500	-	-
	570058	6670007	12/08/2014	Vegetation Site	HIBB010	84	80	74	0	6	P	0.2500	-	-
	570821	6669489	13/08/2014	Vegetation Site	HIBB012	85	82	69	0	13	P	0.2500	-	-
	572170	6668771	13/08/2014	Vegetation Site	HIBB011	88	241	232	0	9	P	0.2500	-	-
	584685	6677477	14/08/2014	Vegetation Site	HIBB016/DUNE010	N/A	113	95	0	18	E	0.2500	-	-
584690	6677062	14/08/2014	Vegetation Site	HIBB015	19002	66	60	3	3	E	0.2500	-	-	
<i>Dampiera eriantha</i> (P1)	569496	6677683	11/08/2014	Dune Traverse	HIBB005_2	62	22	22	0	0	-	0.1500	Flw	-
	568992	6677410	11/08/2014	Dune Traverse	HIBB006_2	63	11	11	0	0	-	-	Flw/Bud	-
	572245	6674670	10/08/2014	Dune Traverse	HIBB003_2	69	2	2	0	0	-	0.0200	Veg	-
	572581	6674645	10/08/2014	Dune Traverse	HIBB003_3	69	2	2	0	0	-	-	-	-
	574440	6674407	12/08/2014	Dune Traverse	HIBB009_2	70	2	2	0	0	-	0.1000	Flw/Bud	-
	573862	6674037	11/08/2014	Dune Traverse	HIBB007_2	71	7	7	0	0	-	0.4000	Bud	-
	573346	6673699	12/08/2014	Dune Traverse	HIBB008_2	74	4	4	0	0	-	0.1000	Flw/Bud	-
	571312	6669423	13/08/2014	Dune Traverse	HIBB012_1	85	1	1	0	0	-	0.1000	Bud	-
	584331	6680252	14/08/2014	Dune Traverse	N/A	8001	64	64	0	0	-	0.7200	-	-
	584677	6680178	14/08/2014	Dune Traverse	N/A	9001	1	1	0	0	-	0.2300	-	-
	584980	6680028	14/08/2014	Dune Traverse	N/A	10001	23	23	0	0	-	1.0600	Flw	H
	584847	6680077	14/08/2014	Dune Traverse	N/A	11001	16	16	0	0	-	0.1400	Flw	H
	587737	6676125	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	0.0004	Flw	H
	587749	6676138	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	0.0004	Flw	H
	587757	6676133	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	0.0004	Flw	H
	587766	6676143	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	0.0004	Flw	H
	587798	6676162	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Flw	H
	587806	6676156	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	0.0025	Flw	H
	588290	6676145	14/08/2014	Dune Traverse	N/A	15002	19	19	0	0	-	0.9000	-	-
	588578	6676130	14/08/2014	Dune Traverse	N/A	15002	13	13	0	0	-	0.3400	-	-
	588768	6676078	14/08/2014	Dune Traverse	N/A	15002	8	8	0	0	-	0.6000	-	-
	588277	6675991	14/08/2014	Dune Traverse	N/A	17002	25	25	0	0	-	1.8400	Veg/Flw/Bud	-
	584731	6676822	14/08/2014	Dune Traverse	N/A	20002	49	49	0	0	-	0.6600	Flw/Bud	-
	584754	6676825	14/08/2014	Dune Traverse	N/A	20002	0	-	0	0	-	-	-	-
	584646	6676678	14/08/2014	Dune Traverse	N/A	21002	3	3	0	0	-	0.0050	Flw	H
	602972	6668346	10/08/2014	Dune Traverse	HIBB004	N/A	3	3	0	0	-	0.0100	-	-
	603000	6668363	10/08/2014	Dune Traverse	HIBB004	N/A	10	10	0	0	-	0.0100	-	-
603035	6668368	10/08/2014	Dune Traverse	HIBB004	N/A	5	5	0	0	-	0.0100	-	-	

**APPENDIX F: PRIORITY (AND OTHER) FLORA SPECIES LOCATIONS RECORDED DURING THE MCPL SURVEY, AUGUST 2014**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); V - denotes Vulnerable flora species (DotE 2015); <sup>1</sup> Habitat condition is based on categories P - Pristine, E - Excellent defined in Keighery (1994); <sup>2</sup> Reproductive stage includes Flw - flowering, Bud - flower buds, Frt - Fruiting, Veg - vegetative; <sup>3</sup> Plant health was categorised as either H - healthy or SS - slightly stressed.

GDA94 Z51							NO. OF INDIVIDUALS				HABITAT CONDITION <sup>1</sup>	COUNT AREA (ha)	REPRODUCTIVE STAGE <sup>2</sup>	PLANT HEALTH <sup>3</sup>
SPECIES	EASTING (mE)	NORTHING (mN)	DATE	MCPL SURVEY TYPE	MCPL SITE	VMY TRAVERSE	TOTAL	ALIVE	DEAD	JUVENILE				
<i>Dampiera eriantha</i> (P1) (continued)	603062	6668368	10/08/2014	Dune Traverse	HIBB004	N/A	5	5	0	0	-	0.0100	-	-
	603185	6668462	10/08/2014	Dune Traverse	HIBB004	N/A	35	30	0	5	-	0.3200	-	-
	603457	6668394	10/08/2014	Dune Traverse	HIBB004	N/A	3	3	0	0	-	0.0100	-	-
	584690	6677470	14/08/2014	Dune Traverse	HIBB016_1/DUNE010	N/A	21	21	0	0	-	0.4500	-	-
	584810	6677475	14/08/2014	Dune Traverse	HIBB016/DUNE010	N/A	42	42	0	0	-	0.2800	-	-
	584653	6677058	14/08/2014	Dune Traverse	HIBB015	19002	18	18	0	0	-	0.1000	-	-
	584772	6677042	14/08/2014	Dune Traverse	HIBB015	19002	24	24	0	0	-	0.5000	-	-
	599389	6668961	10/08/2014	Dune Traverse	OPPO008/DUNE008	N/A	1	1	0	0	-	-	Flw	-
	599400	6668973	10/08/2014	Dune Traverse	OPPO008/DUNE008	N/A	1	1	0	0	-	-	Flw	-
	599437	6668993	10/08/2014	Dune Traverse	OPPO008/DUNE008	N/A	1	1	0	0	-	-	Flw	-
	600342	6668806	10/08/2014	Dune Traverse	OPPO005/DUNE006	N/A	20	19	1	0	-	0.3200	Flw	H
	601147	6668023	10/08/2014	Dune Traverse	OPPO007/DUNE005	N/A	1	1	0	0	-	-	Flw	-
	601164	6668014	10/08/2014	Dune Traverse	OPPO007/DUNE005	N/A	3	3	0	0	-	0.0100	Flw	-
	601234	6668031	10/08/2014	Dune Traverse	OPPO007/DUNE005	N/A	1	1	0	0	-	-	Flw	-
	601251	6668026	10/08/2014	Dune Traverse	OPPO007/DUNE005	N/A	3	3	0	0	-	0.0025	Flw	-
	601660	6668047	10/08/2014	Dune Traverse	OPPO005/DUNE005	N/A	52	48	2	2	-	0.7500	-	-
	601688	6668124	10/08/2014	Dune Traverse	OPPO006/DUNE004	N/A	4	4	0	0	-	-	-	-
	601867	6667522	10/08/2014	Dune Traverse	OPPO005/DUNE003	N/A	19	19	0	0	-	0.1200	-	-
	602029	6667421	10/08/2014	Dune Traverse	OPPO005/DUNE003	N/A	3	3	0	0	-	0.0025	Flw/Bud	-
	602617	6667435	10/08/2014	Dune Traverse	OPPO005/DUNE002	N/A	4	4	0	0	-	-	-	-
	579481	6681700	13/08/2014	Vegetation Site	HIBB014	28	19	19	0	0	E	0.2500	-	-
	578829	6681464	9/08/2014	Vegetation Site	HIBB001	30	10	10	0	0	E	0.2500	-	-
	585316	6677779	9/08/2014	Vegetation Site	HIBB002	42	15	15	0	0	P	0.2500	-	-
	569199	6677607	11/08/2014	Vegetation Site	HIBB005	62	29	23	4	2	P	0.2500	-	-
	569315	6677414	11/08/2014	Vegetation Site	HIBB006	63	19	19	0	0	P	0.2500	-	-
	573929	6674479	9/08/2014	Vegetation Site	HIBB003	69	14	14	0	0	P	0.2500	-	-
	573417	6673998	11/08/2014	Vegetation Site	HIBB007	71	27	27	0	0	P	0.2500	-	-
	574954	6673568	12/08/2014	Vegetation Site	HIBB008	74	5	5	0	0	P	0.2500	-	-
	570530	6671688	13/08/2014	Vegetation Site	HIBB013	81	29	28	1	0	P	0.2500	-	-
	570058	6670007	12/08/2014	Vegetation Site	HIBB010	84	23	23	0	0	P	0.2500	-	-
	570821	6669489	13/08/2014	Vegetation Site	HIBB012	85	11	7	0	4	P	0.2500	-	-
	572170	6668771	13/08/2014	Vegetation Site	HIBB011	88	3	3	0	0	P	0.2500	-	-
	584685	6677477	14/08/2014	Vegetation Site	HIBB016/DUNE010	N/A	27	26	1	0	E	0.2500	-	-
584690	6677062	14/08/2014	Vegetation Site	HIBB015	19002	22	22	0	0	E	0.2500	-	-	

**APPENDIX F: PRIORITY (AND OTHER) FLORA SPECIES LOCATIONS RECORDED DURING THE MCPL SURVEY, AUGUST 2014**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); V - denotes Vulnerable flora species (DotE 2015); <sup>1</sup> Habitat condition is based on categories P - Pristine, E - Excellent defined in Keighery (1994); <sup>2</sup> Reproductive stage includes Flw - flowering, Bud - flower buds, Frt - Fruiting, Veg - vegetative; <sup>3</sup> Plant health was categorised as either H - healthy or SS - slightly stressed.

GDA94 Z51							NO. OF INDIVIDUALS				HABITAT CONDITION <sup>1</sup>	COUNT AREA (ha)	REPRODUCTIVE STAGE <sup>2</sup>	PLANT HEALTH <sup>3</sup>
SPECIES	EASTING (mE)	NORTHING (mN)	DATE	MCPL SURVEY TYPE	MCPL SITE	VMY TRAVERSE	TOTAL	ALIVE	DEAD	JUVENILE				
<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350) (P2)	568992	6677410	11/08/2014	Dune Traverse	HIBB006_2	63	9	9	0	0	-	-	Veg	-
	574440	6674407	12/08/2014	Dune Traverse	HIBB009_2	70	10	10	0	0	-	0.1000	Veg	-
	573862	6674037	11/08/2014	Dune Traverse	HIBB007_2	71	4	4	0	0	-	0.4000	Veg	-
	574154	6674023	11/08/2014	Dune Traverse	HIBB007_3	71	1	1	0	0	-	-	Veg	-
	573346	6673699	12/08/2014	Dune Traverse	HIBB008_2	74	11	11	0	0	-	0.1000	Veg	-
	571312	6669423	13/08/2014	Dune Traverse	HIBB012_1	85	2	2	0	0	-	0.1000	Veg	-
	584331	6680252	14/08/2014	Dune Traverse	N/A	8001	69	69	0	0	-	0.7200	-	-
	584677	6680178	14/08/2014	Dune Traverse	N/A	9001	27	27	0	0	-	0.2300	-	-
	584931	6680052	14/08/2014	Dune Traverse	N/A	10001	56	56	0	0	-	1.1600	-	-
	584787	6680072	14/08/2014	Dune Traverse	N/A	11001	27	27	0	0	-	0.2400	Veg	H
	588261	6676132	14/08/2014	Dune Traverse	N/A	15002	74	74	0	0	-	0.9600	-	-
	588768	6676078	14/08/2014	Dune Traverse	N/A	15002	30	30	0	0	-	0.6000	-	-
	588277	6675991	14/08/2014	Dune Traverse	N/A	17002	66	66	0	0	-	1.8400	-	-
	584742	6676830	14/08/2014	Dune Traverse	N/A	20002	35	35	0	0	-	0.6600	-	-
	584690	6677470	14/08/2014	Dune Traverse	HIBB016/DUNE010	N/A	21	21	0	0	-	0.3200	-	-
	584810	6677475	14/08/2014	Dune Traverse	HIBB016/DUNE010	N/A	12	12	0	0	-	0.2800	-	-
	584647	6677055	14/08/2014	Dune Traverse	HIBB015	19002	18	18	0	0	-	0.1200	-	-
	584767	6677042	14/08/2014	Dune Traverse	HIBB015	19002	48	48	0	0	-	0.5000	-	-
	585316	6677779	9/08/2014	Vegetation Site	HIBB002	42	54	54	0	0	P	0.2500	-	-
	569199	6677607	11/08/2014	Vegetation Site	HIBB005	62	16	16	0	0	P	0.2500	-	-
	569315	6677414	11/08/2014	Vegetation Site	HIBB006	63	12	12	0	0	P	0.2500	-	-
	573929	6674479	9/08/2014	Vegetation Site	HIBB003	69	61	61	0	0	P	0.2500	-	-
	574848	6674343	12/08/2014	Vegetation Site	HIBB009	70	36	36	0	0	P	0.2500	-	-
	573417	6673998	11/08/2014	Vegetation Site	HIBB007	71	17	17	0	0	P	0.2500	-	-
	574954	6673568	12/08/2014	Vegetation Site	HIBB008	74	12	12	0	0	P	0.2500	-	-
	570821	6669489	13/08/2014	Vegetation Site	HIBB012	85	14	14	0	0	P	0.2500	-	-
	572170	6668771	13/08/2014	Vegetation Site	HIBB011	88	11	11	0	0	P	0.2500	-	-
	584685	6677477	14/08/2014	Vegetation Site	HIBB016/DUNE010	N/A	21	21	0	0	E	0.2500	-	-
584690	6677062	14/08/2014	Vegetation Site	HIBB015	19002	25	25	0	0	E	0.2500	-	-	
<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44) (P2)	578356	6681674	9/08/2014	Dune Traverse	HIBB001	30	3	3	0	0	-	0.0004	Frt	SS
	578599	6681577	9/08/2014	Dune Traverse	HIBB001	30	1	1	0	0	-	0.0004	Veg	SS
	578706	6681493	9/08/2014	Dune Traverse	HIBB001	30	7	7	0	0	-	0.0300	Veg	SS
	573330	6673694	12/08/2014	Dune Traverse	HIBB008_2	74	1	1	0	0	-	-	-	-
	584617	6680295	14/08/2014	Dune Traverse	N/A	8001	1	1	0	0	-	-	-	-
	584784	6680150	14/08/2014	Dune Traverse	N/A	9001	1	1	0	0	-	-	Veg	-
	588198	6676127	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Frt	-
	588514	6676135	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	-	Veg	-
	588534	6676133	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	-
	588768	6676078	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	-	-
	588277	6675991	14/08/2014	Dune Traverse	N/A	17002	2	2	0	0	-	-	Frt	-
	589200	6675892	14/08/2014	Dune Traverse	N/A	17002	2	2	0	0	-	-	Frt	-
	584742	6676830	14/08/2014	Dune Traverse	N/A	20002	1	1	0	0	-	-	Veg	-
	584661	6677060	14/08/2014	Dune Traverse	HIBB015	19002	1	1	0	0	-	-	-	-
	584999	6677016	14/08/2014	Dune Traverse	HIBB015	19002	2	2	0	0	-	-	-	-
	584711	6677426	14/08/2014	Dune Traverse	OPPO009/OPPO	N/A	2	2	0	0	-	0.0004	Frt	-
	579481	6681700	13/08/2014	Vegetation Site	HIBB014	28	3	3	0	0	E	0.2500	-	-
	578829	6681464	9/08/2014	Vegetation Site	HIBB001	30	13	13	0	0	E	0.2500	-	-
	573929	6674479	9/08/2014	Vegetation Site	HIBB003	69	1	1	0	0	P	0.2500	-	-
	574848	6674343	12/08/2014	Vegetation Site	HIBB009	70	1	1	0	0	P	0.2500	-	-
574954	6673568	12/08/2014	Vegetation Site	HIBB008	74	3	3	0	0	P	0.2500	-	-	

**APPENDIX F: PRIORITY (AND OTHER) FLORA SPECIES LOCATIONS RECORDED DURING THE MCPL SURVEY, AUGUST 2014**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); V - denotes Vulnerable flora species (DotE 2015); <sup>1</sup> Habitat condition is based on categories P - Pristine, E - Excellent defined in Keighery (1994); <sup>2</sup> Reproductive stage includes Flw - flowering, Bud - flower buds, Frt - Fruiting, Veg - vegetative; <sup>3</sup> Plant health was categorised as either H - healthy or SS - slightly stressed.

GDA94 Z51							NO. OF INDIVIDUALS				HABITAT CONDITION <sup>1</sup>	COUNT AREA (ha)	REPRODUCTIVE STAGE <sup>2</sup>	PLANT HEALTH <sup>3</sup>
SPECIES	EASTING (mE)	NORTHING (mN)	DATE	MCPL SURVEY TYPE	MCPL SITE	VMY TRAVERSE	TOTAL	ALIVE	DEAD	JUVENILE				
<i>Conospermum toddii</i> (P4)	569496	6677683	11/08/2014	Dune Traverse	HIBB005_2	62	63	51	0	12	-	0.1500	Flw	-
	568992	6677410	11/08/2014	Dune Traverse	HIBB006_2	63	105	90	0	15	-	0.1000	Flw	-
	572245	6674670	10/08/2014	Dune Traverse	HIBB003_2	69	5	5	0	0	-	0.0200	Veg	-
	572581	6674645	10/08/2014	Dune Traverse	HIBB003_3	69	4	4	0	0	-	-	-	-
	573862	6674037	11/08/2014	Dune Traverse	HIBB007_2	71	15	15	0	0	-	0.4000	Flw	-
	574154	6674023	11/08/2014	Dune Traverse	HIBB007_3	71	29	28	1	0	-	-	Veg	-
	573346	6673699	12/08/2014	Dune Traverse	HIBB008_2	74	12	12	0	0	-	0.1000	Flw	-
	571312	6669423	13/08/2014	Dune Traverse	HIBB012_1	85	2	2	0	0	-	0.1000	Flw	-
	584331	6680252	14/08/2014	Dune Traverse	N/A	8001	114	113	1	0	-	0.5800	-	-
	584602	6680203	14/08/2014	Dune Traverse	N/A	9001	182	182	0	0	-	0.3900	-	-
	584931	6680052	14/08/2014	Dune Traverse	N/A	10001	250-350	200-250	0	50-100	-	1.1600	Flw/Veg	H
	584496	6680012	14/08/2014	Dune Traverse	N/A	11001	16	16	0	0	-	0.0600	Flw/Veg	H
	584693	6680054	14/08/2014	Dune Traverse	N/A	11001	1	1	0	0	-	-	Veg	SS
	584722	6680063	14/08/2014	Dune Traverse	N/A	11001	600-800	400-500	0	200-300	-	0.3600	Flw/Veg	H
	587691	6676127	14/08/2014	Dune Traverse	N/A	15002	2	1	0	1	-	-	Veg	H
	587714	6676122	14/08/2014	Dune Traverse	N/A	15002	12	0	0	12	-	0.0025	Veg	H
	587739	6676129	14/08/2014	Dune Traverse	N/A	15002	8	3	0	5	-	0.0025	Flw (adult)/Veg (juv)	H
	587744	6676138	14/08/2014	Dune Traverse	N/A	15002	17	17	0	0	-	0.1400	Flw/Veg	H
	587885	6676191	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	H
	587965	6676187	14/08/2014	Dune Traverse	N/A	15002	2	0	0	2	-	0.0004	Veg	H
	588575	6676128	14/08/2014	Dune Traverse	N/A	15002	43	36	0	7	-	0.3400	-	-
	588768	6676078	14/08/2014	Dune Traverse	N/A	15002	44	30	14	0	-	0.6000	-	-
	587677	6676055	14/08/2014	Dune Traverse	N/A	16002	1	1	0	0	-	-	Veg	H
	588277	6675991	14/08/2014	Dune Traverse	N/A	17002	54	51	0	3	-	1.8400	-	-
	584529	6676891	14/08/2014	Dune Traverse	N/A	20002	114	93	1	20	-	1.0600	Veg	-
	583828	6676738	14/08/2014	Dune Traverse	N/A	21002	500-700	300-400	0	200-300	-	0.6600	Flw/Veg	H
	584310	6676654	14/08/2014	Dune Traverse	N/A	21002	250	150	0	100	-	0.2800	Flw/Veg	H
	584605	6676684	14/08/2014	Dune Traverse	N/A	21002	350	150	0	200	-	0.2600	Flw/Veg	H
	603185	6668462	10/08/2014	Dune Traverse	HIBB004	N/A	21	21	0	0	-	-	-	-
	603457	6668394	10/08/2014	Dune Traverse	HIBB004	N/A	4	4	0	0	-	0.0200	-	-
	584690	6677470	14/08/2014	Dune Traverse	HIBB016_1/DUNE010	N/A	110	90	1	19	-	0.4500	-	-
	584810	6677475	14/08/2014	Dune Traverse	HIBB016/DUNE010	N/A	27	19	0	8	-	0.2800	-	-
	584245	6677199	14/08/2014	Dune Traverse	HIBB015	19002	10	0	0	10	-	0.5600	-	-
	584519	6677099	14/08/2014	Dune Traverse	HIBB015	19002	33	15	0	18	-	0.3600	-	-
	584767	6677042	14/08/2014	Dune Traverse	HIBB015_1	19002	13	9	0	4	-	0.5000	-	-
	601867	6667522	10/08/2014	Dune Traverse	OPPO005/DUNE003	N/A	15	15	0	0	-	0.1200	-	-
	602029	6667450	10/08/2014	Dune Traverse	OPPO005/DUNE003	N/A	4	4	0	0	-	0.0025	Flw/Veg	-
	602617	6667435	10/08/2014	Dune Traverse	OPPO005/DUNE002	N/A	7	7	0	0	-	-	-	-
	579481	6681700	13/08/2014	Vegetation Site	HIBB014	28	39	31	0	8	E	0.2500	-	-
	578829	6681464	9/08/2014	Vegetation Site	HIBB001	30	53	53	0	0	E	0.2500	-	-
	585316	6677779	9/08/2014	Vegetation Site	HIBB002	42	28	28	0	0	P	0.2500	-	-
	569199	6677607	11/08/2014	Vegetation Site	HIBB005	62	173	136	0	37	P	0.2500	-	-
	569315	6677414	11/08/2014	Vegetation Site	HIBB006	63	137	121	0	16	P	0.2500	-	-
	573929	6674479	9/08/2014	Vegetation Site	HIBB003	69	70	69	1	0	P	0.2500	-	-
	574848	6674343	12/08/2014	Vegetation Site	HIBB009	70	90	87	0	3	P	0.2500	-	-
573417	6673998	11/08/2014	Vegetation Site	HIBB007	71	100	83	0	17	P	0.2500	-	-	
574954	6673568	12/08/2014	Vegetation Site	HIBB008	74	138	131	0	7	P	0.2500	-	-	
570530	6671688	13/08/2014	Vegetation Site	HIBB013	81	70	66	0	4	P	0.2500	-	-	
570058	6670007	12/08/2014	Vegetation Site	HIBB010	84	142	142	0	0	P	0.2500	-	-	
570821	6669489	13/08/2014	Vegetation Site	HIBB012	85	66	53	0	13	P	0.2500	-	-	
572170	6668771	13/08/2014	Vegetation Site	HIBB011	88	88	78	0	10	P	0.2500	-	-	
584685	6677477	14/08/2014	Vegetation Site	HIBB016/DUNE010	N/A	72	42	1	29	E	0.2500	-	-	
584690	6677062	14/08/2014	Vegetation Site	HIBB015	19002	35	22	11	2	E	0.2500	-	-	

**APPENDIX F: PRIORITY (AND OTHER) FLORA SPECIES LOCATIONS RECORDED DURING THE MCPL SURVEY, AUGUST 2014**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); V - denotes Vulnerable flora species (DotE 2015); <sup>1</sup> Habitat condition is based on categories P - Pristine, E - Excellent defined in Keighery (1994); <sup>2</sup> Reproductive stage includes Flw - flowering, Bud - flower buds, Frt - Fruiting, Veg - vegetative; <sup>3</sup> Plant health was categorised as either H - healthy or SS - slightly stressed.

GDA94 Z51							NO. OF INDIVIDUALS				HABITAT CONDITION <sup>1</sup>	COUNT AREA (ha)	REPRODUCTIVE STAGE <sup>2</sup>	PLANT HEALTH <sup>3</sup>
SPECIES	EASTING (mE)	NORTHING (mN)	DATE	MCPL SURVEY TYPE	MCPL SITE	VMY TRAVERSE	TOTAL	ALIVE	DEAD	JUVENILE				
<i>Grevillea secunda</i> (P4)	584602	6680203	14/08/2014	Dune Traverse	N/A	9001	2	2	0	0	-	-	-	-
	584469	6680013	14/08/2014	Dune Traverse	N/A	11001	1	1	0	0	-	-	Veg	H
	587595	6676148	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	H
	587659	6676135	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	H
	587790	6676162	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	H
	587799	6676163	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Flw	H
	587866	6676181	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	0.0004	Veg	H
	587885	6676191	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	0.0004	Flw	H
	587909	6676202	14/08/2014	Dune Traverse	N/A	15002	4	4	0	0	-	0.0100	Veg/Flw	H
	587943	6676193	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	SS
	587965	6676187	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	H
	588005	6676174	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	SS
	588085	6676159	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	-
	588207	6676128	14/08/2014	Dune Traverse	N/A	15002	4	4	0	0	-	0.0050	-	-
	588511	6676134	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Veg	-
	588525	6676145	14/08/2014	Dune Traverse	N/A	15002	1	1	0	0	-	-	Flw	-
	588611	6676110	14/08/2014	Dune Traverse	N/A	15002	2	2	0	0	-	-	Veg	-
	587489	6676072	14/08/2014	Dune Traverse	N/A	16002	3	3	0	0	-	0.0025	Veg	H
	587688	6676057	14/08/2014	Dune Traverse	N/A	16002	1	1	0	0	-	-	Veg	H
	587699	6676055	14/08/2014	Dune Traverse	N/A	16002	1	1	0	0	-	-	Veg	H
	587717	6676063	14/08/2014	Dune Traverse	N/A	16002	1	1	0	0	-	-	Veg	H
	587796	6676051	14/08/2014	Dune Traverse	N/A	16002	1	1	0	0	-	-	Veg	H
	587814	6676045	14/08/2014	Dune Traverse	N/A	16002	1	1	0	0	-	-	Veg	H
	588193	6675997	14/08/2014	Dune Traverse	N/A	17002	8	8	0	0	-	0.1000	Veg	-
	589150	6675908	14/08/2014	Dune Traverse	N/A	17002	2	2	0	0	-	-	Veg	-
	584144	6676998	14/08/2014	Dune Traverse	N/A	20002	30	30	0	0	-	0.6600	Veg/Flw	-
	583877	6676743	14/08/2014	Dune Traverse	N/A	21002	5	5	0	0	-	0.0100	Veg	H
	583958	6676747	14/08/2014	Dune Traverse	N/A	21002	6	6	0	0	-	0.0225	Veg	SS/H
	584034	6676747	14/08/2014	Dune Traverse	N/A	21002	10	10	0	0	-	0.2500	Veg/Flw	H
	584111	6676708	14/08/2014	Dune Traverse	N/A	21002	6	6	0	0	-	0.0400	Veg	H
	584190	6676684	14/08/2014	Dune Traverse	N/A	21002	10	10	0	0	-	0.0400	Veg	H
	584289	6676653	14/08/2014	Dune Traverse	N/A	21002	8	8	0	0	-	0.0400	Veg	H
	584445	6676610	14/08/2014	Dune Traverse	N/A	21002	12	12	0	0	-	0.0625	Veg/Flw	H
	584785	6676670	14/08/2014	Dune Traverse	N/A	21002	1	1	0	0	-	-	Flw	H
	603283	6668434	10/08/2014	Dune Traverse	HIBB004	N/A	28	28	0	0	-	0.2500	-	-
	584468	6677502	14/08/2014	Dune Traverse	HIBB016/DUNE010	N/A	4	4	0	0	-	0.1000	-	-
	584245	6677199	14/08/2014	Dune Traverse	HIBB015	19002	17	17	0	0	-	0.5600	-	-
	584545	6677094	14/08/2014	Dune Traverse	HIBB015	19002	11	11	0	0	-	0.3200	-	-
	584711	6677426	14/08/2014	Dune Traverse	OPPO009/OPPO	N/A	5	5	0	0	-	0.0100	-	-
	587988	6676124	14/08/2014	Dune Traverse	OPPO004/OPPO	N/A	7	7	0	0	-	-	-	-
599721	6668994	10/08/2014	Dune Traverse	OPPO008/DUNE008	N/A	8	8	0	0	-	0.0225	Veg	-	
569199	6677607	11/08/2014	Vegetation Site	HIBB005	62	1	1	0	0	P	0.2500	-	-	
570821	6669489	13/08/2014	Vegetation Site	HIBB012	85	3	3	0	0	P	0.2500	-	-	
584690	6677062	14/08/2014	Vegetation Site	HIBB015	19002	1	1	0	0	E	0.2500	-	-	

**APPENDIX F: PRIORITY (AND OTHER) FLORA SPECIES LOCATIONS RECORDED DURING THE MCPL SURVEY, AUGUST 2014**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); V - denotes Vulnerable flora species (DotE 2015); <sup>1</sup> Habitat condition is based on categories P - Pristine, E - Excellent defined in Keighery (1994); <sup>2</sup> Reproductive stage includes Flw - flowering, Bud - flower buds, Frt - Fruiting, Veg - vegetative; <sup>3</sup> Plant health was categorised as either H - healthy or SS - slightly stressed.

SPECIES	GDA94 Z51			MCPL SURVEY TYPE	MCPL SITE	VMY TRAVERSE	NO. OF INDIVIDUALS				HABITAT CONDITION <sup>1</sup>	COUNT AREA (ha)	REPRODUCTIVE STAGE <sup>2</sup>	PLANT HEALTH <sup>3</sup>
	EASTING (mE)	NORTHING (mN)	DATE				TOTAL	ALIVE	DEAD	JUVENILE				
<i>Leucopogon aff. planifolius</i>	578356	6681674	9/08/2014	Dune Traverse	HIBB001	30	7	7	0	0	-	0.0100	Frt	-
	578706	6681493	9/08/2014	Dune Traverse	HIBB001	30	7	7	0	0	-	0.0300	Veg	SS
	574191	6674023	11/08/2014	Dune Traverse	HIBB007_3	71	1	1	0	0	-	-	Frt	H
	570431	6671707	13/08/2014	Dune Traverse	HIBB013	81	2	2	0	0	-	0.0001	Frt	-
	584331	6680252	14/08/2014	Dune Traverse	N/A	8001	13	13	0	0	-	0.0075	-	-
	584790	6680152	14/08/2014	Dune Traverse	N/A	9001	5	5	0	0	-	0.0025	Frt	-
	584585	6680018	14/08/2014	Dune Traverse	N/A	11001	3	3	0	0	-	0.0001	Frt	H
	588976	6675936	14/08/2014	Dune Traverse	N/A	17002	2	2	0	0	-	0.5000	-	-
	584930	6676846	14/08/2014	Dune Traverse	N/A	20002	1	1	0	0	-	-	-	-
	603624	6668297	10/08/2014	Dune Traverse	HIBB004	N/A	1	1	0	0	-	-	Frt	H
	584551	6677480	14/08/2014	Dune Traverse	HIBB016/DUNE010	N/A	2	2	0	0	-	-	-	-
	601926	6667522	10/08/2014	Dune Traverse	OPPO005/DUNE003	N/A	1	1	0	0	-	-	Frt	-
	574848	6674343	12/08/2014	Vegetation Site	HIBB009	70	8	8	0	0	P	0.2500	-	-
	574954	6673568	12/08/2014	Vegetation Site	HIBB008	74	9	8	0	1	P	0.2500	-	-

**APPENDIX G: SPECIES RECORDED DURING THE MCPL SURVEY (AUGUST 2014) AND THEIR OCCURRENCE IN THE S6 VEGETATION COMMUNITY ACROSS THE MULGA ROCK URANIUM PROJECT AREA**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); calculations were based on a total of 39 sites in the S6 vegetation community (MCPL 2008-2014); ^ indicates that whilst the species was recorded during the current survey, it was recorded opportunistically & not in any S6 vegetation sites.

FAMILY	SPECIES	RECORDED IN CURRENT SURVEY	OCCURRENCE IN S6 SITES (% OF TOTAL)
CUPRESSACEAE	<i>Callitris preissii</i>	X	59
	<i>Callitris verrucosa</i>		10
	<i>Callitris</i> sp.	X	8
POACEAE	<i>Aristida holathera</i> var. <i>holathera</i>		13
	<i>Eriachne helmsii</i>		3
	<i>Triodia</i> ? <i>basedowii</i>		13
	<i>Triodia desertorum</i>	X	77
CYPERACEAE	<i>Caustis dioica</i>	X	95
	<i>Chrysitrix distigmatosa</i>	X	41
	<i>Lepidosperma sanguinolentum</i>		3
RESTIONACEAE	<i>Lepidobolus deserti</i>	X	92
ASPARAGACEAE	<i>Laxmannia arida</i>		5
	<i>Lomandra leucocephala</i> subsp. <i>robusta</i>	X	97
XANTHORRHOEACEAE	<i>Xanthorrhoea thorntonii</i>	X	23
HEMEROCALLIDACEAE	<i>Dianella revoluta</i> var. <i>divaricata</i>		8
CASUARINACEAE	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	X	77
	<i>Allocasuarina helmsii</i>		3
	<i>Allocasuarina spinosissima</i>	X	69
	<i>Allocasuarina spinosissima</i> subsp. Short spine (D.L. Serventy & A.R. Main s.n. 25/8/1960)		3
	<i>Allocasuarina</i> sp.	X	3
PROTEACEAE	<i>Banksia elderiana</i>	X	31
	<i>Conospermum toddii</i> (P4)	X	90
	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>	X	56
	<i>Grevillea juncifolia</i>	X	69
	<i>Grevillea sarissa</i>	X	15
	<i>Grevillea secunda</i> (P4)	X	38
	<i>Grevillea</i> sp.		3
	<i>Hakea francisiana</i>	X	46
	<i>Persoonia coriacea</i>		21
	<i>Persoonia pertinax</i>	X	64
SANTALACEAE	<i>Choretrum chrysanthum</i>		5
	<i>Exocarpos sparteus</i>	X	5
	<i>Santalum acuminatum</i>		21
	<i>Santalum murrayanum</i>		3
	<i>Santalum</i> sp.	X	13
GYROSTEMONACEAE	<i>Gyrostemon ramulosus</i>	X	26

**APPENDIX G: SPECIES RECORDED DURING THE MCPL SURVEY (AUGUST 2014) AND THEIR OCCURRENCE IN THE S6 VEGETATION COMMUNITY ACROSS THE MULGA ROCK URANIUM PROJECT AREA**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); calculations were based on a total of 39 sites in the S6 vegetation community (MCPL 2008-2014); ^ indicates that whilst the species was recorded during the current survey, it was recorded opportunistically & not in any S6 vegetation sites.

FAMILY	SPECIES	RECORDED IN CURRENT SURVEY	OCCURRENCE IN S6 SITES (% OF TOTAL)
PITTOSPORACEAE	<i>Marianthus bicolor</i>	X	8
FABACEAE	<i>Acacia acanthoclada</i> subsp. <i>acanthoclada</i>	X	15
	<i>Acacia desertorum</i> var. <i>desertorum</i>		3
	<i>Acacia fragilis</i>	X	69
	<i>Acacia helmsiana</i>	X	69
	<i>Acacia inaequiloba</i>	X	21
FABACEAE	<i>Acacia kempeana</i>		3
	<i>Acacia ligulata</i>	X	51
	<i>Acacia sibina</i>		3
	<i>Aotus tietkensis</i>		5
	<i>Daviesia ulicifolia</i> subsp. <i>aridicola</i>	X	18
	<i>Daviesia</i> sp.		3
	<i>Gastrolobium aculeatum</i>		3
	<i>Gompholobium gompholobioides</i>		3
	<i>Jacksonia arida</i>	X	100
	<i>Mirbelia ramulosa</i>	X^	N/A
	<i>Phyllota luehmannii</i>		8
POLYGALACEAE	<i>Comesperma scoparium</i>	X	10
EUPHORBIACEAE	<i>Bertya dimerostigma</i>	X	21
	<i>Beyeria sulcata</i> var. <i>sulcata</i>		3
CELASTRACEAE	<i>Stackhousia megaloptera</i>	X	59
	? <i>Stackhousia</i> sp.		5
RHAMNACEAE	<i>Cryptandra distigma</i>	X	49
MALVACEAE	<i>Androcalva melanopetala</i>	X	38
DILLENIACEAE	<i>Hibbertia crispula</i> (P1 & Vulnerable)	X	51
	<i>Hibbertia exasperata</i>	X^	5
VIOLACEAE	<i>Hybanthus floribundus</i> subsp. <i>floribundus</i>	X	46
THYMELAEACEAE	<i>Pimelea angustifolia</i>	X^	3
MYRTACEAE	<i>Calothamnus gilesii</i>	X	46
	<i>Eucalyptus ceratocorys</i>	X	56
	<i>Eucalyptus gongylocarpa</i>	X	87
	<i>Eucalyptus leptophylla</i>		3
	<i>Eucalyptus mannensis</i> subsp. <i>mannensis</i>	X	13
	<i>Eucalyptus youngiana</i>	X	82
	<i>Eucalyptus</i> sp.	X	3
	<i>Leptospermum fastigiatum</i>	X	38
	<i>Malleostemon</i> sp. Officer Basin (D. Pearson 350) (P2)	X	46

**APPENDIX G: SPECIES RECORDED DURING THE MCPL SURVEY (AUGUST 2014) AND THEIR OCCURRENCE IN THE S6 VEGETATION COMMUNITY ACROSS THE MULGA ROCK URANIUM PROJECT AREA**

**Note:** P1-P4 denote priority flora species (DPaW 2015b); calculations were based on a total of 39 sites in the S6 vegetation community (MCPL 2008-2014); ^ indicates that whilst the species was recorded during the current survey, it was recorded opportunistically & not in any S6 vegetation sites.

FAMILY	SPECIES	RECORDED IN CURRENT SURVEY	OCCURRENCE IN S6 SITES (% OF TOTAL)
MYRTACEAE	<i>Melaleuca eleuterostachya</i>		3
(continued)	<i>Micromyrtus stenocalyx</i>	X	67
	<i>Thryptomene biseriata</i>	X	100
	<i>Verticordia helmsii</i>	X	28
HALORAGACEAE	<i>Glischrocaryon aureum</i>	X	21
APIACEAE	<i>Platysace trachymenioides</i>	X	21
ERICACEAE	<i>Leucopogon cuneifolius</i>		10
	<i>Leucopogon aff. planifolius</i>	X	8
	<i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44) (P2)	X	23
LOGANIACEAE	<i>Logania nuda</i>	X	28
APOCYNACEAE	<i>Alyxia buxifolia</i>	X	3
CONVOLVULACEAE	<i>Bonamia erecta</i>		3
LAMIACEAE	<i>Hemiphora elderi</i>	X^	N/A
	<i>Microcorys macredieana</i>	X	26
	<i>Newcastelia hexarrhena</i>	X	74
	<i>Pityrodia lepidota</i>	X	18
	<i>Pityrodia loricata</i>	X	85
SOLANACEAE	<i>Anthotroche pannosa</i>	X	100
SCROPHULARIACEAE	<i>Eremophila platythamnos</i> subsp. <i>platythamnos</i>		3
RUBIACEAE	<i>Opercularia spermacocea</i>	X	18
	<i>Pomax</i> sp. desert (A.S. George 11968)	X	67
GOODENIACEAE	<i>Dampiera eriantha</i> (P1)	X	69
	<i>Dampiera lavandulacea</i>		5
	<i>Dampiera ramosa</i>	X	54
	<i>Dampiera stenophylla</i>		5
	<i>Goodenia elderi</i>		28
	<i>Goodenia xanthosperma</i>		3
	<i>Lechenaultia brevifolia</i>	X	23
	<i>Scaevola basedowii</i>	X	56
STYLIDIACEAE	<i>Stylidium induratum</i>	X	5
	<i>Stylidium limbatum</i>		3
ASTERACEAE	<i>Calotis</i> sp. Carnarvon Range (D.J. Edinger & K.F. Kenneally D 2708 K 12243)	X	13
	<i>Chrysocephalum puteale</i>	X	59
	<i>Olearia lanuginosa</i>		15

## **APPENDIX H: THREATENED AND PRIORITY FLORA REPORT FORMS SUBMITTED TO THE DPaW**

Forms were originally submitted to the DPaW on 3rd September 2014. Due to a November 2014 fire event (affecting 79,204 ha) that also impacted the Mulga Rock Uranium Project area, forms for *Hibbertia crispula* and *Malleostemon* sp. Officer Basin (D. Pearson 350) have been resubmitted to the DPaW on 4th March 2015, to include more detailed information and reflect an upgraded threat to these populations in particular, from fire events.

See forms attached.



# Threatened and Priority Flora Report Form

**Please complete as much of the form as possible.**

For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DPaW website at <http://www.dpaw.wa.gov.au/>

<b>TAXON:</b> <u>Hibbertia crispula</u>		<b>TPFL Pop. No.:</b> _____	
<b>OBSERVATION DATE:</b> <u>12/08/2014</u>		<b>CONSERVATION STATUS:</b> <u>P1</u> New population <input type="checkbox"/>	
<b>OBSERVER/S:</b> <u>N. Murdock, S. Ruoss, E. Joyce</u>		<b>PHONE:</b> <u>08 9257 1625</u>	
<b>ROLE:</b> <u>Botanist</u>		<b>ORGANISATION:</b> <u>Mattiske Consulting Pty Ltd</u>	

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):

In an approximate 20 x 25 km area around the Officer Basin Airstrip  
 Approximately 130 km North East of Pinjin Homestead, Great Victoria Desert

**Reserve No.:** \_\_\_\_\_

<b>DISTRICT:</b> <u>Goldfields</u>	<b>LGA:</b> <u>Menzies</u>	<b>Land manager present:</b> <input type="checkbox"/>	
<b>DATUM:</b>	<b>COORDINATES:</b> (If UTM coords provided, Zone is also required)	<b>METHOD USED:</b>	
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM's <input checked="" type="checkbox"/>	GPS <input checked="" type="checkbox"/>	Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	<b>Lat / Northing:</b> _____	No. satellites:	Map used:
WGS84 <input type="checkbox"/>	<b>Long / Easting:</b> _____	Boundary polygon captured: <input type="checkbox"/>	Map scale:
Unknown <input type="checkbox"/>	<b>Zone:</b> <u>51 J</u>		

**LAND TENURE:**

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): 2500

**EFFORT:** Time spent surveying (minutes): \_\_\_\_\_ No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate

Count method: (Refer to field manual for list) \_\_\_\_\_

**WHAT COUNTED:** Plants  Clumps  Clonal stems

<b>TOTAL POP'N STRUCTURE:</b>	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>	Area of pop (m <sup>2</sup> ): _____ Note: Pls record count as numbers (not percentages) for database.
Alive					
Dead					

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

**Summary Quad. Totals: Alive**

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**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower   
 Immature fruit  Fruit  Dehisced fruit  Percentage in flower: \_\_\_\_\_%

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:**

THREATS - type, agent and supporting information: E.g. clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	Current impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Fire November 2014 fire event affecting 79,204 ha which includes these localities; most records of this species are from long-unburnt dunes; regeneration strategy unknown.	<u>H-E</u>	<u>H</u>	<u>S</u>
• Mining	<u>N</u>	<u>H</u>	<u>M</u>
•	_____	_____	_____

Please return completed form to **Species And Communities Branch DPaW**,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form

Version 1.2 August 2013

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**HABITAT INFORMATION:** (Check more than one box for combinations or where necessary)

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest <input type="checkbox"/> Hill <input type="checkbox"/> Ridge <input checked="" type="checkbox"/> Outcrop <input type="checkbox"/> Slope <input type="checkbox"/> Flat <input type="checkbox"/> Open depression <input type="checkbox"/> Drainage line <input type="checkbox"/> Closed depression <input type="checkbox"/> Wetland <input type="checkbox"/>	Granite <input type="checkbox"/> Dolerite <input type="checkbox"/> Laterite <input type="checkbox"/> Ironstone <input type="checkbox"/> Limestone <input type="checkbox"/> Quartz <input type="checkbox"/>  Specify other:	(on soil surface; e.g. gravel, quartz fields)  0-10% <input type="checkbox"/> 10-30% <input type="checkbox"/> 30-50% <input type="checkbox"/> 50-100% <input type="checkbox"/>	Sand <input checked="" type="checkbox"/> Sandy loam <input type="checkbox"/> Loam <input type="checkbox"/> Clay loam <input type="checkbox"/> Light clay <input type="checkbox"/> Peat <input type="checkbox"/>  Specify other:	Red <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input checked="" type="checkbox"/> White <input type="checkbox"/> Grey <input type="checkbox"/> Black <input type="checkbox"/>  Specify other:	Well drained <input type="checkbox"/> Seasonally inundated <input type="checkbox"/> Permanently inundated <input type="checkbox"/> Tidal <input type="checkbox"/>  Specify other:

**Specific Landform Element:** (Refer to field manual for additional values)

Sand Dune

**CONDITION OF SOIL:**

Dry  Moist  Waterlogged  Inundated  Cracked  Saline  Other:

**VEGETATION CLASSIFICATION:\***

E.g. 1. Banksia woodland (B. attenuata, B. ilicifolia);  
 2. Open shrubland (Hibbertia sp., Acacia spp.)  
 3. Isolated clumps of sedges (Mesomelaena tetragona)

1. Open Shrubland <2 m (Thryptomene biseriata, Allocasuarina spinosissima, Jacksonia arida)
2. Sparse shrubland <1 m (Calothamnus gilesii, Acacia fragilis, Anthotroche pannosa)
- 3.
- 4.

**ASSOCIATED SPECIES:**

Other (non-dominant) spp

Callitris verrucosa, Lomandra leucocephala, Allocasuarina acutivalvis, Lepidobolus desertii  
 Triodia desertorum

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:**

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

A list of records attached at the end of this form, including counts, fire history notes, etc.

As these species records are part of a joint South Australia and Western Australia project, specimens will be vouchered to one herbarium and duplicates sent to the other (to be determined).

Please return completed form to **Species And Communities Branch DPaW**,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



GDA94 Z51		DATE	NO. OF INDIVIDUALS				HABITAT CONDITION	COUNT AREA (ha)	REPRODUC TIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE
EASTING (mE)	NORTHING (mN)		TOTAL	ALIVE	DEAD	JUVENILE					
<b><i>Hibbertia crispula</i> (P1 &amp; Vulnerable)</b>											
569496	6677683	11/08/2014	-	-	-	-	-	-	-	-	
568992	6677410	11/08/2014	<b>32</b>	32	0	0	-	-	Flw/Bud	-	
572581	6674645	10/08/2014	-	-	-	-	-	-	-	-	
574440	6674407	12/08/2014	<b>26</b>	26	0	0	-	0.1000	Flw/Bud	-	
573862	6674037	11/08/2014	<b>40</b>	40	0	0	-	0.4000	Flw/Bud	-	
574154	6674023	11/08/2014	<b>38</b>	35	3	0	-	-	Flw/Bud	SS/H	
573346	6673699	12/08/2014	<b>15</b>	15	0	0	-	0.1000	Flw/Bud	-	
571312	6669423	13/08/2014	<b>27</b>	25	0	2	-	0.1000	Flw/Bud	-	
584532	6677480	14/08/2014	<b>106</b>	102	0	4	-	0.3200	-	-	
584948	6677492	14/08/2014	<b>231</b>	219	0	12	-	0.2800	-	-	
578970	6681498	9/08/2014	-	-	-	-	-	-	-	-	
584537	6678078	9/08/2014	-	-	-	-	-	-	-	-	
572241	6674671	10/08/2014	-	-	-	-	-	-	-	-	
579481	6681700	13/08/2014	<b>25</b>	19	0	6	E	0.2500	-	>15 years ago	
578829	6681464	9/08/2014	<b>119</b>	85	0	34	E	0.2500	-	>15 years ago	
585316	6677779	9/08/2014	<b>138</b>	138	0	0	P	0.2500	-	>15 years ago	
569199	6677607	11/08/2014	<b>179</b>	169	0	10	P	0.2500	-	>20 years ago	
569315	6677414	11/08/2014	<b>194</b>	186	0	8	P	0.2500	-	>15 years ago	
573929	6674479	9/08/2014	<b>92</b>	92	0	0	P	0.2500	-	>15 years ago	
574848	6674343	12/08/2014	<b>111</b>	104	0	7	P	0.2500	-	-	
573417	6673998	11/08/2014	<b>228</b>	217	0	11	P	0.2500	-	>15 years ago	
574954	6673568	12/08/2014	<b>13</b>	12	0	1	P	0.2500	-	>15 years ago	
570530	6671688	13/08/2014	<b>131</b>	102	0	29	P	0.2500	-	>15 years ago	
570058	6670007	12/08/2014	<b>80</b>	74	0	6	P	0.2500	-	>15 years ago	
570821	6669489	13/08/2014	<b>82</b>	69	0	13	P	0.2500	-	>15 years ago	
572170	6668771	13/08/2014	<b>241</b>	232	0	9	P	0.2500	-	>15 years ago	
584685	6677477	14/08/2014	<b>113</b>	95	0	18	E	0.2500	-	>10 years ago on dune crests, slopes burnt <10 years ago	
584690	6677062	14/08/2014	<b>66</b>	60	3	3	E	0.2500	-	>10 years ago for site, but <10years ago surrounding landscape;	



# Threatened and Priority Flora Report Form

**Please complete as much of the form as possible.**

For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DPaW website at <http://www.dpaw.wa.gov.au/>

<b>TAXON:</b> <u>Dampiera eriantha</u>		<b>TPFL Pop. No.:</b> _____	
<b>OBSERVATION DATE:</b> <u>10/04/2014</u>		<b>CONSERVATION STATUS:</b> <u>P1</u> New population <input type="checkbox"/>	
<b>OBSERVER/S:</b> <u>N. Murdock, S. Ruoss, E. Joyce</u>		<b>PHONE:</b> <u>08 9257 1625</u>	
<b>ROLE:</b> <u>Botanist</u>		<b>ORGANISATION:</b> <u>Mattiske Consulting Pty Ltd</u>	

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):

Approximately 29 km South East of the intersection of PNC baseline and the Nippon Hwy along Pink Flamingo track and approximately 126 km North East of Pinjin Homestead, Great Victoria Desert

**Reserve No.:** \_\_\_\_\_

**DISTRICT:** Goldfields                      **LGA:** Menzies                      Land manager present:

<b>DATUM:</b>		<b>COORDINATES:</b> (If UTM coords provided, Zone is also required)		<b>METHOD USED:</b>	
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/>	DegMinSec <input type="checkbox"/>	UTMs <input checked="" type="checkbox"/>	GPS <input checked="" type="checkbox"/>	Differential GPS <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	<b>Lat / Northing:</b> <u>6668806</u>		No. satellites: _____		
WGS84 <input type="checkbox"/>	<b>Long / Easting:</b> <u>600342</u>		Boundary polygon captured: <input type="checkbox"/>		
Unknown <input type="checkbox"/>	<b>Zone:</b> <u>51 J</u>		Map used: _____		
				Map scale: _____	

**LAND TENURE:**

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input checked="" type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): 50

**EFFORT:** Time spent surveying (minutes): \_\_\_\_\_ No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate

Count method: (Refer to field manual for list) \_\_\_\_\_

**WHAT COUNTED:** Plants  Clumps  Clonal stems

<b>TOTAL POP'N STRUCTURE:</b>	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>	Area of pop (m <sup>2</sup> ): _____ Note: Pls record count as numbers (not percentages) for database.
Alive	793	13		806	
Dead	9			9	

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

<b>Summary Quad. Totals: Alive</b>			
------------------------------------	--	--	--

**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower

Immature fruit  Fruit  Dehisced fruit  Percentage in flower: \_\_\_\_\_%

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:**

THREATS - type, agent and supporting information: <small>E.g. clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Mining	<u>N</u>	<u>H</u>	<u>M</u>
•	_____	_____	_____
•	_____	_____	_____

Please return completed form to **Species And Communities Branch DPaW,**

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer,** Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form

Version 1.2 August 2013

**HABITAT INFORMATION:** (Check more than one box for combinations or where necessary)

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest <input type="checkbox"/> Hill <input type="checkbox"/> Ridge <input checked="" type="checkbox"/> Outcrop <input type="checkbox"/> Slope <input type="checkbox"/> Flat <input type="checkbox"/> Open depression <input type="checkbox"/> Drainage line <input type="checkbox"/> Closed depression <input type="checkbox"/> Wetland <input type="checkbox"/>	Granite <input type="checkbox"/> Dolerite <input type="checkbox"/> Laterite <input type="checkbox"/> Ironstone <input type="checkbox"/> Limestone <input type="checkbox"/> Quartz <input type="checkbox"/>  Specify other:	(on soil surface; e.g. gravel, quartz fields)  0-10% <input type="checkbox"/> 10-30% <input type="checkbox"/> 30-50% <input type="checkbox"/> 50-100% <input type="checkbox"/>	Sand <input checked="" type="checkbox"/> Sandy loam <input type="checkbox"/> Loam <input type="checkbox"/> Clay loam <input type="checkbox"/> Light clay <input type="checkbox"/> Peat <input type="checkbox"/>  Specify other:	Red <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input checked="" type="checkbox"/> White <input type="checkbox"/> Grey <input type="checkbox"/> Black <input type="checkbox"/>  Specify other:	Well drained <input checked="" type="checkbox"/> Seasonally inundated <input type="checkbox"/> Permanently inundated <input type="checkbox"/> Tidal <input type="checkbox"/>  Specify other:

**Specific Landform Element:** (Refer to field manual for additional values)

**CONDITION OF SOIL:**

Dry  Moist  Waterlogged  Inundated  Cracked  Saline  Other:

**VEGETATION CLASSIFICATION:\***

E.g. 1. Banksia woodland (B. attenuata, B. ilicifolia);

2. Open shrubland (Hibbertia sp., Acacia spp.)

3. Isolated clumps of sedges (Mesomelaena tetragona)

1. Open Shrubland <2 m (Thryptomene biseriata, Allocasuarina spinosissima, Jacksonia arida)

2. Sparse shrubland <1 m (Calothamnus gilesii, Acacia fragilis, Anthotroche pannosa)

3.

4.

**ASSOCIATED SPECIES:**

Other (non-dominant) spp

Callitris verrucosa, Micromyrtus stenocalyx, Goodenia elderi, Lepidobolus desertii

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:**

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

see attached sheet for additional locations and numbers

Please return completed form to **Species And Communities Branch DPaW,**

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer,** Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form


**DRF PERMIT/ LICENCE No:** SL010848

Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licencing requirements see the Threatened Flora and Wildlife Licensing pages on DPaW's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No: NM130      WA Herb.       Regional Herb.       District Herb.       Other:

**ATTACHED:** Map       Mudmap       Photo       GIS data       Field notes       Other:

**COPY SENT TO:** Regional Office       District Office       Other:

**Submitter of record:** L. Cockram      **Role:** Botanist

**Signature:** LC      **Date submitted:** 29/08/2014

Please return completed form to **Species And Communities Branch** DPaW,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITIO N	COUNT AREA (ha)	REPRODUC TIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE	COMMENTS
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE						
<b><i>Dampiera eriantha</i> (P1)</b>												
569496	6677683	11/08/2014	22	22	0	0	-	0.1500	Flw	-	-	
568992	6677410	11/08/2014	11	11	0	0	-	-	Flw/Bud	-	-	
572245	6674670	10/08/2014	2	2	0	0	-	0.0200	Veg	-	-	
572581	6674645	10/08/2014	2	2	0	0	-	-	-	-	-	
574440	6674407	12/08/2014	2	2	0	0	-	0.1000	Flw/Bud	-	-	
573862	6674037	11/08/2014	7	7	0	0	-	0.4000	Bud	-	-	
573346	6673699	12/08/2014	4	4	0	0	-	0.1000	Flw/Bud	-	-	
571312	6669423	13/08/2014	1	1	0	0	-	0.1000	Bud	-	-	
584331	6680252	14/08/2014	64	64	0	0	-	0.7200	-	-	-	
584677	6680178	14/08/2014	1	1	0	0	-	0.2300	-	-	-	
584980	6680028	14/08/2014	23	23	0	0	-	1.0600	Flw	H	-	
584847	6680077	14/08/2014	16	16	0	0	-	0.1400	Flw	H	-	
587737	6676125	14/08/2014	2	2	0	0	-	0.0004	Flw	H	-	
587749	6676138	14/08/2014	2	2	0	0	-	0.0004	Flw	H	-	
587757	6676133	14/08/2014	2	2	0	0	-	0.0004	Flw	H	-	
587766	6676143	14/08/2014	2	2	0	0	-	0.0004	Flw	H	-	
587798	6676162	14/08/2014	1	1	0	0	-	-	Flw	H	-	
587806	6676156	14/08/2014	2	2	0	0	-	0.0025	Flw	H	-	
588290	6676145	14/08/2014	19	19	0	0	-	0.9000	-	-	-	
588578	6676130	14/08/2014	13	13	0	0	-	0.3400	-	-	-	
588768	6676078	14/08/2014	8	8	0	0	-	0.6000	-	-	-	
588277	6675991	14/08/2014	25	25	0	0	-	1.8400	Veg/Flw/Bud	-	-	
584731	6676822	14/08/2014	49	49	0	0	-	0.6600	Flw/Bud	-	< 10 years ago	Burnt < 10 years ago (?2007). S6 dune; burnt.
584754	6676825	14/08/2014	0		0	0	-	-	-	-	-	
584646	6676678	14/08/2014	3	3	0	0	-	0.0050	Flw	H	-	
602972	6668346	10/08/2014	3	3	0	0	-	0.0100	-	-	-	
603000	6668363	10/08/2014	10	10	0	0	-	0.0100	-	-	-	
603035	6668368	10/08/2014	5	5	0	0	-	0.0100	-	-	-	
603062	6668368	10/08/2014	5	5	0	0	-	0.0100	-	-	-	
603185	6668462	10/08/2014	35	30	0	5	-	0.3200	-	-	-	
603457	6668394	10/08/2014	3	3	0	0	-	0.0100	-	-	-	
584690	6677470	14/08/2014	21	21	0	0	-	0.4500	-	-	-	
584810	6677475	14/08/2014	42	42	0	0	-	0.2800	-	-	-	
584653	6677058	14/08/2014	18	18	0	0	-	0.1000	-	-	-	
584772	6677042	14/08/2014	24	24	0	0	-	0.5000	-	-	-	
599389	6668961	10/08/2014	1	1	0	0	-	-	Flw	-	-	
599400	6668973	10/08/2014	1	1	0	0	-	-	Flw	-	-	
599437	6668993	10/08/2014	1	1	0	0	-	-	Flw	-	-	
600342	6668806	10/08/2014	20	19	1	0	-	0.3200	Flw	H	< 10-15 years ago	S6 dune; burnt < 10- 15 years ago.
601147	6668023	10/08/2014	1	1	0	0	-	-	Flw	-	-	

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITIO N	COUNT AREA (ha)	REPRODUC TIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE	COMMENTS
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE						
<b><i>Dampiera eriantha</i> (P1)</b>												
601164	6668014	10/08/2014	<b>3</b>	3	0	0	-	0.0100	Flw	-	-	
601234	6668031	10/08/2014	<b>1</b>	1	0	0	-	-	Flw	-	-	
601251	6668026	10/08/2014	<b>3</b>	3	0	0	-	0.0025	Flw	-	-	
601660	6668047	10/08/2014	<b>52</b>	48	2	2	-	0.7500	-	-	-	S6 dune.
601688	6668124	10/08/2014	<b>4</b>	4	0	0	-	-	-	-	-	
601867	6667522	10/08/2014	<b>19</b>	19	0	0	-	0.1200	-	-	< 15 years ago	S6 dune; burnt < 15 years ago.
602029	6667421	10/08/2014	<b>3</b>	3	0	0	-	0.0025	Flw/Bud	-	-	
602617	6667435	10/08/2014	<b>4</b>	4	0	0	-	-	-	-	-	S6 dune; burnt with lots of Tridodia; Yellow- orange S.
579481	6681700	13/08/2014	<b>19</b>	19	0	0	E	0.2500	-	-	>15 years ago	
578829	6681464	9/08/2014	<b>10</b>	10	0	0	E	0.2500	-	-	>15 years ago	
585316	6677779	9/08/2014	<b>15</b>	15	0	0	P	0.2500	-	-	>15 years ago (possibly burnt early 2000's)	
569199	6677607	11/08/2014	<b>29</b>	23	4	2	P	0.2500	-	-	>20 years ago	
569315	6677414	11/08/2014	<b>19</b>	19	0	0	P	0.2500	-	-	>15 years ago	
573929	6674479	9/08/2014	<b>14</b>	14	0	0	P	0.2500	-	-	>15 years ago	
573417	6673998	11/08/2014	<b>27</b>	27	0	0	P	0.2500	-	-	>15 years ago	
574954	6673568	12/08/2014	<b>5</b>	5	0	0	P	0.2500	-	-	>15 years ago	
570530	6671688	13/08/2014	<b>29</b>	28	1	0	P	0.2500	-	-	>15 years ago	
570058	6670007	12/08/2014	<b>23</b>	23	0	0	P	0.2500	-	-	>15 years ago	
570821	6669489	13/08/2014	<b>11</b>	7	0	4	P	0.2500	-	-	>15 years ago	
572170	6668771	13/08/2014	<b>3</b>	3	0	0	P	0.2500	-	-	>15 years ago	
584685	6677477	14/08/2014	<b>27</b>	26	1	0	E	0.2500	-	-	>10 years ago on dune crests, slopes burnt <10 years ago (photo 251)	
584690	6677062	14/08/2014	<b>22</b>	22	0	0	E	0.2500	-	-	>10 years ago for site, but <10years ago surrounding landscape:	



# Threatened and Priority Flora Report Form

**Please complete as much of the form as possible.**

For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DPaW website at <http://www.dpaw.wa.gov.au/>

<b>TAXON:</b> Malleostemon sp. Officer Basin (D. Pearson 350)		<b>TPFL Pop. No.:</b> _____
<b>OBSERVATION DATE:</b> 12/08/2014	<b>CONSERVATION STATUS:</b> P2	New population <input type="checkbox"/>
<b>OBSERVER/S:</b> N. Murdock, S. Ruoss, E. Joyce		<b>PHONE:</b> 08 9257 1625
<b>ROLE:</b> Botanist	<b>ORGANISATION:</b> Mattiske Consulting Pty Ltd	

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):

Approximately 10 km South of the intersection of PNC baseline and the Nippon Hwy along the Nippon Highway and approximately 100 km North East of Pinjin Homestead, Great Victoria Desert

**Reserve No.:** \_\_\_\_\_

<b>DISTRICT:</b> Goldfields	<b>LGA:</b> Menzies	Land manager present: <input type="checkbox"/>
<b>DATUM:</b>	<b>COORDINATES:</b> (If UTM coords provided, Zone is also required)	<b>METHOD USED:</b>
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM's <input checked="" type="checkbox"/>	GPS <input checked="" type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	<b>Lat / Northing:</b> 6674343	No. satellites: _____ Map used: _____
WGS84 <input type="checkbox"/>	<b>Long / Easting:</b> 574848	Boundary polygon captured: <input type="checkbox"/> Map scale: _____
Unknown <input type="checkbox"/>	<b>Zone:</b> 51 J	

**LAND TENURE:**

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input checked="" type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): \_\_\_\_\_

**EFFORT:** Time spent surveying (minutes): \_\_\_\_\_ No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate

Count method: (Refer to field manual for list) \_\_\_\_\_

**WHAT COUNTED:** Plants  Clumps  Clonal stems

<b>TOTAL POP'N STRUCTURE:</b>	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>	Area of pop (m <sup>2</sup> ): _____ Note: Pls record count as numbers (not percentages) for database.
Alive	799	0	0	799	
Dead	0	0	0	0	

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

<b>Summary Quad. Totals: Alive</b>				
------------------------------------	--	--	--	--

**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower   
Immature fruit  Fruit  Dehisced fruit  Percentage in flower: \_\_\_\_\_%

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:**

THREATS - type, agent and supporting information: <small>E.g. clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Fire November 2014 fire event affecting 79,204 ha which includes these localities; most records of this species are from long-unburnt dunes; regeneration strategy unknown.	H-E	H	S
• Mining	N	H	M
•	_____	_____	_____

Please return completed form to **Species And Communities Branch DPaW**,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.



# Threatened and Priority Flora Report Form

<b>HABITAT INFORMATION:</b> (Check more than one box for combinations or where necessary)					
<b>LANDFORM:</b> Crest <input type="checkbox"/> Hill <input type="checkbox"/> Ridge <input checked="" type="checkbox"/> Outcrop <input type="checkbox"/> Slope <input type="checkbox"/> Flat <input type="checkbox"/> Open depression <input type="checkbox"/> Drainage line <input type="checkbox"/> Closed depression <input type="checkbox"/> Wetland <input type="checkbox"/>	<b>ROCK TYPE:</b> Granite <input type="checkbox"/> Dolerite <input type="checkbox"/> Laterite <input type="checkbox"/> Ironstone <input type="checkbox"/> Limestone <input type="checkbox"/> Quartz <input type="checkbox"/>  Specify other:	<b>LOOSE ROCK:</b> <small>(on soil surface; e.g. gravel, quartz fields)</small>  0-10% <input type="checkbox"/> 10-30% <input type="checkbox"/> 30-50% <input type="checkbox"/> 50-100% <input type="checkbox"/>	<b>SOIL TYPE:</b> Sand <input checked="" type="checkbox"/> Sandy loam <input type="checkbox"/> Loam <input type="checkbox"/> Clay loam <input type="checkbox"/> Light clay <input type="checkbox"/> Peat <input type="checkbox"/>  Specify other:	<b>SOIL COLOUR:</b> Red <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input checked="" type="checkbox"/> White <input type="checkbox"/> Grey <input type="checkbox"/> Black <input type="checkbox"/>  Specify other:	<b>DRAINAGE:</b> Well drained <input checked="" type="checkbox"/> Seasonally inundated <input type="checkbox"/> Permanently inundated <input type="checkbox"/> Tidal <input type="checkbox"/>  Specify other:
<b>Specific Landform Element:</b> (Refer to field manual for additional values) Sand Dune					
<b>CONDITION OF SOIL:</b> Dry <input type="checkbox"/> Moist <input checked="" type="checkbox"/> Waterlogged <input type="checkbox"/> Inundated <input type="checkbox"/> Cracked <input type="checkbox"/> Saline <input type="checkbox"/> Other:					
<b>VEGETATION CLASSIFICATION:*</b> <small>E.g. 1. Banksia woodland (B. attenuata, B. ilicifolia);          2. Open shrubland (Hibbertia sp., Acacia spp.)          3. Isolated clumps of sedges (Mesomelaena tetragona)</small>	1. Open Shrubland <2 m (Thryptomene biseriata, Allocasuarina spinosissima, Jacksonia arida)				
	2. Sparse shrubland <1 m (Calothamnus gilesii, Acacia fragilis, Anthotroche pannosa)				
	3.				
	4.				
<b>ASSOCIATED SPECIES:</b> <small>Other (non-dominant) spp</small>	Callitris verrucosa, Micromyrtus stenocalyx, Goodenia elderi, Lepidobolus desertii				
<small>* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 Australian Soil and Land Survey Field Handbook guidelines – refer to field manual for further information and structural formation table.</small>					
<b>CONDITION OF HABITAT:</b> Pristine <input checked="" type="checkbox"/> Excellent <input checked="" type="checkbox"/> Very good <input type="checkbox"/> Good <input type="checkbox"/> Degraded <input type="checkbox"/> Completely degraded <input type="checkbox"/>					
<b>COMMENT:</b>					
<b>FIRE HISTORY:</b> Last Fire: Season/Month: _____ Year: _____    Fire Intensity: High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/> No signs of fire <input type="checkbox"/>					
<b>FENCING:</b> Not required <input checked="" type="checkbox"/> Present <input type="checkbox"/> Replace / repair <input type="checkbox"/> Required <input type="checkbox"/> Length req'd: _____					
<b>ROADSIDE MARKERS:</b> Not required <input checked="" type="checkbox"/> Present <input type="checkbox"/> Replace / reposition <input type="checkbox"/> Required <input type="checkbox"/> Quantity req'd: _____					
<b>OTHER COMMENTS:</b> (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.) see attached data for GPS Locations and population numbers					

Please return completed form to **Species And Communities Branch DPaW**,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form


**DRF PERMIT/ LICENCE No:** SL010848

Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licencing requirements see the Threatened Flora and Wildlife Licensing pages on DPaW's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

<b>SPECIMEN:</b>	Collectors No: NM138	WA Herb. <input type="checkbox"/>	Regional Herb. <input type="checkbox"/>	District Herb. <input type="checkbox"/>	Other: Company Herbarium	
<b>ATTACHED:</b>	Map <input type="checkbox"/>	Mudmap <input type="checkbox"/>	Photo <input type="checkbox"/>	GIS data <input checked="" type="checkbox"/>	Field notes <input type="checkbox"/>	Other:
<b>COPY SENT TO:</b>	Regional Office <input type="checkbox"/>		District Office <input type="checkbox"/>		Other:	

<b>Submitter of record:</b>	L. Cockram; N. Murdock	<b>Role:</b>	Botanists
<b>Signature:</b>	LC; NM	<b>Date submitted:</b>	29/08/2014; re-submitted 04/03/15

Please return completed form to **Species And Communities Branch** DPaW,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITIO N	COUNT AREA (ha)	REPRODUC TIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE					
<b><i>Malleostemon</i> sp. Officer Basin (D. Pearson 350) (P2)</b>											
568992	6677410	11/08/2014	<b>9</b>	9	0	0	-	-	Veg	-	-
574440	6674407	12/08/2014	<b>10</b>	10	0	0	-	0.1000	Veg	-	-
573862	6674037	11/08/2014	<b>4</b>	4	0	0	-	0.4000	Veg	-	-
574154	6674023	11/08/2014	<b>1</b>	1	0	0	-	-	Veg	-	-
573346	6673699	12/08/2014	<b>11</b>	11	0	0	-	0.1000	Veg	-	-
571312	6669423	13/08/2014	<b>2</b>	2	0	0	-	0.1000	Veg	-	-
584331	6680252	14/08/2014	<b>69</b>	69	0	0	-	0.7200	-	-	-
584677	6680178	14/08/2014	<b>27</b>	27	0	0	-	0.2300	-	-	-
584931	6680052	14/08/2014	<b>56</b>	56	0	0	-	1.1600	-	-	-
584787	6680072	14/08/2014	<b>27</b>	27	0	0	-	0.2400	Veg	H	-
588261	6676132	14/08/2014	<b>74</b>	74	0	0	-	0.9600	-	-	-
588768	6676078	14/08/2014	<b>30</b>	30	0	0	-	0.6000	-	-	-
588277	6675991	14/08/2014	<b>66</b>	66	0	0	-	1.8400	-	-	-
584742	6676830	14/08/2014	<b>35</b>	35	0	0	-	0.6600	-	-	-
584690	6677470	14/08/2014	<b>21</b>	21	0	0	-	0.3200	-	-	-
584810	6677475	14/08/2014	<b>12</b>	12	0	0	-	0.2800	-	-	-
584647	6677055	14/08/2014	<b>18</b>	18	0	0	-	0.1200	-	-	-
584767	6677042	14/08/2014	<b>48</b>	48	0	0	-	0.5000	-	-	-
585316	6677779	9/08/2014	<b>54</b>	54	0	0	P	0.2500	-	-	>15 years ago (possibly burnt early 2000's)
569199	6677607	11/08/2014	<b>16</b>	16	0	0	P	0.2500	-	-	>20 years ago
569315	6677414	11/08/2014	<b>12</b>	12	0	0	P	0.2500	-	-	>15 years ago
573929	6674479	9/08/2014	<b>61</b>	61	0	0	P	0.2500	-	-	>15 years ago
574848	6674343	12/08/2014	<b>36</b>	36	0	0	P	0.2500	-	-	-
573417	6673998	11/08/2014	<b>17</b>	17	0	0	P	0.2500	-	-	>15 years ago
574954	6673568	12/08/2014	<b>12</b>	12	0	0	P	0.2500	-	-	>15 years ago
570821	6669489	13/08/2014	<b>14</b>	14	0	0	P	0.2500	-	-	>15 years ago
572170	6668771	13/08/2014	<b>11</b>	11	0	0	P	0.2500	-	-	>15 years ago
584685	6677477	14/08/2014	<b>21</b>	21	0	0	E	0.2500	-	-	>10 years ago on dune crests, slopes burnt <10 years ago (photo 251)
584690	6677062	14/08/2014	<b>25</b>	25	0	0	E	0.2500	-	-	>10 years ago for site, but <10years ago surrounding landscape.



# Threatened and Priority Flora Report Form

**Please complete as much of the form as possible.**

For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DPaW website at <http://www.dpaw.wa.gov.au/>

<b>TAXON:</b> <u>Styphelia sp. Great Victoria Desert (N. Murdoch 44)</u>		<b>TPFL Pop. No.:</b> _____
<b>OBSERVATION DATE:</b> <u>13/08/2014</u>	<b>CONSERVATION STATUS:</b> <u>P2</u>	New population <input checked="" type="checkbox"/>
<b>OBSERVER/S:</b> <u>N. Murdoch, S. Ruoss, E. Joyce</u>		<b>PHONE:</b> <u>08 9257 1625</u>
<b>ROLE:</b> <u>Botanists</u>	<b>ORGANISATION:</b> <u>Mattiske Consulting Pty Ltd</u>	

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):

Approximately 5 km South of the intersection of PNC Baseline and Nippon Hwy along Pink Flamingo track and approximately 106 km East of Pinjin Homestead

<b>DISTRICT:</b> <u>Goldfields</u>		<b>LGA:</b> <u>Menzies</u>	<b>Reserve No.:</b> _____
Land manager present: <input type="checkbox"/>			
<b>DATUM:</b>	<b>COORDINATES:</b> (If UTM coords provided, Zone is also required)		<b>METHOD USED:</b>
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/>	DegMinSec <input type="checkbox"/>	UTMs <input checked="" type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	<b>Lat / Northing:</b> <u>6681700</u>		GPS <input checked="" type="checkbox"/>
WGS84 <input type="checkbox"/>	<b>Long / Easting:</b> <u>579481</u>		Differential GPS <input type="checkbox"/>
Unknown <input type="checkbox"/>	<b>Zone:</b> <u>51 J</u>		Map <input type="checkbox"/>
			No. satellites: _____
			Map used: _____
			Boundary polygon captured: <input type="checkbox"/>
			Map scale: _____

**LAND TENURE:**

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input checked="" type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): \_\_\_\_\_

**EFFORT:** Time spent surveying (minutes): \_\_\_\_\_ No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate

Count method: (Refer to field manual for list) \_\_\_\_\_

**WHAT COUNTED:** Plants  Clumps  Clonal stems

<b>TOTAL POP'N STRUCTURE:</b>	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>	Area of pop (m <sup>2</sup> ): _____ Note: Pls record count as numbers (not percentages) for database.
Alive	50			50	
Dead				0	

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

<b>Summary Quad. Totals: Alive</b>				
------------------------------------	--	--	--	--

**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower

Immature fruit  Fruit  Dehisced fruit  Percentage in flower: \_\_\_\_\_%

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:**

THREATS - type, agent and supporting information: <small>E.g. clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Mining	<u>N</u>	<u>H</u>	<u>M</u>
•	_____	_____	_____
•	_____	_____	_____

Please return completed form to **Species And Communities Branch DPaW**,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.



# Threatened and Priority Flora Report Form

Version 1.2 August 2013

**HABITAT INFORMATION:** (Check more than one box for combinations or where necessary)

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest <input type="checkbox"/> Hill <input type="checkbox"/> Ridge <input checked="" type="checkbox"/> Outcrop <input type="checkbox"/> Slope <input type="checkbox"/> Flat <input type="checkbox"/> Open depression <input type="checkbox"/> Drainage line <input type="checkbox"/> Closed depression <input type="checkbox"/> Wetland <input type="checkbox"/>	Granite <input type="checkbox"/> Dolerite <input type="checkbox"/> Laterite <input type="checkbox"/> Ironstone <input type="checkbox"/> Limestone <input type="checkbox"/> Quartz <input type="checkbox"/> Specify other:	(on soil surface; e.g. gravel, quartz fields)  0-10% <input type="checkbox"/> 10-30% <input type="checkbox"/> 30-50% <input type="checkbox"/> 50-100% <input checked="" type="checkbox"/>	Sand <input checked="" type="checkbox"/> Sandy loam <input type="checkbox"/> Loam <input type="checkbox"/> Clay loam <input type="checkbox"/> Light clay <input type="checkbox"/> Peat <input type="checkbox"/> Specify other:	Red <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input checked="" type="checkbox"/> White <input type="checkbox"/> Grey <input type="checkbox"/> Black <input type="checkbox"/> Specify other:	Well drained <input checked="" type="checkbox"/> Seasonally inundated <input type="checkbox"/> Permanently inundated <input type="checkbox"/> Tidal <input type="checkbox"/> Specify other:

**Specific Landform Element:** (Refer to field manual for additional values)

**CONDITION OF SOIL:**

Dry  Moist  Waterlogged  Inundated  Cracked  Saline  Other:

**VEGETATION CLASSIFICATION\*:**

E.g. 1. Banksia woodland (*B. attenuata*, *B. ilicifolia*);

2. Open shrubland (*Hibbertia* sp., *Acacia* spp.)

3. Isolated clumps of sedges (*Mesomelaena tetragona*)

1. Open Shrubland <2 m (*Thryptomene biseriata*, *Allocasuarina spinosissima*, *Jacksonia arida*)

2. Sparse shrubland <1 m (*Calothamnus gilesii*, *Acacia fragilis*, *Anthotroche pannosa*)

3.

4.

**ASSOCIATED SPECIES:**

Other (non-dominant) spp

*Callitris verrucosa*, *Micromyrtus stenocalyx*, *Goodenia elderi*, *Lepidobolus desertii*

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:**

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

See attached table for further locations and population numbers

Please return completed form to **Species And Communities Branch** DPaW,

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form


**DRF PERMIT/ LICENCE No:** SL010837

Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licencing requirements see the Threatened Flora and Wildlife Licensing pages on DPaW's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No: NM144      WA Herb.       Regional Herb.       District Herb.       Other:

**ATTACHED:** Map       Mudmap       Photo       GIS data       Field notes       Other:

**COPY SENT TO:**      Regional Office       District Office       Other:

**Submitter of record:**      L. Cockram      **Role:**      Botanist

**Signature:**      LC      **Date submitted:**      29/08/2014

Please return completed form to **Species And Communities Branch** DPaW,

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

**Record entered by:** \_\_\_\_\_ **Sheet No.:** \_\_\_\_\_ **Record Accepted in Database**

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITIO N	COUNT AREA (ha)	REPRODUC TIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE	COMMENTS
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE						
<b><i>Styphelia</i> sp. Great Victoria Desert (N. Murdoch 44) (P2)</b>												
578356	6681674	9/08/2014	<b>3</b>	3	0	0	-	0.0004	Frt	SS	-	S6 dune; SBR photos S6 dune; Assoc. spp: Grevillea secunda, Conospermu m toddii. S6 dune.
578599	6681577	9/08/2014	<b>1</b>	1	0	0	-	0.0004	Veg	SS	-	
578706	6681493	9/08/2014	<b>7</b>	7	0	0	-	0.0300	Veg	SS	-	
573330	6673694	12/08/2014	<b>1</b>	1	0	0	-	-	-	-	-	
584617	6680295	14/08/2014	<b>1</b>	1	0	0	-	-	-	-	-	
584784	6680150	14/08/2014	<b>1</b>	1	0	0	-	-	Veg	-	-	
588198	6676127	14/08/2014	<b>1</b>	1	0	0	-	-	Frt	-	-	
588514	6676135	14/08/2014	<b>2</b>	2	0	0	-	-	Veg	-	-	
588534	6676133	14/08/2014	<b>1</b>	1	0	0	-	-	Veg	-	-	
588768	6676078	14/08/2014	<b>1</b>	1	0	0	-	-	-	-	-	
588277	6675991	14/08/2014	<b>2</b>	2	0	0	-	-	Frt	-	-	
589200	6675892	14/08/2014	<b>2</b>	2	0	0	-	-	Frt	-	-	
584742	6676830	14/08/2014	<b>1</b>	1	0	0	-	-	Veg	-	-	
584661	6677060	14/08/2014	<b>1</b>	1	0	0	-	-	-	-	-	
584999	6677016	14/08/2014	<b>2</b>	2	0	0	-	-	-	-	-	
584711	6677426	14/08/2014	<b>2</b>	2	0	0	-	0.0004	Frt	-	-	Opportunistic on HIBB016 dune LS.
579481	6681700	13/08/2014	<b>3</b>	3	0	0	E	0.2500	-	-	-	>15 years ago
578829	6681464	9/08/2014	<b>13</b>	13	0	0	E	0.2500	-	-	-	>15 years ago
573929	6674479	9/08/2014	<b>1</b>	1	0	0	P	0.2500	-	-	-	>15 years ago
574848	6674343	12/08/2014	<b>1</b>	1	0	0	P	0.2500	-	-	-	-
574954	6673568	12/08/2014	<b>3</b>	3	0	0	P	0.2500	-	-	-	>15 years ago



# Threatened and Priority Flora Report Form

**Please complete as much of the form as possible.**

For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DPaW website at <http://www.dpaw.wa.gov.au/>

<b>TAXON:</b> <u>Conospermum toddii</u>		<b>TPFL Pop. No.:</b> _____	
<b>OBSERVATION DATE:</b> <u>10/08/2014</u>		<b>CONSERVATION STATUS:</b> <u>P4</u> New population <input type="checkbox"/>	
<b>OBSERVER/S:</b> <u>N. Murdock, S. Ruoss, E. Joyce</u>		<b>PHONE:</b> <u>08 9257 1625</u>	
<b>ROLE:</b> <u>Botanists</u>		<b>ORGANISATION:</b> <u>Mattiske Consulting Pty Ltd</u>	

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):

Approximately 32 km South East of the intersection of PNC baseline and the Nippon Hwy along Pink Flamingo track and approximately 130 km North East of Pinjin Homestead, Great Victoria Desert

**Reserve No.:** \_\_\_\_\_

<b>DISTRICT:</b> <u>Goldfields</u>	<b>LGA:</b> <u>Menzies</u>	<b>Land manager present:</b> <input type="checkbox"/>	
<b>DATUM:</b>	<b>COORDINATES:</b> (If UTM coords provided, Zone is also required)	<b>METHOD USED:</b>	
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input checked="" type="checkbox"/>	GPS <input checked="" type="checkbox"/>	Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	<b>Lat / Northing:</b> <u>6668462</u>	No. satellites:	Map used:
WGS84 <input type="checkbox"/>	<b>Long / Easting:</b> <u>603185</u>	Boundary polygon captured: <input type="checkbox"/>	Map scale:
Unknown <input type="checkbox"/>	<b>Zone:</b> <u>51 J</u>		

**LAND TENURE:**

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input checked="" type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): \_\_\_\_\_

**EFFORT:** Time spent surveying (minutes): \_\_\_\_\_ No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate

Count method: (Refer to field manual for list) \_\_\_\_\_

**WHAT COUNTED:** Plants  Clumps  Clonal stems

<b>TOTAL POP'N STRUCTURE:</b>	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>	Area of pop (m <sup>2</sup> ): _____ Note: Pls record count as numbers (not percentages) for database.
Alive	3278	1032		4310	
Dead	31			31	

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

**Summary Quad. Totals: Alive**

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**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower   
Immature fruit  Fruit  Dehisced fruit  Percentage in flower: \_\_\_\_\_%

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:**

THREATS - type, agent and supporting information: <small>E.g. clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Mining	<u>N</u>	<u>H</u>	<u>M</u>
•	_____	_____	_____
•	_____	_____	_____

Please return completed form to **Species And Communities Branch DPaW**,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.



# Threatened and Priority Flora Report Form

**HABITAT INFORMATION:** (Check more than one box for combinations or where necessary)

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest <input type="checkbox"/> Hill <input type="checkbox"/> Ridge <input checked="" type="checkbox"/> Outcrop <input type="checkbox"/> Slope <input type="checkbox"/> Flat <input type="checkbox"/> Open depression <input type="checkbox"/> Drainage line <input type="checkbox"/> Closed depression <input type="checkbox"/> Wetland <input type="checkbox"/>	Granite <input type="checkbox"/> Dolerite <input type="checkbox"/> Laterite <input type="checkbox"/> Ironstone <input type="checkbox"/> Limestone <input type="checkbox"/> Quartz <input type="checkbox"/> Specify other:	(on soil surface; e.g. gravel, quartz fields)  0-10% <input type="checkbox"/> 10-30% <input type="checkbox"/> 30-50% <input type="checkbox"/> 50-100% <input type="checkbox"/>	Sand <input checked="" type="checkbox"/> Sandy loam <input type="checkbox"/> Loam <input type="checkbox"/> Clay loam <input type="checkbox"/> Light clay <input type="checkbox"/> Peat <input type="checkbox"/> Specify other:	Red <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input checked="" type="checkbox"/> White <input type="checkbox"/> Grey <input type="checkbox"/> Black <input type="checkbox"/> Specify other:	Well drained <input checked="" type="checkbox"/> Seasonally inundated <input type="checkbox"/> Permanently inundated <input type="checkbox"/> Tidal <input type="checkbox"/> Specify other:

**Specific Landform Element:** (Refer to field manual for additional values)

Sand Dune

**CONDITION OF SOIL:**

Dry  Moist  Waterlogged  Inundated  Cracked  Saline  Other:

**VEGETATION CLASSIFICATION\*:**

E.g. 1. Banksia woodland (*B. attenuata*, *B. ilicifolia*);

2. Open shrubland (*Hibbertia* sp., *Acacia* spp.)

3. Isolated clumps of sedges (*Mesomelaena tetragona*)

1. Open Shrubland <2 m (*Thryptomene biseriata*, *Allocasuarina spinosissima*, *Jacksonia arida*)

2. Sparse shrubland <1 m (*Calothamnus gilesii*, *Acacia fragilis*, *Anthotroche pannosa*)

3.

4.

**ASSOCIATED SPECIES:**

Other (non-dominant) spp

*Callitris verrucosa*, *Micromyrtus stenocalyx*, *Goodenia elderi*, *Lepidobolus desertii*

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:**

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

See attached table for further locations and population numbers

Please return completed form to **Species And Communities Branch** DPaW,

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form


**DRF PERMIT/ LICENCE No:** SL010848

Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licencing requirements see the Threatened Flora and Wildlife Licensing pages on DPaW's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

<b>SPECIMEN:</b>	Collectors No: NM127	WA Herb. <input checked="" type="checkbox"/>	Regional Herb. <input type="checkbox"/>	District Herb. <input type="checkbox"/>	Other:	
<b>ATTACHED:</b>	Map <input checked="" type="checkbox"/>	Mudmap <input type="checkbox"/>	Photo <input type="checkbox"/>	GIS data <input checked="" type="checkbox"/>	Field notes <input type="checkbox"/>	Other:
<b>COPY SENT TO:</b>	Regional Office <input type="checkbox"/>	District Office <input type="checkbox"/>	Other:			

<b>Submitter of record:</b>	L. Cockram	<b>Role:</b>	Botanist
<b>Signature:</b>	LC	<b>Date submitted:</b>	29/08/2014

Please return completed form to **Species And Communities Branch** DPaW,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983  
**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITION	COUNT AREA (ha)	REPRODUCTIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE	COMMENTS
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE						
<b><i>Conospermum toddii</i> (P4)</b>												
569496	6677683	11/08/2014	<b>63</b>	51	0	12	-	0.1500	Flw	-	-	
568992	6677410	11/08/2014	<b>105</b>	90	0	15	-	0.1000	Flw	-	-	
572245	6674670	10/08/2014	<b>5</b>	5	0	0	-	0.0200	Veg	-	-	
572581	6674645	10/08/2014	<b>4</b>	4	0	0	-	-	-	-	-	
573862	6674037	11/08/2014	<b>15</b>	15	0	0	-	0.4000	Flw	-	-	
574154	6674023	11/08/2014	<b>29</b>	28	1	0	-	-	Veg	-	-	
573346	6673699	12/08/2014	<b>12</b>	12	0	0	-	0.1000	Flw	-	-	
571312	6669423	13/08/2014	<b>2</b>	2	0	0	-	0.1000	Flw	-	-	
584331	6680252	14/08/2014	<b>114</b>	113	1	0	-	0.5800	-	-	-	
584602	6680203	14/08/2014	<b>182</b>	182	0	0	-	0.3900	-	-	-	
584931	6680052	14/08/2014	<b>250-350</b>	200-250	0	50-100	-	1.1600	Flw/Veg	H	-	Adult
584496	6680012	14/08/2014	<b>16</b>	16	0	0	-	0.0600	Flw/Veg	H	-	
584693	6680054	14/08/2014	<b>1</b>	1	0	0	-	-	Veg	SS	-	
584722	6680063	14/08/2014	<b>600-800</b>	400-500	0	200-300	-	0.3600	Flw/Veg	H	-	Adult
587691	6676127	14/08/2014	<b>2</b>	1	0	1	-	-	Veg	H	-	
587714	6676122	14/08/2014	<b>12</b>	0	0	12	-	0.0025	Veg	H	-	
587739	6676129	14/08/2014	<b>8</b>	3	0	5	-	0.0025	Flw (adult)/Veg (juv)	H	-	
587744	6676138	14/08/2014	<b>17</b>	17	0	0	-	0.1400	Flw/Veg	H	-	
587885	6676191	14/08/2014	<b>1</b>	1	0	0	-	-	Veg	H	-	
587965	6676187	14/08/2014	<b>2</b>	0	0	2	-	0.0004	Veg	H	-	
588575	6676128	14/08/2014	<b>43</b>	36	0	7	-	0.3400	-	-	-	
588768	6676078	14/08/2014	<b>44</b>	30	14	0	-	0.6000	-	-	-	
587677	6676055	14/08/2014	<b>1</b>	1	0	0	-	-	Veg	H	-	
588277	6675991	14/08/2014	<b>54</b>	51	0	3	-	1.8400	-	-	-	
584529	6676891	14/08/2014	<b>114</b>	93	1	20	-	1.0600	Veg	-	-	
583828	6676738	14/08/2014	<b>500-700</b>	300-400	0	200-300	-	0.6600	Flw/Veg	H	-	Adult
584310	6676654	14/08/2014	<b>250</b>	150	0	100	-	0.2800	Flw/Veg	H	-	Adult
584605	6676684	14/08/2014	<b>350</b>	150	0	200	-	0.2600	Flw/Veg	H	-	Adult
603185	6668462	10/08/2014	<b>21</b>	21	0	0	-	-	-	-	-	
603457	6668394	10/08/2014	<b>4</b>	4	0	0	-	0.0200	-	-	-	Assoc. spp: Hybanthus floribundus, Lepidosperma sanguinolentum, Anthotroche pannosa, Greville juncifolia.
584690	6677470	14/08/2014	<b>110</b>	90	1	19	-	0.4500	-	-	-	
584810	6677475	14/08/2014	<b>27</b>	19	0	8	-	0.2800	-	-	-	
584245	6677199	14/08/2014	<b>10</b>	0	0	10	-	0.5600	-	-	-	Slope.
584519	6677099	14/08/2014	<b>33</b>	15	0	18	-	0.3600	-	-	-	
584767	6677042	14/08/2014	<b>13</b>	9	0	4	-	0.5000	-	-	-	
601867	6667522	10/08/2014	<b>15</b>	15	0	0	-	0.1200	-	-	-	
602029	6667450	10/08/2014	<b>4</b>	4	0	0	-	0.0025	Flw/Veg	-	-	
602617	6667435	10/08/2014	<b>7</b>	7	0	0	-	-	-	-	-	
579481	6681700	13/08/2014	<b>39</b>	31	0	8	E	0.2500	-	-	-	>15 years ago
578829	6681464	9/08/2014	<b>53</b>	53	0	0	E	0.2500	-	-	-	>15 years ago
585316	6677779	9/08/2014	<b>28</b>	28	0	0	P	0.2500	-	-	-	>15 years ago (? early 2000's)
569199	6677607	11/08/2014	<b>173</b>	136	0	37	P	0.2500	-	-	-	>20 years ago
569315	6677414	11/08/2014	<b>137</b>	121	0	16	P	0.2500	-	-	-	>15 years ago
573929	6674479	9/08/2014	<b>70</b>	69	1	0	P	0.2500	-	-	-	>15 years ago
574848	6674343	12/08/2014	<b>90</b>	87	0	3	P	0.2500	-	-	-	

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITION	COUNT AREA (ha)	REPRODUCTIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE	COMMENTS
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE						
573417	6673998	11/08/2014	<b>100</b>	83	0	17	P	0.2500	-	-	>15 years ago	
574954	6673568	12/08/2014	<b>138</b>	131	0	7	P	0.2500	-	-	>15 years ago	
570530	6671688	13/08/2014	<b>70</b>	66	0	4	P	0.2500	-	-	>15 years ago	
570058	6670007	12/08/2014	<b>142</b>	142	0	0	P	0.2500	-	-	>15 years ago	
570821	6669489	13/08/2014	<b>66</b>	53	0	13	P	0.2500	-	-	>15 years ago	
572170	6668771	13/08/2014	<b>88</b>	78	0	10	P	0.2500	-	-	>15 years ago	
584685	6677477	14/08/2014	<b>72</b>	42	1	29	E	0.2500	-	-	>10 years ago on dune crests, slopes burnt <10 years ago (photo 251)	
584690	6677062	14/08/2014	<b>35</b>	22	11	2	E	0.2500	-	-	>10 years ago for site, but <10years ago surrounding landscape;	



# Threatened and Priority Flora Report Form

**Please complete as much of the form as possible.**

For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DPaW website at <http://www.dpaw.wa.gov.au/>

<b>TAXON:</b> <u>Grevillea secunda</u>		<b>TPFL Pop. No.:</b> _____	
<b>OBSERVATION DATE:</b> <u>13/08/2014</u>		<b>CONSERVATION STATUS:</b> <u>P4</u> New population <input type="checkbox"/>	
<b>OBSERVER/S:</b> <u>N. Murdock, S. Ruoss, E. Joyce</u>		<b>PHONE:</b> <u>08 9257 1625</u>	
<b>ROLE:</b> <u>Botanists</u>		<b>ORGANISATION:</b> <u>Mattiske Consulting Pty Ltd</u>	

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):

Approximately 15 km South of the intersection of PNC baseline and the Nippon Hwy along the Nippon Highway track and approximately 95 km North East of Pinjin Homestead, Great Victoria Desert

**Reserve No.:** \_\_\_\_\_

**DISTRICT:** Goldfields                      **LGA:** Menzies                      Land manager present:

<b>DATUM:</b>		<b>COORDINATES:</b> (If UTM coords provided, Zone is also required)		<b>METHOD USED:</b>	
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/>	DegMinSec <input type="checkbox"/>	UTMs <input checked="" type="checkbox"/>	GPS <input checked="" type="checkbox"/>	Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	<b>Lat / Northing:</b> <u>6669489</u>		No. satellites: _____ Map used: _____		
WGS84 <input type="checkbox"/>	<b>Long / Easting:</b> <u>570821</u>		Boundary polygon captured: <input type="checkbox"/> Map scale: _____		
Unknown <input type="checkbox"/>	<b>Zone:</b> <u>51 J</u>				

**LAND TENURE:**

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input checked="" type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): \_\_\_\_\_

**EFFORT:** Time spent surveying (minutes): \_\_\_\_\_ No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate

Count method: (Refer to field manual for list) \_\_\_\_\_

**WHAT COUNTED:** Plants  Clumps  Clonal stems

<b>TOTAL POP'N STRUCTURE:</b>	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>	Area of pop (m <sup>2</sup> ): _____ Note: Pls record count as numbers (not percentages) for database.	
	Alive	219	0	0		219
	Dead	0	0	0		0

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

<b>Summary Quad. Totals: Alive</b>				
------------------------------------	--	--	--	--

**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower   
Immature fruit  Fruit  Dehisced fruit  Percentage in flower: \_\_\_\_\_%

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:**

<b>THREATS - type, agent and supporting information:</b> E.g. clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. <b>Specify agent</b> where relevant. <b>Rate current and potential threat impact:</b> N=Nil, L=Low, M=Medium, H=High, E=Extreme <b>Estimate time to potential impact:</b> S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	<b>Current impact (N-E)</b>	<b>Potential Impact (L-E)</b>	<b>Potential Threat Onset (S-L)</b>
• Mining	<u>N</u>	<u>H</u>	<u>M</u>
•	_____	_____	_____
•	_____	_____	_____

Please return completed form to **Species And Communities Branch DPaW,**

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer,** Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form

**HABITAT INFORMATION:** (Check more than one box for combinations or where necessary)

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest <input type="checkbox"/> Hill <input type="checkbox"/> Ridge <input type="checkbox"/> Outcrop <input type="checkbox"/> Slope <input type="checkbox"/> Flat <input checked="" type="checkbox"/> Open depression <input type="checkbox"/> Drainage line <input type="checkbox"/> Closed depression <input type="checkbox"/> Wetland <input type="checkbox"/>	Granite <input type="checkbox"/> Dolerite <input type="checkbox"/> Laterite <input type="checkbox"/> Ironstone <input type="checkbox"/> Limestone <input type="checkbox"/> Quartz <input type="checkbox"/> Specify other:	(on soil surface; e.g. gravel, quartz fields)  0-10% <input type="checkbox"/> 10-30% <input type="checkbox"/> 30-50% <input type="checkbox"/> 50-100% <input type="checkbox"/>	Sand <input type="checkbox"/> Sandy loam <input checked="" type="checkbox"/> Loam <input type="checkbox"/> Clay loam <input type="checkbox"/> Light clay <input type="checkbox"/> Peat <input type="checkbox"/> Specify other:	Red <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Grey <input type="checkbox"/> Black <input type="checkbox"/> Orange Specify other:	Well drained <input checked="" type="checkbox"/> Seasonally inundated <input type="checkbox"/> Permanently inundated <input type="checkbox"/> Tidal <input type="checkbox"/> Specify other:

**Specific Landform Element:** (Refer to field manual for additional values)

**CONDITION OF SOIL:**

Dry  Moist  Waterlogged  Inundated  Cracked  Saline  Other:

**VEGETATION CLASSIFICATION\*:**

E.g. 1. Banksia woodland (B. attenuata, B. ilicifolia);

2. Open shrubland (Hibbertia sp., Acacia spp.)

3. Isolated clumps of sedges (Mesomelaena tetragona)

1. Open shrubland <2 m (Banksia elderiana, Calothamnus gilesii, Grevillea didymobotrya subsp. didymobotrya, Acacia desertorum subsp. desertorum)

2. Open hummock grassland <2m (Triodia spp.)

3.

4.

**ASSOCIATED SPECIES:**

Other (non-dominant) spp

Chrysitrix distigmata, Caustis dioica, Anthotroche pannosa, Verticordia helmsii

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:**

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

See attached table for further locations and population numbers

Please return completed form to **Species And Communities Branch** DPaW,

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Accepted in Database



# Threatened and Priority Flora Report Form


**DRF PERMIT/ LICENCE No:** SL010848

Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licencing requirements see the Threatened Flora and Wildlife Licensing pages on DPaW's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

<b>SPECIMEN:</b>	Collectors No: NM142	WA Herb. <input checked="" type="checkbox"/>	Regional Herb. <input type="checkbox"/>	District Herb. <input type="checkbox"/>	Other:	
<b>ATTACHED:</b>	Map <input type="checkbox"/>	Mudmap <input type="checkbox"/>	Photo <input checked="" type="checkbox"/>	GIS data <input checked="" type="checkbox"/>	Field notes <input type="checkbox"/>	Other:
<b>COPY SENT TO:</b>	Regional Office <input type="checkbox"/>	District Office <input type="checkbox"/>	Other:			

<b>Submitter of record:</b>	L. Cockram	<b>Role:</b>	Botanist
<b>Signature:</b>	LC	<b>Date submitted:</b>	29/08/2014

Please return completed form to **Species And Communities Branch** DPaW,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983  
**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Branch.

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITIO N	COUNT AREA (ha)	REPRODUC TIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE	COMMENTS
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE						
<b><i>Grevillea secunda</i> (P4)</b>												
584602	6680203	14/08/2014	2	2	0	0	-	-	-	-	-	
584469	6680013	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587595	6676148	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587659	6676135	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587790	6676162	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587799	6676163	14/08/2014	1	1	0	0	-	-	Flw	H	-	
587866	6676181	14/08/2014	2	2	0	0	-	0.0004	Veg	H	-	
587885	6676191	14/08/2014	2	2	0	0	-	0.0004	Flw	H	-	
587909	6676202	14/08/2014	4	4	0	0	-	0.0100	Veg/Flw	H	-	
587943	6676193	14/08/2014	1	1	0	0	-	-	Veg	SS	-	
587965	6676187	14/08/2014	1	1	0	0	-	-	Veg	H	-	
588005	6676174	14/08/2014	1	1	0	0	-	-	Veg	SS	-	
588085	6676159	14/08/2014	1	1	0	0	-	-	Veg	-	Large, sprawling.	
588207	6676128	14/08/2014	4	4	0	0	-	0.0050	-	-	-	
588511	6676134	14/08/2014	1	1	0	0	-	-	Veg	-	-	
588525	6676145	14/08/2014	1	1	0	0	-	-	Flw	-	-	
588611	6676110	14/08/2014	2	2	0	0	-	-	Veg	-	-	
587489	6676072	14/08/2014	3	3	0	0	-	0.0025	Veg	H	-	
587688	6676057	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587699	6676055	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587717	6676063	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587796	6676051	14/08/2014	1	1	0	0	-	-	Veg	H	-	
587814	6676045	14/08/2014	1	1	0	0	-	-	Veg	H	-	
588193	6675997	14/08/2014	8	8	0	0	-	0.1000	Veg	-	< 10 years ago	
589150	6675908	14/08/2014	2	2	0	0	-	-	Veg	-	S6 dune; burnt < 10 years ago (?2007)	
584144	6676998	14/08/2014	30	30	0	0	-	0.6600	Veg/Flw	-	?S8 - dune start, LS.	
583877	6676743	14/08/2014	5	5	0	0	-	0.0100	Veg	H	-	
583958	6676747	14/08/2014	6	6	0	0	-	0.0225	Veg	SS/H	-	
584034	6676747	14/08/2014	10	10	0	0	-	0.2500	Veg/Flw	H	-	
584111	6676708	14/08/2014	6	6	0	0	-	0.0400	Veg	H	-	
584190	6676684	14/08/2014	10	10	0	0	-	0.0400	Veg	H	-	
584289	6676653	14/08/2014	8	8	0	0	-	0.0400	Veg	H	-	
584445	6676610	14/08/2014	12	12	0	0	-	0.0625	Veg/Flw	H	-	
584785	6676670	14/08/2014	1	1	0	0	-	-	Flw	H	-	
603283	6668434	10/08/2014	28	28	0	0	-	0.2500	-	-	< 10 years ago	
584468	6677502	14/08/2014	4	4	0	0	-	0.1000	-	-	Burnt < 10 years ago.	
584245	6677199	14/08/2014	17	17	0	0	-	0.5600	-	-	Slope.	
584545	6677094	14/08/2014	11	11	0	0	-	0.3200	-	-	-	
584711	6677426	14/08/2014	5	5	0	0	-	0.0100	-	-	Opportunistic on HIBB016 dune LS.	

GDA94 Z51			NO. OF INDIVIDUALS				HABITAT CONDITIO N	COUNT AREA (ha)	REPRODUC TIVE STAGE	PLANT HEALTH	APPROX. NO. YEARS SINCE FIRE	COMMENTS
EASTING (mE)	NORTHING (mN)	DATE	TOTAL	ALIVE	DEAD	JUVENILE						
587988	6676124	14/08/2014	<b>7</b>	7	0	0	-	-	-	-	< 10 years ago	Orange S; LS/Swale; Burnt < 10 years ago (?2007); Assoc. spp: Microcorys macredieana, Eucalyptus gongylocarpa, Chrysitrix distigmata, Triodia sp., Anthotroche pannosa, Bonamia erecta, Eucalyptus youngiana.
599721	6668994	10/08/2014	<b>8</b>	8	0	0	-	0.0225	Veg	-	-	
569199	6677607	11/08/2014	<b>1</b>	1	0	0	P	0.2500	-	-	>20 years ago	
569315	6677414	11/08/2014	<b>1</b>	1	0	0	P	0.2500	-	-	>15 years ago	
570821	6669489	13/08/2014	<b>3</b>	3	0	0	P	0.2500	-	-	>15 years ago	
584690	6677062	14/08/2014	<b>1</b>	1	0	0	E	0.2500	-	-	>10 years ago for site, but <10years ago surrounding landscape:	