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**OAKAJEE PORT AND RAIL  
OPR RAIL DEVELOPMENT  
VEGETATION AND FLORA ASSESSMENT**

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**May 2010**

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## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	LEGISLATIVE FRAMEWORK .....	1
1.2	SURVEY OBJECTIVES.....	2
<b>2</b>	<b>EXISTING ENVIRONMENT.....</b>	<b>5</b>
2.1	CLIMATE.....	5
2.2	GEOLOGY, LANDFORMS AND SOILS.....	8
2.2.1	Geology, Landforms and Soils of the Freehold Land Area .....	8
2.2.2	Geology, Landforms and Soils of the Pastoral Land Area.....	8
2.3	LAND SYSTEM AND SOIL-LANDSCAPE SYSTEM CLASSIFICATION .....	9
2.4	BIOGEOGRAPHIC REGIONS .....	20
2.4.1	Geraldton Sandplains Bioregion - Geraldton Hills Subregion.....	20
2.4.2	Yalgoo Bioregion - Tallering Subregion .....	20
2.4.3	Murchison Bioregion - Western Murchison Subregion.....	20
2.5	CONSERVATION ESTATES IN THE STUDY AREA.....	22
2.6	STATE AND NATIONALLY RECOGNISED THREATENED COMMUNITIES.....	25
2.6.1	Threatened Ecological Communities.....	25
2.6.2	Priority Ecological Communities.....	25
2.6.3	Environmentally Sensitive Areas .....	25
2.7	LAND USE HISTORY .....	26
2.8	PREVIOUS BIOLOGICAL SURVEYS.....	26
2.8.1	Vegetation Described by Beard.....	28
2.8.2	Vegetation Described By IBRA.....	37
2.8.3	Vegetation Previously Recorded in the Vicinity of the Study Area .....	37
<b>3</b>	<b>SURVEY METHODOLOGY.....</b>	<b>43</b>
3.1	GUIDING PRINCIPLES .....	43
3.2	DETERMINATION OF SURVEY SAMPLING DESIGN AND INTENSITY .....	43
3.3	DATABASE SEARCHES.....	45
3.4	VEGETATION AND FLORA ASSESSMENT .....	45
3.4.1	Detailed Floristic Quadrats .....	53
3.4.2	Opportunist Collections.....	53
3.4.3	Vegetation Mapping .....	54
3.4.4	Targeted Threatened Flora Survey.....	54
<b>4</b>	<b>VEGETATION RECORDED IN THE STUDY AREA .....</b>	<b>55</b>
4.1.1	Vegetation of the Study Area in the Geraldton Sandplains IBRA Region.....	55
4.1.2	Vegetation of the Study Area in the Yalgoo IBRA Region.....	58
4.1.3	Vegetation of the Study Area in the Murchison IBRA Region .....	62
4.1.4	Vegetation Condition of the Study Area .....	69
4.1.5	Fire History of the Study Area .....	70
<b>5</b>	<b>FLORA RECORDED IN THE STUDY AREA .....</b>	<b>71</b>
5.1	GENERAL FLORA.....	71
5.2	SAMPLING ADEQUACY.....	73
5.2.1	Sampling Adequacy for the Freehold Land Area.....	73
5.2.2	Sampling Adequacy for the Pastoral Land Area .....	73
5.3	FLORA OF CONSERVATION SIGNIFICANCE.....	74
5.3.1	Environment Protection and Biodiversity Conservation Act 1999.....	74
5.3.2	Wildlife Conservation Act 1950.....	78

5.3.3	Priority Flora .....	79
5.3.4	Priority Flora with Potential to Occur in the Study Area .....	79
5.3.5	Priority Flora Recorded in the Study Area During the Current Survey .....	79
5.3.6	Priority Flora Recorded During the <i>ecologia</i> Regional Surveys .....	100
5.3.7	Range Extensions Recorded in the Study Area.....	100
5.3.8	Other Flora of Interest Recorded in the Study Area.....	105
5.4	INTRODUCED FLORA .....	106
5.4.1	Declared Plants.....	111
5.4.2	Weeds of National Significance .....	113
<b>6</b>	<b>SURVEY LIMITATIONS AND CONSTRAINTS .....</b>	<b>115</b>
<b>7</b>	<b>VEGETATION COMMUNITIES CONSERVATION ASSESSMENT .....</b>	<b>119</b>
7.1	VEGETATION OF NATIONAL SIGNIFICANCE .....	119
7.2	VEGETATION OF STATE SIGNIFICANCE .....	119
7.3	VEGETATION OF REGIONAL SIGNIFICANCE .....	120
7.3.1	Land System and Soil-Landscape System Analysis .....	120
7.3.2	Beard Mapping Analysis .....	131
7.4	VEGETATION OF LOCAL SIGNIFICANCE .....	141
<b>8</b>	<b>FLORA CONSERVATION ASSESSMENT .....</b>	<b>164</b>
8.1	FLORA OF NATIONAL AND STATE CONSERVATION SIGNIFICANCE .....	172
8.1	FLORA OF REGIONAL SIGNIFICANCE .....	176
8.2	FLORA OF LOCAL SIGNIFICANCE .....	176
<b>9</b>	<b>STUDY TEAM .....</b>	<b>189</b>
<b>10</b>	<b>REFERENCES .....</b>	<b>191</b>

## TABLES

Table 2.1 – Rainfall Preceding the Section 5 Survey (Geraldton Airport Records) .....	6
Table 2.2 – Rainfall Preceding the Section 3 and Section 4 Surveys (Mullewa Records).....	7
Table 2.3 – Rainfall Preceding the Section 1 and Section 2 Surveys (Meekatharra Airport Records).....	8
Table 2.4 – Soil-Landscape Systems of the Study Area .....	10
Table 2.5 – Land Systems of the Study Area .....	12
Table 2.6 – Conservation Estate Located Within the Study Area.....	22
Table 2.7 – PECs Recorded in the Study Area .....	25
Table 2.8 – Beard Vegetation Communities of the Study Area.....	31
Table 2.9 – Jack Hills Vegetation Communities.....	37
Table 2.10 – Jack Hills Vegetation Communities (DEC).....	39
Table 2.11 – Weld Range Vegetation Communities (DEC).....	39
Table 2.12 – Weld Range Vegetation Communities.....	40
Table 2.13 – Oakajee Vegetation Communities .....	41
Table 2.14 – Vegetation Communities Recorded Between Jack Hills and Weld Range.....	41
Table 3.1 – Factors Likely to Influence Survey Design.....	44
Table 4.1 – Vegetation Condition Assessment.....	69
Table 5.1 – Diversity of the Flora of the Study Area .....	71
Table 5.2 – Diversity of the Flora of the Freehold and Pastoral Land Areas .....	71
Table 5.3 – Most Frequently Recorded Families, Genera and Taxa in the Study Area .....	72
Table 5.4 – Quadrats with the Highest and Lowest Species Richness .....	72
Table 5.5 – Species Protected by the <i>EPBC Act</i> Recorded Within a 2 km Buffer of the Study Area .....	74
Table 5.6 – DRF Taxa Protected by the <i>WC Act</i> Recorded Within a 2 km Buffer of the Study Area .....	78
Table 5.7 – Priority Flora Taxa Recorded in the Study Area.....	79

Table 5.8 – Descriptions of Priority Flora Recorded in the Study Area .....	81
Table 5.9 – Priority Flora Taxa Recorded During the <i>ecologia</i> Regional Surveys.....	100
Table 5.10 – Range Extensions Recorded in the Study Area .....	102
Table 5.11 – Introduced Flora Taxa Recorded in the Study Area .....	107
Table 6.1 – Survey Limitations and Constraints .....	116
Table 7.1 – Land System and Soil-Landscape System Conservation Significance Assessment .....	129
Table 7.2 – Beard Vegetation Units Conservation Significance Assessment .....	137
Table 7.3 – Extent of Beard Vegetation Units Remaining in the Geraldton Sandplains Bioregion .....	139
Table 7.4 – Vegetation Communities Conservation Significance Assessment.....	157
Table 8.1 – Number of Plants Assumed for Records Where Only Descriptions or % Cover was Available.....	165
Table 8.2 – Conservation Assessment of DRF and Priority Flora Taxa Recorded in the Study Area ...	167

## FIGURES

Figure 1.1 – Location of the OPR Rail Study Area.....	3
Figure 2.1 – Climatic Summary Data (Geraldton Airport) .....	5
Figure 2.2 – Climatic Summary Data (Mullewa).....	6
Figure 2.3 – Climatic Summary Data (Meekatharra Airport) .....	7
Figure 2.4 – Land Systems and Soil-Landscape Systems of the Study Area (Overview Map) .....	15
Figure 2.5 – Soil-Landscape Systems of the Study Area (Map 1) .....	16
Figure 2.6 – Land Systems of the Study Area (Map 2) .....	17
Figure 2.7 – Land Systems of the Study Area (Map 3) .....	18
Figure 2.8 – Land Systems of the Study Area (Map 4) .....	19
Figure 2.9 – IBRA Subregions of the Study Area .....	21
Figure 2.10 – Conservation Estate Within the Vicinity of the Study Area (Map 1).....	23
Figure 2.11 – Conservation Estate Within the Vicinity of the Study Area (Map 2).....	24
Figure 2.12 – Beard Vegetation of the Study Area (Overview Map).....	32
Figure 2.13 – Beard Vegetation of the Study Area (Map 1) .....	33
Figure 2.14 – Beard Vegetation of the Study Area (Map 2) .....	34
Figure 2.15 – Beard Vegetation of the Study Area (Map 3) .....	35
Figure 2.16 – Beard Vegetation of the Study Area (Map 4).....	36
Figure 3.1 – Survey Timing and Quadrat Locations.....	47
Figure 3.2 – Transect Locations (Overview Map).....	48
Figure 3.3 – Transect Locations (Map 1) .....	49
Figure 3.4 – Transect Locations (Map 2) .....	50
Figure 3.5 – Transect Locations (Map 3) .....	51
Figure 3.6 – Transect Locations (Map 4) .....	52
Figure 5.1 – Average Randomised SAC for the Freehold Land Area .....	73
Figure 5.2 – Average Randomised SAC for the Pastoral Land Area .....	74
Figure 5.3 – Locations of Priority Flora Recorded in the <i>ecologia</i> Regional Surveys .....	101
Figure 5.4 – Introduced Flora Taxa Recorded in the Study Area (Overview Map).....	108
Figure 5.5 – Introduced Flora Taxa Recorded in the Study Area (Map 1).....	109
Figure 5.6 – Introduced Flora Taxa Recorded in the Study Area (Map 2).....	110
Figure 8.1 – Distribution of <i>Caladenia hoffmanii</i> .....	172
Figure 8.2 – Distribution of <i>Eucalyptus blaxellii</i> .....	173
Figure 8.3 – Distribution of <i>Drummondita ericoides</i> .....	174
Figure 8.4 – Distribution of <i>Philothea wonganensis</i> .....	175

## PLATES

Plate 5.1 – <i>Caladenia hoffmanii</i> .....	75
Plate 5.2 – <i>Caladenia hoffmanii</i> (photography: <i>ecologia</i> ).....	75
Plate 5.3 – <i>Eucalyptus blaxellii</i> (photography: <i>ecologia</i> ).....	76
Plate 5.4 – <i>Philothea wonganensis</i> .....	77
Plate 5.5 – <i>Drummondita ericoides</i> .....	77
Plate 5.6 – <i>Acacia</i> aff. <i>rhodophloia</i> (photography: <i>ecologia</i> ).....	105
Plate 5.7 – <i>Philothea</i> aff. <i>tubiflora</i> (photography: <i>ecologia</i> ) .....	106
Plate 5.8 – * <i>Carthamus lanatus</i> .....	111
Plate 5.9 – * <i>Echium plantagineum</i> .....	112
Plate 5.10 – * <i>Emex australis</i> .....	113

## APPENDICES

Appendix A Definition of Codes for Threatened and Priority Ecological Communities.....	195
Appendix B Biological Surveys Conducted in the Vicinity of the Study Area.....	199
Appendix C Conservation Significant Flora Recorded During the DEC’s Database Searches and Other Biological Surveys in the Area.....	205
Appendix D Quadrat Locations and Vegetation Condition .....	217
Appendix E National Vegetation Information System Vegetation Classification .....	233
Appendix F Quadrat Information (Included Electronically).....	237
Appendix G DRF and Priority Flora Locations and Maps and Species of Interest Locations.....	241
Appendix H Vegetation Communities Recorded in the Study Area – Detailed Information .....	300
Appendix I Vegetation Community Mapping of the Study Area .....	336
Appendix J Flora Taxa Recorded In the Study Area .....	372
Appendix K Conservation Category Definitions .....	396
Appendix L WAHERB DRF and Priority Flora Voucher Forms (Included Electronically) .....	400
Appendix M Priority Flora Locations Recorded During the <i>ecologia</i> Regional Surveys.....	404
Appendix N Introduced Flora Locations .....	408
Appendix O Control codes for Declared Weeds.....	420
Appendix P Matrix of Priority Flora Taxa That has been Recorded in Each Land System and Vegetation Community.....	424



## ACRONYMS

<b>ARRP Act</b>	<i>Agriculture and Related Resources Protection Act 1976</i>
<b>BIF</b>	Banded Ironstone Formation
<b>BOM</b>	Bureau of Meteorology
<b>CALM Act</b>	<i>Conservation and Land Management Act</i>
<b>DAF</b>	Department of Agriculture and Food
<b>DEC</b>	Department of Environment and Conservation
<b>DEFL</b>	The DEC's Threatened (Declared Rare) Flora Database
<b>DEWHA</b>	Department of the Environment, Water, Heritage and the Arts
<b>DRF</b>	Declared Rare Flora
<b>EIA</b>	Environmental Impact Assessment
<b>EP Act</b>	Environment Protection Act 1986
<b>EPA</b>	Environmental Protection Authority
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>NVIS</b>	National Vegetation Information System
<b>OPR</b>	Oakajee Port and Rail
<b>PEC</b>	Priority Ecological Community
<b>SAC</b>	Species Accumulation Curve
<b>TEC</b>	Threatened Ecological Community
<b>WAHERB</b>	Western Australian Herbarium
<b>WC Act</b>	<i>Wildlife Conservation Act 1950</i>

## GLOSSARY OF TERMS

### **Approved Port:**

The deepwater port located at Oakajee. The Port was approved by the state government in 1998 by Ministerial Statement 469 and more recently updated by an approved 45C process.

### ***ecologia* regional studies:**

Surveys commissioned by OPR, undertaken by *ecologia*, on previous OPR alignments. Note this is only relevant for the Pastoral land area.

### **Freehold land area:**

Land that is permanently owned by a person or persons and is not the subject of a lease arrangement. Within the Study Area this extends from Oakajee to the western boundary of Wandina Pastoral Station (approximately 145 km from the coast).

### **Pastoral land area:**

Land that is the subject of a lease arrangement with the State Government of Western Australia, and the holder of the lease and is used for grazing livestock on native vegetation. The Pastoral land area extends from the western boundary of Wandina Pastoral lease (chainage 145 km) to Jack Hills (chainage 560 km).

### **Proposed alignment:**

The rail construction and operational footprint, being a much smaller area, completely located within the Study Area.

### **The Study Area:**

The larger area surveyed for the purpose of biological studies (as presented in this document) and as presented in the PER and relevant Technical Appendices.

## EXECUTIVE SUMMARY

Oakajee Port and Rail Pty Ltd (OPR) propose the Oakajee Rail Development, a component of the larger Oakajee Port and Rail Development which also consists of the Oakajee Port (Approved Port) and the Oakajee Port Terrestrial Development which is the subject of a separate environmental impact assessment.

The Study Area comprises the development of approximately 560 km of rail formation within a rail transport corridor from mines in the northern mid-west to an export port at Oakajee located approximately 24 km north of Geraldton. The mainline (of approximately 530 km) extends from the western boundary of Reserve 16200 near the North West Coastal Highway to Jack Hills mine in the north-east. In addition, the Study Area includes a 21 km spur to connect to the existing WestNet (Mullewa) and a 10-15 km spur to Weld Range. The Mullewa spur will potentially connect mine sites to the south of Mullewa to the Oakajee Port. The Study Area is 4 km in width through the Pastoral land area and 3.2 km in width through the Freehold land area.

OPR commissioned *ecologia* Environment (*ecologia*) to undertake a biological survey of the vegetation and flora of the Study Area.

The primary objective of this study was to provide sufficient information to the Environmental Protection Authority (EPA) to assess the impact of the rail corridor on the vegetation and flora of the area. The EPA's objectives with regards to management of native vegetation and flora are to:

- avoid adverse impacts on biological diversity comprising the different plants and the ecosystems they form at the levels of genetic, species and ecosystem diversity;
- maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities;
- protect Declared Rare Flora (DRF) consistent with the provisions of the *Wildlife Conservation Act 1950*; and
- protect other flora species of conservation significance.

A two phase, Level 2 vegetation and flora survey was undertaken in the Study Area. Phase one involved a quadrat sampling method to provide a detailed vegetation community map and a floristic species list for the Study Area; 605 quadrats were surveyed in the Study Area between April and August 2009. An additional nine quadrats surveyed by *ecologia* at Weld Range (*ecologia*, 2009a) were included in the statistical analysis. Phase two involved targeting threatened flora and unknown species by using transects to cover large areas of the Study Area. This was undertaken between August and October 2009 and March 2010 where 1,250 km of transects were walked, covering 2,364 ha or 1.05% of the Study Area.

## VEGETATION

Seventy-two vegetation communities, incorporating 48 subunits were recorded in the Study Area. Vegetation communities were separated into the three IBRA regions that the Study Area crosses, which included; the Geraldton Sandplains, Yalgoo and Murchison bioregions.

The dominant vegetation communities of the Geraldton Sandplains region were characterised by; isolated *Eucalyptus loxophleba* low trees, over mixed *Melaleuca* spp. and *Hakea* spp. open mid shrublands, over mixed *Verticordia* spp. open low shrublands on rocky hill slopes of the Moresby Ranges; mixed *Eucalyptus* spp, *Xylomelum angustifolium*, *Actinostrobus arenarius* and *Banksia* spp. low woodlands, over mixed *Acacia* spp. and *Melaleuca* spp. sparse mid shrublands on the yellow sandplains and dunes; *Acacia tetragonophylla* and *Hakea recurva* open tall shrublands on the degraded low hill slopes and flats; *Eucalyptus loxophleba* and *Acacia acuminata* open low woodlands,

sometimes with an understory of mixed Chenopods on the floodplains and *Eucalyptus camaldulensis* and *Casuarina obesa* on the creeklines and river banks.

The dominant vegetation communities of the Yalgoo region were characterised by; mixed *Acacia ramulosa* var. *linophylla*, *Acacia quadrimarginea* and *Acacia grasbyi* tall shrublands on the low rocky hill slopes; *Acacia ramulosa* var. *linophylla* and *Acacia ramulosa* var. *ramulosa* tall shrublands or mixed *Eucalyptus* spp. low woodlands on the red sand plains; *Acacia burkittii*, *Acacia grasbyi*, *Acacia ramulosa* var. *linophylla* and *Acacia eremaea* open tall shrublands, sometimes over sparse low Chenopod shrublands on the floodplains; *Casuarina obesa* open low forests, over open Chenopod spp. low shrublands on the major creeklines and *Acacia burkittii* and *Acacia tetragonophylla* mid woodlands on the minor creeklines and drainage channels.

The dominant vegetation communities of the Murchison region were characterised by; mixed *Acacia aneura* and *Acacia ramulosa* var. *linophylla* open low woodlands on rocky hill slopes of the Weld Range and Jack Hills and other rocky areas in the region; *Acacia aneura* and *Acacia ramulosa* var. *linophylla* open low woodlands, over mixed *Eremophila* spp. open mid shrublands on the red sand plains; Isolated *Acacia aneura* low trees, over mixed *Eremophila* spp. and *Senna* spp. mid shrublands, over *Ptilotus obovatus* sparse low shrublands on the red hardpan or stony plains; mixed Chenopod low shrublands surrounding salt lakes and on floodplains; *Eucalyptus victrix*, *Casuarina obesa* and *Acacia burkittii* open mid woodlands on major creeklines and *Acacia aneura*, *Acacia tetragonophylla* and *Acacia kempeana* mixed low woodlands on minor creeklines and drainage channels.

The 72 vegetation communities are described in full in Appendix H and have been mapped in Appendix I.

#### VEGETATION CONSERVATION ASSESSMENT OF THE STUDY AREA

Database searches indicate that no Threatened Ecological Communities of national significance occur within a 2 km buffer of the Study Area. However, four Priority 1, Priority Ecological Communities of state significance do, these include:

1. Jack Hills vegetation complexes (Banded Ironstone Formation); associated with vegetation communities; Mh1, Mh2, Mh3, Mh4 and Mc3. These communities are restricted to Jack Hills and are significant;
2. Plant assemblages of the Moresby Range system; associated with vegetation communities; Gh1, Gh2 and Gh3. These communities are restricted to the Moresby Range and are significant;
3. Tallering Peak vegetation complexes; associated with vegetation communities Yh1 and Yp2. Yh1 is restricted to the Tallering land system and is significant, whereas Yp2 is more widespread in the local area and is not significant; and
4. Weld Range vegetation complexes (Banded Ironstone Formation); associated with vegetation communities; Mh5, Mh6, Mh7, Mh8, Mc3 and Mc4. These communities were restricted to the Weld Range and are significant.

The local conservation assessment of the vegetation communities recorded in the Study Area has been assessed using a number of factors discussed in full in section 0. The vegetation communities have been assigned a conservation significance rating of; very high, high, moderate or low as listed below:

<b>Very high</b>	Gh1, Gh2, Gh3, Gy1, Gy2, Mh6, Mf2.
<b>High</b>	Gp2, Gc1, Gc2, Yh1, Yf4, Mh1, Mh2, Mh3, Mh4, Mh7, Mh8, Mh13, Mh18, Mf1, Mf3, Mc3.
<b>Moderate</b>	Gf1, Gf2, Yp3, Mh10, Mh11, Mh12, Mr1, Mr2, Mp6, Mp7, Mp10, Mc2.

**Low** Gp1, Yh2, Yh3, Yy1, Yp1, Yp2, Yp4, Yp5, Yp6, Yf1, Yf2, Yf3, Yf5, Yc1, Yc2, Mh9, Mh14, Mh15, Mh16, Mh17, Mr3, Mp1, Mp2, Mp3, Mp4, Mp5, Mp8, Mp11, Mc1, Mc5, Mc6, Mc7, Mc8.

These are discussed in full in section 7.3.3.

## FLORA

A total of 1016 taxa were recorded in the Study Area. This number includes 84 families and 322 genera, of which 220 taxa (21.7%) were annuals, one was an endangered DRF, 57 were Priority Flora (including one vulnerable Priority 4), 62 were general weeds and three were Declared Plants.

A species accumulation curve was used to statistically estimate sampling adequacy using the quadrat based data. This showed that 77% of flora taxa in the Freehold land area and 81% of flora taxa in the Pastoral land area were recorded. After adding the opportunistic collections from the transect survey to this estimation, it showed that 110% of flora taxa in the Freehold land area and 98% of flora taxa in the Pastoral land area were recorded in the Study Area, indicating that the majority of plant species have been recorded during the current survey.

## FLORA CONSERVATION ASSESSMENT

Two species of national significance, listed under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* were recorded in the Study Area; *Caladenia hoffmanii* (Endangered) and *Eucalyptus blaxellii* (Vulnerable). An additional two species of national significance were recorded in the Study Area from the DEC database searches; *Drummondita ericoides* (Endangered) and *Philothea wonganensis* (Endangered). These taxa are also of state significance and are listed under the *Wildlife Conservation Act 1950 (WC Act)* as DRF except *Eucalyptus blaxellii* which is a Priority 4 taxon.

Of these taxa, it is considered that *Caladenia hoffmanii*, *Drummondita ericoides* and *Philothea wonganensis* have high local significance and *Eucalyptus blaxellii* has low local significance in the Study Area (Section 8.1).

Fifty-seven Priority Flora taxa of regional significance were recorded in the Study Area during the current survey, including;

- Priority 1: *Acacia lineolata* subsp. *multilineata*, *Chamelaucium* sp. Yalgoo (Y. Chadwick 1816), *Euphorbia sarcostemmoides*, *Gunniopsis divisa*, *Lepidosperma* sp. Moresby Range (R.J. Cranfield 2751), *Melaleuca huttensis*, *Mirbelia ternata*, *Petrophile vana*, *Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94), *Scholtzia* ?sp. Binu (M.E. Trudgen 2218) and *Thryptomene* sp. Wandana (M.E. Trudgen MET 22016).
- Priority 2: *Frankenia confusa*, *Homalocalyx inerrabundus*, *Leucopogon borealis*, *Leucopogon* sp. Howatharra (D. & N. McFarland 1046), *Scholtzia* sp. East Yuna (A.C. Burns 6), *Thryptomene* sp. East Yuna (J.W. Green (4639) and *Thryptomene stenophylla*.
- Priority 3: *Acacia leptospermoides* subsp. *psammophila*, *Acacia speckii*, *Acacia subsessilis*, *Acanthocarpus parviflorus*, *Blackallia nudiflora*, *Calytrix erosipetala*, *Calytrix formosa*, *Calytrix uncinata*, *Calytrix verruculosa*, *Dicrasyllis linearifolia*, *Dodonaea amplisemina*, *Eremophila arachnoides* subsp. *arachnoides*, *Eremophila muelleriana*, *Geleznovia verrucosa* subsp. Kalbarri (L.M. Broadhurst 123), *Grevillea stenostachya*, *Grevillea triloba*, *Hemigenia tysonii*, *Hemigenia virescens*, *Homalocalyx echinulatus*, *Indigofera gilesii* subsp. *gilesii*, *Microcorys tenuifolia*, *Petrophile pauciflora*, *Prostanthera petrophila*, *Ptilotus beardii*, *Ptilotus luteolus*, *Serichonus gracilipes*, *Thryptomene* sp. Moresby Range (A.S. George 14873), *Verticordia chrysostachys* var. *pallida*, *Verticordia densiflora* var. *roseostella* and *Verticordia jamiesonii*.

- Priority 4: *Acacia guinetii*, *Baeckea* sp. Melita Station (H. Pringle 2738), *Diuris recurva*, *Eucalyptus blaxellii*, *Goodenia berringbinensis*, *Grevillea inconspicua*, *Jacksonia velutina*, *Verticordia capillaris* and *Verticordia penicillaris*.

An additional 31 Priority Flora taxa of regional significance were recorded in the Study Area by the DEC's database searches and from other surveys carried out in the region, including;

- Priority 1: *Acacia* sp. Jack Hills (R. Meissner & Y. Caruso 4), *Baeckea staminosa*, *Eremophila* sp. Tallering (J.D. Start & M.J. Greeve D 516), *Goodenia lyrata*, *Harperia ferruginipes*, *Lepidobolus basiflorus*, *Leucopogon psammophilus*, *Ptilotus tetrandrus*, *Scholtzia* sp. Valentine Road (S. Patrick 2142), *Tricoryne* sp. Geraldton (G.J. Keighery 10461) and *Vittadinia cervicularis* var. *occidentalis*.
- Priority 2: *Acacia megacephala*, *Dicrastylis incana*, *Malleostemon* sp. Moonyoonooka (R.J. Cranfield 2947), *Thryptomene* sp. Yuna Reserve (A.C. Burns 100) and *Verticordia aereiflora*.
- Priority 3: *Arnocrinum drummondii*, *Baeckea* sp. Walkaway (A.S. George 11249), *Gastrolobium propinquum*, *Gastrolobium rotundifolium*, *Gnephosis cassiniana*, *Grevillea candicans*, *Lasiopetalum oppositifolium*, *Lepidium scandens*, *Micromyrtus placoides*, *Scaevola oldfieldii*, *Stenanthemum divaricatum* and *Tecticornia cymbiformis*
- Priority 4: *Eucalyptus ebbanoensis* subsp. *photina*, *Lechenaultia longiloba* and *Verticordia polytricha*.

Of the Priority Flora taxa recorded in the Study Area, it is considered that five have high local significance, including; *Lepidosperma* sp. Moresby Range (Priority 1), *Leucopogon borealis* (Priority 2), *Leucopogon* sp. Howatharra (Priority 2), *Serichonus gracilipes* (Priority 3) and *Thryptomene* sp. Moresby Range (Priority 3).

The conservation significance of the Priority Flora taxa recorded in the Study Area is discussed further in section 8.1.

## 1 INTRODUCTION

Oakajee Port and Rail Pty Ltd (OPR) propose the Oakajee Rail Development (the Proposal), a component of the larger Oakajee Port and Rail Development which also consists of the Oakajee Port (Approved Port) and the Oakajee Port Terrestrial Development, which is the subject of a separate environmental impact assessment.

The Study Area comprises the development of approximately 570 km of rail formation within a rail transport corridor from mines in the northern mid-west to an export port at Oakajee located approximately 24 km north of Geraldton. The mainline (of approximately 530 km) extends from the western boundary of Reserve 16200 near the North West Coastal Highway to Jack Hills mine in the north-east. In addition, the Study Area includes a 21 km spur to connect to the existing WestNet (Mullewa) and a 10-15 km spur to Weld Range. The Mullewa spur will potentially connect mine to the south of Mullewa to the Oakajee Port (Figure 1.1). The Study Area is 4 km in width through the Pastoral land area and 3.2 km in width through the Freehold land area. One 10 km section in the Freehold land area was approximately 6.8 km in width.

### 1.1 LEGISLATIVE FRAMEWORK

Federal and State legislation applicable to the conservation of native flora and fauna includes, but is not limited to, the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, the *Wildlife Conservation Act 1950 (WC Act)* and the *Environmental Protection Act 1986 (EP Act)*.

Section 4a of the *EP Act* requires that developments take into account the following principles applicable to native flora and fauna:

- *The Precautionary Principle*

Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

- *The Principles of Intergenerational Equity*

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

- *The Principle of the Conservation of Biological Diversity and Ecological Integrity*

Conservation of biological diversity and ecological integrity should be a fundamental consideration.

Furthermore, vegetation and flora surveys undertaken as part of the environmental impact assessment (EIA) process are required to address the following:

- Environmental Protection Authority's (EPA's) Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection (EPA, 2002); and
- Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA, 2004a).

Native flora and fauna in Western Australia are protected at a Federal level under the *EPBC Act* and at a State level under the *WC Act*.

The *EPBC Act* was developed to provide for the protection of the environment, especially those aspects of the environment that are Matters of National Environmental Significance, to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and to promote the conservation of biodiversity. The *EPBC Act* includes provisions to protect native species (in particular to prevent the extinction and promote the recovery of

threatened species) and to ensure the conservation of migratory species. In addition to the principles outlined in Section 4a of the *EP Act*, Section 3a of the *EPBC Act* includes the principle of ecologically sustainable development, dictating that decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.

The *WC Act* was developed to provide for the conservation and protection of wildlife in Western Australia. Under Section 14 of this Act, all fauna and flora within Western Australia are protected; however, the Minister may, via a notice published in the Government Gazette, declare a list of flora taxa identified as likely to become extinct, or as rare, or otherwise in need of special protection. The current listing was gazetted on the 5<sup>th</sup> of August 2008 (*WC Act*, 2008(2)).

## 1.2 SURVEY OBJECTIVES

The EPA's objectives with regards to the management of native flora and vegetation are to:

- Avoid adverse impacts on biological diversity comprising the different plants and animals and the ecosystems they form, at the levels of genetic, species and ecosystem diversity.
- Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities.
- Protect Declared Rare Flora (DRF) consistent with the provisions of the *WC Act*.
- Protect other flora species of conservation significance.

The primary objective of the vegetation and flora assessment was to provide sufficient information to the EPA to assess the impact of the development on the vegetation and flora of the Study Area, thereby ensuring that these objectives will be upheld.

Specifically, this survey was to satisfy the requirements documented in the EPA's Guidance Statement 51 and Position Statement No. 3, thus providing:

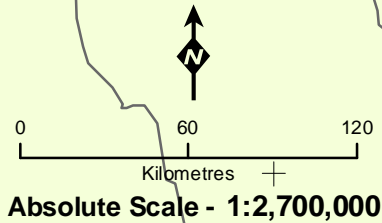
- A review of background information (including literature and database searches).
- An inventory of vegetation types and flora species occurring in the Study Area, incorporating recent published and unpublished records.
- An inventory of species of biological and conservation significance recorded or likely to occur within the Study Area and surrounds.
- A map and detailed description of vegetation types occurring in the Study Area.
- A description of the characteristics of the vegetation types.
- An appraisal of the current knowledge base for the area, including a review of previous surveys conducted in the area relevant to the current study.
- A review of regional and biogeographical significance, including the conservation status of species recorded in the Study Area.
- A risk assessment to determine likely impacts of threatening processes on vegetation and flora within the Study Area (to be included in a separate report).





**Legend**

- OPR Proposed Rail Corridor



**Location of the Study Area**

**Figure: 1.1**  
Project ID: 1131

**Drawn: AH**  
Date: 27/11/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A024



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## 2 EXISTING ENVIRONMENT

### 2.1 CLIMATE

The Study Area is located within Beard’s (1976) Eremaean and South-western Botanical Provinces. Beard (1976) describes the climate associated with these provinces as desert (with bimodal summer and winter rainfall), and Mediterranean (dry warm Mediterranean near the coast and semi-desert Mediterranean further east).

Three Bureau of Meteorology (BOM) weather stations were selected to provide an indication of the local climatic conditions along the Study Area:

- Geraldton Airport weather station (site number 008051);
- Mullewa weather station (site number 008095); and
- Meekatharra Airport weather station (site number 007045).

Geraldton’s Mediterranean climate is described as hot and dry in summer and mild and wet in winter. The climate is strongly influenced by a sub-tropical ridge (high pressure) and the west coast trough (low pressure), and seasonal extremes in weather are experienced (Figure 2.1).

The mean annual rainfall for Geraldton is 447.5 mm falling over 86 rainfall days. The wettest period is from May to August, when a mean of 327.4 mm falls over 51 rainfall days; approximately 73% of the mean annual rainfall. The wettest month is June with a mean of 100.1 mm falling over 14 rainfall days (Figure 2.1).

February is the hottest month with a mean maximum temperature of 32.5°C. July temperatures range from a mean maximum of 19.5°C to a mean minimum of 9.5°C (Figure 2.1) (BOM, 2009).

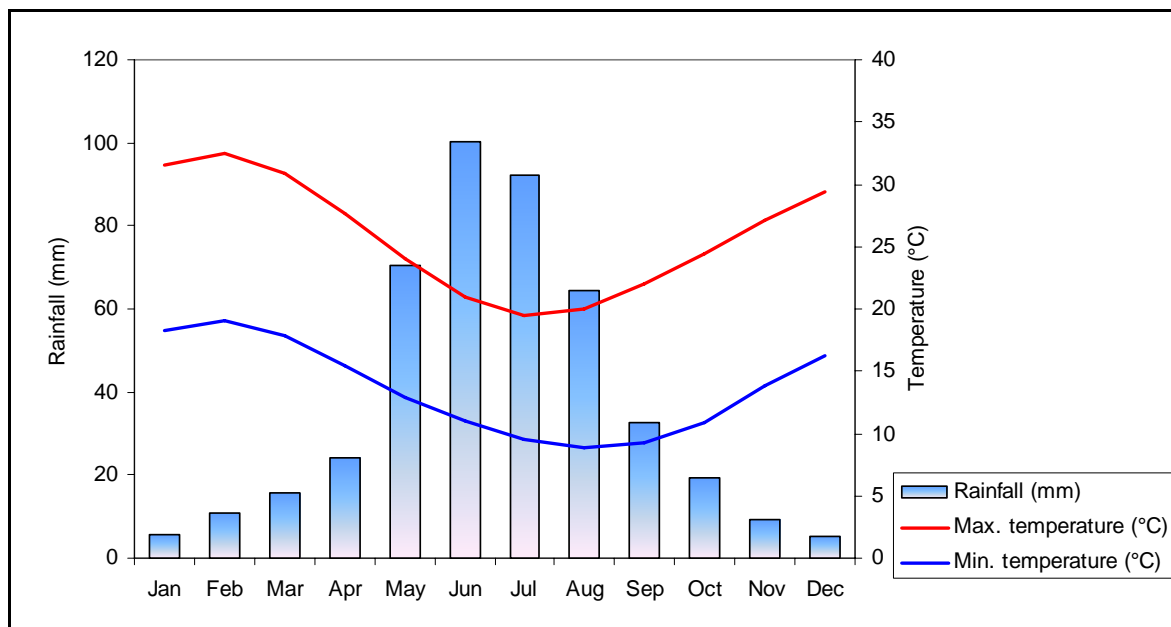


Figure 2.1 – Climatic Summary Data (Geraldton Airport)

Rainfall in the six months preceding the Section 5 survey (August 2009) was 251.4 mm, 62.5 mm below the long-term mean for those months (Table 2.1). During 2008, 22% less rain than the long-term mean was recorded at Geraldton Airport (BOM, 2009).

Rainfall in the six months preceding the phase two transect survey for section 5 (October 2009) was 357.8 mm, 26.2 mm less the long-term mean for those months.

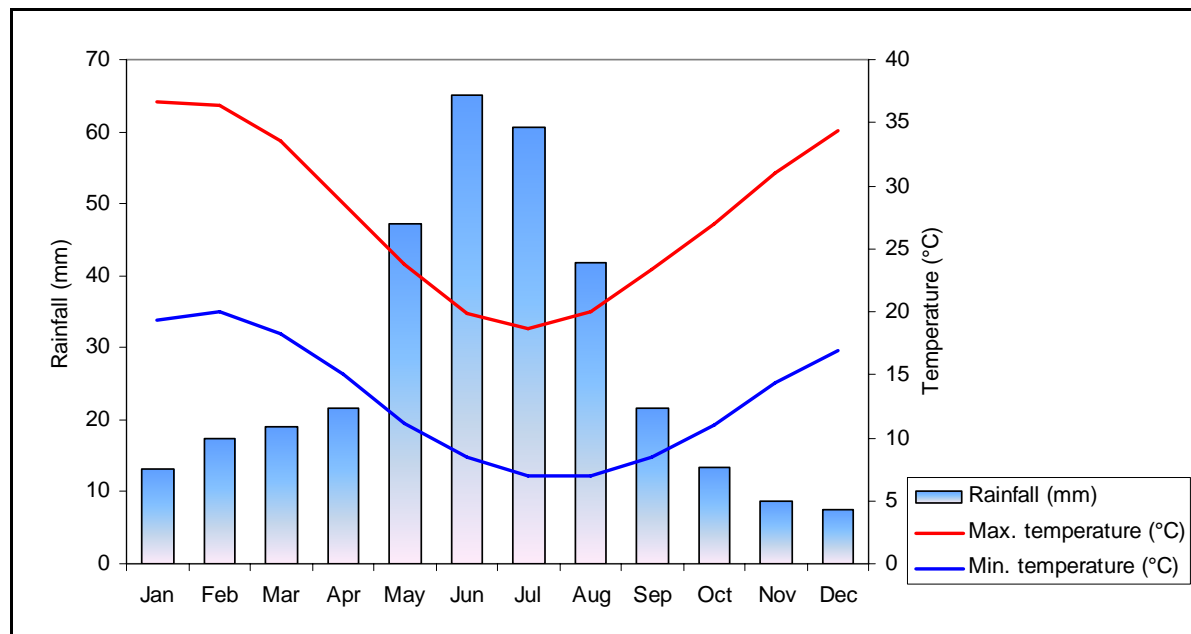
**Table 2.1 – Rainfall Preceding the Section 5 Survey (Geraldton Airport Records)**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>Total Monthly Rainfall (mm)</b>													
<b>2008</b>	0.0	34.6	6.6	53.2	14.2	63.4	108.4	7.6	38.4	14.0	3.6	3.4	347.4
<b>2009</b>	0.4	0.6	0.4	1.2	40.4	117.4	91.4	<b>63.6</b>	43.8	<b>10.4</b>	NA	NA	NA
<b>Mean Monthly Rainfall (mm)</b>													
	5.7	11.0	15.9	24.1	70.4	100.1	92.4	64.5	32.5	19.2	9.2	5.4	447.5

Note: Bold red font denotes survey month (i.e. Phase 1; Section 5 survey August 2009, Phase 2; Section 5 October 2009). \*\*Mean monthly rainfall records: 1941 to 2009.

Mullewa has a Mediterranean climate and its mean annual rainfall of 337.3 mm falls over 64 rainfall days. Most of the annual rainfall for Mullewa occurs from May to August (64%), with 214.9 mm falling over 39 rainfall days (Table 2.1).

January is the hottest month with a mean maximum temperature of 36.7°C, while the coolest month is July with mean temperatures ranging from a maximum of 18.7°C to a minimum of 7.0°C (Figure 2.2) (BOM, 2009).



**Figure 2.2 – Climatic Summary Data (Mullewa)**

Rainfall in the six months preceding the Section 3 and Section 4 surveys (April/May 2009) was 51.1 mm, 28.1 mm below the long-term mean for those months (Table 2.2). However, during 2008, 14% more rain than the long-term mean was recorded at Mullewa (BOM, 2009).

Rainfall in the six months preceding the phase two transect survey for section 3 (September 2009) was 235.1 mm, 20.4 mm below the long-term mean for those months and section 4 (October, 2009) was 265.2 mm, 7.1 mm above the long-term mean for those months (Table 2.2) (BOM, 2009).

**Table 2.2 – Rainfall Preceding the Section 3 and Section 4 Surveys (Mullewa Records)**

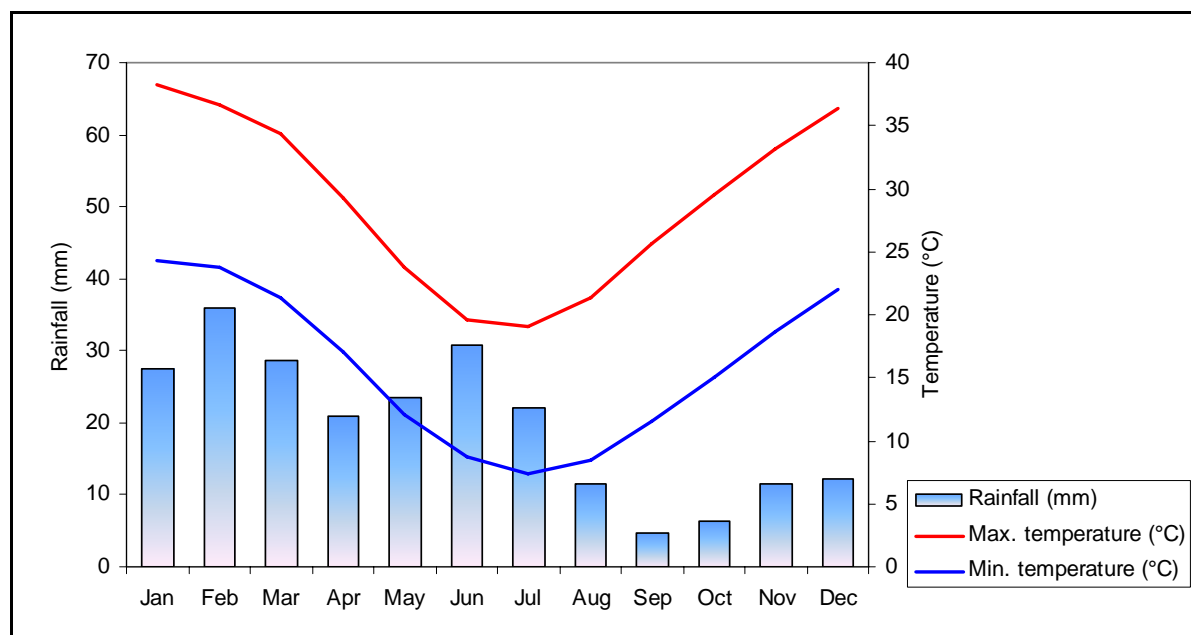
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>Total Monthly Rainfall (mm)</b>													
2008	0	83.4	16.6	73.1	3.7	40.5	95	17.7	23.8	20.3	2.4	7	383.5
2009	10.2	3.4	7.8	<b>0</b>	<b>30.8</b>	100.3	70.9	25.3	<b>37.9</b>	<b>3.6</b>	NA	NA	NA
<b>Mean Monthly Rainfall (mm)**</b>													
	13.1	17.5	19.1	21.5	47.2	65.1	60.7	41.9	21.7	13.3	8.7	7.5	337.3

Note: Bold red font denotes survey month (i.e. Phase 1; Section 3 and Section 4 surveys April - May 2009, Phase 2; Section 3 = September 2009 and Section 4 = October 2009). \*\*Mean monthly rainfall records: 1896 to 2009.

The Meekatharra climate is described as dry with hot summers and mild winters, and is strongly influenced by a band of high pressure known as the sub-tropical ridge. The ridge is located to the south for most of the year, occasionally moving close enough to enable cold fronts to pass over the area; however, most cold fronts bring little rain. The reliable rainfall periods are associated with tropical cloud bands from May to July (Figure 2.3).

Mean annual rainfall for Meekatharra is 235.8 mm, although there is considerable variation in annual rainfall for the area. The wettest summer month is February when a mean of 35.9 mm of rain falls, while June is the wettest winter month with 30.8 mm of rain (Figure 2.3).

The hottest month is January with a mean maximum temperature of 38.3°C, however, hot, dry north-east to north-west winds often result in temperatures above 41°C. July temperatures range from a mean maximum of 19°C to a mean minimum of 7.4°C, and the overnight temperature may drop below 5°C (Figure 2.3) (BOM, 2009).



**Figure 2.3 – Climatic Summary Data (Meekatharra Airport)**

Rainfall in the six months preceding the phase one quadrat surveys for section 1 and section 2 (June 2009) was 70 mm, 78.6 mm below the long-term mean for those months (Table 2.3). However, during 2008, 28% more rain than the long-term mean was recorded at Meekatharra Airport (BOM, 2009).

Rainfall in the six months preceding the phase two transect survey for section 1 (September 2009) was 55.6 mm, 81.6 mm below the long-term mean for those months and for the six months preceding the phase two transect survey for section 2 (March 2010) was 21.8 mm, 100.4 mm below the long term mean for those months (Table 2.3) (BOM, 2009).

**Table 2.3 – Rainfall Preceding the Section 1 and Section 2 Surveys (Meekatharra Airport Records)**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>Total Monthly Rainfall (mm)</b>													
<b>2008</b>	5.4	127.6	57.2	13.8	2.2	10.8	16.8	17.6	0	6.2	29.8	14.8	302.2
<b>2009</b>	28.8	11.8	2.6	10	2	<b>18.6</b>	18.2	4.2	<b>3</b>	3.4	12.4	4	119
<b>2010</b>	0	0.2	<b>1.8</b>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Mean Monthly Rainfall (mm)**</b>													
	27.5	35.9	28.6	20.9	23.5	30.8	22	11.4	4.6	6.4	11.6	12.2	235.8

Note: Bold red font denotes survey month (i.e. Phase 1; Section 1 and Section 2 surveys = June 2009, Phase 2; Section 1 survey = September 2009, Phase 2; Section 2 survey = March 2010). \*\*Mean monthly rainfall records from 1944 to 2009.

## 2.2 GEOLOGY, LANDFORMS AND SOILS

The Study Area dissects Beard’s (1976) Greenough and Murchison Province. The Greenough Province incorporates the Geraldton Region, which describes the Freehold land area, and the Murchison Province incorporates the Upper Murchison and Yalgoo subregions, which describes the Pastoral land area.

The geology, landforms and soils of these areas are discussed below.

### 2.2.1 Geology, Landforms and Soils of the Freehold Land Area

Playford *et al.* (1970) describe four main physiographic units on the mainland of the Geraldton region: the Victoria Plateau, the Greenough Flats, the river drainage systems, and the coastal belt.

The Victoria Plateau is a gently undulating sandplain approximately 240 m above sea level. Laterite is overlain by sand, and is exposed at dissected margins of the sandplain. Sand dunes are present in some areas, and flat-topped mesas have been formed by remnants of the plateau. The Greenough Flats form the floodplain near the mouth of the Greenough River. The river drainage systems include the Greenough, Chapman, Hutt and Bowes Rivers. The coastal belt unit includes a band of coastal limestone and sand dunes.

Tille (2006) describes the Greenough Province, which incorporates part of Beard & Burn’s (1976) Geraldton area, as a “laterised plateau (dissected at the fringes) on the sedimentary rocks of the Perth Basin and gneiss of the Northampton Complex”, with soils of “yellow deep sands and pale deep sands, with some gravelly pale deep sands and red-brown hardpan shallow loams”.

### 2.2.2 Geology, Landforms and Soils of the Pastoral Land Area

The Murchison Province, which incorporates Beard’s (1976) Murchison region, is described by Tille (2006) as an area of “hardpan wash plains and sandplains (with some stony plains, hills, mesas and salt lakes) on the granitic rocks and greenstone of the Yilgarn Craton”. While the soils are described as “red loamy earths, red sandy earths, red shallow loams, red deep sands and red-brown hardpan shallow loams (with some red shallow sands and red shallow sandy duplexes)” (Tille, 2006).

Most of the western boundary of the Yilgarn Block was formed by the Darling Fault (Beard, 1976). The Perth Basin lies to the west of the Yilgarn Block and contains mostly sedimentary rocks of sandstone and shale. The Northampton Block is a formation of the Perth Basin, composed of

substantially metamorphosed rocks; granulites and some felspathic quartzite; large granite intrusions are also evident.

The geology of Beard's (1976) Murchison region is dominated by the Archaean Yilgarn Block (also known as the Yilgarn Craton), which forms the nucleus of the Western Australian Shield. Gneisses and granites are the major components of the Yilgarn Block, with minor infolded belts of metamorphic sedimentary and igneous rocks. Metamorphic rocks are composed of various volcanic and sedimentary materials including: ultramafic and mafic rocks (essentially basalts), acid lavas and tuffs, chemical sedimentary rocks such as banded ironstone, jaspilite and chert, and clastic sedimentary rocks comprising shale, siltstone, sandstone, greywacke and conglomerate. Metamorphic belts are mineralized and tend to form ranges of hills, as they are harder and more resistant than gneiss and granite - the latter generally underlie plains, particularly sandplains. The major soil type present in the Murchison region is shallow earthy loam overlying red-brown hardpan.

The Upper Murchison subregion of Beard's (1976) Murchison region is described as generally hilly and undulating terrain, with shallow soils and granite exposure in the hills. The Weld Range and the Jack Hills are the main ranges of the subregion, and are formed by resistant metamorphic rocks (Beard, 1976). These greenstone belts exhibit banded ironstone formations (Elias, 1982). Curry *et al.* (1994) describe the Murchison River catchment and surrounds as an area dominated by granite-greenstone terrain, while very flat plains derived from colluvium and alluvium widely separate the hill ranges. Soils are predominantly shallow, sandy and infertile, and are underlain by red-brown siliceous hardpan across most of the lower areas.

The terrain of the Yalgoo subregion of Beard's (1976) Murchison region is undulating and moderately dissected, with small remnants of the Tertiary land surface existing as sandplains. Low ranges of hills are created by metamorphic rocks. An inventory and condition survey of the Sandstone-Yalgoo-Paynes Find Area was carried out by Payne *et al.* (1998). They describe the area as dominated by granite-greenstone terrain, with gently sloping pediments widely separating occasional ranges. Sheetflood alluvial plains (very gently inclined) are upslope from salt lakes. Most soils are characterized as shallow, sandy and infertile, generally with the lower areas underlain by red-brown siliceous hardpan.

## 2.3 LAND SYSTEM AND SOIL-LANDSCAPE SYSTEM CLASSIFICATION

### Soil-landscape Systems

Rogers (1996) conducted an inventory of soil and land resources of the Geraldton agricultural region, covering an area of approximately 20,600 km<sup>2</sup>. The Study Area incorporated the Shire of Mingenew and the agricultural zones in the Shires of Chapman Valley, Greenough, Irwin, Morawa, Mullewa and Northampton. Fifty-one soil-landscape systems are described, based on geology, landform and soil characteristics in this area.

The Freehold section of the Study Area crosses 10 of the soil-landscape systems mapped in the Geraldton agricultural region and a summary of these soil-landscape systems is provided in Table 2.4.

The most commonly occurring soil-landscape systems in the Freehold section of the Study Area were the Dartmoor (27.4%), Eradu (20.1%) and Binnu Systems (14.3%). The soil-landscape systems with the highest percent of the total system area contained in the Study Area were the Greenough (11.8%), Moresby (7.5%) and Dartmoor Systems (6.7%).

**Table 2.4 – Soil-Landscape Systems of the Study Area**

Soil-Landscape System	Description	Total Area in WA (ha)	Area in Freehold Study Area (ha)	Percent of Total Soil-landscape System	Percent of the Freehold Land Area
Binnu	Gently undulating sandplain with numerous dune ridges.	384,564	5446.2	1.4	14.3
Casuarina	Level to gently undulating sandplain.	87,665	429.5	0.5	1.1
Dartmoor	Level to gently undulating plain and weakly dissected long slopes, much as a relic drainage network.	155,265	10,410.6	6.7	27.4
Eradu	Level to gently undulating sandplain. Drainage lines absent with a few soaks.	151,660	7,633.1	5	20.1
Greenough	River beds, terraces and alluvial flats associated with Greenough, Murchison, Hutt and Chapman River systems. Includes dissected margins of relic alluvial plains.	42,379	4,619.7	11.8	12.2
Moresby	Flat-topped ranged and isolated mesas. Flat to gently undulating summit surfaces, moderate to steep side slopes and gently inclined footslopes.	28,684	2,149.8	7.5	5.7
Mt Horner	Lateritic breakaways with spillway sands. Long gentle slopes broken by low gravel ridges and broad open depressions. Few fixed drainage lines. The system slopes from western edge of Casuarina System (gently undulating sandplain) to Tamala System (coastal limestone hills).	29,451	394.9	1.3	1
Northampton	Narrow valleys with gently undulating to rolling rises and low hills with an integrated drainage pattern. Rock outcrop common on hillcrests with long gentle slopes and alluvial terraces associated with local rivers. Forms much of drainage basin of Chapman, Bowes, Oakajee and Buller Rivers.	94,448	4,796.4	5.1	12.6
Sugarloaf	Undulating to rolling rises with narrow valleys and an integrated drainage pattern, drained by the Chapman and Greenough Rivers. Rock outcrop is common on hillcrests and rises.	66,801	2,087.6	3.1	5.5
Tamala	Series of low hills parallel to the coast immediately behind the Quindalup System. Well drained calcareous black sands, neutral reddish brown sands and neutral yellow sands.	194,850	0.2	<0.001	<0.001

Source: Rogers (1996)



## Land Systems

Land systems are described using the biophysical characteristics of geology, landforms, vegetation and soils (Curry *et al.*, 1994; Payne *et al.*, 1998).

Curry *et al.* (1994) undertook a regional inventory of the Murchison River catchment and surrounds to document the land systems present and the condition of each. The Study Area covered 88,360 km<sup>2</sup>, extending between Meekatharra and Mount Magnet in the east, to the catchments of the Greenough and Wooramel Rivers in the west. Payne *et al.* (1998) carried out a regional inventory of the Sandstone-Yalgoo-Paynes Find area to document the land systems present and the condition of each. The Study Area covered approximately 94,700 km<sup>2</sup>.

The Pastoral section of the Study Area crosses 30 of the land systems mapped by Curry *et al.* (1994) and Payne *et al.* (1998), these land systems are described in Table 2.5.

The most commonly occurring land systems in the Pastoral section of the Study Area were the Yanganoo (19.8%), Tindalarra (16.3%) and Challenge (9.6%). The land systems with the highest percent of the total land system in the Study Area were Yarrameedie (10.3%), Weld (9.7%) and Millex (6.0%).

The soil-landscape and land systems have been mapped together and an overview map is provided as Figure 2.4. The soil-landscapes are mapped as Figure 2.5 and the land systems are mapped as Figure 2.6 to Figure 2.8.

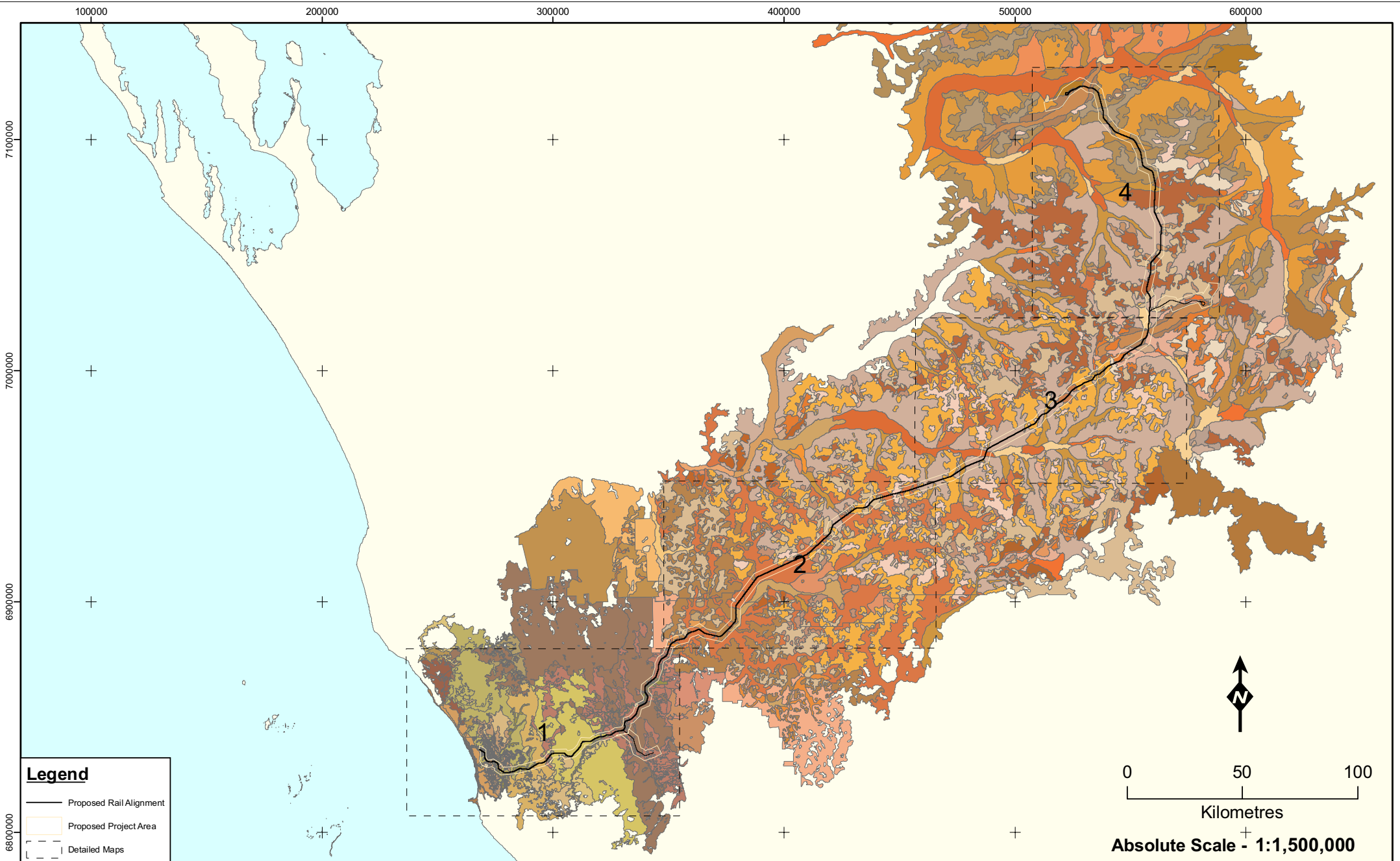
**Table 2.5 – Land Systems of the Study Area**

Land System	Description	Total Area in WA (km <sup>2</sup> )	Area in Pastoral Land Area (km <sup>2</sup> )	Percent of Total Land System	Percent of the Pastoral Land Area
Belele	Hardpan wash plains interspersed by low sandy (wanderrie) banks supporting tall shrublands of mulga with understorey shrubs on the hardpan plains and non-saline shrubs with perennial grasses on the banks.	578,300	4,352.4	0.8	2.4
Beringarra	Major riverine plains with active lower floodplains flanking channelled watercourses; supports mostly halophytic shrublands and mixed acacia shrublands and low woodlands with minor perennial grasses; severely degraded and eroded in many areas.	262,436	1,422.4	0.5	0.8
Challenge	Gently sloping gritty and sandy-surfaced plains with granite outcrops and minor breakaways, supporting mulga and some halophytic shrublands.	1,010,000	17,210.6	1.7	9.6
Cunyu	Calcreted drainage zones on hardpan; alluvial plains with raised calcrete platforms dissected by major flow zones and channels, supporting variable mostly non-halophytic shrublands and calcareous shrubby grasslands.	329,933	1,545.1	0.5	0.9
Ero	Tributary floodplains with shallow, erodible duplex soils on red-brown hardpan, more or less saline and supporting halophytic and non-halophytic shrublands; grazed preferentially and widely degraded and eroded.	215,007	3,907.4	1.8	2.2
Flood	Hardpan wash plains with long, interconnected wanderrie banks supporting mulga and wanderrie shrublands; mainly in catchment of Wooramel River and further north.	159,251	2,998.7	1.9	1.7
Gabanintha	Ridges, hills and footslopes of various metamorphosed volcanic rocks (greenstones), supporting sparse acacia and other mainly non-halophytic shrublands.	251,455	2,688.3	1.1	1.5
Joseph	Undulating yellow sandplain system supporting dense mixed shrubland with patchy mallees.	464,045	808.9	0.2	0.5
Jundee	Hardpan wash plains with variable dark gravely mantling and weakly groved vegetation; minor sandy banks; supports scattered mulga shrublands.	660,224	4,363.0	0.7	2.4
Kalli	Elevated, gently undulating red sandplains edged by stripped surfaces on laterite and granite; tall acacia shrublands and understorey of wanderrie grasses (and spinifex locally); replaced by more extensive areas of Bullimore land system to the south-east and Sandplain land system to the west.	1,115,901	16,124.0	1.4	9.0
Koonmarra	Quartz-strewn stony plains and low rises with outcropping granite, gneiss and schists; supports scattered mulga and other mainly non-saline shrubs.	569,874	11,996.7	2.1	6.7

Land System	Description	Total Area in WA (km <sup>2</sup> )	Area in Pastoral Land Area (km <sup>2</sup> )	Percent of Total Land System	Percent of the Pastoral Land Area
Mileura	Saline and non-saline calcreted river plains, with clayey flood plains interrupted by raised calcrete platforms supporting diverse and very variable tall shrublands, mixed halophytic shrublands and shrubby grasslands.	261,223	1,454.5	0.6	0.8
Milllex	Plains on granite, with irregularly distributed low sandy banks and saline alluvial plains lightly strewn with quartz mantles; supports mulga shrublands and low halophytic shrublands.	47,825	2,867.5	6.0	1.6
Millrose	Level or very gently undulating stony plains on hardpan and granite with irregularly distributed sandy wanderrie banks, supporting mostly scattered mulga shrublands with minor wanderrie grasses.	109,648	1,317.4	1.2	0.7
Mindura	Low hills, ridges and outcrops of granite, gneiss and quartz above convex, quartz-strewn interfluves and lower plains supporting sparse acacia shrublands.	440,593	3,156.0	0.7	1.8
Mulline	Greenstone hills supporting <i>Acacia</i> shrublands and <i>Eucalypt</i> woodlands.	19,688	89.0	0.5	0.0
Nerramyne	Undulating plains of sandy-surfaced laterite and weathered granite with low remnant plateaux, breakaways and rises supporting acacia shrublands.	250,958	5,751.9	2.3	3.2
Norie	Granite hills with exfoliating domes and extensive tor fields, supporting acacia shrublands.	211,177	2,392.7	1.1	1.3
Pindar	Loamy plains surrounded by sandplain supporting York gum woodlands.	151,876	646.3	0.4	0.4
Sherwood	Extensive, gently sloping stony and sandy plains on granite and gneiss below saline footslopes of laterised breakaways and outcrops of weathered rock; mainly supports scattered mulga shrublands with understorey non-halophytic and halophytic shrubs.	1,579,691	9,636.0	0.6	5.4
Tallering	Prominent ridges of banded ironstone, dolerite and sedimentary rocks sporting bowgada and other <i>Acacia</i> shrublands.	32,949	1,045.3	3.2	0.6
Tindalarra	Very gently inclined hardpan wash plains with narrow drainage lines and fairly saline narrow tributary drainage floors; supports tall mixed acacia shrublands with patchy wanderrie banks and narrow tracts of snakewood and bluebush; a major wash system in the Greenough River catchment.	713,173	29,231.3	4.1	16.3
Violet	Gently undulating gravely plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supports mulga and bowgada-dominate shrublands, with dense mulga groves and patchy halophytic shrublands.	584,096	1,981.2	0.3	1.1

Land System	Description	Total Area in WA (km <sup>2</sup> )	Area in Pastoral Land Area (km <sup>2</sup> )	Percent of Total Land System	Percent of the Pastoral Land Area
Waguin	Sandplains and stripped granite or laterite surfaces with low fringing breakaways and lower plains; supports bowgada shrublands with sparse wanderie grasses, mulga shrublands and minor mixed halophytes.	317,146	586.3	0.2	0.3
Weld	Rugged ranges and ridges of mainly Archaean metamorphosed sedimentary rocks; supports acacia shrublands; major system of the Weld Range and Jack Hills.	37,235	3,603.5	9.7	2.0
Wiluna	Low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains and broad drainage tracts; supports sparse mulga shrublands with patches of halophytic shrubs.	258,978	813.8	0.3	0.5
Yandil	Flat hardpan wash plains, extensively uniform and carrying light to moderate mantles of small pebbles and gravels; occasional wanderie banks and groves; supports mulga shrublands, but widely degraded.	494,525	3,054.9	0.6	1.7
Yanganoo	Almost flat hardpan wash plains, with or without small wanderie banks and showing variable development of weak groving; supports mulga shrublands; the most extensive system in Study Area.	2,019,907	35,445.7	1.8	19.8
Yarrameedie	Undulating stony interfluves, drainage floors and pediment (foothill) plains below major ranges of crystalline rocks (mainly Weld land system) supporting sparse mulga shrublands.	68,324	7,045.3	10.3	3.9
Yewin	Mainly flat saline floodplains on the Greenough and Sandford Rivers supporting halophytic shrublands dominated by samphire, saltbush, snakewood and spiny snakewood.	45,709	1,692.3	3.7	0.9

Source: Curry *et al.* (1994) and Payne *et al.* (1998)



**Legend**

- Proposed Rail Alignment
- Proposed Project Area
- Detailed Maps

0      50      100  
 Kilometres  
**Absolute Scale - 1:1,500,000**



**Land Systems and Soil-landscape  
Systems of the  
Study Area  
(Overview)**

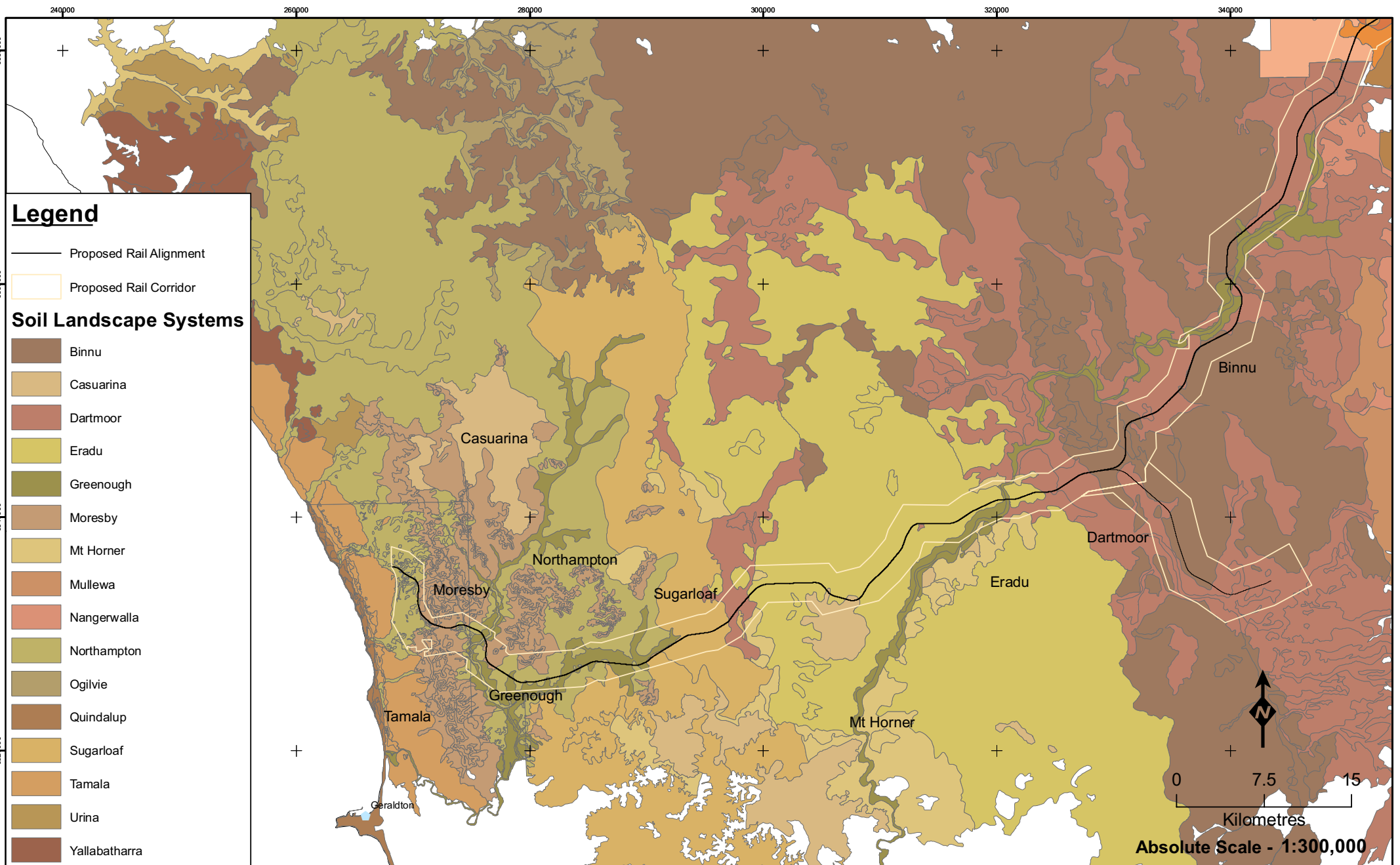
**Figure: 2.4**  
**Project ID: 1131**

Coordinate System  
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 Projection: Transverse Mercator  
 Datum: GDA 1994

**Drawn: AH**  
**Date: 26/08/09**

Unique Map ID: A038

**A3**



**Soil Landscape Systems  
of the Study Area  
(Map 1)**

Figure: 2.5  
Project ID: 1131

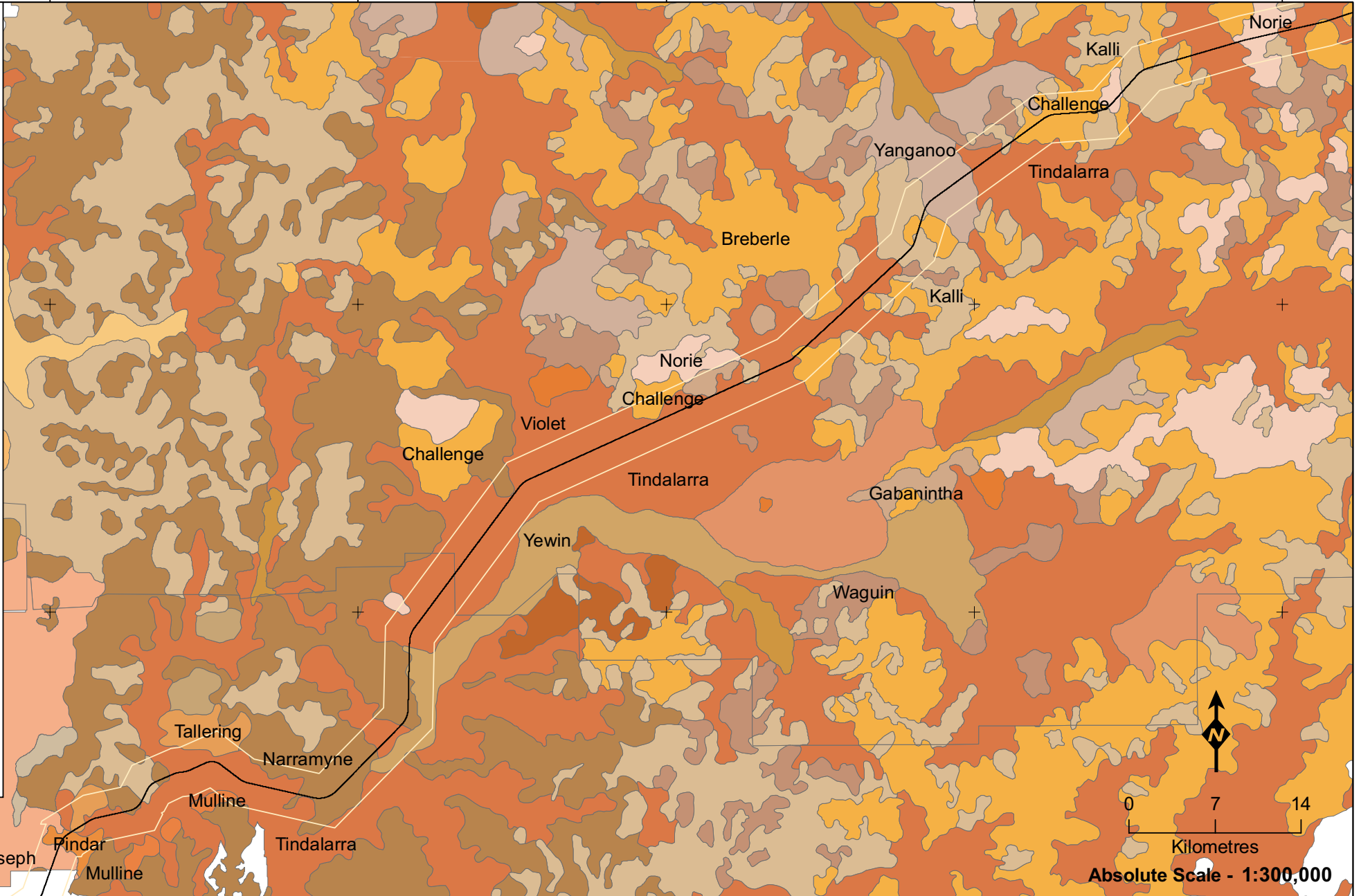
Drawn: AH  
Date: 13/08/2009

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A037

350000 375000 400000 425000 450000

- Legend**
- Agamemnon
  - Austin
  - Bandy
  - Bayou
  - Beasley
  - Belele Land
  - Beringarra
  - Boulder
  - Breberle
  - Bunny
  - Carnegie
  - Challenge
  - Cole
  - Coolabulla
  - Cunyu
  - Durlacher
  - Ero
  - Euchre
  - Eurardy
  - Farmer
  - Flood
  - Frederick
  - Gabanintha
  - Highway
  - Horseshoe
  - Joseph
  - Jundee
  - Kalli
  - Koonmarra
  - Mileura
  - Millex
  - Milrose
  - Mindura
  - Mulline
  - Narryer
  - Nerramyne
  - Nerren
  - Norie
  - Peak Hill
  - Phillips
  - Pindar
  - Roderickm
  - Sherwood
  - Tallering
  - Thomas
  - Tindalarra
  - Trilbar
  - Violet
  - Waguin
  - Watson
  - Weld
  - Wiluna
  - Wolary
  - Woodline
  - Yagahong
  - Yandil
  - Yanganoo
  - Yarrameedie
  - Yewin
  - Proposed Rail Route
  - Project Area



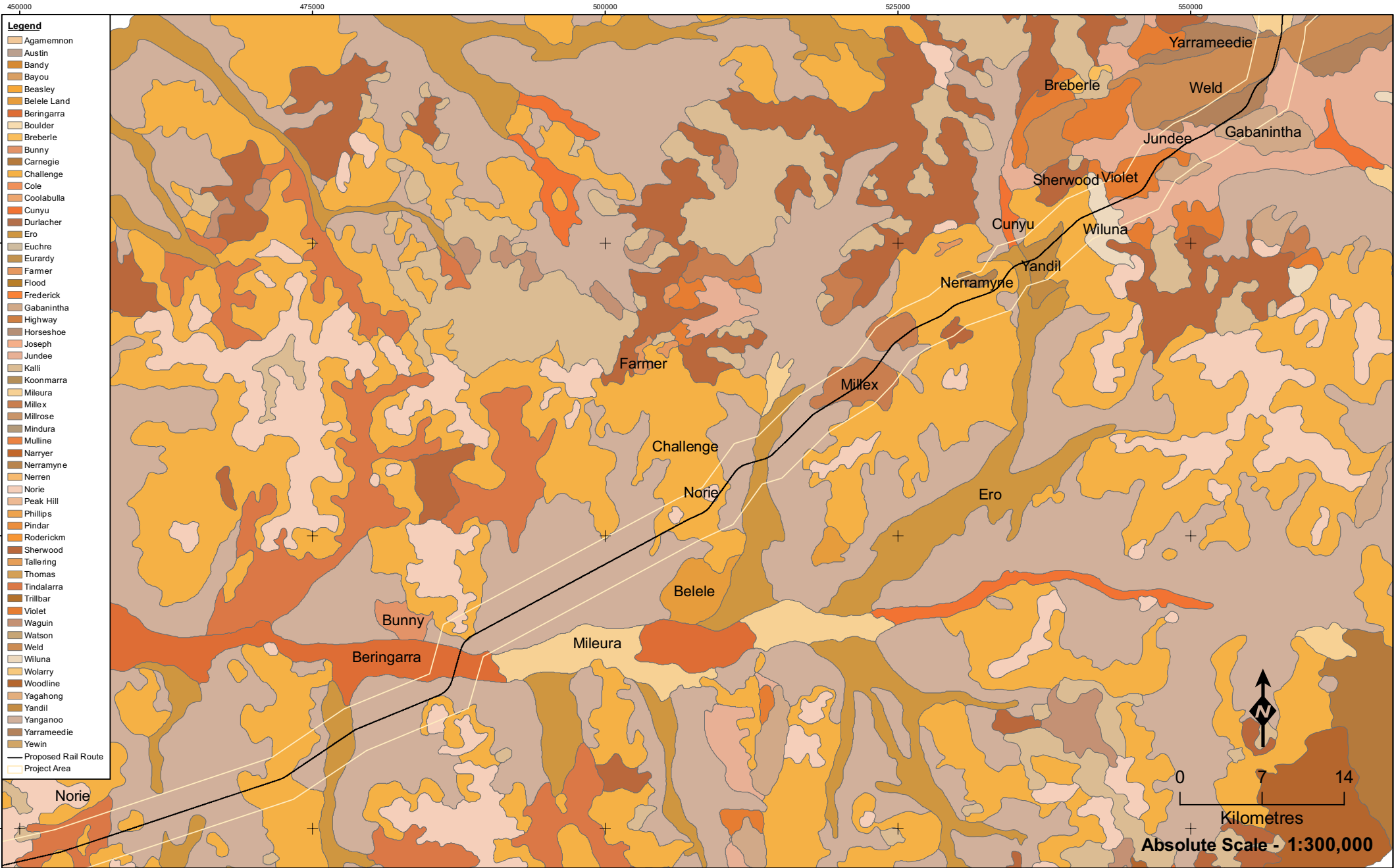
Land Systems of the Study Area

Figure: 2.6  
Project ID: 1131

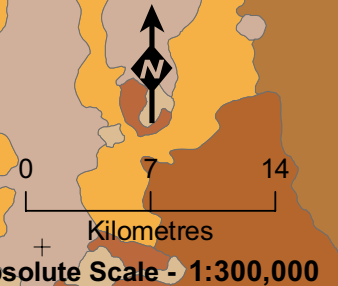
Drawn: AH  
Date: 07/08/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A036



- Legend**
- Agamemnon
  - Austin
  - Bandy
  - Bayou
  - Beasley
  - Belele Land
  - Beringarra
  - Boulder
  - Breberle
  - Bunny
  - Carnegie
  - Challenge
  - Cole
  - Coolabulla
  - Cunyu
  - Durlacher
  - Ero
  - Euchre
  - Eurardy
  - Farmer
  - Flood
  - Frederick
  - Gabanintha
  - Highway
  - Horseshoe
  - Joseph
  - Jundee
  - Kalli
  - Koonmarra
  - Mileura
  - Millex
  - Millrose
  - Mindura
  - Mulline
  - Narryer
  - Nerramyne
  - Nerren
  - Norie
  - Peak Hill
  - Phillips
  - Pindar
  - Roderickm
  - Sherwood
  - Talling
  - Thomas
  - Tindalarra
  - Trilbar
  - Violet
  - Waguin
  - Watson
  - Weld
  - Wiluna
  - Wolarry
  - Woodline
  - Yagahong
  - Yandil
  - Yanganoo
  - Yarrameedie
  - Yewin
  - Proposed Rail Route
  - Project Area



Land Systems of the Study Area

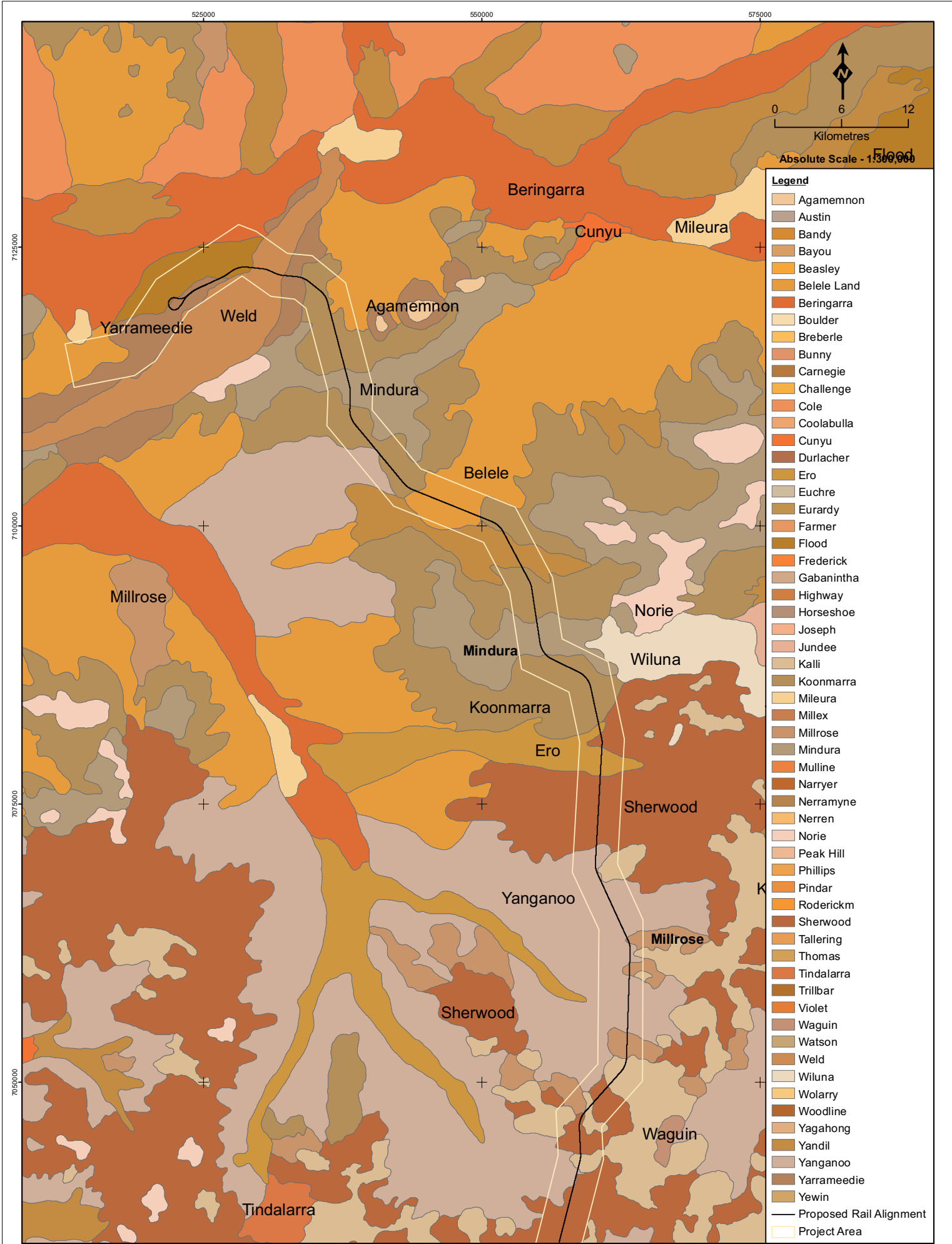
Figure: 2.7  
Project ID: 1131

Drawn: AH  
Date: 07/08/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A035





## 2.4 BIOGEOGRAPHIC REGIONS

The Interim Biogeographic Regionalisation for Australia (IBRA) classifies the Australian continent into regions (bioregions) of similar geology, landform, vegetation, fauna and climate characteristics (Department of the Environment, Water, Heritage and the Arts (DEWHA, 2009). According to IBRA (Version 6.1) the Study Area crosses three of these bioregions: Geraldton Sandplains, Yalgoo and Murchison. Each of these IBRA bioregions is further divided into subregions as described below and mapped in Figure 2.9. The vegetation associated with these regions is described in Section 2.8.2.

### 2.4.1 Geraldton Sandplains Bioregion - Geraldton Hills Subregion

The Geraldton Sandplains bioregion is divided into two subregions - Geraldton Hills (GS1) and Leseur Sandplain (GS2). A section of the Study Area crosses the Geraldton Hills subregion. This subregion features exposed areas of Permian/Silurian siltstone and Jurassic sandstones, mostly overlain by sandplains, alluvial plains, and coastal limestone's (Desmond & Chant, 2001b).

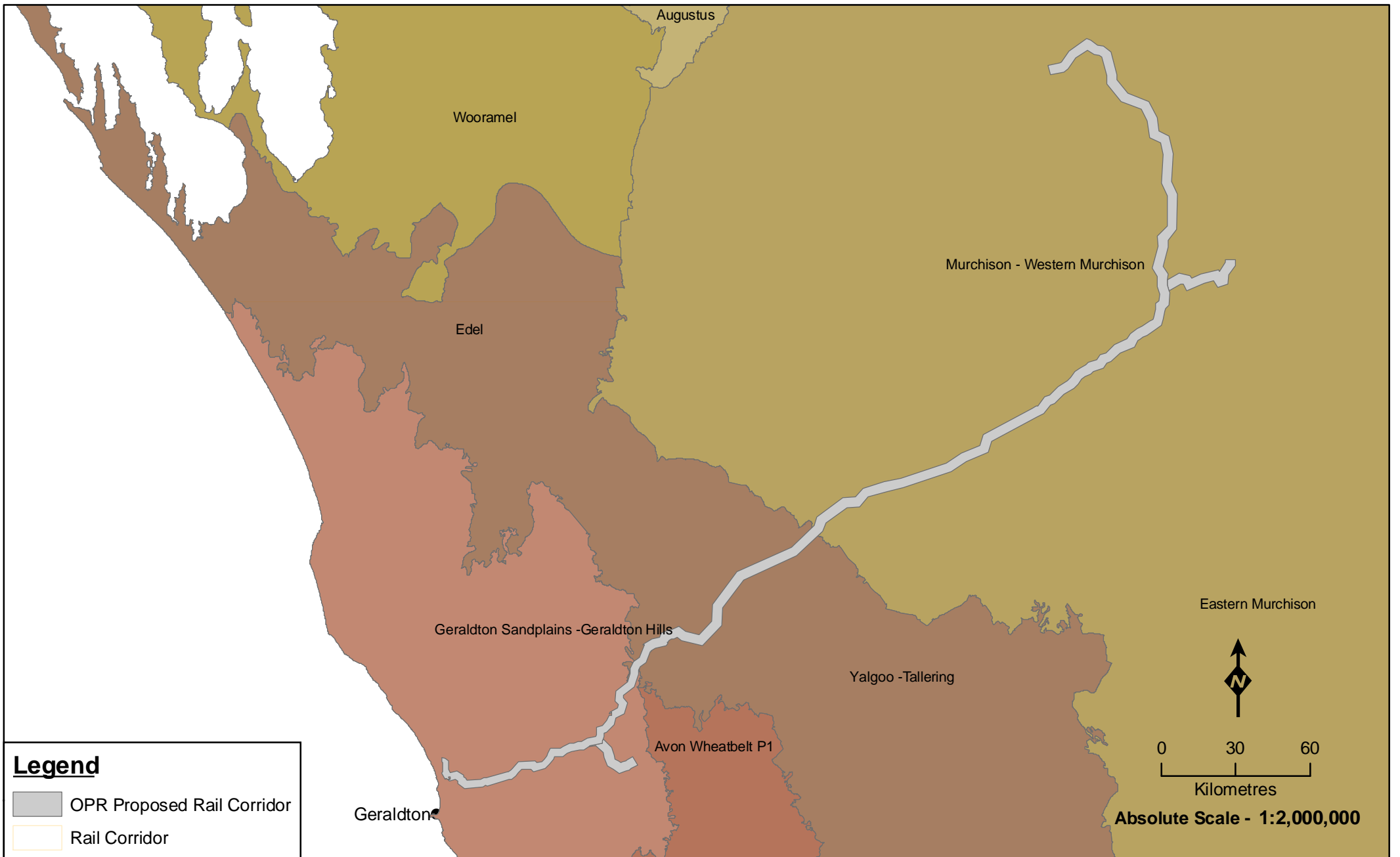
The Geraldton Sandplains bioregion is represented by the Freehold land area. The dominant land uses are dry land agriculture (65.8%), conservation (13.8%) and rural residential (DEC, 2002).

### 2.4.2 Yalgoo Bioregion - Talling Subregion

The Yalgoo bioregion is an inter zone between the south-western bioregions and the Murchison bioregion (Desmond & Chant, 2001a), and it is divided into two subregions – Edel (YAL1) and Talling (YAL2). A section of the Study Area occurs in the Talling subregion. This subregion is dominated by red sandy plains and sandy earth plains of the western Yilgarn Craton. The Yalgoo bioregion represents the westernmost section of the Pastoral land area. The predominant land use in the Talling subregion is grazing on native pastures (approx 77%) (Payne *et al.* 1998).

### 2.4.3 Murchison Bioregion - Western Murchison Subregion

The Murchison bioregion is divided into two subregions - Eastern Murchison (MUR1) and Western Murchison (MUR2). A section of Study Area occurs in the Western Murchison subregion. Extensive hardpan wash plains dominate this subregion and granite and greenstone rocks outcrop in the northern part of the Yilgarn Craton. The Western Murchison subregion contains the easternmost portion of the rail including the Jack Hills Loop and the Weld Range Link. Pastoralism is the dominant land use (96%) with degradation of the region widespread as a result of this and feral herbivores (Desmond *et al.*, 2001).



**Legend**

- OPR Proposed Rail Corridor
- Rail Corridor



**IBRA Regions of the Study Area**

Figure: 2.9  
Project ID: 1131

Drawn: AH  
Date: 28/08/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A040

## 2.5 CONSERVATION ESTATES IN THE STUDY AREA

Of the IBRA subregions crossed by the Study Area, 0.01-5% of the Tallering and Western Murchison subregions are protected under the national reserve system, while the Geraldton Hills subregion has a much higher percent of 15-30% protected under the national reserve system (DEWHA, 2008)

The Department of Environment and Conservation (DEC) (2009) announced new conservation lands in the Gascoyne, Murchison and south-west regions in September 2007. These included the Pastoral land area (whole or part) of the ‘Gascoyne-Murchison Strategy’ and the Freehold land area in the Southwest. Most of the acquired Pastoral leases and a few of the Freehold areas are proposed to be reserved as unclassified conservation parks under the *Conservation and Land Management Act 1984 (CALM Act)*. Conservation parks are “managed for their scenic, cultural and biological values, to conserve wildlife and the landscape, for scientific study and to preserve features of archaeological, historical or scientific interest. Conservation parks allow for recreation that does not adversely affect their ecosystems or landscapes” (DEC, 2009a).

The Study Area crosses eight conservation estates listed in Table 2.6, of which three have been excised from the Study Area, and have been mapped in Figure 2.10 and Figure 2.11.

**Table 2.6 – Conservation Estate Located Within the Study Area**

Conservation Estate	Within The Study Area?
Ex Woolgorong (former leasehold)*	Yes
Ex Narloo (former leasehold)*	Yes
Ex Twin Peaks (former leasehold)*	Yes
Moresby Range Nature Reserve	Yes
Reserve 16200	Yes
Un-named Nature Reserve	Yes, but excised from corridor
Urawa Nature Reserve	Yes, but excised from corridor
Wokatherra Nature Reserve	Yes, but excised from corridor



270000

300000




330000

360000

**Legend**

-  River
-  Project Area

**Conservation Estates**

-  CALM Exec Body
-  Former Leasehold
-  Nature Reserve

6870000

6840000



0 7 14  
Kilometres  
**Absolute Scale - 1:400,000**



**Conservation Estates Within the Vicinity of the Study Area (Freehold Section)**

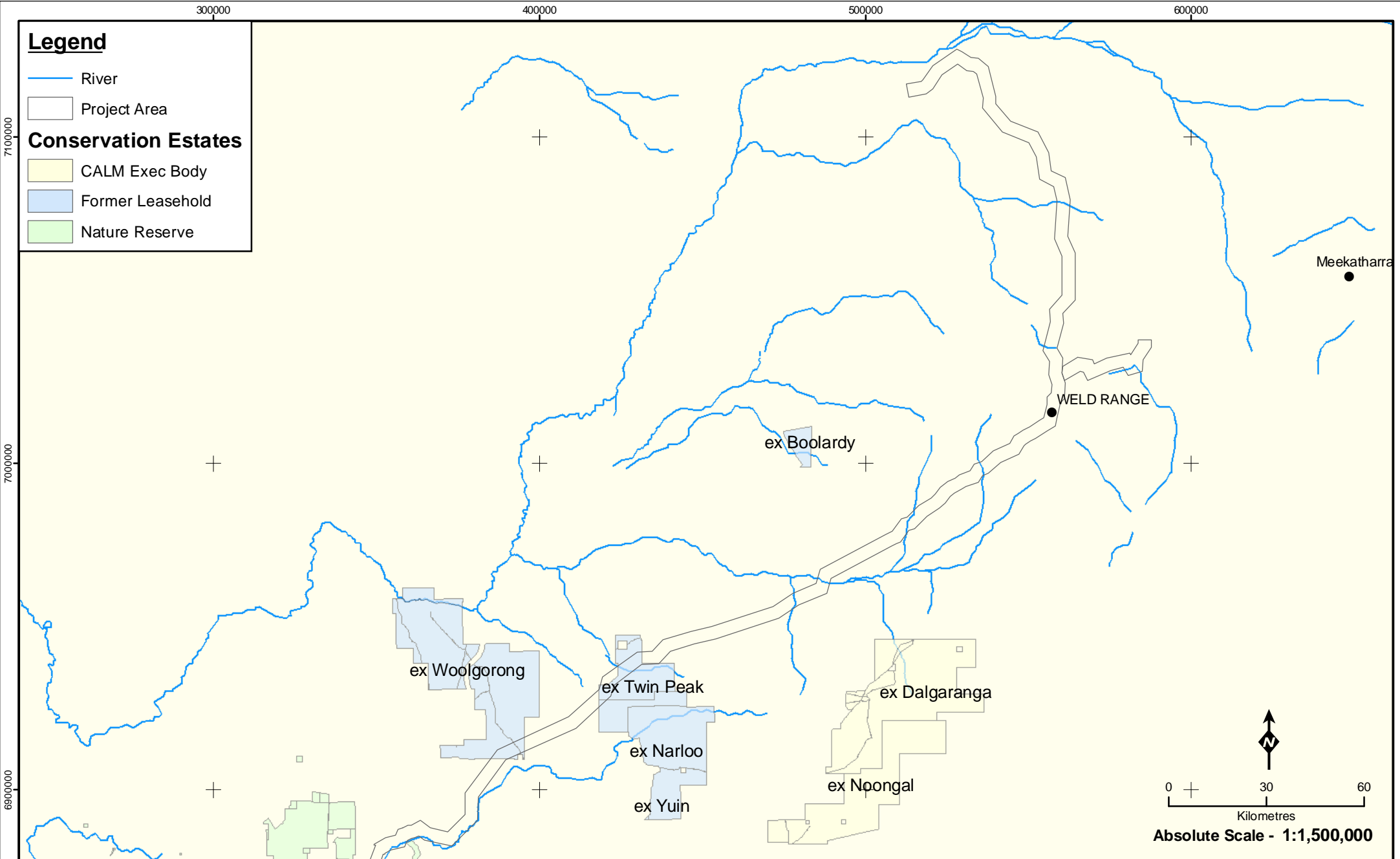
**Figure: 2.10**  
**Project ID: 1131**

Coordinate System  
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Projection: Transverse Mercator  
Datum: GDA 1994

**Drawn: AH**  
**Date: 26/10/09**

Unique Map ID: A071

**A4**

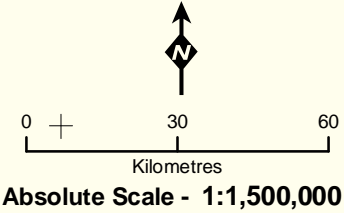


**Legend**

- River
- Project Area

**Conservation Estates**

- CALM Exec Body
- Former Leasehold
- Nature Reserve



Conservation Estates Within the Vicinity of the Study Area (Pastoral Section)

**Figure: 2.11**  
**Project ID: 1131**

Coordinate System  
 Name: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Datum: GDA 1994

**Drawn: AH**  
**Date: 26/10/09**

Unique Map ID: A072

**A4**

## 2.6 STATE AND NATIONALLY RECOGNISED THREATENED COMMUNITIES

### 2.6.1 Threatened Ecological Communities

Ecological communities are naturally occurring biological assemblages located in a particular type of habitat. At a national level, Threatened Ecological Communities (TECs) are protected under the *EPBC Act*. TECs are listed under this Act as either ‘Critically Endangered’, ‘Endangered’ or ‘Vulnerable’. A definition of these codes is provided in Table A.1, Appendix A. A search of the DEC’s TEC Database was undertaken and no nationally listed TECs occur in the Study Area.

The DEC also maintains a list of TECs that are classified as being either ‘Presumed Totally Destroyed’, ‘Critically Endangered’, ‘Endangered’ or ‘Vulnerable’. A definition of these codes is also provided in Table A.1, Appendix A. No state-listed TECs occur in the Study Area.

### 2.6.2 Priority Ecological Communities

The DEC maintains an additional list of Priority Ecological Communities (PECs), for communities that could potentially be classified as TECs, but are not currently adequately defined or surveyed. Communities are placed in this category while consideration can be given to their declaration as a TEC. Five priority codes exist for PECs and these are defined in Table A.2, Appendix A.

A search of the DEC’s PEC database identified four Priority 1 PECs occurring in the Study Area. These are described in Table 2.7.

**Table 2.7 – PECs Recorded in the Study Area**

PEC Community	Description	Priority
Jack Hills Vegetation Complexes	Banded Ironstone Formation. No description available.	Priority 1
Moresby Range Vegetation Association	Plant assemblages of the Moresby Range system; includes the <i>Melaleuca megacephala</i> and <i>Hakea pycnoneura</i> thicket on stony slopes, <i>Verticordia dominated</i> low heath and <i>Allocasuarina campestris</i> and <i>Melaleuca uncinata</i> thicket on superficial laterite, on Moresby Range.	Priority 1
Tallering Peak Vegetation Complexes	Tallering Peak in the northwest is a massif of banded ironstone and jaspilite, with outcropping masses of rock along the spine. Vegetation is sparse and includes shrubs of only 1.2 m of <i>Acacia quadrimarginea</i> , <i>Acacia ?coolgardiensis</i> , <i>Eremophila leucophylla</i> , <i>Thryptomene johnsonii</i> , a small <i>Baeckea</i> sp. or <i>Thryptomene</i> sp. and <i>Ptilotus obovatus</i> .	Priority 1
Weld Range Vegetation Complexes	Banded Ironstone Formation. No description available.	Priority 1

### 2.6.3 Environmentally Sensitive Areas

Environmentally Sensitive Areas are declared in the Environmental Protection (Clearing of Native Vegetation) Regulation 2004.

There are no DEC listed Environmentally Sensitive Areas in the Study Area (DEC, 2009b).

## 2.7 LAND USE HISTORY

The Geraldton town site was populated in 1851 and declared a town in 1961. Agricultural land on the Greenough Flats was established from 1853 to 1857, and Pastoral land was developed between 1849 and 1862. Subsequent developments in the area resulted from completion of the Midland Railway linking Perth and Geraldton in 1894, and the completion of the government railway to Mullewa in 1915 (Beard & Burns, 1976).

The dominant land use in the Geraldton area at present is agricultural production, with some horticultural areas. Mining is significant and is associated with lime sand, iron ore, kaolinite deposits, gypsum and gamet, natural gas, numerous gravel pits for road construction, yellow sand for building materials, and a limestone quarry (Rogers, 1996).

Much of the Murchison area was vacant crown land until the 1900s, when a rapid expansion of Pastoral leases occurred over the following three decades (Curry *et al.*, 1994). It was predominantly Pastoral land (88%) from 1992 to 2001 but this area had declined to approximately 83% of the region by 2005 (DEWHA, 2008). The Murchison Pastoral areas are still active and primarily run sheep and cattle. Large numbers of feral goats are also caught and exported to supplement station incomes. In addition to Pastoralism, mining (gold, iron and nickel) is an important land use in the region. The first discovery of gold in the Murchison occurred in July, 1890 (Edwards, 1994). Jack Hills and the Weld Range contain significant amounts of iron ore (Elias, 1982).

Meekatharra is a major service centre for the Pastoral industry and mining exploration in the Murchison region of Western Australia. Meekatharra was first settled in 1894 but was officially named when gold was found in 1896. Meekatharra became a railhead in 1910, forming an important part of the Pastoral industry. Cattle arrived at the stockyards from the Pilbara and Kimberley regions, and the shipment of wool was facilitated by the rail line, which subsequently closed down in 1978 (Edwards, 1994).

Pastoralism is the dominant land use in the Sandstone-Yalgoo-Paynes Find area (Payne *et al.*, 1998). Mining is also an important land use and is generally associated with the greenstone belts scattered throughout the region. Gold was discovered at the site of present day Yalgoo in late 1892 (Payne *et al.*, 1998). The gold rush that followed allowed the establishment of the town in 1893.

## 2.8 PREVIOUS BIOLOGICAL SURVEYS

Biological surveys conducted in the vicinity of the Study Area are outlined below. A selection of surveys carried out by *ecologia* (2009a in preparation; 2009b Draft; 2009c in preparation), the DEC (Markey & Dillon, 2008a; Markey & Dillon, 2008b; Meissner & Caruso, 2008), and Mattiske (2005) are summarised in Table B.1, Appendix B.

Speck (1963) described the vegetation communities of the Wiluna – Meekatharra area in 1963. Beard (1976) mapped the vegetation communities of the Murchison region at a broad-scale of 1:1,000,000. The vegetation communities of the Geraldton area were mapped by Beard & Burns (1976) at a finer-scale of 1:250,000 and 10 vegetation systems in the South-western Botanical Province and two vegetation systems in the Eremaean Botanical Province were described.

Between 1985 and 1988 a survey of the vegetation of the Murchison area was carried out by Curry *et al.* (1994) as part of their study of the Murchison River catchment and surrounds. Seventy-four land systems were described and mapped at a scale of 1:250,000. Similarly, between 1992 and 1993, Payne *et al.* (1998) conducted a survey of the vegetation of the Yalgoo area as part of their Sandstone–Yalgoo–Paynes Find study, and they described and mapped 76 land systems at a scale of 1:250,000.



In 2005, the DEC surveyed Banded Ironstone Formations (BIF) of the Yilgarn Craton, including areas in the Murchison and Yalgoo bioregions:

- Flora and vegetation communities were surveyed in the central Tallering Land System of the Yalgoo bioregion (south of Yalgoo) (Markey & Dillon, 2008a). One hundred and three quadrats were established during the survey and one DRF taxon and 13 Priority Flora taxa were recorded (Table B.1, Appendix B).
- Markey & Dillon (2008b) surveyed the flora and vegetation at Weld Range (Murchison bioregion). Fifty-two quadrats were established during the survey and six main vegetation communities (and four sub-communities) were described. Eight Priority Flora taxa were recorded (Table B.1, Appendix B).
- The flora and vegetation of the Jack Hills (Murchison bioregion) were surveyed by Meissner & Caruso (2008). Fifty quadrats were established during the survey and six vegetation communities were described. Four Priority Flora taxa were recorded (Table B.1, Appendix B).

*ecologia* (2009a, in preparation) conducted an extensive three phase vegetation and flora assessment at Weld Range; surveys were completed in 2006, 2007 and 2008. A total of 239 quadrats were established during the surveys and seven vegetation communities (and 16 sub-communities) were described and mapped. Twenty-four Priority Flora species were recorded (Table B.1, Appendix B).

During 2004/2005, Matiske (2005) conducted a flora and vegetation assessment at Jack Hills. One hundred and twenty-two quadrats were established during the survey and 18 vegetation communities were described and mapped. Four Priority Flora taxa were recorded (Table B.1, Appendix B).

*ecologia* (2009b, Draft) also conducted a two phase vegetation and flora assessment at Jack Hills in 2006/2007. One-hundred and ninety-five quadrats were established during the survey and six vegetation communities (and 18 sub-communities) were described. Seven Priority Flora taxa were recorded (Table B.1, Appendix B).

A baseline vegetation survey was conducted near Mount Magnet in 1994 by Landcare Services (1995). Quadrats were assessed at eight sites in native vegetation and one rehabilitated waste dump site. The dominant vegetation of the area was *Acacia aneura* woodlands with a mixed understorey of chenopods and *Eremophila* species. Of the 206 endemic taxa recorded during the survey, three were Priority Flora: *Alyxia tetanifolia* (Priority 3), *Calytrix erosipetala* (Priority 3) and *Grevillea inconspicua* (Priority 4).

Alan Tingay & Associates (1998) completed an environmental appraisal and management plan for a proposed railway from Tallering Peak to Oakajee. They reported on findings from several vegetation and flora surveys conducted along the route. Eleven vegetation associations were described and 321 flora taxa were recorded. Twelve Priority Flora taxa were recorded along the route: *Scholtzia* sp. Gunyidi (J.D. Briggs 1721) (Priority 2), *Scholtzia* sp. Murchison River (A.S. George 7098) (Priority 2), *Thryptomene* sp. East Yuna (J.W. Green 4639) (Priority 2), *Thryptomene stenophylla* (Priority 2), *Thryptomene* sp. Yuna Reserve (AC Burns 100) (Priority 2), *Acacia leptospermoides* subsp. *psammophila* (Priority 3), *Baeckea* sp. Walkaway (A.S. George 11249) (Priority 3), *Geleznovia verrucosa* (Priority 3), *Grevillea candicans* (Priority 3), *Microcorys tenuifolia* (Priority 3), *Persoonia pentasticha* (Priority 3), and *Verticordia capillaris* (Priority 4).

In 1998, Landcare Services Pty Ltd (1998) conducted a flora and fauna survey from Oakajee to south of Geraldton. Ten vegetation types were described and a total of 117 flora taxa were recorded. Two Priority Flora species were recorded: *Grevillea erinacea* (Priority 3) and *Stenanthemum divaricatum* (Priority 3).

Dames & Moore (1993) conducted a flora and fauna assessment at Oakajee in 1993. Six vegetation types associated with six distinct terrain types were described and mapped at a scale of 1:25,000. Heaths and shrublands dominated the vegetation, with some minor woodland in river valleys. One hundred and sixty-five flora taxa were recorded during the survey, including one Priority Flora species - *Grevillea triloba* (Priority 3).

In August 1997 Muir Environmental (1977) conducted a follow-up survey of the area surveyed by Dames and Moore (1993), as it was extended to include a buffer zone and quarry sites. The vegetation of the six terrain types identified by Dames and Moore (1993) was re-assessed. Two-hundred and seventeen taxa were recorded (52 more than in 1993). One confirmed DRF and two Priority Flora taxa were recorded during this survey: *Eucalyptus blaxellii* (Vulnerable, Priority 4), *Grevillea triloba* (Priority 3), and *Verticordia penicillaris* (Priority 4). The collection of a hybrid specimen (a cross between *Caladenia hoffmanii* (DRF) and *Caladenia longicauda*) indicates that *Caladenia hoffmanii* may have been present in the area.

*ecologia* (2009c in preparation) completed a single phase vegetation and flora survey (in 2006) followed by a threatened flora survey (in 2009) at Oakajee. Twenty-one quadrats were assessed during the vegetation and flora survey, and 14 vegetation units were described and mapped at a scale of 1:40,000. One DRF and 10 Priority Flora were recorded during the surveys (Table B.1, Appendix B).

A biological survey of the Buller River area was conducted by *ecologia* (2009d, in preparation) in 2009. Five vegetation units at the sub association level were described and mapped. Sixty-three flora taxa were recorded, and none of these were DRF or Priority Flora.

An ecological survey was conducted by GHD (2009) for a proposed haul road between Jack Hills and Weld Range. Twenty-five quadrats were assessed during the vegetation and flora survey, and 18 vegetation units were described and mapped. Eight Priority Flora taxa were recorded during this survey (Table B.1, Appendix B).

### 2.8.1 Vegetation Described by Beard

The Study Area lies predominantly in Beard's (1976) Murchison region of the Eremaean Botanical Province. The Murchison region is well known for the dominance of mulga (*Acacia aneura*) woodlands, and the extensive flats and plains provide optimum conditions for these woodlands. On the more favourable soils (plains and valleys) *Acacia aneura* generally grows in the form of a tree with a single erect trunk and forms low woodlands. On less favourable soils (hill slopes and ridges) it takes the form of a shrub producing shrublands/scrublands (Beard, 1976).

Most of the Study Area lies in the Upper Murchison subregion in the Murchison region of the Eremaean Botanical Province (Beard, 1976). The vegetation of this area is described as:

- Plains covered by continuous or interrupted *Acacia aneura* (mulga) low woodlands. Tree deterioration and death is common in this area, and there is very little regeneration of the *A. aneura*. This has resulted in large areas where only *Senna* and *Eremophila* species are present or other *Acacia* species such as *A. victoriae* and *A. tetragonophylla*.
- Granite and gneiss hills are generally covered with *Acacia aneura* (shrub form), and *A. quadrimarginea* and *A. ramulosa* var. *ramulosa* or *A. ramulosa* var. *linophylla*. Understorey species include *Eremophila spathulata* and *Ptilotus obovatus*. The main species at Jack Hills is *A. grasbyi* (often a tree form) with *Eremophila fraseri*. *Acacia aneura*, *A. ramulosa* var. *ramulosa* and *Acacia tetragonophylla* also occur. At Weld Range banded ironstone ridges support two main species – *Acacia aneura* and *Acacia quadrimarginea* – additional species include *Eremophila latrobei*, *Scaevola spinescens* and *Ptilotus obovatus*. The lower slopes are covered with *Acacia aneura* and *A. ramulosa* var. *linophylla*.

- Sandplain patches consist of *Acacia ramulosa* var. *linophylla* scrub, with *A. aneura* less commonly. While *Eremophila leucophylla*, *Solanum lasiophyllum* and *Maireana convexa* occur as understory shrubs.
- Extensive salt flats, along the upper courses of the Murchison, are covered with *Atriplex vesicaria* and *Frankenia pauciflora*, often with scattered *Acacia sclerosperma* and *A. victoriae*. Downstream of the Murchison, the main vegetation is *Acacia* species scrub (*A. victoriae*, *A. sclerosperma* and *A. tetragonophylla*) with scattered *Eucalyptus camaldulensis*.

A section of the Study Area is situated in the Yalgoo subregion in the Murchison region of the Eremaean Botanical Province (Beard, 1976). The vegetation associated with this transitional area, between the Eremaean Botanical Province and the South-western Botanical Province, is described as:

- Still Eremaean in character, but with the increase in rainfall and the shift of climate from desert (arid) to Mediterranean, *Acacia aneura* decreases and is replaced by other *Acacia* species. The vegetation also becomes lower and denser in a south-westerly direction.
- The plains of the inland portion of this subregion support mixed *Acacia* species scrub mainly of *A. ramulosa* var. *ramulosa*, *A. grasbyi*, *A. acuminata* and *A. tetragonophylla*, with scattered *A. aneura*. The stony hills are dominated by *Acacia ramulosa* var. *ramulosa* and *A. acuminata* scrub, with *A. quadrimarginea* and *A. stereophylla*. The sandplains have a rich flora and are dominated by *Acacia ramulosa* var. *ramulosa* and *A. murrayana*. Low-lying plains support *Acacia sclerosperma* and *A. eremaea* scrub, with *Atriplex* and *Maireana* species.
- The south-western portion of the subregion includes thickets of *Acacia ramulosa* var. *ramulosa*, *A. acuminata* and *Melaleuca uncinata* occurring in midslope positions, while *Acacia ramulosa* var. *ramulosa* scrub with scattered *Callitris* and *Eucalyptus* species occur in the valleys.

A small section of the Study Area incorporates the Talisker vegetation system of the Eremaean Botanical Province. The vegetation of this system is described by Beard & Burns (1976) as:

- Sandplain associated with *Acacia ramulosa* var. *ramulosa*/*Acacia ramulosa* var. *linophylla* scrub with scattered *Eucalyptus* species and *Callitris columellaris*. Understorey species include *Baeckea pentagonantha*, *Eremophila clarkei* and *Grevillea stenostachya*.

The remaining section lies in the Greenough region of the South-western Botanical Province, incorporating the Yuna, Kalbarri, Northampton, Greenough and Mullewa vegetation systems (Beard, 1976; Beard & Burns, 1976). The vegetation of these systems is described as:

- Yuna System: the yellow sandplains support scrub heath associations; *Acacia-Casuarina* species thickets occur on red sandplains; while scrub with mallee and scattered trees occur in red soil depressions. *Eucalyptus loxophleba* and *E. loxophleba-E. salmonophloia* woodlands occur in bottomland soils west of Mullewa. The Greenough River valley is generally covered with *Acacia acuminata* scrub and scattered *Eucalyptus loxophleba*. Salt flat vegetation is primarily *Tecticornia* species and other samphires, with some *Atriplex vesicaria* and *Melaleuca thyoides*.
- Kalbarri System: the hills support *Acacia-Melaleuca* species thickets with *Acacia ligulata*, *Melaleuca eleuterostachya* and *M. uncinata*. Sandplains support a rich scrub heath which covers most of the area - *Acacia rostellifera* occurs near the coast, *Adenanthos cygnorum*, *Banksia attenuata* and *B. menziesii* inhabit white sands, while *Actinostrobus* species, *Banksia prionotes*, *B. sceptrum* and *Xylomelum* species occur in yellow sands. Small patches of mallees include *Eucalyptus loxophleba*, *E. eudesmioides* and *E. dongarraensis*.
- Northampton System: scrub heath associations occur on mesa tops (laterite and sand); laterite species include *Gastrolobium oxylobioides*, *Casuarina campestris*, *Xanthorrhoea preissii*,

*Dryandra* spp., *Calothamnus* spp., *Hakea* spp. and *Melaleuca* spp.; while the sand community grows taller and more open with *Acacia rostellifera*, *Banksia*, *Dryandra*, *Casuarina* and *Gastrolobium* species. *Melaleuca-Hakea* spp. thickets occur on the Jurassic sediments (generally forming steep scarp slopes) and the two dominant communities are *Melaleuca megacephala* and *Hakea pycnoneura* and *Casuarina campestris* and *M. uncinata*. *Acacia acuminata* scrub with *Hakea* species and scattered *Eucalyptus loxophleba* occur on the lower undulating terrain on granites and granulites, while *Allocasuarina campestris* thickets occur on gravelly soils and scattered *Eucalyptus camaldulensis* along drainage lines.

- Greenough System: the rocky ridges support *Acacia rostellifera* and *Melaleuca cardiophylla* thickets. *Acacia-Banksia* species scrub (dominated by *Acacia rostellifera* and *Banksia prionotes*) occurs on sand-covered limestone. *Acacia rostellifera* low forests occur on the alluvial flats, recent dunes commonly support *Acacia ligulata* open scrub, while *Eucalyptus camaldulensis* and *Casuarina obesa* occur along creeklines.
- Mullewa System: the sandplains support *Acacia-Casuarina-Melaleuca* thickets, whilst the vegetation of the dissected terrain is *Acacia acuminata* scrub with scattered *Eucalyptus loxophleba* and *Casuarina huegeliana*. Associated species include *Acacia tetragonophylla* and *Hakea preissii*, with *Senna* and *Eremophila* species forming the lower shrub layer and ephemerals comprising the ground layer.

The vegetation of the Study Area was mapped as 28 communities by Beard (1976) and Beard & Burns (1976). These 28 units are described in Table 2.8 and shown in Figure 2.12 to Figure 2.16.

**Table 2.8 – Beard Vegetation Communities of the Study Area**

Beard Code	Map Unit	Vegetation Community
a1,14Si		<i>Acacia aneura</i> and <i>Acacia quadrimarginea</i> scrub.
a1,8Sr k1,2Ci		<i>Acacia aneura</i> and <i>Acacia sclerosperma</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.
a1,9Li		<i>Acacia aneura</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> low woodland.
a10,11Si k1,2Ci		<i>Acacia victoriae</i> , <i>Acacia xiphophylla</i> and <i>Acacia eremaea</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.
a14Si		<i>Acacia quadrimarginea</i> scrub.
a1Li		<i>Acacia aneura</i> low woodland.
a1Li a9,17Si		<i>Acacia aneura</i> low woodland with understorey of <i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia grasbyi</i> .
a1Lp		<i>Acacia aneura</i> , trees in groves or patches.
a1Si		<i>Acacia aneura</i> scrub.
a33Sc		<i>Acacia rostelifera</i> thicket.
a8,9Sr k1,2Ci		<i>Acacia sclerosperma</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.
a8Sr k1,2Ci		<i>Acacia sclerosperma</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.
a9,19Si		<i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia acuminata</i> scrub.
a9,20Si		<i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia murrayana</i> scrub.
a9Si		<i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> scrub.
acSc		<i>Acacia - Casuarina</i> spp. thicket.
anSi		Mixed <i>Acacia</i> spp. scrub.
ceLr a9Si		<i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> scrub with <i>Callitris columellaris</i> and <i>Eucalyptus</i> spp.
e6c5Mr a9,19Si		<i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia acuminata</i> scrub with scattered <i>Eucalyptus loxophleba</i> and <i>Casuarina huegeliana</i> .
e6,8Mi		<i>Eucalyptus loxophleba</i> and <i>Eucalyptus salmonophloia</i> sclerophyll woodland.
e6Mr a19Si		<i>Acacia acuminata</i> scrub with scattered <i>Eucalyptus loxophleba</i> .
e6Mr eaSi		<i>Eucalyptus</i> spp. (mallee) and <i>Acacia</i> spp. scrub with scattered <i>Eucalyptus loxophleba</i> .
k1,3Ci		<i>Atriplex</i> spp., <i>Tecticornia</i> spp. and other samphires succulent steppe.
k3Ci		<i>Tecticornia</i> spp. and other samphires succulent steppe.
mhSc		<i>Melaleuca - Hakea</i> spp. thicket.
x2SZc		Scrub heath coastal association.
x3SZc		Scrub heath inland association.
x3SZc/acSc		<i>Acacia - Casuarina</i> spp. thicket with scrub heath inland association.

Note: 'Beard Code' column refers to vegetation types mapped by Beard (1976) and Beard & Burns (1976).

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7200000

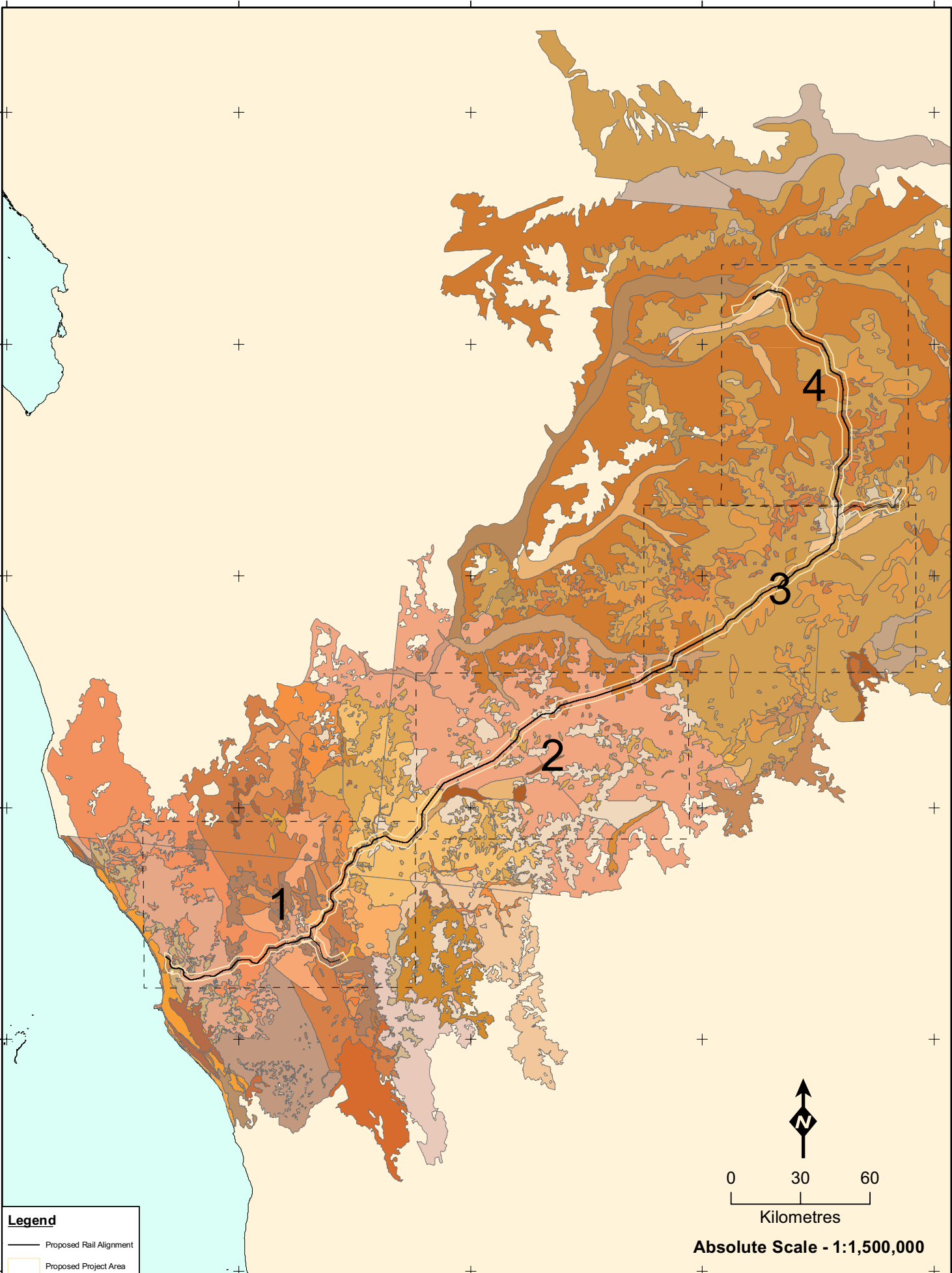
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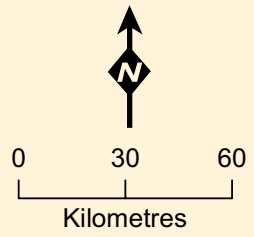
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6700000



**Legend**

- Proposed Rail Alignment
- Proposed Project Area



**Absolute Scale - 1:1,500,000**



**Beard Vegetation of the Study Area (Overview)**

**Figure: 2.12**  
Project ID: 1131

**Drawn: AH**  
Date: 10/07/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A014

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300000

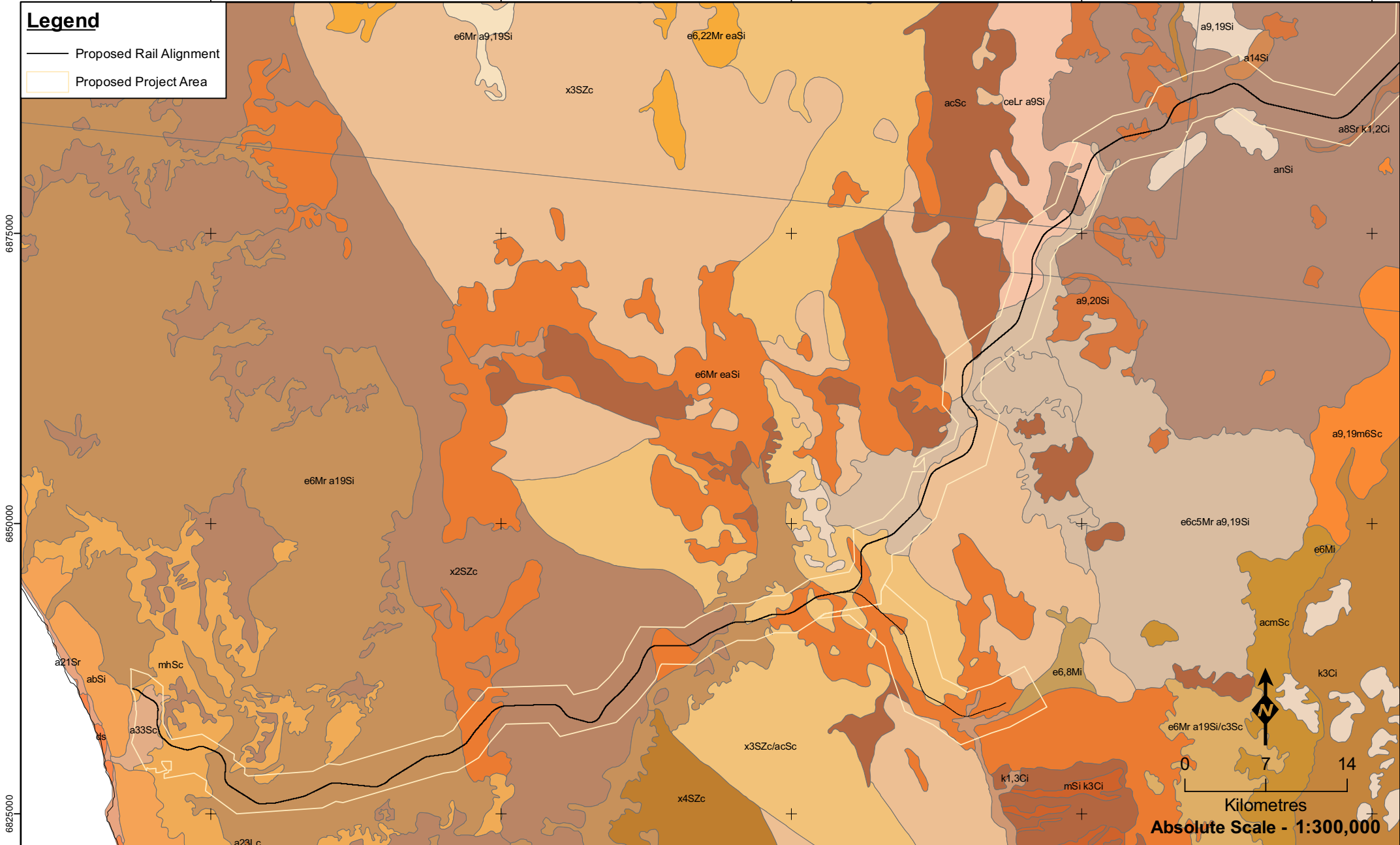
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350000

375000

### Legend

- Proposed Rail Alignment
- Proposed Project Area



6875000

6850000

6825000



### Beard Vegetation of the Study Area (Map1)

Figure: 2.13  
Project ID: 1131

Drawn: AH  
Date: 10/07/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A015

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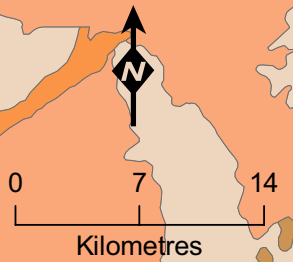
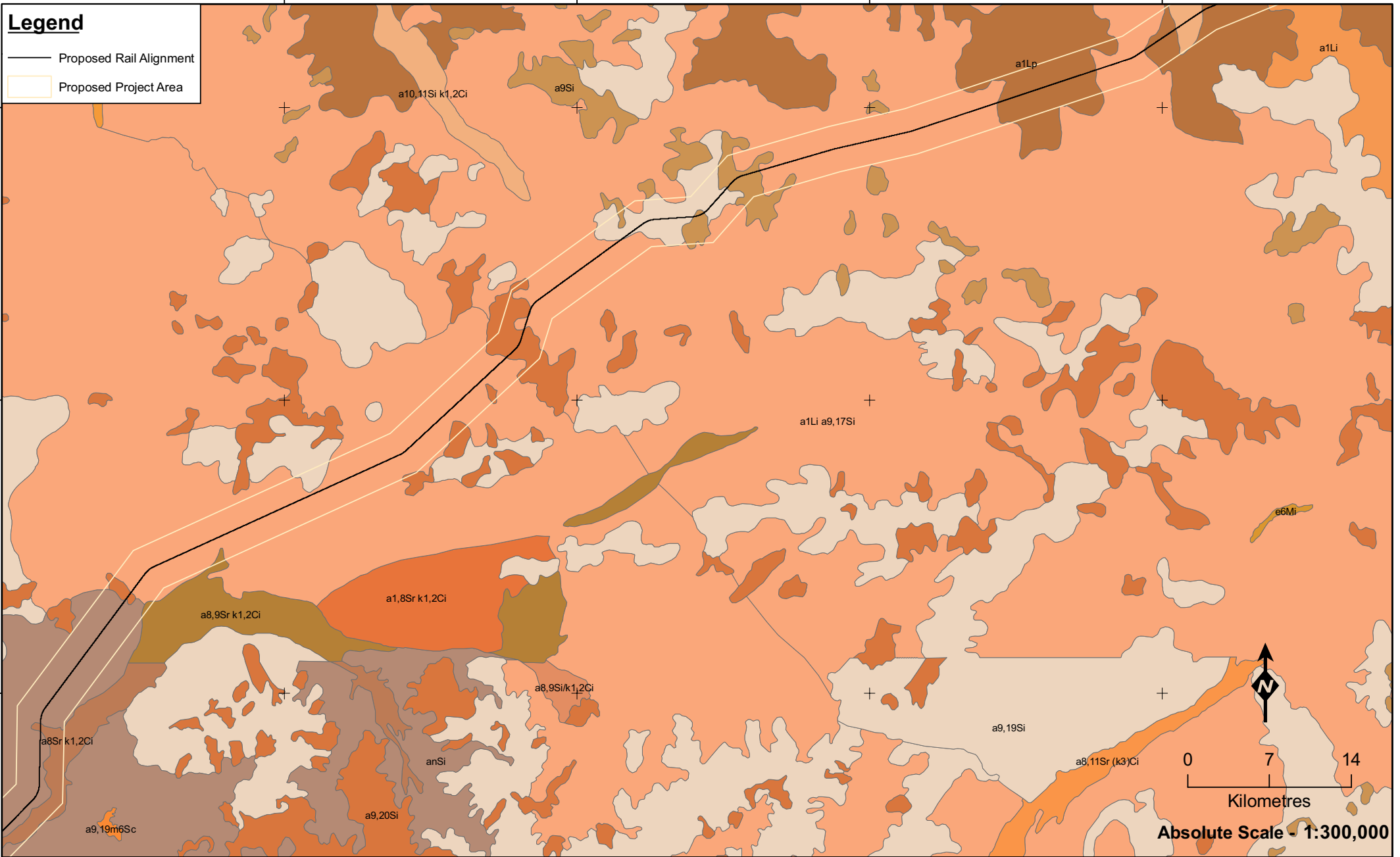
### Legend

- Proposed Rail Alignment
- Proposed Project Area

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6825000

6800000



### Beard Vegetation of the Study Area (Map 2)

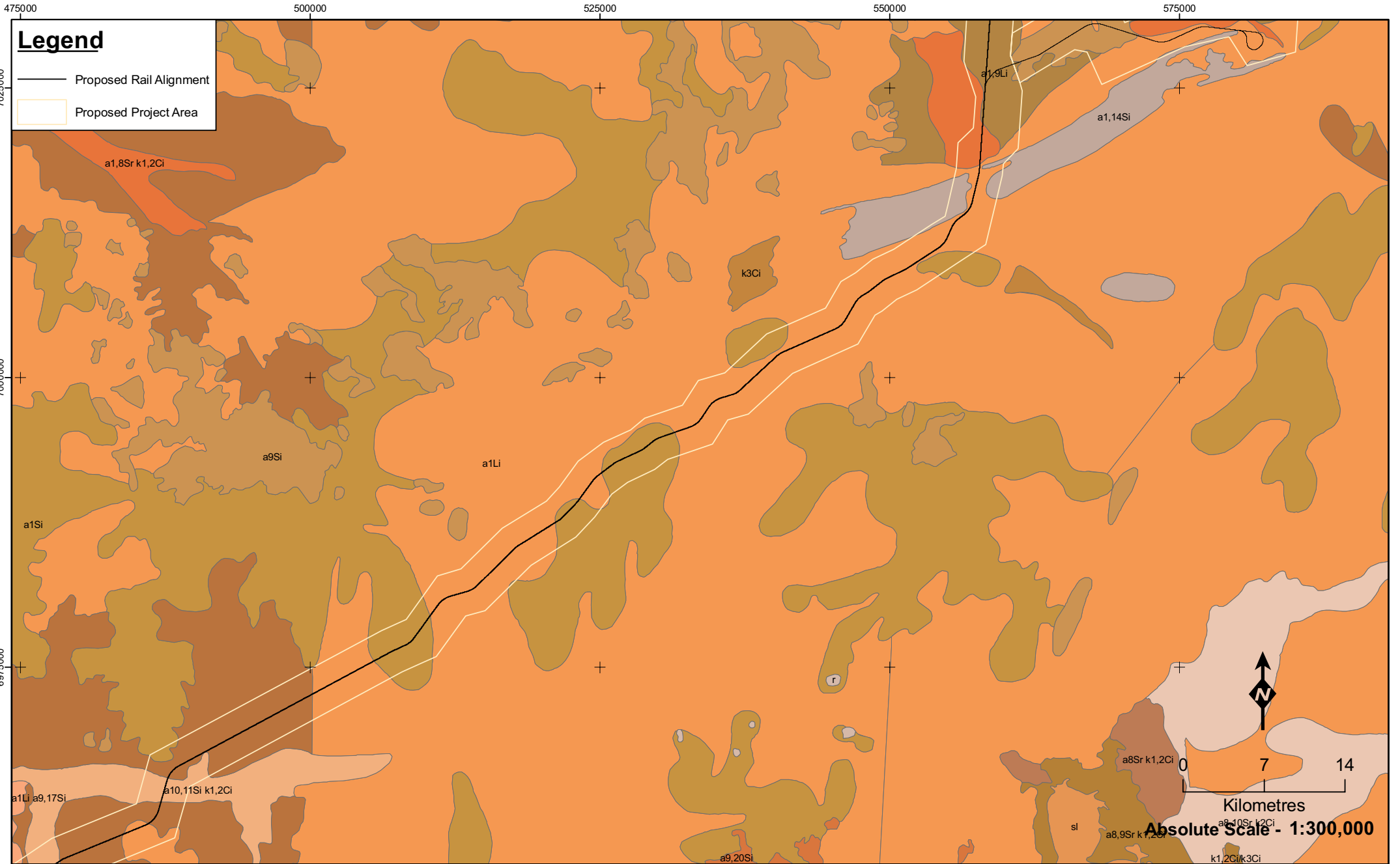
Figure: 2.14  
Project ID: 1131

Drawn: AH  
Date: 10/07/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A016





**Legend**

- Proposed Rail Alignment
- Proposed Project Area



**Beard Vegetation of the Study Area (Map 3)**

**Figure: 2.15**  
**Project ID: 1131**

**Drawn: AH**  
**Date: 10/07/09**

*Coordinate System*  
 Name: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Datum: GDA 1994

Unique Map ID: A017

525000

550000

575000

**Legend**

- Proposed Rail Alignment
- Proposed Project Area

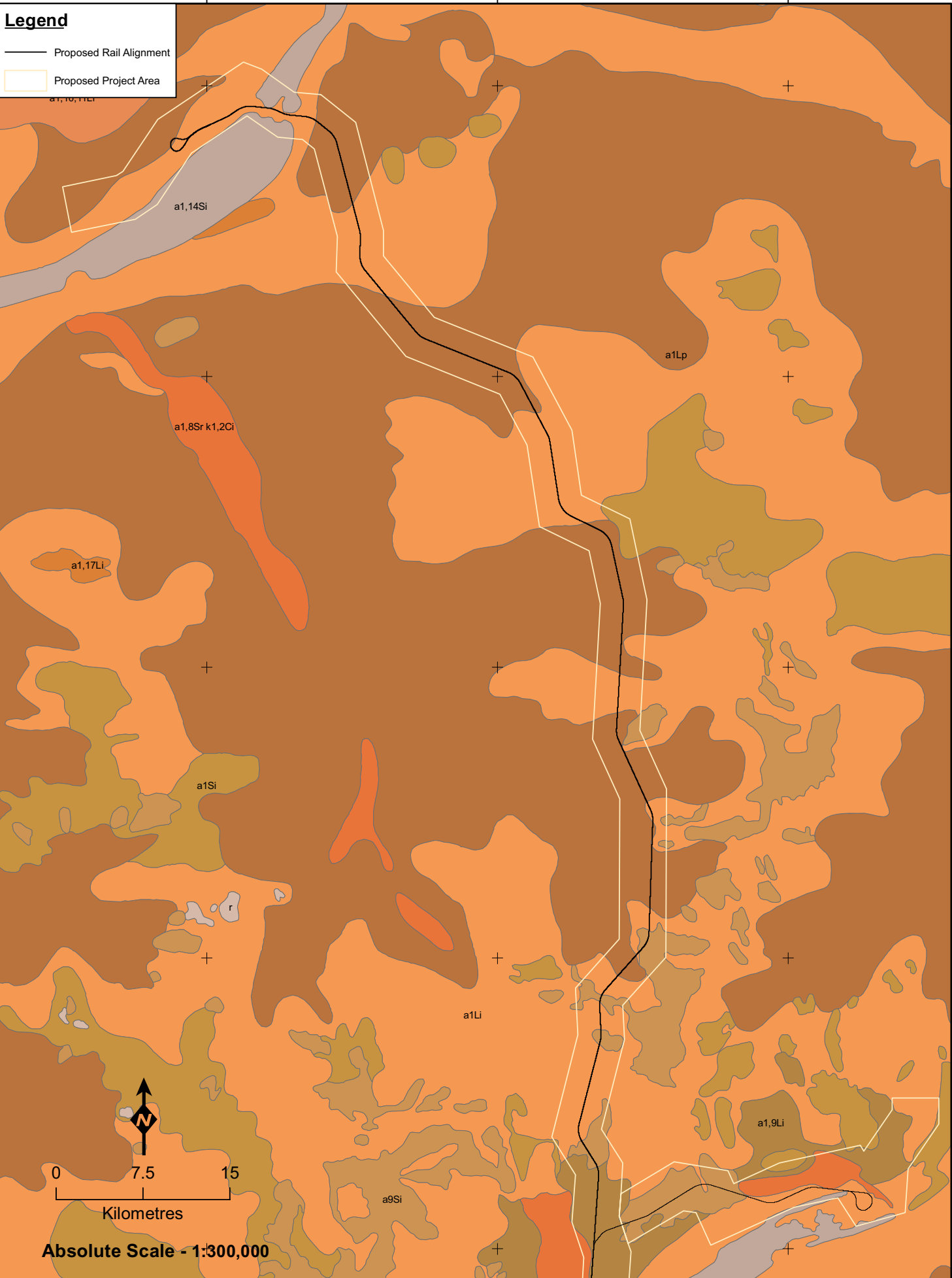
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**Absolute Scale - 1:300,000**



**Beard Vegetation of the Study Area (Map 4)**

**Figure: 2.16**  
Project ID: 1131

**Drawn: AH**  
Date: 13/07/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A019

## 2.8.2 Vegetation Described By IBRA

Desmond & Chant (2001b) describe the vegetation of the Geraldton Sandplains bioregion as primarily proteaceous scrub-heaths, rich in endemics, on the sandy earths of an extensive, undulating and lateritic sandplain mantling Permian to Cretaceous strata. Outwash plains support extensive *Eucalyptus loxophleba* and *Acacia acuminata* woodlands. The Geraldton Hills subregion includes sand heaths of emergent *Banksia* and *Actinostrobus* species. Alluvial plains support *Eucalyptus loxophleba* woodlands, with proteaceous heath and *Acacia* species scrubs on limestone. Low closed forests of *Acacia rostellifera* (now cleared) are associated with the plains of the Greenough and Irwin River. The Pinjarra Orogen (an area of hilly terrain) has proteaceous shrublands and mallees on sandplains, and *Eucalyptus loxophleba* and *Acacia acuminata* in valleys.

The Yalgoo bioregion is characterised by red sandy plains, supporting low to open woodlands of *Eucalyptus*, *Acacia* and *Callitris* species (Desmond & Chant, 2001a). The vegetation of the earth to sandy-earth plains is *Acacia aneura*, *Callitris-Eucalyptus salubris* and *Acacia ramulosa* var. *ramulosa* and *Acacia ramulosa* var. *linophylla* open woodlands and scrubs. Ephemeral species are particularly abundant in this bioregion.

The vegetation of the Western Murchison subregion is described by Desmond *et al.* (2001) as *Acacia aneura* low woodlands, rich in ephemerals, and generally with bunched grasses on rocky outcrops and fine-textured Quaternary alluvial and eluvial surfaces. Surfaces associated with drainage systems occur throughout, with hummock grasslands on Quaternary sandplains, saltbush shrublands on calcareous soils and *Tecticornia* species low shrublands on saline alluvium.

## 2.8.3 Vegetation Previously Recorded in the Vicinity of the Study Area

The vegetation communities described by *ecologia*, the DEC and Matiske in the vicinity of the Study Area (at Jack Hills, Weld Range and Oakajee) are provided below.

Matiske (2005) conducted a flora and vegetation assessment at Jack Hills during 2004/2005. One hundred and twenty-two quadrats were established during the survey and 18 vegetation communities were described (Table 2.9).

**Table 2.9 – Jack Hills Vegetation Communities**

Community	Landform Description	Vegetation Description
C1	Major flow-lines.	Low Open Woodland of <i>Acacia cyperophylla</i> subsp. <i>cyperophylla</i> , <i>Acacia citrinoviridis</i> , <i>Acacia tetragonophylla</i> , <i>Acacia aneura</i> var. <i>aneura</i> , <i>Grevillea berryana</i> over <i>Dodonaea petiolaris</i> , <i>Ptilotus obovatus</i> and a range of grasses.
C2	Minor flow-lines.	Low Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia citrinoviridis</i> , <i>Acacia tetragonophylla</i> , <i>Acacia rhodophloia</i> , <i>Acacia pruinocarpa</i> , <i>Psyrax latifolia</i> over <i>Dodonaea petiolaris</i> , <i>Ptilotus obovatus</i> and a range of grasses.
C3	Major flow-lines.	Low Open Woodland of <i>Eucalyptus victrix</i> , <i>Acacia cyperophylla</i> subsp. <i>cyperophylla</i> , <i>Acacia citrinoviridis</i> , <i>Acacia tetragonophylla</i> , <i>Grevillea berryana</i> over <i>Dodonaea petiolaris</i> , <i>Ptilotus obovatus</i> and a range of grasses.
F1	Plains near major flow lines.	Low Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia tetragonophylla</i> , <i>Acacia citrinoviridis</i> over <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Eremophila fraseri</i> subsp. <i>parva</i> , <i>Senna</i> spp. and a range of grasses including <i>Aristida contorta</i> .
M1	Plains and flats.	Low Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>microcarpa</i> , <i>Acacia tetragonophylla</i> , <i>Acacia pruinocarpa</i> , with patches of <i>Acacia xiphophylla</i> , over <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Eremophila fraseri</i> subsp. <i>parva</i> , <i>Senna</i> spp. and a range of grasses including <i>Aristida contorta</i> .

Community	Landform Description	Vegetation Description
M2	Broad plains and flats.	Low Open Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia tetragonophylla</i> , <i>Acacia pruinocarpa</i> , <i>Grevillea berryana</i> over <i>Solanum lasiophyllum</i> , <i>Senna</i> spp., <i>Ptilotus exaltatus</i> , <i>Goodenia tenuiloba</i> and <i>Aristida contorta</i> .
A1	Broad plains and flats.	Low Open Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>major</i> , <i>Acacia kempeana</i> , <i>Acacia rhodophloia</i> , <i>Grevillea berryana</i> over <i>Solanum lasiophyllum</i> , <i>Senna</i> spp., <i>Ptilotus obovatus</i> , <i>Goodenia tenuiloba</i> and <i>Aristida contorta</i> .
A2	Deeper sandy soils on ridges and upper slopes.	Low Woodland of <i>Acacia aneura</i> var. <i>aneura</i> over <i>Thryptomene decussata</i> , <i>Eremophila maitlandii</i> , <i>Eremophila margarethae</i> , <i>Ptilotus obovatus</i> and <i>Goodenia tenuiloba</i> .
A3	Shallow quartz and gravel slopes.	Low Open Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>microcarpa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia rhodophloia</i> , <i>Acacia xiphophylla</i> over <i>Aluta aspera</i> subsp. <i>hesperia</i> , <i>Thryptomene decussata</i> , <i>Eremophila margarethae</i> over <i>Solanum lasiophyllum</i> , <i>Senna</i> spp., <i>Ptilotus obovatus</i> , <i>Goodenia tenuiloba</i> and <i>Aristida contorta</i> .
A4	Shallow granitic outcrops.	Low Open Woodland of <i>Acacia rhodophloia</i> over <i>Dodonaea petiolaris</i> , <i>Thryptomene decussata</i> , <i>Calytrix desolata</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> over <i>Ptilotus obovatus</i> and <i>Goodenia tenuiloba</i> .
A5	Shallow quartz and gravel flats.	Low Open Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia rhodophloia</i> , <i>Acacia xiphophylla</i> over <i>Eremophila margarethae</i> over <i>Solanum lasiophyllum</i> , <i>Senna</i> spp., <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Goodenia tenuiloba</i> and <i>Aristida contorta</i> .
T1	Upper slopes and rocky ridges of main ranges.	Hummock Grassland of <i>Triodia melvillei</i> with emergent <i>Acacia aneura</i> var. <i>major</i> , <i>Acacia rhodophloia</i> , <i>Acacia xiphophylla</i> over <i>Eremophila margarethae</i> , <i>Philotheca brucei</i> subsp. <i>cinerea</i> , <i>Hibiscus sturtii</i> var. <i>forrestii</i> , <i>Ptilotus obovatus</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Goodenia tenuiloba</i> .
T2	Upper slopes and rocky ridges of main ranges.	Hummock Grassland of <i>Triodia melvillei</i> with denser pockets of emergent species including <i>Acacia aneura</i> var. <i>major</i> , <i>Acacia ramulosa</i> subsp. <i>linophylla</i> , <i>Acacia xiphophylla</i> , <i>Grevillea berryana</i> , <i>Eremophila margarethae</i> and <i>Philotheca brucei</i> subsp. <i>cinerea</i> over <i>Hibiscus sturtii</i> var. <i>forrestii</i> , <i>Ptilotus obovatus</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Goodenia tenuiloba</i> .
T3	Upper slopes and rocky ridges of main ranges.	Hummock Grassland of <i>Triodia melvillei</i> with denser pockets of emergent species including <i>Acacia cockertoniana</i> (ms) over dense <i>Eremophila margarethae</i> over <i>Ptilotus obovatus</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Goodenia tenuiloba</i> .
T4	Upper slopes and rocky ridges of main ranges.	Hummock Grassland of <i>Triodia melvillei</i> with denser pockets of <i>Acacia ramulosa</i> subsp. <i>ramulosa</i> , <i>Acacia cockertoniana</i> (ms), <i>Grevillea berryana</i> and <i>Acacia pruinocarpa</i> , <i>Psyrax latifolia</i> over <i>Tribulus suberosus</i> , <i>Ptilotus obovatus</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> , <i>Halgania gustafsenii</i> var. <i>gustafsenii</i> and <i>Goodenia tenuiloba</i> .
B1	Breakaways.	Low Open Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia pruinocarpa</i> over <i>Thryptomene decussata</i> , <i>Eremophila margarethae</i> over <i>Solanum lasiophyllum</i> , <i>Senna</i> spp., <i>Ptilotus obovatus</i> , <i>Goodenia tenuiloba</i> and <i>Aristida contorta</i> .
P1	Shallow gravelly slopes.	Low Open Woodland of <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia xiphophylla</i> , <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> , <i>Acacia pruinocarpa</i> over <i>Aluta aspera</i> subsp. <i>hesperia</i> , <i>Thryptomene decussata</i> , <i>Eremophila margarethae</i> over <i>Solanum lasiophyllum</i> , <i>Senna</i> spp., <i>Ptilotus obovatus</i> , <i>Goodenia tenuiloba</i> and <i>Aristida contorta</i> .

Community	Landform Description	Vegetation Description
P2	Shallow gravelly slopes.	Low Woodland of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia xiphophylla</i> , <i>Acacia demissa</i> , <i>Psydrax suaveolens</i> , <i>Grevillea berryana</i> over <i>Eremophila margarethae</i> , <i>Philotheca brucei</i> subsp. <i>cinerea</i> , <i>Dodonaea petiolaris</i> , <i>Thryptomene decussata</i> , <i>Eremophila margarethae</i> over <i>Solanum lasiophyllum</i> , <i>Senna</i> spp., <i>Ptilotus obovatus</i> , <i>Goodenia tenuiloba</i> .

Source: Mattiske, 2005.

The flora and vegetation communities at Jack Hills were surveyed by Meissner & Caruso (2008) in 2005. Fifty quadrats were established during the survey and six vegetation communities were described (Table 2.10).

**Table 2.10 – Jack Hills Vegetation Communities (DEC)**

Community	Landform Description	Vegetation Description
1	Mainly along creeklines, lower slopes.	Open woodlands and woodlands of <i>Acacia</i> spp. (dominants are <i>Acacia aneura</i> cf. var. <i>aneura</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia rhodophloia</i> ) over shrublands of <i>Ptilotus obovatus</i> or <i>Eremophila</i> species.
2	Along the entire range mainly on crests and midslopes	Woodlands and shrublands of <i>Acacia aneura</i> cf. var. <i>aneura</i> or <i>Acacia aneura</i> cf. var. <i>tenuis</i> occasionally associated with <i>Acacia rhodophloia</i> woodlands over shrublands of <i>Ptilotus obovatus</i> and <i>Dodonaea petiolaris</i> .
3	Crests and midslopes of rocky outcrops on the entire range.	Open woodlands, woodlands and shrublands of <i>Acacia aneura</i> cf. var. <i>aneura</i> and <i>Acacia citrinoviridis</i> over <i>Ptilotus obovatus</i> .
4	Colluvial outwash, small ironstone crest.	Isolated trees of <i>Acacia stowardii</i> or woodlands of <i>Acacia aneura</i> cf. var. <i>tenuis</i> , <i>Acacia stowardii</i> and <i>Acacia kempeana</i> over sparse shrublands.
5	Colluvial outwashes, low crest in the south west end of the range.	Open woodlands, woodlands and isolated trees of <i>Acacia aneura</i> cf. var. <i>aneura</i> over shrublands of <i>Eremophila</i> species.
6	Slopes of Mount Matthew and Mount Hale.	Shrublands of <i>Acacia</i> sp. Jack Hills (R. Meissner & Y. Caruso 4), <i>Philotheca brucei</i> subsp. <i>cinerea</i> , <i>Eremophila</i> spp. over hummock grasslands of <i>Triodia melvillei</i> . Occasionally present in the community are isolated trees of <i>Acacia citrinoviridis</i> , <i>Acacia pruinocarpa</i> and <i>Grevillea berryana</i> .

Source: Meissner & Caruso, 2008.

Markey & Dillon (2008b) surveyed the flora and vegetation communities at Weld Range in 2005. Fifty-two quadrats were established during the survey and six main vegetation communities (and four sub-communities) were described (Table 2.11).

**Table 2.11 – Weld Range Vegetation Communities (DEC)**

Community	Landform Description	Vegetation Description
1a	Moderate hill slopes, very rocky terrain and outcrops of BIF.	<i>Acacia aneura</i> , <i>A. ramulosa</i> and / or <i>Acacia</i> sp. Weld Range (A. Markey and S. Dillon 2994), over sparse <i>Eremophila</i> species.
1b	Rocky, gentle to moderate inclines.	Open to sparse shrubland of <i>Acacia aneura</i> (vars. <i>microphylla</i> , <i>aneura</i> and <i>argentea</i> ), <i>Acacia</i> sp. Weld Range and <i>Grevillea berryana</i> , over <i>Eremophila</i> spp. low shrubs.
2	Massive rocky outcrops of BIF, moderate to steep hill slopes.	Sparse to open shrubland of <i>Acacia aneura</i> var. <i>microcarpa</i> and / or <i>A. aneura</i> var. <i>aneura</i> , over mid stratum shrub layer of <i>Thryptomene decussata</i> , <i>Philotheca brucei</i> subsp. <i>brucei</i> , and <i>Eremophila</i> species.
3	Mid and low to moderate hillslopes. Loose ironstone gravel and scree.	Open shrubland of <i>Acacia aneura</i> over isolated <i>Solanum ashbyae</i> and <i>Tribulus suberosus</i> low shrubs.

Community	Landform Description	Vegetation Description
4	Steep rocky hillslopes with relatively high levels of exposed bedrock.	Open shrubs of <i>Acacia aneura</i> and emergent trees of <i>Acacia pruinocarpa</i> , over <i>Philotheca brucei</i> subsp. <i>brucei</i> and <i>Eremophila</i> species.
5a	Moderately inclined lower hillslopes and outwash plains.	Isolated emergent trees of <i>Acacia pruinocarpa</i> over <i>Acacia aneura</i> / <i>Acacia ramulosa</i> , over an open mid-stratum of shrubs.
5b	Moderately inclined lower hillslopes and outwash plains.	Sparse to open <i>Acacia</i> shrubland ( <i>A. aneura</i> cf. var. <i>tenuis</i> or <i>aneura</i> and / or <i>Acacia effusifolia</i> ), over sparse <i>Senna</i> species and <i>Tribulus suberosus</i> low shrubs.
6	Associated with dolerite substrates.	Open shrubland of <i>Acacia</i> sp. Weld Range (A. Markey and S. Dillon 2994), <i>Acacia aneura</i> and <i>Acacia speckii</i> , over sparse mid stratum of <i>Eremophila macmillaniana</i> , <i>Eremophila mackinlayi</i> subsp. <i>spathulata</i> and <i>Heliotropium ovalifolium</i> .

Source: Markey & Dillon, 2008b.

*ecologia* (2009a, in preparation) surveyed the vegetation communities at Weld Range in 2006, 2007 and 2008. Two-hundred and thirty-nine quadrats were established during these surveys and seven vegetation communities (and 16 sub-communities) were described and mapped. The Study Area crosses six of these communities (Table 2.12).

**Table 2.12 – Weld Range Vegetation Communities**

Community	Landform Description	Vegetation Description
3a	Sandy outwash and gravelly plains and footslopes of BIF ranges.	<i>Acacia. ramulosa</i> var. <i>linophylla</i> and <i>A. aneura</i> sparse shrubland over mixed <i>Eremophila</i> spp. open shrubland over scattered low shrubs of <i>Ptilotus obovatus</i> var. <i>obovatus</i> over open tussock grasses.
3b	Drainage lines and low lying areas on sandy and outwash plains.	<i>Acacia pruinocarpa</i> scattered trees over <i>A. aneura</i> woodland over <i>A. ramulosa</i> var. <i>linophylla</i> and <i>A. aneura</i> shrubland over mixed <i>Eremophila</i> spp. closed shrubland over <i>Ptilotus obovatus</i> var. <i>obovatus</i> open low shrubland.
4a	Undulating scree plains and mid to low slopes of granite and dolerite.	<i>Acacia</i> sp. Weld Range and <i>A. aneura</i> var. <i>microcarpa</i> open tall shrubland over <i>Eremophila macmillaniana</i> and mixed <i>Senna</i> spp. open mid shrubland over <i>Ptilotus obovatus</i> var. <i>obovatus</i> open low shrubland.
5	Ridge tops and upper slopes of BIF ridges, low lying semi-saline flats, riparian areas and ironstone scree flat plains.	Mixed <i>Acacia</i> spp. open shrubland / low woodland over <i>Solanum ashbyae</i> / <i>lasiophyllum</i> and <i>Ptilotus obovatus</i> var. <i>obovatus</i> low shrubland over mixed low tussock grassland.
7a	Seasonally inundated clay pan.	<i>Melaleuca stereophloia</i> and <i>Cratystylis subspinescens</i> low shrubland over <i>Tecticornia</i> spp. low samphire shrubland over <i>Frankenia laxiflora</i> low shrubland.
7b	Occurring as a band across a seasonally inundated wetland.	<i>Eucalyptus carnei</i> and <i>Eucalyptus trivalva</i> woodland over <i>Cratystylis subspinescens</i> and <i>Muehlenbeckia florulenta</i> low sparse shrubland over mixed low tussock grasses.

Source: *ecologia*, 2009a in preparation.

*ecologia* (2009c, in preparation) completed a single phase vegetation and flora survey and a threatened flora survey at Oakajee. Twenty-one quadrats were assessed during the vegetation and flora survey, and 14 vegetation units at the sub-association level were described (Table 2.13) these, four communities occurred close to the western end of the rail corridor surveyed for the Study Area.

**Table 2.13 – Oakajee Vegetation Communities**

Community	Landform Description	Vegetation Description
7	River drainage systems	<i>Eucalyptus camaldulensis</i> - <i>Casuarina obesa</i> low closed forest (+/- <i>Melaleuca raphiophylla</i> and <i>Cyperus gymnocaulos</i> ).
8	Laterite/sandstone	<i>Grevillea</i> - <i>Melaleuca</i> and other low shrubs over <i>Borya sphaerocephala</i> mats.
9	Low gentle to moderate hill slopes	<i>Acacia acuminata</i> sparse low trees over <i>Acacia tetragonophylla</i> shrubs (+/- <i>Eucalyptus</i> spp. mallees, pasture grasses and weedy herbs).
10	Sand over laterite on undulating plains	Tall shrubs of <i>Grevillea</i> – <i>Melaleuca</i> - <i>Acacia</i> spp. over species-rich open heath.
14	Previously disturbed land	<i>Eucalyptus</i> spp. mixed re-vegetation.

Source: *ecologia*, 2009c in preparation.

GHD (2009) surveyed the vegetation and flora of a proposed haul route between Jack Hills and Weld Range. Twenty-five quadrats were established during the survey and 18 vegetation communities were described (Table 2.14).

**Table 2.14 – Vegetation Communities Recorded Between Jack Hills and Weld Range**

Community	Vegetation Description
B1	Low open shrubland of <i>Acacia</i> sp. Weld Range (A. Markey and S. Dillon 2994), <i>Dodonaea pachyneura</i> and <i>Philotheca</i> aff. <i>tubiflora</i> over very open grassland of <i>Eragrostis</i> sp.
B3	Tall open shrubland of <i>Acacia tetragonophylla</i> and <i>Acacia xanthocarpa</i> to 2.5m over low shrubland of <i>Abutilon oxycarpum</i> subsp. <i>prostratum</i> , <i>Marsdenia graniticola</i> and <i>Senna artemisioides</i> subsp. <i>x sturtii</i> to 1.6 m over very hard open grassland of <i>Cymbopogon ambiguus</i> .
BP	Tall open shrubland of <i>Acacia demissa</i> and <i>Acacia grasbyi</i> over low open shrubland of <i>Ptilotus obovatus</i> and <i>Solanum lasiophyllum</i> , over an open hermland of <i>Maireana carnosae</i> and <i>Sclerolaena densiflora</i> .
C1	Open forest of <i>Acacia aneura</i> and <i>Eucalyptus victrix</i> to 15 m over low open forest of <i>Acacia burkittii</i> to 7 m over tall open shrubland of <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> to 2.2 m over low open shrubland of <i>Senna</i> spp. to 1.2 m over very open grassland of <i>Themeda triandra</i> to 0.7 m.
C2	Low open forest of open scrub of <i>Acacia kempeana</i> to 5.5 m over open scrub of <i>Acacia aneura</i> var. 1, <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> and <i>Senna artemisioides</i> subsp. <i>oligophylla</i> to 4m over low open shrubland of <i>Eremophila forrestii</i> to 1.3 m over very open grassland of <i>Eriachne helmsii</i> .
F1	Low open closed forest of <i>Acacia aneura</i> var. 1 and <i>Acacia craspedocarpa</i> x <i>aneura</i> to 6.5 m over tall shrubland of <i>Acacia speckii</i> (P3) and <i>Acacia tetragonophylla</i> to 3.5 m over low shrubland of <i>Abutilon cryptopetalum</i> .
FP1	Low woodland of <i>Acacia aneura</i> var. <i>macrocarpa</i> and <i>Eucalyptus victrix</i> to 5 m over an open scrub to tall shrubland of <i>Acacia kempeana</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> to 3 m over a low open shrubland of <i>Eremophila forrestii</i> and <i>Senna artemisioides</i> subsp. <i>artemisioides</i> to 1.5 m with a very open to open sedgeland of <i>Fimbristylis</i> sp. to 1 m and/or ephemeral hermland of <i>Boerhavia coccinea</i> and/or open grassland of <i>Eriachne benthamii</i> to 1 m.
MP4	Low open woodland of <i>Acacia aneura</i> var. 1 to 5m over low open shrubland of <i>Ptilotus obovatus</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> x <i>oligophylla</i> and <i>Senna artemisioides</i> subsp. <i>oligophylla</i> to 1.4 m over open grassland of <i>Aristida contorta</i> , <i>Eriachne aristidea</i> , <i>Eriachne helmsii</i> and <i>Monachather paradoxus</i> to 1m.
FP5	Tall open shrubland of <i>Acacia tetragonophylla</i> and <i>Acacia synchronicia</i> to 3 m over tall shrubland of <i>Eremophila fraseri</i> subsp. <i>parva</i> , <i>Eremophila macmillaniana</i> , <i>Eremophila spathulata</i> to 3 m over open low shrubland of <i>Senna artemisioides</i> subsp. <i>oligophylla</i> and <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> to 1.5 m with a very open grassland of <i>Aristida contorta</i> , <i>Eragrostis eriopoda</i> and <i>Eriachne aristidea</i> to 0.45 m.
FP6	Tall open shrubland of <i>Acacia kempeana</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> to 2.4 m over low shrubland of <i>Eremophila latrobei</i> x <i>margarethae</i> to 1.4 m over grassland of <i>Aristida holathera</i> var. <i>holathera</i> and <i>Eriachne helmsii</i> to 0.7m.
P1	Tall open shrubland of <i>Acacia aneura</i> var. <i>argentea</i> , <i>Acacia aneura</i> var. <i>macrocarpa</i> , <i>Acacia kempeana</i> and <i>Acacia ramulosa</i> var. <i>ramulosa</i> to 3.2 m over low open shrubland of <i>Eremophila forrestii</i> , <i>Eremophila fraseri</i> , <i>Eremophila compacta</i> , <i>Ptilotus obovatus</i> and <i>Senna glutinosa</i> subsp. <i>chatelainiana</i> , <i>Senna</i>

Community	Vegetation Description
	<i>glaucifolia</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna</i> sp. Meekatharra and <i>Ptilotus obovatus</i> to 0.5 m over very open grassland of <i>Aristida contorta</i> , <i>Aristida holathera</i> var. <i>holathera</i> , <i>Monachather paradoxus</i> and <i>Eragrostis eriopoda</i> to 0.4 m.
P2	Tall shrubland of <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> to 3 m over low open shrubland of <i>Maireana georgei</i> , <i>Scaevola spinescens</i> and <i>Senna</i> sp. Meekatharra to 1.3 m.
P3	Open scrub of <i>Acacia ramulosa</i> var. <i>linophylla</i> over low open shrubland of <i>Eremophila forrestii</i> over an open grassland of <i>Eragrostis eriopoda</i>
P6	Open scrub of <i>Acacia aneura</i> var. <i>argentea</i> , <i>Acacia craspedocarpa</i> , <i>Acacia tetragonophylla</i> and <i>Grevillea nematophylla</i> subsp. <i>supraplana</i> to 4 m over open shrubland of <i>Eremophila forrestii</i> and <i>Eremophila metallicorum</i> to 1.21 m over very open grassland of <i>Eriachne helmsii</i> to 0.5 m.
P12	Low open woodland of <i>Acacia aneura</i> var. <i>aneura</i> over tall open shrubland of <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> , <i>Acacia burkittii</i> , <i>Acacia demissa</i> , <i>Acacia aneura</i> var. <i>conifera</i> to 2.2 m over low open shrubland of <i>Eremophila glutinosa</i> , <i>Eremophila spathulata</i> , <i>Senna</i> sp. Meekatharra, <i>Acacia xanthocarpa</i> , <i>Calytrix desolata</i> , <i>Eremophila macmillaniana</i> and <i>Senna glaucifolia</i> to 1.4 m.
QP1	Tall open shrubland of <i>Acacia craspedocarpa</i> x <i>aneura</i> , <i>Acacia tetragonophylla</i> , <i>Acacia aneura</i> var. 1 to 4 m over tall shrubland of <i>Eremophila macmillaniana</i> to 2.5 m over low open shrubland of <i>Eremophila fraseri</i> subsp. <i>parva</i> , <i>Eremophila macmillaniana</i> , <i>Eremophila spathulata</i> , <i>Senna</i> spp. and <i>Senna</i> sp. Meekatharra, <i>Eremophila forrestii</i> and <i>Ptilotus obovatus</i> to 1.5 m over very open grassland of <i>Aristida contorta</i> to 0.1 m and an ephemeral herbland of <i>Boerhavia coccinea</i> .
S1	Low open woodland of <i>Acacia citrinoviridis</i> to 5m over low shrubland of <i>Acacia</i> sp. Jack Hills (P1), <i>Acacia aneura</i> var. <i>argentea</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> to 2.5 m and <i>Ptilotus obovatus</i> to 1.4 m over an open herbland of <i>Sida</i> sp. Golden Calyces Glabrous and <i>Goodenia berardiana</i> to 0.3 m over very open grassland of <i>Eriachne mucronata</i> to 0.35 m
S2	Low open woodland of <i>Acacia aneura</i> var. <i>microcarpa</i> to 5 m over tall open shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia rhodophloia</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> to 3.5 m over low open shrubland of <i>Aluta aspera</i> subsp. <i>hesperia</i> to 0.4 m over very open grassland of <i>Aristida contorta</i> to 0.1 m over an open herbland of <i>Goodenia berardiana</i> to 0.3 m.

Source: GHD, 2009.



### 3 SURVEY METHODOLOGY

#### 3.1 GUIDING PRINCIPLES

The survey methods adopted by *ecologia* were formulated using:

- The Western Australian EPA's position paper on terrestrial biological surveys as an element of biodiversity protection (EPA, 2002).
- The guidance statement on terrestrial flora and vegetation surveys for environmental impact assessment (EPA, 2004).
- Consultation with the DEC and other relevant government officers.

A Level 2, two phase survey was undertaken to increase the knowledge of the Study Area. The survey combined the following methodological approaches:

- Background research: to gather background information on the footprint or target area (i.e. search of literature, data and map-based information).
- Reconnaissance: to verify the accuracy of the background information, further delineate and characterise the flora and range of vegetation units present in the Study Area and to identify potential impacts.
- Detailed survey: to enhance the level of knowledge of the flora and vegetation at the local scale and its local context or significance (if the broader scale is well known).

#### 3.2 DETERMINATION OF SURVEY SAMPLING DESIGN AND INTENSITY

Prior to conducting the surveys, a review was undertaken of factors likely to influence survey design using EPA Guidance Statement No. 51. These factors and the methodological actions taken in response are presented in Table 3.1.

**Table 3.1 – Factors Likely to Influence Survey Design**

Requirement	EPA Statement	Project Compliance
Sampling Design and Intensity at Two Levels – Regional and Area Specific	Guidance Statement No. 51	Quadrats were distributed across the Study Area at approximately 1 per linear kilometre. More quadrats were chosen in the areas with higher diversity. This level of survey was adequate to record most of the vegetation communities at an area specific level in the Study Area. Survey methodology is described in section 3 and the survey limitations and constraints are described in Table 6.1. Regional data was available from a number of sources as described in section 2.8.
Landform – Scale, Rarity, Heterogeneity	Guidance Statement No. 51	Aerial photographs and land system maps were used to select quadrat locations. This ensured that any different landforms or land systems that could potentially contain different or unique vegetation communities were visited during the survey. In addition, the botanists undertaking the survey ground-truthed the vegetation associations occurring in the sites chosen from the aerial photographs, and added or removed sites depending on the landforms encountered while traversing the Study Area. Multiple sites were assessed on each landform and the survey methodology is described in section 3.
Habitat – Scale, Rarity, Heterogeneity	Guidance Statement No. 51	Aerial photographs were used to select quadrat locations. This ensured that all habitats displaying potentially different or unique vegetation communities were visited during the survey. In addition, the botanists undertaking the survey ground-truthed the vegetation communities occurring in the sites chosen from the aerial photographs, and added or removed sites depending on the habitats encountered while traversing the Study Area. Multiple sites were assessed in each habitat and the survey methodology is described in section 3.
Vegetation Structure, Diversity and Seasonality	Guidance Statement No. 51	Statistical analysis was carried out on data collected from 614 quadrats (605 quadrats assessed during the survey of the Study Area and 9 quadrats assessed by <i>ecologia</i> , 2009a for Weld Range). Following analysis, the structure of the vegetation communities in the Study Area have been described (Appendix H) and the main communities were mapped (Appendix I). The vegetation communities were surveyed in one phase. Any unknown or annual species encountered during the threatened flora survey were collected, providing a second phase collection of the flora in the Study Area.
Potential for Conservation Significant Flora to occur, Based on Habitat Analysis	Guidance Statement No. 51	Using the species from the relevant government database searches and the results of other biological surveys in the region, and using the habitat requirements for each of these species, a likelihood of occurrence in the Study Area has been determined and is shown in Appendix C. Land systems likely to provide habitat for conservation significant flora were targeted during the threatened flora transect survey.
Results Including Species/Area Curves, Species and Ecosystem diversity and Heterogeneity	Guidance Statement No. 51	Species accumulation curves are included in section 5.2. Details on the flora of the Study Area are included in section 5.1. Detailed vegetation descriptions, including the area covered by each vegetation community in the Study Area are provided in Appendix H. Vegetation community maps are provided in Appendix I.
Information on Adjacent Areas – Previous Surveys and Herbarium Records	Guidance Statement No. 51	Information was requested from the relevant government databases and was collated from reports available from other vegetation and flora surveys undertaken in the vicinity of the Study Area. The results from these searches and surveys are provided in Section 2.8.

### 3.3 DATABASE SEARCHES

Before the first field survey, searches of various government databases were undertaken to determine species of conservation significance previously recorded in or around the Study Area. For the searches a shape file of the Study Area was provided to the DEC and an additional 2 km buffer was requested.

The following databases were searched for conservation significant flora taxa within this buffer:

- The DEC's Threatened (Declared Rare) Flora Database (DEFL); and
- The DEC's Western Australian Herbarium Specimen Database (WA HERB).

The following database was searched for conservation significant taxa by locations names:

- The DEC's Declared Rare and Priority Flora List (Atkins (2), 2008).

The following databases were searched for vegetation communities of conservation significance:

- The DEC's Threatened and Priority Ecological Community Database; and
- The DEWHA Protected Matters Database.

Results from the first three searches listed above are summarised in Table C.1, Appendix C and results of the Threatened and Priority Ecological Communities searches are summarised in Table 2.7.

### 3.4 VEGETATION AND FLORA ASSESSMENT

The first phase of the vegetation and flora of the Study Area was a quadrat based survey and was completed from the:

- 29<sup>th</sup> of April to the 6<sup>th</sup> of May 2009 (Pastoral land area, Sections 3 and 4);
- 4<sup>th</sup> to the 13<sup>th</sup> of June 2009 (Pastoral land area, Sections 1 and 2); and
- 11<sup>th</sup> to the 21<sup>st</sup> of August 2009 (Freehold land area, Section 5).

One-hundred and forty-one person days were spent on these surveys. The survey timing and quadrat locations are illustrated in Figure 3.1. Refer to sections 3.4.1 to 3.4.3 for further detail.

The second phase of the survey was a targeted threatened flora and unknown species transect survey and was completed from the:

- 9<sup>th</sup> to the 21<sup>st</sup> September 2009 (Pastoral land area, Sections 1 and 3);
- 20<sup>th</sup> to the 29<sup>th</sup> of October 2009 (Pastoral land area, Sections 4 and Freehold land area, Section 5); and
- 16<sup>th</sup> to the 24<sup>th</sup> March 2010 (Pastoral land area, Section 2).

Transect locations are illustrated in Figure 3.2 to Figure 3.6. One-hundred and three person days were spent on these surveys. See Section 3.4.4 for further detail.

The objectives of the surveys and subsequent report were to provide:

- an inventory of vascular plant species;
- a description and mapping of plant communities;

- a review of plant species considered to be rare and endangered, or geographically restricted, which are known to, or may occur, within the Study Area;
- an inventory of exotic plants, including Declared Plants; and
- a review of the significance of the plant communities and flora species in a local, regional and state context.

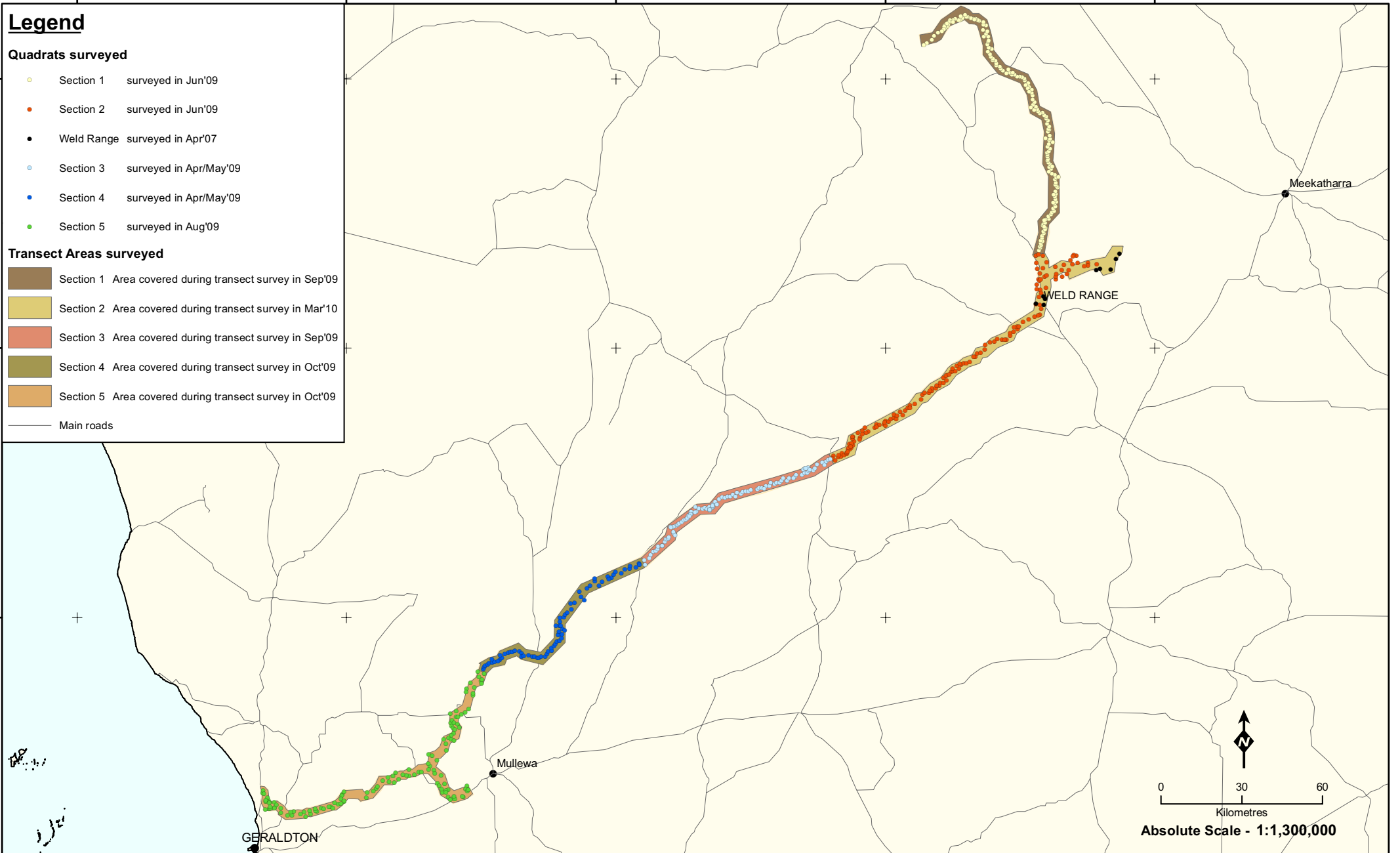
# Legend

## Quadrats surveyed

- Section 1 surveyed in Jun'09
- Section 2 surveyed in Jun'09
- Weld Range surveyed in Apr'07
- Section 3 surveyed in Apr/May'09
- Section 4 surveyed in Apr/May'09
- Section 5 surveyed in Aug'09

## Transect Areas surveyed

- Section 1 Area covered during transect survey in Sep'09
- Section 2 Area covered during transect survey in Mar'10
- Section 3 Area covered during transect survey in Sep'09
- Section 4 Area covered during transect survey in Oct'09
- Section 5 Area covered during transect survey in Oct'09
- Main roads



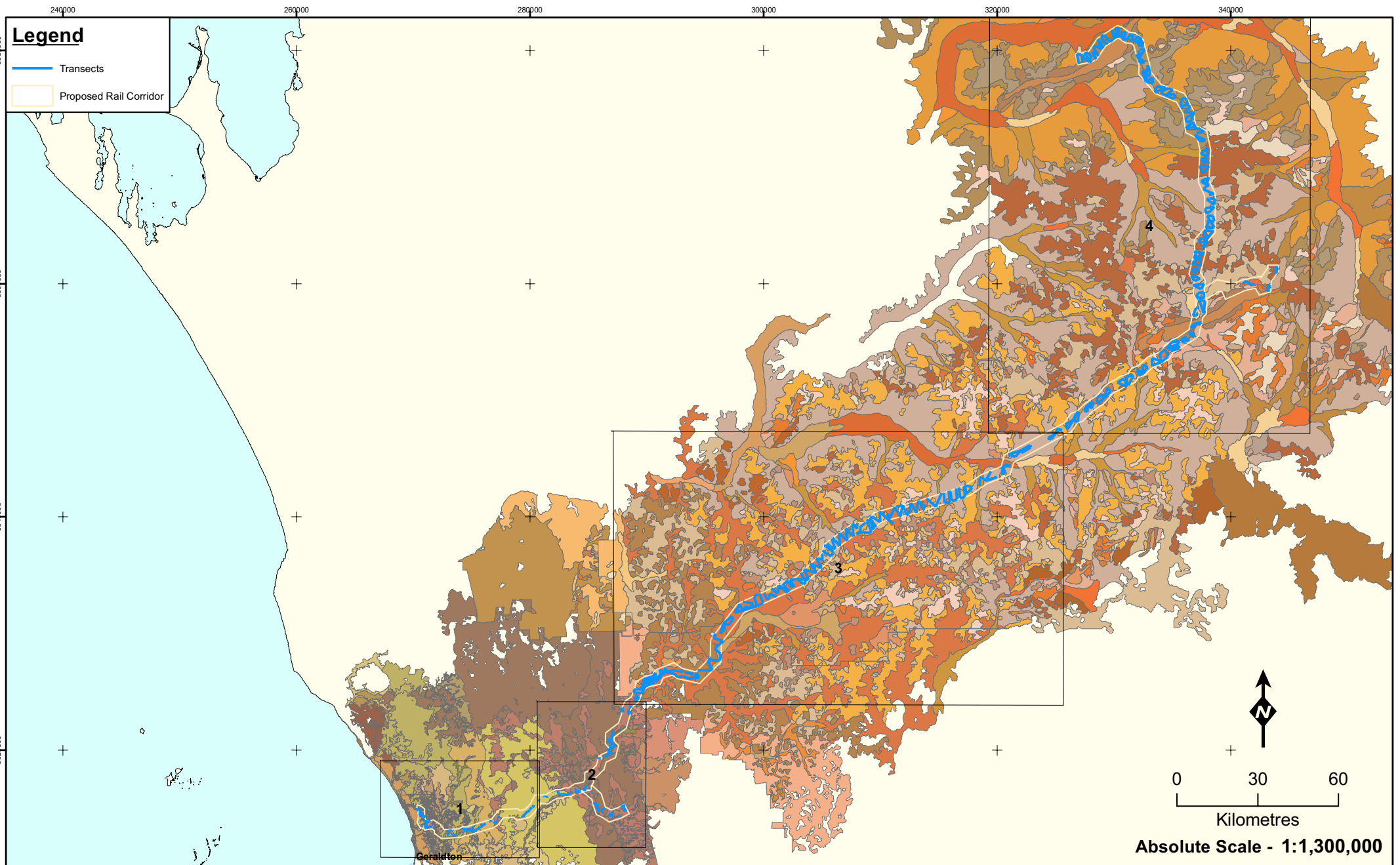
## Survey Timing and Quadrat Locations

Figure: 3.1  
Project ID: 1131

Drawn: AH  
Date: 26/11/09

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A083



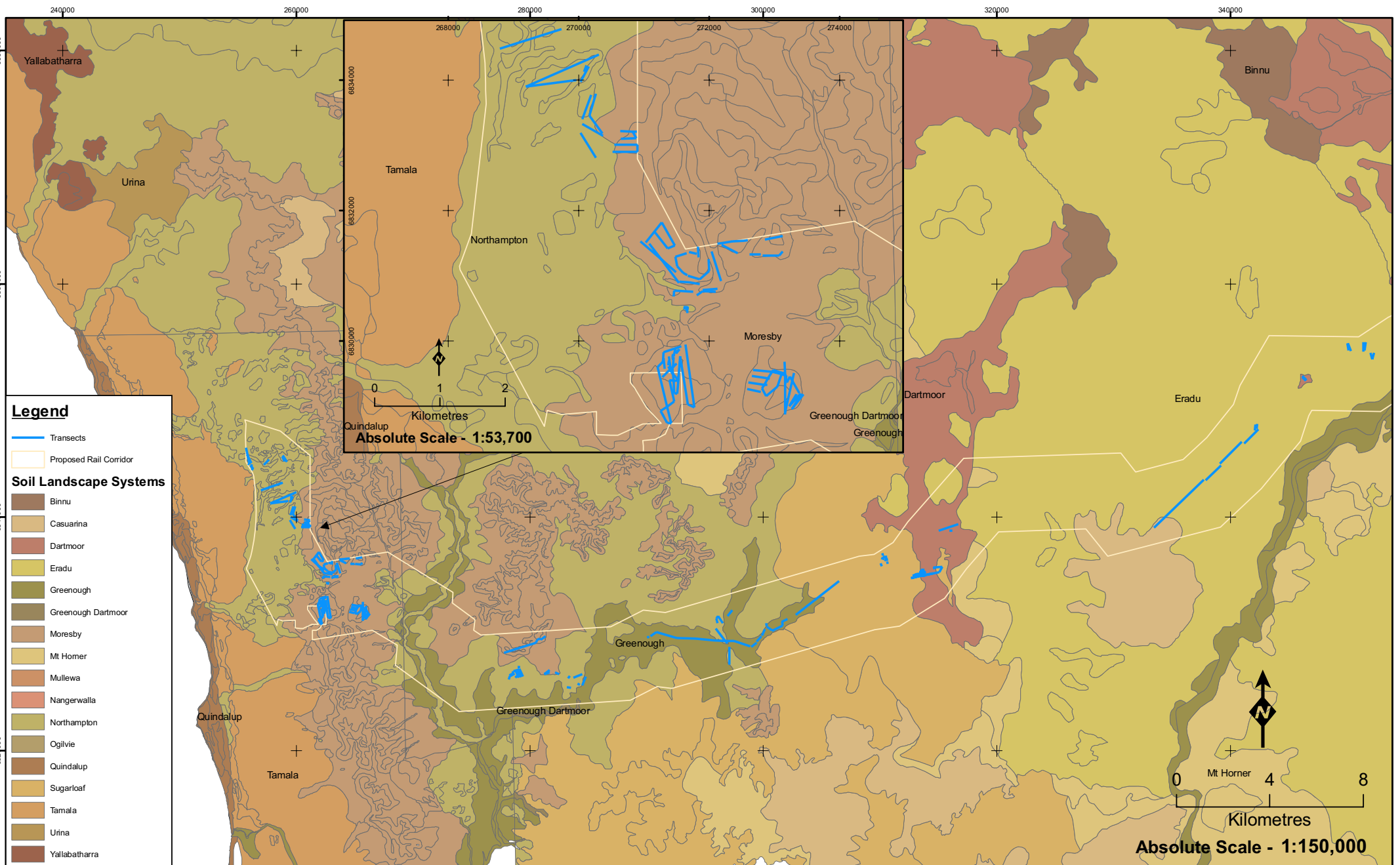
**Transects Searched during the Threatened Flora Survey for the Freehold and Rangeland Section (overview)**

**Figure: 3.2**  
**Project ID: 1131**

**Drawn: AH**  
**Date: 21/01/2010**

*Coordinate System*  
 Name: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Datum: GDA 1994

Unique Map ID: A112



315000

330000

345000

### Legend

- Transects
- Proposed Rail Corridor

### Soil Landscape Systems

#### Region

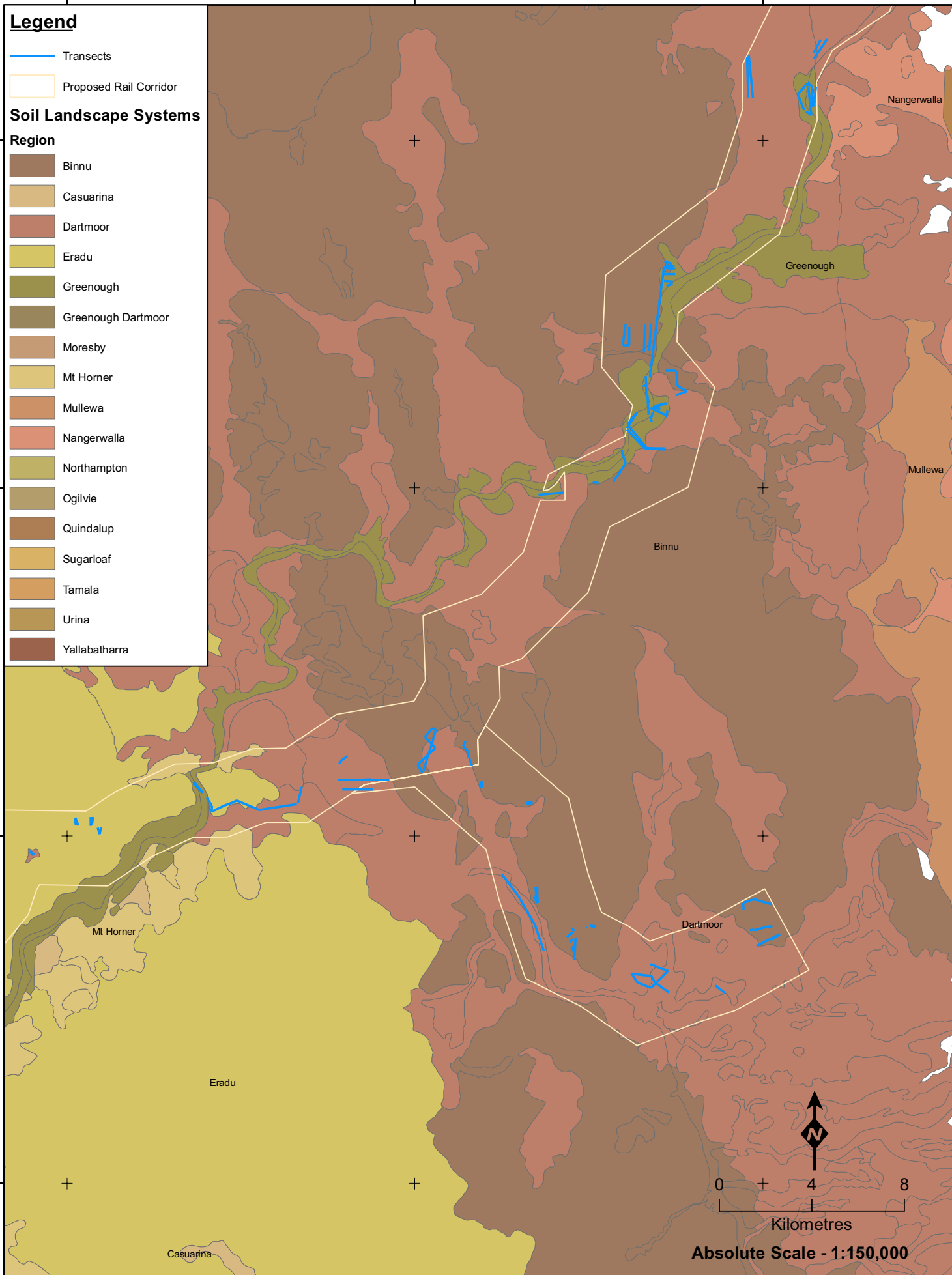
- Binnu
- Casuarina
- Dartmoor
- Eradu
- Greenough
- Greenough Dartmoor
- Moresby
- Mt Horner
- Mullewa
- Nangerwalla
- Northampton
- Ogilvie
- Quindalup
- Sugarloaf
- Tamala
- Urina
- Yallabatharra

867000

865000

863000

862000



**Absolute Scale - 1:150,000**



**Transects Searched during  
the Threatened Flora Survey  
for the Rangeland Part  
(Map 2)**

**Figure: 3.4**  
Project ID: 1131

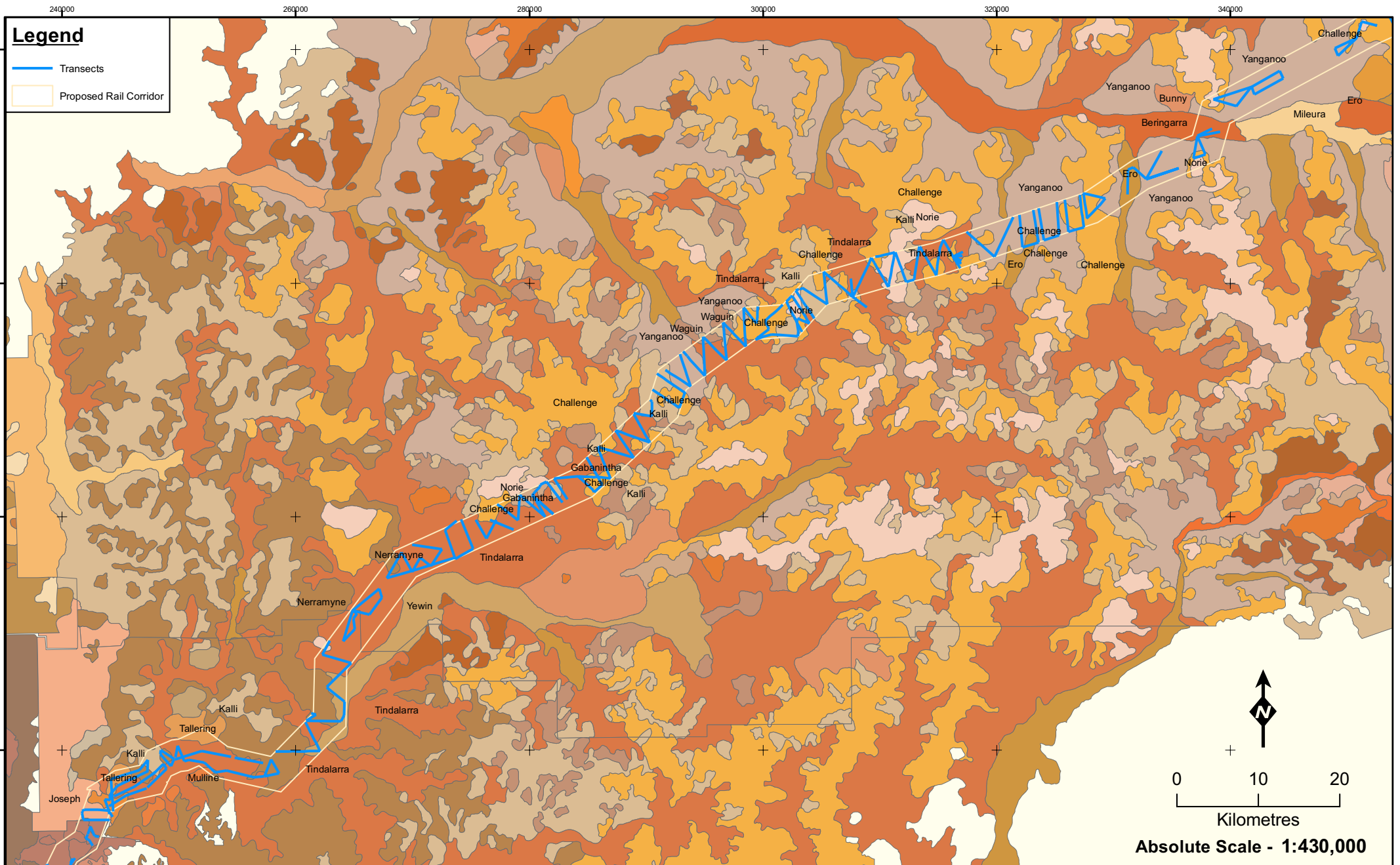
**Drawn: AH**  
Date: 21/01/10

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A014

**A3**





**Transects Searched during the Threatened Flora Survey for the Freehold Section (Map 3)**

**Figure: 3.5**  
**Project ID: 1131**



*Coordinate System*  
 Name: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Datum: GDA 1994

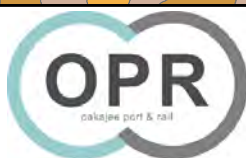
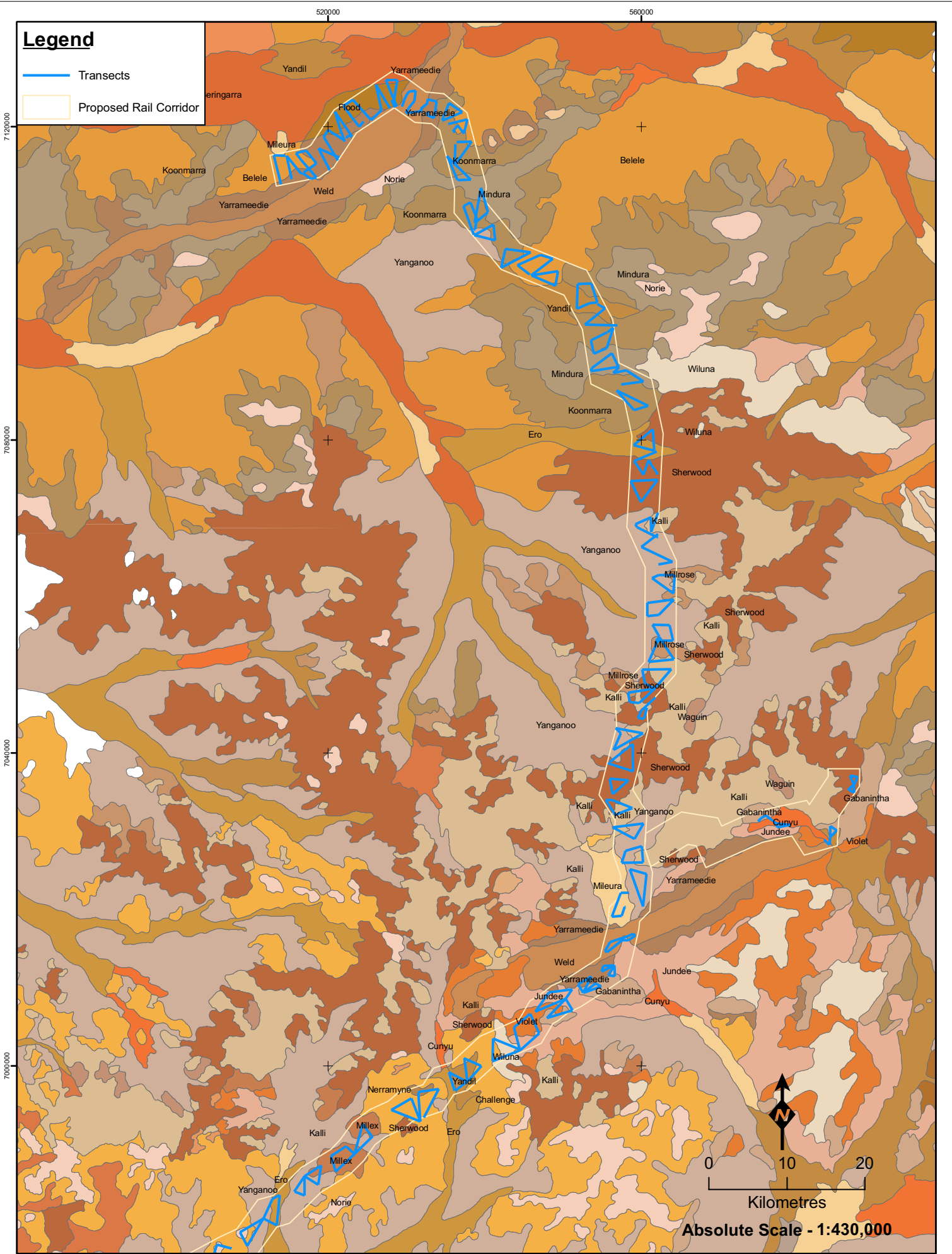
**Drawn: AH**  
**Date: 21/01/2010**

Unique Map ID: A115

**A3**

**Legend**

-  Transects
-  Proposed Rail Corridor



**Transects Searched during the Threatened Flora Survey for the Rangeland Part (Map 4)**

**Figure: 3.6**  
Project ID: 1131

**Drawn: AH**  
Date: 21/01/10

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A016

### 3.4.1 Detailed Floristic Quadrats

The phase one survey involved a combination of systematic flora sampling in quadrats, and a series of linked field traverses to maximise the sampling of the entire area. Linked traverses are often more time efficient than bounded quadrats when the aim of the survey is to delineate vegetation community boundaries. However, quadrats are necessary to efficiently record floristic variation and quantitatively characterise the vegetation units. Both methods contribute to the delineation of small scale vegetation units and to a comprehensive floristic inventory of the Study Area.

To ensure that the vegetation communities and habitats present within the Study Area were adequately represented in the data collected, sampling sites were selected using aerial photography, land systems, topographical features and field observations. Six hundred and five 20 m x 20 m quadrats (400 m<sup>2</sup>) were established over the Study Area. This quadrat size is standard for the Midwest. It is noted that in areas of irregularly shaped patches of vegetation (for example, along drainage lines) the standard square quadrat could not be used; however, 400 m<sup>2</sup> of vegetation was surveyed for these sites. The number of sites established was determined by the heterogeneity of the area. An additional nine quadrats surveyed by *ecologia*, 2009a at Weld Range were used for vegetation community mapping and statistical analysis.

Quadrat locations are listed in Table D.1, Appendix D and mapped across the whole of the Study Area in Figure 3.1 and are plotted on the vegetation community maps in Appendix I.

The following information was recorded at each 400 m<sup>2</sup> site:

- location details, including GPS coordinates;
- digital photograph;
- site parameters such as habitat, topography, soils, and surface lithology;
- structural information describing the vegetation community; including the height, foliage projection cover, form and dominant species;
- maximum height and foliage projective cover for each species within the site, including introduced species;
- vegetation condition; and
- the estimated time since the last fire at each site.

Plant specimens were collected for later identification and verification by a qualified plant taxonomist. Vegetation type, life-form strata and percentage cover for each stratum were recorded using the National Vegetation Information System (NVIS) vegetation classifications (Table E.1, Appendix E). Nomenclature and taxonomy follow the conventions currently adopted by the Western Australian Herbarium (2009). Data collected at individual sites are included electronically as Appendix F.

### 3.4.2 Opportunist Collections

While walking between quadrats opportunistic collections were made of taxa not already located within the discrete quadrats. This ensured that a more comprehensive species list was produced for the Study Area. Locations of any known or potentially conservation significant taxa encountered were also recorded, and notes were made on the boundaries of vegetation communities to help with the mapping of the vegetation.

### 3.4.3 Vegetation Mapping

Vegetation mapping is the delineation of plant communities into groups or associations. The distinctive characteristics that these groups or communities share include species dominance, stratum structure and species composition (Hedde *et al.*, 1980).

The vegetation of the Study Area has been mapped on the basis of statistical cluster analysis, field observation and aerial photography. The Study Area has been mapped at a scale of 1:30,000, except the area from the Moresby Ranges to the western end of the Study Area which has been mapped at a scale of 1:10,000.

Data collected within quadrats was analysed using the multivariate statistical programme PATN™ to statistically classify the vegetation communities based on groups with similar species composition. This method provides an objective means of defining the vegetation communities in the Study Area.

A site by species matrix was created from the quadrat information. Annuals, weak perennials, species recorded once (unless present in the vegetation description), introduced taxa (relevant to the Freehold area only) and opportunist collections were excluded from this analysis.

Cluster analysis was performed on the site by species matrix using an association matrix of the Bray-Curtis coefficient to measure the similarity between sites and the similarity between the occurrences of species. From this association matrix a dendrogram was produced to statistically delineate the floristic communities present. The dendrogram and site by species matrix are too large to include in this report, however, they are available on request.

The vegetation of the Freehold and Pastoral land areas were analysed separately due to report timing constraints. This did not affect the analysis as the vegetation communities, geology and land systems between the Freehold and Pastoral land areas were very different and would have separated anyway.

### 3.4.4 Targeted Threatened Flora Survey

During the targeted threatened flora survey, approximately 1,250 km of transects were walked in the Study Area (163 km in the Freehold and 1,087 in the Pastoral land areas). This equated to 2,364 ha (1.05%) of the Study Area. Transect locations have been plotted over the land systems maps in Figure 3.3 to Figure 3.6.

The length of the transects varied according to access and time availability in the field. The width of the transects varied according to vegetation density. In the Freehold land area, the transects widths were a standard 10 m, in the Pastoral land area the width varied from 10 m to 40 m depending on the vegetation density, where mostly a 20 m width was found suitable. Land systems that provide suitable habitat for conservation significant flora were targeted, but all land systems were surveyed.

In the specified width of each transect; the start and end point, number and GPS coordinate of the threatened flora taxa and the habitat type were recorded. In addition to targeting the known threatened flora, any unknown species, including annuals, or any species not recorded during the quadrat based survey were collected to add to the total species list for the Study Area.

Locations of the DRF and Priority Flora recorded are listed in Table G.2, Appendix G and their locations are plotted on Figures G.1 to G.5, Appendix G.

## 4 VEGETATION RECORDED IN THE STUDY AREA

Seventy-two vegetation communities, incorporating 48 subunits were mapped in the Study Area. Some vegetation communities were indistinguishable from others on the aerial photographs and consequently were mapped as one community incorporating a number of subunits. These communities described in Sections 4.1.1 to 4.1.3 overleaf.

The vegetation communities of the Study Area are described based on IBRA region and landform. Each community has a unique code where the first capital letter indicates the IBRA region in which it is mostly mapped (i.e. G = Geraldton Sandplains, Y = Yalgoo and M = Murchison), the next lower case letter indicates the landform type (i.e. h = rocky hill slope, y = yellow sand plain, p = red sand plain, red-orange hardpan and red hardpan, f = floodplain and salt lake, and c = creekline and minor drainage channel), and the number indicates the vegetation community (i.e. 1 = vegetation community 1). Where subunits occur in a vegetation community these are identified by an additional letter e.g. /a. An example of a vegetation community with subunits is Gh2/a i.e. it is subunit a of Geraldton Sandplains rocky hill slope community 2.

The following detailed information is provided for each vegetation community in Table H.1, Appendix H.

1. Vegetation community description;
2. Photograph;
3. Quadrats surveyed in the vegetation community;
4. Conservation significant taxa recorded in the vegetation community;
5. Land systems / soil-landscape system associated with the vegetation community;
6. Area mapped in the Study Area;
7. Associated or commonly occurring taxa;
8. Species richness; and
9. Average vegetation condition.

These vegetation communities have been mapped and are provided in Appendix I.

### 4.1.1 Vegetation of the Study Area in the Geraldton Sandplains IBRA Region

The Freehold section of the Study Area occurs in the Geraldton Sandplains IBRA region. While most of this section has been cleared, some areas of remnant vegetation are still in good condition. Twelve vegetation communities, incorporating eight subunits, were mapped along the Geraldton Sandplains section of the Study Area.

The vegetation of the Geraldton Sandplains (G) bioregion has been grouped into:

- a) Rocky hill slope vegetation of the Moresby Range (h);
- b) Yellow sand plain and dune vegetation (y);
- c) Red sand plain vegetation (p);
- d) Floodplain vegetation (f); and
- e) Creek line and minor drainage channel vegetation (c).

### **Rocky Hill Slope Vegetation of the Moresby Range**

Three vegetation communities (Gh1, Gh2 and Gh3) were mapped on the hill slopes of the Moresby Range. These communities were restricted to the Range and were not widespread.

**Gh1: Isolated *Eucalyptus loxophleba* subsp. *loxophleba* low mallee trees, over *Melaleuca megacephala* and *Hakea pycnoneura* closed mid shrubland, over *Hibbertia hypericoides*, *Acacia lasiocarpa* var. *lasiocarpa*, *Gastrolobium plicatum*, *Gastrolobium triangulare* sparse low shrubland, over *Lepidosperma tenue* open sedgeland.** It is restricted to the rocky mid slopes and flat mesa tops of the Range. Gh1 was mapped over 0.1% (129 ha) of the Study Area. Gh1 is part of the Moresby Range Priority 1 PEC.

**Gh2: Mixed *Acacia* spp. and *Melaleuca* spp. sparse to open tall shrubs, over *Verticordia chrysanthella* and *Gastrolobium plicatum* low shrubland.** Three subunits that could not be distinguished on the aerial photographs occurred within this community. Gh2/a and Gh2/b were common on the foot and mid slopes of the Moresby Range but were also recorded on low rocky hills away from the Range, while Gh2/c occurred only on open rocky areas on lower hill slopes. Gh2 was mapped over 0.3% (586 ha) of the Study Area. Gh2 is part of the Moresby Range Priority 1 PEC.

Gh2/a: Isolated *Acacia congesta* subsp. *congesta*, *Acacia ulicina* and *Acacia tetragonophylla* tall shrubs, over *Verticordia chrysanthella* low shrubland, with isolated *Gastrolobium plicatum* and *Scholtzia ciliata* low shrubs, over *Lepidosperma tenue* and *Caesia micrantha* sparse sedgeland.

Gh2/b: *Melaleuca megacephala* and *Melaleuca radula* (+/-*Allocasuarina campestris*) sparse tall shrubland, over *Hibbertia hypericoides*, *Grevillea excelsior*, *Verticordia chrysanthella* and *Gastrolobium plicatum* low shrubland, over *Lepidosperma tenue* sedgeland.

Gh2/c: *Melaleuca radula* and *Acacia congesta* subsp. *congesta* open mid shrubland, over *Gastrolobium plicatum*, *Verticordia chrysanthella* and *Verticordia penicillaris* open low shrubland, over mixed sparse sedgeland.

**Gh3: *Allocasuarina campestris* closed tall to mid shrubland, over *Lepidosperma tenue* sparse sedgeland.** Gh3 was recorded on the rocky foot and mid slopes and it is an uncommon vegetation community of the Moresby Range. Gh3 was mapped over <0.1% (88 ha) of the Study Area. Gh3 is part of the Moresby Range Priority 1 PEC.

### **Yellow Sand Plain and Dune Vegetation**

Two vegetation communities (Gy1 and Gy2) were mapped on the yellow sand plains of the Geraldton Sandplains region. These communities were restricted to small areas of remnant vegetation in the Freehold section of the Study Area east of the Moresby Range.

**Gy1: *Eucalyptus* spp., *Xylomelum angustifolium*, *Actinostrobus arenarius* and *Banksia* spp. sparse to open low woodland, over mixed Myrtaceae spp. open low to mid shrubland.** Three subunits that could not be distinguished on the aerial photographs occurred within this community. Gy1 occurred on areas of deep yellow sands and was mapped over 0.2% (489 ha) of the Study Area.

Gy1/a: *Xylomelum angustifolium* (+/- *Banksia prionotes*, *Actinostrobus arenarius*) open low woodland, over *Calothamnus glaber* (+/-*Allocasuarina campestris*) open mid to tall shrubland, over *Acanthocarpus* sp. Ajana (C.A. Gardner 8596), *Hibbertia conspicua* and *Petrophile conifera* sparse low shrubland, over *Ecdeiocolea monostachya* sparse sedgeland and *Austrostipa elegantissima* tussock grassland.

Gy1/b: *Eucalyptus eudesmioides* sparse low mallee woodland, over *Allocasuarina campestris* open mid shrubland, over *Ecdeiocolea monostachya* sparse sedgeland.

Gy1/c: *Eucalyptus jucunda* (+/- *Eucalyptus oldfieldii*) sparse low mallee woodland and *Actinostrobos arenarius* and *Banksia prionotes* sparse low woodland, over *Allocasuarina campestris* and *Melaleuca ryeae* open mid shrubland, over *Ecdeiocolea monostachya* open sedgeland.

**Gy2: Mixed *Eucalyptus* spp. open low woodland, over *Acacia* spp. and *Melaleuca* spp. sparse mid shrubland.** The two subunits within this community could not be distinguished on the aerial photographs. Gy2 occurred on areas of yellow/orange sand and was mapped over 0.8% (1755 ha) of the Study Area.

Gy2/a: *Eucalyptus jucunda* open low mallee woodland, over *Calothamnus glaber* open mid shrubland, over mixed Myrtaceae spp. sparse low shrubland, over *Triodia danthonioides* sparse hummock grassland and *Ecdeiocolea monostachya* sedgeland.

Gy2/b: Mixed *Eucalyptus* spp. sparse low woodland (including *Eucalyptus eudesmioides*, *Eucalyptus horistes*, *Eucalyptus jucunda*, *Eucalyptus oldfieldii* and *Eucalyptus pyriformis*), over *Acacia nigripilosa* subsp. *nigripilosa*, *Acacia stereophylla* var. *stereophylla*, *Melaleuca filifolia* and *Melaleuca cordata* (+/- *Allocasuarina campestris*), over mixed Myrtaceae spp. low shrubland, over *Monachather paradoxus* tussock grassland, *Triodia danthonioides* sparse hummock grassland and *Ecdeiocolea monostachya* sedgeland.

### **Red Sand Plain Vegetation**

Two vegetation communities (Gp1 and Gp2) were mapped on the red sand plains of the Geraldton Sandplains region.

**Gp1: *Acacia tetragonophylla* and *Hakea recurva* subsp. *recurva* (+/-*Eucalyptus loxophleba* subsp. *loxophleba*, *Acacia acuminata* and *Acacia burkittii*) low woodland, over *Ptilotus obovatus* sparse low shrubland, over \**Avena fatua* and \**Bromus diandrus* tussock grassland.** Gp1 is a widespread vegetation community of the Freehold section of the Study Area and was recorded in the degraded and smaller remnants, and on some low rocky hill slopes. Gp1 was mapped over 0.4% (924 ha) of the Study Area.

**Gp2: *Melaleuca adnata* sparse low woodland, over *Calothamnus quadrifidus* and *Acacia acuminata* open tall to mid shrubland, over *Ptilotus obovatus* open low shrubland, over *Amphipogon caricinus* var. *caricinus* open tussock grassland.** Gp2 was an uncommon vegetation community recorded on the red sandy-clay plain in the Freehold section of the Study Area. It was recorded in one patch and was surrounded by yellow sand plain vegetation. Gp2 was mapped over <0.1% (39 ha) of the Study Area.

### **Floodplain Vegetation**

Two vegetation communities (Gf1 and Gf2) were recorded on the floodplains of the Geraldton Sandplains region. These communities were widespread towards the eastern end of the Freehold section of the Study Area.

**Gf1: Isolated *Hakea preissii* tall shrubs, over *Tecticornia indica* subsp. *bidens* and *Atriplex amnicola* (+/- *Tecticornia lepidosperma*, *Tecticornia pergranulata* subsp. *pergranulata* and *Frankenia setosa*) low chenopod shrubland, over \**Avena fatua* and *Eragrostis dielsii* sparse tussock grassland.** Gf1 was a common, degraded floodplain vegetation community that was affected by salinity; it was mapped over 0.3% (753 ha) of the Study Area.

**Gf2: *Eucalyptus loxophleba* subsp. *loxophleba* open low woodland, over *Acacia acuminata* and *Acacia burkittii* sparse tall shrubland, over *Acacia tetragonophylla* and *Enchylaena tomentosa* sparse mid shrubland, over *Acacia andrewsii* and *Ptilotus obovatus* sparse low shrubland.** Gf2 was

a common vegetation community on the floodplains towards the eastern end of the Freehold section of the Study Area. Gf2 was mapped over 1% (2,292 ha) of the Study Area.

#### **Creek Line and Minor Drainage Channel Vegetation**

Two vegetation communities (Gc1 and Gc2) were recorded along the creek line and minor drainage channels of the Geraldton Sandplains region.

**Gc1:** *Eucalyptus camaldulensis* var. *obtusa* mid to low woodland (+/- *Casuarina obesa* and *Melaleuca raphiophylla*) isolated to open tall shrubland, over *Atriplex amnicola* and *Chenopodium gaudichaudianum* sparse low shrubland, over *Cyperus gymnocaulos* sparse sedgeland and \**Avena fatua* and \**Bromus diandrus* tussock grassland. Gc1 was the common vegetation community of the creek lines of the Geraldton Sandplains region. It has a varying understory of *Casuarina obesa* and *Melaleuca raphiophylla*, with *Casuarina obesa* becoming more common to the east and *Melaleuca raphiophylla* becoming more common to the west. Gc1 was mapped over 0.4% (996 ha) of the Study Area.

**Gc2:** *Grevillea* spp., *Acacia* spp. and *Melaleuca* spp. tall shrubland. Gc2 was not recorded during the current survey and has been described from the vegetation and flora assessment of the Oakajee Port Development (*ecologia*, in prep 2009c). Gc2 was an uncommon community in the Study Area and was only recorded in a narrow strip along the Great Northern Highway, close to the coast. Gc2 was mapped over <0.1% (13 ha) of the Study Area.

#### **4.1.2 Vegetation of the Study Area in the Yalgoo IBRA Region**

The Yalgoo IBRA region extends approximately 100 km east from the eastern end of the Freehold section of the Study Area. The region has not been cleared and is dominated mostly by *Acacia* species woodlands; however, the first 10 km of the section are dominated by open *Eucalyptus* species woodlands. Seventeen vegetation communities, incorporating 10 subunits, were recorded in the Yalgoo region.

The vegetation of the Yalgoo region has been grouped into:

- a) Rocky hill slope vegetation (h);
- b) Yellow sand plain vegetation (y);
- c) Red sand plain and hardpan vegetation (p);
- d) Floodplain vegetation (f); and
- e) Creek line and minor drainage channel vegetation (c).

#### **Rocky Hill Slope Vegetation**

Three vegetation communities (Yh1, Yh2 and Yh3) were recorded on the rocky hill slopes of the Yalgoo region. These communities were not common and occurred on the BIF and jaspilite of the Talling Peak Land System to low gravelly hills of the region.

**Yh1:** *Allocasuarina dielsiana* sparse mid woodland, over *Acacia quadrimarginea* and *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over *Ptilotus obovatus* sparse low shrubland. This community is part of the Talling Peak Priority 1 PEC. It was restricted to the rocky areas of the Talling Land System and was not common. Yh1 was mapped over 0.4% (928 ha) of the Study Area.

**Yh2:** *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over isolated *Thryptomene decussata*, *Eremophila latrobei* subsp. *latrobei* and *Sida ectogama* mid shrubs, over *Eriachne pulchella* subsp. *pulchella* and *Aristida contorta* sparse tussock grassland. Yh2 was not a common



vegetation community and was recorded on low gravelly hills and plains of the region. Yh2 was mapped over <0.1% (58 ha) of the Study Area.

**Yh3: Isolated *Acacia aneura*, *Acacia ramulosa* var. *linophylla*, *Acacia quadrimarginea* and *Acacia grasbyi* low trees, over *Thryptomene costata* and *Thryptomene decussata* open mid to low shrubland, over *Aristida contorta* open tussock grassland.** Yh3 was not a common vegetation community and was recorded on the low gravelly hills and plains of the region. Yh3 was mapped over <0.1% (112 ha) of the Study Area.

### Yellow Sand Plain Vegetation

One vegetation community (Yy1) was recorded on the yellow sand plains of the Yalgoo region. The yellow sand plain vegetation is not widespread in the Yalgoo region and is restricted to scattered, small patches.

**Yy1: *Acacia ramulosa* var. *linophylla* and *Acacia ramulosa* var. *ramulosa* open tall shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this unit. Yy1/a was the dominant subunit and Yy1/b occurred in small patches within it. Yy1 was not a common vegetation community, as the yellow sand plains are not widespread in this region. Yy1 was mapped over 2.2% (4923 ha) of the Study Area.

Yy1/a: *Acacia ramulosa* var. *linophylla* and *Acacia ramulosa* var. *ramulosa* (+/- *Hakea recurva* subsp. *arida*) open tall shrubland, over *Eremophila forrestii* subsp. *forrestii* sparse mid shrubland, over *Sida* sp. Golden calyces glabrous (H.N. Foote 32) open low shrubland, over isolated *Monachather paradoxus* and *Eriachne helmsii* tussock grasses.

Yy1/b: Isolated *Acacia aneura* var. *aneura* low trees, over *Acacia ramulosa* var. *ramulosa* sparse tall shrubs, over *Aluta aspera* subsp. *hesperia* mid shrubland, over *Aluta aspera* subsp. *hesperia* and *Hemigenia* sp. Yalgoo (A.M. Ashby 2624) open low shrubland, over *Monachather paradoxus* sparse tussock grassland.

### Red Sand Plain and Hardpan Vegetation

Six vegetation units (Yp1 - Yp6) were recorded on the red sand plain and sandy-clay plains of the Yalgoo region. These communities were the most widespread in the Yalgoo region.

**Yp1: *Acacia coolgardiensis* tall shrubland to low woodland, over isolated *Eremophila forrestii* subsp. *hastieana* mid to low shrubs.** Small patches of this uncommon vegetation community were mapped towards the western end of the Yalgoo region. Yp1 was mapped over 0.1% (231 ha) of the Study Area.

**Yp2: *Acacia ramulosa* var. *linophylla* (+/- *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla*) tall to mid shrubland, over *Enchylaena tomentosa* var. *tomentosa* sparse low shrubland.** Yp2 was a common vegetation community around the western border of the Yalgoo region, and small patches of it were mapped in the Geraldton Sandplains region. Yp2 occurred predominantly on the sandy-clay plain areas and sometimes extended onto the lower rocky slopes of the Talling Land System. Yp2 was mapped over 2.3% (5164 ha) of the Study Area.

**Yp3: Mixed *Eucalyptus* spp. low woodland, over sparse *Acacia* spp. mid shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Yp3/a was the dominant subunit, as Yp3/b was only recorded in small patches. The Yp3 unit was common at the border of the Yalgoo and Geraldton Sandplains regions. Yp3 was mapped over 0.5% (1078 ha) of the Study Area.

Yp3/a: Mixed *Eucalyptus* spp. low mallee woodland (*Eucalyptus obtusiflora* subsp. *obtusiflora*, *Eucalyptus horistes*, *Eucalyptus eudesmioides* and *Eucalyptus leptopoda* subsp.

*arctata*), over *Acacia effusifolia* and *Melaleuca adnata* sparse tall shrubland, over *Acacia roycei* sparse mid shrubland, over *Ptilotus obovatus* and mixed Chenopod open low shrubland, over *Monachather paradoxus* open tussock grassland.

Yp3/b: *Acacia stereophylla* var. *stereophylla* open tall shrubland, over *Malleostemon tuberculatus* mid shrubland, over *Enekbatus sessilis* open low shrubland, over *Amphipogon caricinus* var. *caricinus* open tussock grassland.

**Yp4: *Eucalyptus kochii* subsp. *amaryssia* open mid woodland, over isolated *Acacia ramulosa* var. *ramulosa* tall shrubs, over isolated *Acacia andrewsii*, *Ptilotus obovatus* and *Maireana* spp. low shrubs, over isolated *Eriachne helmsii* tussock grasses.** Yp4 is closely related to Yp3 and was recorded in the Yalgoo region close to the Geraldton Sandplains border. The Yp4 community marks the eastern extent of the *Eucalyptus* woodlands and it was mapped over 0.4% (851 ha) of the Study Area.

**Yp5: *Acacia ramulosa* var. *linophylla*, *Acacia grasbyi*, *Acacia burkittii* and *Acacia aneura* open tall shrubland.** Three subunits that could not be distinguished on the aerial photographs occurred within this community. These subunits are closely related and there is a degree of overlap in species composition between them. Yp5 is the most common and widespread vegetation community of the Yalgoo region and extends into the Murchison. Yp5/a and Yp5/b were the common subunits of the western section in the Yalgoo region and Yp5/b the common subunit of the eastern section of the Study Area. This vegetation community represents the western extent of *Acacia aneura* in the Study Area. Yp5 was mapped over 12.6% (28,448 ha) of the Study Area.

Yp5/a: *Acacia ramulosa* var. *linophylla* and *Acacia grasbyi* (+/- *Acacia burkittii*) open tall shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* open tussock grassland.

Yp5/b: *Acacia grasbyi*, *Acacia aneura* var. *conifera* and *Acacia burkittii* open low woodland, over isolated *Ptilotus obovatus* low shrubs, over *Aristida contorta* open tussock grassland.

Yp5/c: *Acacia eremaea*, *Acacia burkittii*, *Acacia grasbyi*, *Acacia ramulosa* var. *linophylla* open low woodland, over isolated *Ptilotus obovatus* low shrubs, over *Aristida contorta* open tussock grassland.

**Yp6: *Acacia burkittii*, *Acacia quadrimarginea*, *Acacia aneura* (+/- *Acacia* aff. *rhodophloia*) over isolated *Hakea preissii* and *Senna* spp. mid shrubs, over *Ptilotus obovatus* and *Acacia scleroclada* sparse low shrubland, over *Cymbopogon ambiguus* and *Aristida contorta* open tussock grassland.** Yp6 was not a common vegetation community of the Yalgoo region. It was restricted to sandy-clay areas with outcropping granite boulders and slabs. Yp6 was mapped over 1.8% (4005 ha) of the Study Area.

### Floodplain Vegetation

Five vegetation communities (Yf1 - Yf5) were recorded on the floodplains of the Yalgoo region.

**Yf1: *Acacia burkittii* and *Acacia grasbyi* and (+/- *Acacia ramulosa* var. *linophylla*) sparse tall shrubland over *Acacia tetragonophylla* sparse tall to mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland.** Yf1 was a widespread community of the floodplains of the western Yalgoo region. Yf1 was mapped over 2.4% (5460 ha) of the Study Area.

**Yf2: Isolated *Acacia synchronicia* tall shrubs, over isolated *Senna* sp. Meekatharra (E. Bailey 1-26), *Acacia synchronicia*, *Acacia tetragonophylla* and *Eremophila galeata* mid shrubs, over *Aristida contorta* tussock grassland.** Yf2 was not a common vegetation community of the Yalgoo region. It

was restricted to the floodplain areas and was characterised by large areas of bare, hard, clay pans. Yf2 was mapped over 0.4% (856 ha) of the Study Area.

**Yf3:** *Acacia victoriae* sparse tall shrubland, over *Atriplex bunburyana* open mid shrubland, over *Atriplex bunburyana* sparse low shrubland, over *Aristida contorta* and *Eragrostis dielsii* sparse tussock grassland. Yf3 was restricted to the floodplains of the Yalgoo region and was mapped over 0.2% (403 ha) of the Study Area.

**Yf4:** *Tecticornia disarticulata*, *Rhagodia eremaea*, *Frankenia laxiflora*, *Sclerolaena cuneata* and *Cratystylis subspinescens* low shrubland. Yf4 was an uncommon floodplain community, restricted to western areas of the Yalgoo region. Yf4 was mapped over <0.1% (63 ha) of the Study Area.

**Yf5:** *Acacia eremaea* sparse tall shrubland, over mixed *Chenopod* spp. low shrubland. Four closely related subunits (not distinguishable on the aerial photographs) occur within this unit. Subunits Yf5/a and Yf5/b are co-dominant. Yf5/c occurs closer to the Murchison region and Yf5/d is uncommon and scattered. Yf5 is a common floodplain community throughout the Yalgoo region and was mapped over 3.6% (8049 ha) of the Study Area.

Yf5/a: *Acacia eremaea* and *Acacia grasbyi* sparse tall shrubland, over *Ptilotus obovatus*, *Maireana pyramidata*, *Maireana triptera* and *Maireana convexa* open low shrubland.

Yf5/b: *Acacia eremaea* and *Acacia tetragonophylla* (+/- *Acacia grasbyi*) open tall shrubland, over *Senna* spp. sparse mid shrubland, over *Aristida contorta* and *Eragrostis pergracilis* tussock grassland.

Yf5/c: *Acacia eremaea* and *Acacia aneura* sparse to open tall shrubland, over *Ptilotus obovatus*, *Frankenia setosa*, *Senna* sp. Austin (A. Strid 20210), *Micromyrtus sulphurea*, *Dodonaea microzyga* var. *acrolobata*, *Eremophila latrobei* subsp. *latrobei* and *Maireana glomerifolia* sparse low shrubland.

Yf5/d: *Acacia masliniana* and *Acacia tetragonophylla* sparse tall shrubland, over *Acacia masliniana* and *Cratystylis subspinescens* sparse mid shrubland, over *Atriplex bunburyana*, *Tecticornia disarticulata* and *Cratystylis subspinescens* open low shrubland, over isolated *Eragrostis dielsii* tussock grasses.

### Creek Line and Minor Drainage Channel Vegetation

Two vegetation communities (Yc1 and Yc2) were recorded along the creek lines and minor drainage channels of the Yalgoo region. The vegetation of the creek line communities was relatively uniform across the Yalgoo region.

**Yc1:** *Casuarina obesa* open to sparse low forest, over *Duboisia hopwoodii* sparse tall shrubland, over *Atriplex amnicola*, *Tecticornia indica* subsp. *bidens* and *Tecticornia lepidosperma* open low chenopod shrubland, over *\*Hordeum glaucum* and *\*Avena fatua* tussock grassland. Yc1 was an uncommon creek line vegetation unit in the Yalgoo region, as it only occurred on the larger creek lines. Yc1 was mapped over 0.2% (532 ha) of the Study Area.

**Yc2:** *Acacia burkittii* (+/- *Acacia acuminata*) mid woodland, over *Acacia burkittii*, *Hakea preissii* and *Acacia tetragonophylla* low woodland to sparse tall shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Cyperus bifax* sparse sedgeland, over *Monachather paradoxus* and *\*Setaria verticillata* tussock grassland. Yc2 is the common creek line and minor channel vegetation unit of the Yalgoo region and it extends into the Murchison section of the Study Area. Yc2 was mapped over 1.2% (2712 ha) of the Study Area.

#### 4.1.3 Vegetation of the Study Area in the Murchison IBRA Region

The northern half of the Study Area occurs in the Murchison IBRA region. This region is characterised by hard red clay pans that support *Acacia aneura* and varying *Eremophila* species. Forty-four vegetation communities, incorporating 30 subunits were recorded in the Murchison section of the Study Area.

The vegetation of the Murchison bioregion has been grouped into:

- a) Rocky hill slope vegetation of Jack Hills, Weld Range and other areas (h);
- b) Red sand plain vegetation (r);
- c) Red sand-clay plain and hardpan vegetation (p);
- d) Salt lake and floodplain vegetation (f); and
- e) Creek line and minor drainage channel vegetation (c).

##### Rocky Hill Slope Vegetation of Jack Hills, Weld Range and Other Areas

Eighteen vegetation communities (Mh1 – Mh18) were recorded on the rocky hill slopes of the section of the Study Area occurring in the Murchison region. These communities were diverse, uncommon and were scattered throughout the Murchison section of the Study Area.

**Mh1: *Acacia rhodophloia*, *Acacia ramulosa* var. *linophylla* and *Acacia cuthbertsonii* subsp. *cuthbertsonii* open tall shrubland, over *Eriachne aristidea* sparse tussock grassland.** Mh1 was restricted to the minor channels on hill slopes at Jack Hills. Mh1 was mapped over 0.2% (384 ha) of the Study Area.

**Mh2: Sparse *Acacia aneura* and/or *Acacia rhodophloia* low woodland, over *Ptilotus obovatus* sparse low shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mh2/a and Mh2/b were co-dominant and were restricted to the upper hill slopes and ridge tops at Jack Hills. Mh2 was mapped over 0.1% (225 ha) of the Study Area.

Mh2/a: Isolated *Acacia aneura* low trees, over *Ptilotus obovatus* open low shrubland, over isolated *Eriachne mucronata* tussock grasses.

Mh2/b: Isolated *Acacia cuthbertsonii* subsp. *cuthbertsonii* low trees, over *Acacia rhodophloia* (+/- *Acacia ramulosa* var. *linophylla*) open tall shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Eriachne mucronata* sparse tussock grassland.

**Mh3: Isolated *Acacia aneura* (+/- *Acacia ramulosa* var. *linophylla* and *Acacia cuthbertsonii* subsp. *cuthbertsonii*) low trees, over isolated *Aristida contorta* tussock grasses.** Mh3 was restricted to the lower rocky footslopes and plains of Jack Hills. Mh3 was mapped over 1.6% (3632 ha) of the Study Area.

**Mh4: *Acacia aneura* and *Acacia citrinoviridis* open low woodland, over *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over *Sida cardiophylla* and *Ptilotus obovatus* open low shrubland, over isolated *Monachather paradoxus* tussock grasses.** Mh4 was an uncommon vegetation community restricted to a low quartzite hill at Jack Hills. Mh4 was mapped over 0.2% (426 ha) of the Study Area.

**Mh5: *Acacia aneura* (+/- *Acacia ramulosa* var. *linophylla*) sparse to open low woodland, over mixed *Eremophila* spp. mid shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mh5 was restricted to the rocky foot and mid slopes at Weld Range and was mapped over 1.9% (4298 ha) of the Study Area.

Mh5/a: Isolated *Acacia pruinocarpa* low trees, over *Acacia aneura* open low woodland, over *Acacia ramulosa* var. *linophylla* and *Acacia aneura* open tall shrubland, over isolated *Eremophila forrestii* and *Eremophila georgei* mid shrubs, over *Ptilotus obovatus* and *Ptilotus schwartzii* sparse low shrubland.

Mh5/b: *Acacia aneura* (+/- *Acacia ramulosa* var. *linophylla*) open tall to mid shrubland, over *Eremophila forrestii* open low shrubland, over isolated *Eragrostis eriopoda* tussock grasses.

**Mh6: Isolated *Acacia pruinocarpa* low trees, over *Acacia aneura* sparse tall shrubland, over *Thryptomene decussata* (+/- *Prostanthera petrophila*, *Dodonaea petiolaris*, *Eremophila latrobei* subsp. *latrobei*, *Philothea brucei* subsp. *brucei*) mid shrubland, over *Ptilotus obovatus* low shrubland, over *Eriachne mucronata* and *Cymbopogon ambiguus* sparse tussock grassland.** Mh6 was restricted to upper slopes and ridgetops at Weld Range and was mapped over <0.1% (71 ha) of the Study Area.

**Mh7:** *Acacia* sp. Weld Range (A. Markey & S. Dillon 2994) and *Acacia aneura* open tall shrubland, over *Eremophila macmillaniana* and *Senna artemisioides* subsp. *helmsii*, open mid shrubland, over *Ptilotus obovatus* open low shrubland. Mh7 was restricted to the lower hill slopes of the northern areas of Weld Range. Mh7 was mapped over <0.1% (94 ha) of the Study Area.

**Mh8: *Acacia aneura* open low woodland, over *Eremophila macmillaniana* open mid shrubland, over *Sida* sp. dark green fruits (S. van Leeuwen 2260) scattered low shrubs, over *Aristida contorta* open tussock grassland.** Mh8 was restricted to the midslopes at Weld Range and was mapped over 0.3% (750 ha) of the Study Area.

**Mh9: *Acacia aneura* open low woodland, over *Grevillea obliquistigma* subsp. *obliquistigma* and *Eremophila spathulata* sparse mid shrubland, over *Eremophila latrobei* subsp. *latrobei* sparse low shrubland, over *Eriachne pulchella* subsp. *pulchella* sparse tussock grassland.** Mh9 is an uncommon vegetation community occurring on a low quartzite hill between Jack Hills and Weld Range. Mh9 was mapped over 0.1% (115 ha) of the Study Area.

**Mh10: *Acacia* spp., sparse tall shrubland, over *Eremophila* spp. sparse mid shrubland.** Two subunits that could not be seen on the aerial photographs occurred within this community. Both subunits were co-dominant. Mh10 was restricted to rocky granite ridgetops occurring between Jack Hills and Weld Range and was uncommon. Mh10 was mapped over <0.1% (29 ha) of the Study Area.

Mh10/a: Isolated *Acacia ramulosa* var. *linophylla* low trees, over isolated *Acacia demissa* tall shrubs, over *Acacia* aff. *rhodophloia* open mid shrubland, over isolated *Eremophila glutinosa* and *Senna artemisioides* subsp. *helmsii* low shrubs, over isolated *Aristida contorta* tussock grasses.

Mh10/b: *Acacia aneura* open low woodland (+/- *Acacia kempeana*) over *Eremophila galeata* sparse low shrubland, over *Cymbopogon ambiguus* and *Digitaria brownii* sparse tussock grassland.

**Mh11: *Acacia* aff. *rhodophloia* open tall shrubland, over *Dodonaea petiolaris* sparse mid shrubland, over *Ptilotus obovatus*, *Pluchea dentex*, *Stemodia viscosa*, *Solanum lasiophyllum* and *Hibiscus coatesii* sparse low shrubland, over *Aristida contorta* and *Cymbopogon ambiguus* tussock grassland.** Mh11 was an uncommon vegetation community and was mapped to the south of Weld Range at the base of large granite outcrops. Mh11 was mapped over 0.3% (746 ha) of the Study Area.

**Mh12: *Eremophila platycalyx* subsp. *platycalyx* and *Acacia tetragonophylla* sparse tall shrubland, over isolated *Dodonaea viscosa* subsp. *spatulata* low shrubs, over *Cymbopogon ambiguus*, sparse tussock grassland.** Mh12 was an uncommon community recorded on granite outcrops south of Weld Range. Mh12 was mapped over 0.5% (1,094 ha) of the Study Area.

**Mh13: *Acacia* sp. Weld Range (A. Markey & S. Dillon 2994) sparse mid shrubland, over *Dodonaea pachyneura* and *Philothea* aff. *tubiflora* sparse low shrubland, over isolated *Eragrostis* sp. tussock grasses.** Mh13 was an uncommon community restricted to lateritic breakaways north of Weld Range. Mh13 was mapped over 0.2% (526 ha) of the Study Area.

**Mh14: Isolated *Acacia aneura* low trees, over *Thryptomene decussata* sparse mid to low shrubland, over isolated *Monachather paradoxus* tussock grasses.** Mh14 was restricted to low gravelly rises in areas between Jack Hills and Weld Range. These areas are regionally rare. Mh14 was mapped over 0.1% (159 ha) of the Study Area.

**Mh15: *Acacia aneura* open low woodland, over *Sida* spp. and *Ptilotus obovatus* sparse low shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Both subunits were co-dominant and occurred on low ironstone hills south of Weld Range. Mh15 was mapped over 0.8% (1,813 ha) of the Study Area.

Mh15/a: Isolated *Acacia aneura* low trees, over isolated *Acacia demissa* tall shrubs, over *Eremophila exilifolia*, *Eremophila macmillaniana* and *Dodonaea amplisemina* sparse low shrubland.

Mh15/b: *Acacia aneura* low woodland, over *Ptilotus obovatus*, *Sida ectogama* and *Sida* sp. Golden calyces glabrous (H.N. Foote 32) sparse low shrubland.

**Mh16: *Acacia aneura* open low woodland, over *Acacia synchronicia* and *Acacia tetragonophylla* sparse tall shrubland, over *Maireana triptera* and *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* open tussock grassland.** Mh16 was recorded on the footslopes of the low ironstone hills mapped as community Mh15. Mh16 was mapped over 0.3% (718 ha) of the Study Area.

**Mh17: *Acacia aneura* open low woodland, over *Acacia ramulosa* var. *linophylla* open tall shrubland, over *Aluta aspera* subsp. *hesperia* or *Eremophila forrestii* open mid shrubland, over *Monachather paradoxus* sparse tussock grassland.** Mh17 was an uncommon community mapped on a rocky ferrous hill slope south of Weld Range. Mh17 was mapped over 0.8% (1,876 ha) of the Study Area.

**Mh18: *Acacia* spp. sparse tall shrubland, over *Eremophila latrobei* subsp. *latrobei* and mixed Myrtaceae spp. open low shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mh18 was recorded on lateritic breakaways in the south-western end of the Murchison section of the Study Area. This vegetation community was uncommon, as the landform is restricted in these areas. Mh18 was mapped over <0.1% (102 ha) of the Study Area.

Mh18/a: Isolated *Acacia aulacophylla* tall shrubs, over *Thryptomene costata* and *Eremophila latrobei* subsp. *latrobei* sparse mid shrubland, over *Thryptomene costata*, *Philothea sericea*, *Micromyrtus racemosa* var. *prochytes* and *Ptilotus schwartzii* var. *schwartzii* sparse low shrubland, over *Tripogon loliiformis* sparse tussock grassland.

Mh18/b: *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over *Eremophila clarkei* sparse mid shrubland, over *Ptilotus obovatus* and *Eremophila latrobei* subsp. *latrobei* open low shrubland.

### **Red Sand Plain Vegetation**

Three vegetation communities (Mr1, Mr2 and Mr3) were recorded on the red sand plain vegetation of the Murchison section of the Study Area. These communities were mapped in areas from Jack Hills to south of Weld Range.

**Mr1:** *Acacia aneura* (+/- *Acacia ramulosa* var. *linophylla*) sparse low woodland, over *Eremophila compacta* subsp. *compacta* mid shrubland, over *Mirbelia rhagodioides* and (+/- *Hemigenia virescens*) sparse low shrubland, over *Aristida holathera* var. *holathera* and *Eriachne aristidea* tussock grassland. Mr1 was an uncommon vegetation community mapped on the red sandy plains around Jack Hills and occurred between large areas of bare clay. Mr1 was mapped over 3.2% (7,239 ha) of the Study Area.

**Mr2:** *Acacia aneura* open low woodland, over *Acacia ramulosa* var. *linophylla* open tall shrubland, over *Eremophila forrestii* (+/- *Eremophila simulans* subsp. *simulans*) open mid shrubland, over *Eriachne helmsii* and *Monachather paradoxus* open tussock grassland. Mr2 was restricted to the red sandy plains around Weld Range. Mr2 was mapped over 4.7% (10,661 ha) of the Study Area.

**Mr3:** *Acacia aneura* open tall shrubland, over *Eremophila forrestii* (+/- *Eremophila fraseri* and *Senna* spp.) open mid shrubland, over *Ptilotus obovatus* open low shrubland, over *Monachather paradoxus* open tussock grassland. Mr3 was a common vegetation community in the south-western end of the Murchison section of the Study Area. Mr3 was mapped over 1.1% (2,487 ha) of the Study Area.

### **Red Hardpan Vegetation**

Twelve vegetation communities (Mp1 – Mp12) were recorded on the red sandy-clay and hard-clay plains of the Murchison section of the Study Area. These communities were widespread across this section of the Study Area.

**Mp1:** *Eremophila spathulata* and/or *Eremophila macmillaniana* sparse mid shrubland. Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mp1/a was the dominant subunit, and Mp1/b was only recorded in one area. Mp1 was a widespread vegetation community of the stony quartz plains south of Jack Hills. Mp1 was mapped over 4.7% (10,634 ha) of the Study Area.

Mp1/a: Isolated *Acacia aneura* low trees, over *Eremophila spathulata* (+/- *Eremophila macmillaniana*) sparse mid shrubland, over isolated *Senna artemisioides* subsp. *helmsii* and *Senna* sp. Meekatharra (E. Bailey 1-26) low shrubs, over *Aristida contorta* sparse tussock grassland.

Mp1/b: Isolated *Acacia victoriae* mid shrubs, over *Maireana triptera* low shrubland, over isolated *Aristida contorta* tussock grasses.

**Mp2:** *Acacia aneura* sparse low woodland, over *Eremophila fraseri* (+/- *Eremophila macmillaniana*) and *Senna artemisioides* subsp. *helmsii* open mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Eriachne pulchella* subsp. *pulchella* and *Aristida contorta* sparse tussock grassland. Mp2 was a common vegetation community between Jack Hills and Weld Range. Mp2 was mapped over 3.4% (7,562 ha) of the Study Area.

**Mp3:** Isolated *Acacia aneura* low trees, over open *Senna artemisioides* subsp. *helmsii*, *Senna glaucifolia* and *Senna* sp. Meekatharra (E. Bailey 1-26) mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland. Mp3 was a widespread

vegetation community mapped north of Weld Range. Mp3 was mapped over 1.2% (2,771 ha) of the Study Area.

**Mp4:** Isolated *Acacia pruinocarpa* low trees, over *Acacia aneura* and *Acacia craspedocarpa* x *aneura* sparse tall shrubland, over isolated *Eremophila fraseri* mid shrubs, over *Ptilotus obovatus* sparse low shrubland. Mp4 was a widespread vegetation community occurring north of Weld Range and was mapped over 1.2% (2,783 ha) of the Study Area.

**Mp5:** *Acacia aneura* open low woodland, over isolated *Acacia demissa* tall shrubs, over *Senna artemisioides* subsp. *helmsii* sparse mid shrubland, over *Ptilotus obovatus* sparse low shrubland. Mp5 was a common vegetation community of the red sandy-clay plains with outcropping granite stones and boulders from Jack Hills to Weld Range. Mp5 was mapped over 1.8% (4,103 ha) of the Study Area.

**Mp6:** Isolated *Acacia aneura* low trees, over *Ptilotus obovatus* and mixed *Maireana* spp. low shrubland. Three subunits that could not be distinguished on the aerial photographs occurred within this community. Mp6 was mapped on the white-orange clay pan areas between the lateritic breakaways to the north and south of Weld Range. Mp6 occurs over 1.8% (4,070 ha) of the Study Area.

Mp6/a: Isolated *Acacia aneura* low trees, over *Ptilotus obovatus* and *Maireana carnososa* open low shrubland.

Mp6/b: *Sclerolaena densiflora* sparse low shrubland, over *Aristida contorta* open tussock grassland.

Mp6/c: *Maireana glomerifolia* open low shrubland, over isolated *Aristida contorta* tussock grasses.

**Mp7:** *Acacia aneura* sparse low woodland, over *Acacia craspedocarpa* tall shrubland, over *Acacia tetragonophylla* sparse mid shrubland, over *Eremophila pumila*, *Solanum lasiophyllum* and *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland. Mp7 was mapped on the orange-white clay pan areas near Weld Range, and surrounded vegetation community Mp6. Mp7 was mapped over 2.8% (6,315 ha) of the Study Area.

**Mp8:** *Acacia aneura* isolated low trees to open woodland, (+/- *Acacia tetragonophylla*, *Acacia craspedocarpa* and *Acacia ramulosa* var. *linophylla*) tall shrubs, over *Eremophila fraseri*, *Ptilotus obovatus* and *Solanum lasiophyllum* sparse low shrubland, over *Aristida contorta* open tussock grassland. Mp8 was a common vegetation community of the hard clay pans south of Weld Range and was mapped over 2.2% (4,914 ha) of the Study Area.

**Mp9:** Isolated *Acacia aneura* and *Eremophila platycalyx* low trees, over *Eremophila fraseri* subsp. *fraseri*, *Eremophila platycalyx*, *Senna artemisioides* subsp. *helmsii* and *Senna* sp. Meekatharra (E. Bailey 1-26) open mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland. Mp9 was a common vegetation community of the hard clay plains of the Murchison section of the Study Area and was mapped over 4.4% (9,900 ha) of the Study Area.

**Mp10:** *Aristida holathera* var. *holathera*, *Eragrostis cumingii*, *Eriachne flaccida*, *Eriachne pulchella* subsp. *pulchella* and *Eragrostis setifolia* tussock grassland, over *Bulbostylis barbata* and *Fimbristylis dichotoma* sedgeland. Mp10 was an uncommon vegetation community mapped on the shallow soils close to granite outcrops. Mp10 was mapped over <0.1% (92 ha) of the Study Area.

**Mp11:** *Acacia aneura* sparse to open low woodland, over *Eremophila forrestii*, *Eremophila fraseri* and *Senna* spp. sparse mid shrubland, over *Aristida contorta* tussock grassland. Mp11 was a



common vegetation community towards the south-western end of the Murchison section of the Study Area. Mp11 was mapped over 5.9% (13,342 ha) of the Study Area.

**Mp12: *Acacia aneura* low woodland, over *Acacia aneura* x *craspedocarpa* and *Acacia tetragonophylla* open tall shrubland, over isolated *Eremophila forrestii* and *Eremophila fraseri* mid shrubs, over *Aristida contorta* and *Eragrostis dielsii* open tussock grassland.** Mp12 was a common vegetation community towards the south-western end of the Murchison region. It is closely related to Mp11 but has denser vegetation. Mp12 was mapped as covering 2% (4,573 ha) of the Study Area.

### **Salt Lake and Floodplain Vegetation**

Three vegetation communities (Mf1, Mf2 and Mf3) were recorded on the salt lakes and floodplains of the Murchison section of the Study Area. These communities were not common and were only recorded in the salt lake system around Weld Range.

**Mf1: *Melaleuca stereophloia* open to closed mid shrubland, over mixed *Chenopod* spp. low shrubland.** Three subunits that could not be distinguished on the aerial photographs occurred within this community. Mf1 was uncommon and only mapped in areas bordering the dry salt lakes around Weld Range. Mf1 was mapped over 0.2% (529 ha) of the Study Area.

Mf1/a: *Acacia craspedocarpa* sparse tall shrubland, over *Acacia tetragonophylla* sparse mid shrubland, over *Melaleuca stereophloia* and *Ptilotus obovatus* open low shrubland.

Mf1/b: *Cratystylis subspinescens* and *Melaleuca stereophloia* open to closed mid shrubland, over *Atriplex bunburyana*, *Frankenia laxiflora* and *Frankenia cinerea* open low shrubland, over *Eragrostis pergracilis* open tussock grassland.

Mf1/c: Isolated *Lawrenzia densiflora* mid shrubs, over *Zygophyllum aurantiacum*, *Lycium australe* and *Lawrenzia densiflora* open low shrubland, over isolated *Enneapogon cylindricus* and *Eragrostis falcata* tussock grasses.

**Mf2: *Eucalyptus striatocalyx* subsp. *striatocalyx* and *Eucalyptus trivalva* open mid to low forest, over *Maireana georgei*, *Frankenia laxiflora* and *Atriplex bunburyana* sparse low shrubland.** Mf2 was an uncommon vegetation community mapped in depressions that surrounded the dry salt lakes around Weld Range. Mf2 was mapped over <0.1% (20 ha) of the Study Area.

**Mf3: *Tecticornia pruinosa* low shrubland, over *Fimbristylis dichotoma* and *Eragrostis pergracilis* open tussock grassland.** Mf3 was an uncommon vegetation community mapped on dry salt lake beds around Weld Range. Mf3 was mapped over 0.3% (568 ha) of the Study Area.

### **Creek Line and Minor Drainage Channel Vegetation**

Eight vegetation communities (Mc1 - Mc8) were recorded on the creek lines and minor drainage channels of the Murchison section of the Study Area. These communities were widespread across this area.

**Mc1: *Casuarina pauper* sparse low woodland, over *Tecticornia* spp. low shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mc1 was mapped on the larger creeklines towards the southern end of the Murchison section of the Study Area and extending into the Yalgoo region and was mapped over 0.1% (263 ha) of the Study Area.

Mc1/a: +/-*Casuarina pauper* sparse low woodland, over *Acacia sclerosperma* subsp. *sclerosperma* (+/- *Hakea recurva* subsp. *recurva*) sparse to open tall shrubland, over *Atriplex bunburyana* and *Scaevola spinescens* (+/- *Tecticornia* spp.) open low shrubland, over *Eragrostis dielsii* sparse tussock grassland.

Mc1/b: Isolated *Casuarina pauper* low trees, over *Tecticornia pruinosa* and *Samolus repens* var. *floribundus* open low shrubland, over *Eragrostis dielsii* sparse tussock grassland.

**Mc2: *Eucalyptus victrix* open mid woodland, over *Acacia burkittii* and *Acacia aneura* sparse low woodland, over *Acacia burkittii* and *Dodonaea viscosa* subsp. *spatulata* open mid shrubland, over *Cyperus bifax* sparse sedgeland and *Eriachne helmsii* and *Themeda triandra* sparse tussock grassland.** Mc2 was a common vegetation community of the larger creeks lines north of Weld Range. Mc2 was mapped over 0.1% (326 ha) of the Study Area.

**Mc3: *Eucalyptus victrix* and *Acacia cyperophylla* var. *cyperophylla* closed low to mid woodland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mc3/a was the dominant subunit, as Mc3/b was recorded only in depressions along creek lines. Mc3 was an uncommon vegetation community mapped only along a creek line at Jack Hills. Mc3 was mapped over 0.2% (424 ha) of the Study Area.

Mc3/a: *Acacia cyperophylla* var. *cyperophylla* and *Eucalyptus victrix* open mid forest, over *Pluchea dentex* sparse low shrubland, over *Eriachne aristidea* and *Aristida holathera* var. *holathera* sparse tussock grassland.

Mc3/b: *Eucalyptus victrix* open mid forest, over *Eremophila fraseri* and *Acacia sclerosperma* subsp. *sclerosperma* open mid shrubland, over *Ptilotus obovatus* low shrubland, over \**Setaria verticillata* and *Eragrostis eriopoda* tussock grassland.

**Mc4: *Acacia aneura* and *Acacia ramulosa* var. *linophylla* open to closed low woodland, over mixed *Eremophila* spp. open mid shrubland, over *Ptilotus* spp. sparse low shrubland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mc4 was recorded along minor creek lines and channels at Weld Range and was mapped over 0.5% (1,094 ha) of the Study Area.

Mc4/a: Isolated *Acacia pruinocarpa* low trees, over *Acacia aneura* open low woodland, over *Acacia ramulosa* var. *linophylla* and *Acacia aneura* (+/- *Acacia craspedocarpa*) open tall shrubland, over *Eremophila forrestii*, *Eremophila georgei*, *Eremophila fraseri* and *Senna* sp. Meekatharra (E. Bailey 1-26) mid shrubland, over *Ptilotus obovatus* open low shrubland.

Mc4/b: Mixed *Acacia* spp. sparse low woodland to tall shrubland, over *Solanum lasiophyllum* and *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* tussock grassland.

**Mc5: *Acacia aneura* and *Acacia tetragonophylla* (+/- *Acacia kempeana*) low woodland.** Four subunits that could not be distinguished on the aerial photographs occurred within this community. Mc5/a and Mc5/b were common subunits and Mc5/c and Mc5/d were less common and scattered in between Mc5/a and Mc5/b. Mc5 was the dominant vegetation community mapped along the minor drainage channels of the Murchison section of the Study Area. Mc5 was mapped over 1.4% (3,141 ha) of the Study Area.

Mc5/a: *Acacia aneura* low woodland, over isolated *Acacia tetragonophylla* tall shrubs, over isolated *Eremophila fraseri/galeata* (+/- *Senna* spp.) mid shrubs, over *Aristida contorta* and *Eragrostis pergracilis* open tussock grassland.

Mc5/b: *Acacia aneura* and *Acacia kempeana* tall shrubland, over *Eremophila fraseri* sparse mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Bulbostylis barbata* open sedgeland, over *Aristida contorta*, *Eriachne aristidea*, *Eragrostis cumingii*, *Chrysopogon fallax* and *Eragrostis pergracilis* tussock grassland.

Mc5/c: *Acacia aneura* low woodland, (+/- *Acacia cuthbertsonii* subsp. *cuthbertsonii* and *Acacia tetragonophylla*) open tall shrubland), over *Aristida contorta* sparse tussock grassland.

Mc5/d: *Hakea lorea* subsp. *lorea* mid woodland, over *Acacia ramulosa* var. *ramulosa* open low forest, over *Acacia ramulosa* var. *ramulosa* and *Acacia kempeana* open tall shrubland,

over *Eremophila forrestii* sparse mid shrubland, over *Ptilotus obovatus* and *Eremophila forrestii* sparse low shrubland.

**Mc6: Mixed *Acacia aneura*, *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla* low woodland.** Two subunits that could not be distinguished on the aerial photographs occurred within this community. Mc6 occurred along minor drainage channels south of Weld Range and was mapped over 0.4% (891 ha) of the Study Area.

Mc6/a: *Acacia ramulosa* var. *ramulosa* open low woodland, over *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla* open tall to mid shrubland, over *Abutilon leucopetalum* open low shrubland, over *Austrostipa trichophylla* open tussock grassland.

Mc6/b: *Acacia aneura* low woodland, over *Acacia craspedocarpa* and *Acacia tetragonophylla* sparse tall shrubland, over sparse *Ptilotus obovatus* low shrubland, over isolated *Aristida contorta* and *Eragrostis leptocarpa* tussock grasses.

**Mc7: *Acacia ramulosa* var. *ramulosa* open low woodland, over *Acacia burkittii* and *Acacia craspedocarpa* x *aneura* sparse low woodland, over *Acacia tetragonophylla* sparse mid shrubland, over *Monachather paradoxus*, *Eragrostis leptocarpa* and *Eriachne flaccida* sparse tussock grassland.** Mc7 was an uncommon minor channel community mapped towards the south-western end of the Murchison section of the Study Area. Mc7 was mapped over <0.1% (43 ha) of the Study Area.

**Mc8: *Acacia acuminata* and *Acacia aneura* open low woodland (+/- *Casuarina pauper*), over *Acacia acuminata*, *Grevillea obliquistigma* subsp. *obliquistigma*, *Callistemon phoeniceus* and *Senna artemisioides* subsp. x *artemisioides* open tall to mid shrubland, over *Cyperus* spp. sparse sedgeland.** Mc8 was an uncommon minor channel community that was mapped close to the Yalgoo border of the Murchison section of the Study Area. Mc8 was mapped over 0.2% (455 ha) of the Study Area.

#### 4.1.4 Vegetation Condition of the Study Area

Vegetation condition within the Study Area was noted at each quadrat using the levels indicated in Table 4.1. Factors considered when determining these levels were the presence of weeds, tracks, litter, grazing and any other ground disturbances and were based on the vegetation scales in column three of Table 12 of Bush Forever Volume 2 (Bush Forever, 2000).

Vegetation condition within the Study Area varied along its length. Table 4.1 shows the percentage of quadrats classified within each vegetation condition level in the Freehold and Pastoral sections of the Study Area.

**Table 4.1 – Vegetation Condition Assessment**

Vegetation Condition	Level	Proportion of Quadrats Surveyed in the Pastoral Land Area (%)	Proportion of Quadrats Surveyed in the Freehold Land Area (%)
Pristine	No disturbance	0	4.7
Excellent	Minimal disturbance	19.3	33.1
Good	Moderate disturbance	47.4	36.2
Poor	Significant disturbance	31.6	22.8
Degraded	Very high disturbance	1.7	3.2

Farming has affected the condition of the vegetation in the Freehold section of the Study Area. Factors affecting the vegetation include; clearing, the introduction of weeds, the proliferation of species that are resistant to grazing, and salinity. Recent, low intensity and localised fires have

occurred in small patches of vegetation. Vegetation condition in remnants along the Freehold section of the Study Area was largely determined by the size of the remnant - the smaller areas were more susceptible to these disturbance factors and tended to be more degraded.

Disturbance within the Pastoral section of the Study Area was moderate. The main factor affecting vegetation condition was grazing pressure from cattle and introduced fauna.

Sixty-two weed species were recorded in the Study Area. They were numerous (51 taxa) and widespread (423 locations) in the Freehold section of the Study Area and fewer weed species were recorded (15 taxa) at fewer locations (43 locations) in the Pastoral section of the Study Area, probably because of less human interference and the harsher climate in these areas.

Areas that had no native vegetation remaining were mapped as 16.6% (37,414 ha) of the Study Area.

#### **4.1.5 Fire History of the Study Area**

There was no evidence of extensive or recent fires within the Study Area. Small localised burns from lightning strikes were evident however; these burns were too small to affect the results of the vegetation and flora survey.

## 5 FLORA RECORDED IN THE STUDY AREA

### 5.1 GENERAL FLORA

A total of 1016 flora taxa were recorded in the Study Area, including species, subspecies and varieties. One hundred and forty-five of these taxa were recorded from opportunistic collections.

The total diversity of the flora is summarised in Table 5.1. A complete list of the flora recorded in the Study Area is included as Table J.1, Appendix J.

**Table 5.1 – Diversity of the Flora of the Study Area**

Number Quadrats Surveyed	Number Taxa Recorded	Number Families	Number Genera	Number Families Represented by a Single Taxon	Number Genera Represented by a Single Taxon	Number (and %) Annual Taxa	Number (and %) Perennial Taxa
614	1016	84	322	20	182	220 (21.7)	796 (78.3)

The identity of the following 19 taxa could not be confirmed due to insufficient collection material, however, they were included in the total counts; *Trianthema* sp., *Ptilotus* sp., *Angianthus* sp., *Olearia* sp., *Cerastium* sp., *Erodium* ?*cygnorum*, *Anigozanthos* ?*manglesii*, *Gonocarpus* sp., *Sida* ?*fibulifera*, *Acacia* ?*thoma*, *Acacia* ?*victoriae*, *Thryptomene* *decussata*, *Chamelaucium* ?*halophilum*, *Scholtzia* ?sp. Binu (M.E. Trudgen 2218) (Priority 1), *Gompholobium* sp., *Digitaria* sp., *Pennisetum* sp., *Aristida* sp., and *Calandrinia* sp.. These collections were included in the counts because they were the only specimens from either the genus or species recorded during the survey and therefore were likely to be a new species.

Sixty additional taxa were excluded from the total counts as the specimens could not be identified to species level due to insufficient collection material and were likely to be a species already recorded. Eight of these specimens were identified to family level only and 52 to genus level only.

The diversity of the flora recorded separately in the Pastoral and Freehold sections during the quadrat surveys and transects surveys is summarised in Table 5.2.

**Table 5.2 – Diversity of the Flora of the Freehold and Pastoral Land Areas**

Land Area Surveyed	Date Surveyed	No of Quadrats Surveyed	No of Taxa Recorded	No of Families	No of Genera	No (and %) Annual Taxa	No (and %) Perennial Taxa
Freehold	Aug 2009	127	515	68	241	123 (23.9)	392 (76.1)
Pastoral	Nov 2006, Apr 2007, Jun & May 2009	487	439	61	170	106 (24.2)	333 (75.8)
Freehold Transect Survey	Aug & Sept 2009	-	301	48	124	22 (7.3)	279 (92.7)
Pastoral Transect Survey	Sept 2009 & March 2010	-	172	36	69	32 (18.7)	140 (81.3)

The families represented by the greatest number of taxa in the combined species list were the Fabaceae (151 taxa), Myrtaceae (125 taxa), Asteraceae (63 taxa), Poaceae (61 taxa) and Scrophulariaceae (58 taxa). Genera represented by the greatest number of taxa were *Acacia* (87 taxa), *Eremophila* (56 taxa), *Grevillea* (32 taxa), *Eucalyptus* (25 taxa) and *Melaleuca* (21 taxa).

The families and genera represented by the greatest number of taxa and the most frequently recorded species in the Pastoral and Freehold sections of the Study Area during the quadrat surveys are listed in Table 5.3.

**Table 5.3 – Most Frequently Recorded Families, Genera and Taxa in the Study Area**

Land Area Surveyed	Most Common Families	Most Common Genera	Most Frequently Recorded Taxa
<b>Freehold</b>	MYRTACEAE (74 taxa) FABACEAE (65 taxa) ASTERACEAE (48 taxa) PROTEACEAE (34 taxa) POACEAE (24 taxa)	<i>Acacia</i> (39 taxa) <i>Melaleuca</i> (18 taxa) <i>Eucalyptus</i> (15 taxa) <i>Grevillea</i> (14 taxa) <i>Eremophila</i> (9 taxa)	* <i>Erodium cygnorum</i> (59 records) * <i>Avena fatua</i> (49 records) * <i>Arctotheca calendula</i> (47 records) * <i>Lawrencia davenportii</i> (45 records) <i>Enchylaena tomentosa</i> (38 records)
<b>Pastoral</b>	FABACEAE (79 taxa) SCROPHULARIACEAE (41 taxa) POACEAE (40 taxa) CHENOPODIACEAE (33 taxa) MYRTACEAE (24 taxa)	<i>Acacia</i> (51 taxa) <i>Eremophila</i> (40 taxa) <i>Senna</i> (20 taxa) <i>Maireana</i> (14 taxa) <i>Grevillea</i> and <i>Ptilotus</i> (12 taxa each)	<i>Aristida contorta</i> (314 records) <i>Acacia tetragonophylla</i> (306 records) <i>Ptilotus obovatus</i> (280 records) <i>Solanum lasiophyllum</i> (236 records) <i>Acacia ramulosa</i> var. <i>linophylla</i> (163 records)

Species richness is often affected by the location of the quadrat in the landscape. Freehold quadrats with high species richness were in areas associated with mesa slopes and floodplains, while those areas having low species richness in the Freehold were degraded low hilltops, creeklines and salt depressions. Pastoral quadrats with high species richness were recorded in areas associated with higher water availability, such as drainage lines and floodplains. Pastoral quadrats with low species diversity were associated with exposed areas such as flat plains, hardpans and salt pans.

Quadrats having the highest and lowest species richness in the Pastoral and Freehold sections are listed in Table 5.4.

**Table 5.4 – Quadrats with the Highest and Lowest Species Richness**

Land Area Surveyed	Highest Species Richness	Lowest Species Richness	Average Species Richness Per Quadrat
<b>Freehold</b>	E066 (55 species) E063 (48 species) E067 (44 species) E110 (39 species) E092 and E054 (34 species each)	E099 (6 species) E009, E059 and E122 (7 species each) E049 and E080 (8 species each)	20.76
<b>Pastoral</b>	A122 (37 species) A140 (29 species) C175 and C112 (28 species each) A033 and B074 (27 species each) C145 and A020 (26 species each)	B089 (3 species) A057, B088, B035, B017, B001, C133, D004 and D011 (4 species each) A089, B099, B033, B005, C147, A049, D149 (5 species each)	12.51

## 5.2 SAMPLING ADEQUACY

Species accumulation curves (SAC) provide a theoretical basis for understanding the relationship between sampling effort and the accumulation of species, and therefore provide a means of estimating survey adequacy. As sampling effort increases with a corresponding increase in survey area and time, the rate at which new species are recorded is reduced and the number of species recorded levels out (i.e. becomes asymptotic). At this point, where there is a diminishing return with regards to increase in species richness with sampling effort, the survey size is deemed sufficient.

### 5.2.1 Sampling Adequacy for the Freehold Land Area

Flora sampling adequacy was estimated using SAC analysis (Colwell, 2006) (Figure 5.1) and extrapolation of the curve to the asymptote using Michaelis-Menten modelling. Using this analysis, the incidence-based coverage estimator of species richness (ICE Mean, Chao 2 Mean) was determined as 580. As 450 taxa were recorded from the Freehold quadrats surveyed, this suggests that approximately 77% of the flora species potentially present within the Freehold section of the Study Area were recorded during the survey.

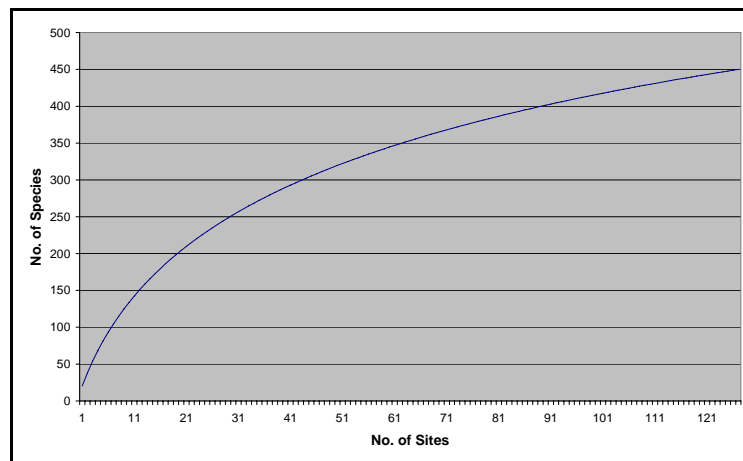


Figure 5.1 – Average Randomised SAC for the Freehold Land Area

However, the data used for these calculations includes only those species recorded in the quadrats surveyed in the Freehold section; they do not include any opportunistic collections made in this section. When the additional 191 taxa collected opportunistically during the Freehold quadrat and transect surveys are added to the total, 641 taxa were recorded. This total suggests that approximately 110% of the flora species potentially present within the Freehold section of the Study Area were recorded during the survey.

### 5.2.2 Sampling Adequacy for the Pastoral Land Area

Flora sampling adequacy was estimated using SAC analysis (Colwell, 2006) (Figure 5.2) and extrapolation of the curve to the asymptote using Michaelis-Menten modelling. Using this analysis, the incidence-based coverage estimator of species richness (ICE Mean, Chao 2 Mean) was determined as 528. As 429 taxa were recorded from the Pastoral quadrats surveyed, this suggests that approximately 81% of the flora species potentially present within the Pastoral section were recorded during the survey.

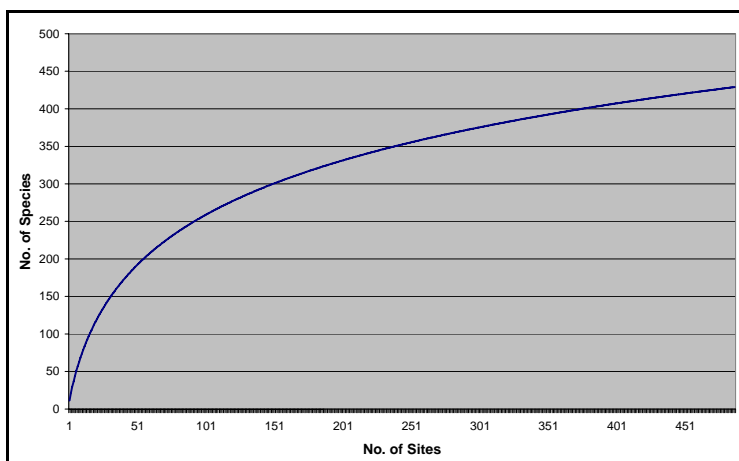


Figure 5.2 – Average Randomised SAC for the Pastoral Land Area

However, the data used for these calculations includes only those species recorded in the quadrats surveyed in the Pastoral section of the Study Area; they do not include any opportunistic collections made in this section. When the 91 additional taxa collected opportunistically during the Pastoral quadrat and transect surveys are added to the total, 520 taxa were recorded. This total suggests that approximately 98% of the flora species potentially present within the Pastoral land area of the Study Area were recorded during the survey.

### 5.3 FLORA OF CONSERVATION SIGNIFICANCE

#### 5.3.1 Environment Protection and Biodiversity Conservation Act 1999

Flora species are protected at a National level under the Commonwealth *EPBC Act*. The *EPBC Act* contains a list of species that are considered either ‘Critically Endangered’, ‘Endangered’, ‘Vulnerable’, ‘Conservation Dependent’, ‘Extinct’ or ‘Extinct in the Wild’ (for category definitions refer to Table K.1, Appendix K).

The database searches show that 10 species protected by this Act potentially occur in the vicinity of the Study Area. These species and their *EPBC Act* categories are listed in Table 5.5. Their likelihood of occurrence and preferred habitat type are listed in Table 5.6.

Table 5.5 – Species Protected by the *EPBC Act* Recorded Within a 2 km Buffer of the Study Area

<i>EPBC Act</i> Category	Family	Taxa	Recorded in the Study Area
Endangered	ORCHIDACEAE	<i>Caladenia hoffmanii</i>	Confirmed by current survey and DEC records
	ORCHIDACEAE	<i>Caladenia wanosa</i>	-
	FABACEAE	<i>Chorizema humile</i>	-
	RUTACEAE	<i>Drummondita ericoides</i>	Confirmed by DEC records
	SCROPHULARIACEAE	<i>Eremophila viscida</i>	-
	RUTACEAE	<i>Philotheca wonganensis</i>	Confirmed by DEC records
	ASTERACEAE	<i>Schoenia filifolia</i> subsp. <i>subulifolia</i>	-
	COLCHICACEAE	<i>Wurmbea tubulosa</i>	-
Vulnerable	ORCHIDACEAE	<i>Caladenia bryceana</i> subsp. <i>cracens</i>	-
	MYRTACEAE	<i>Eucalyptus blaxellii</i>	Confirmed by current survey and DEC records



Two species listed under the *EPBC Act* were recorded during the *ecologia* survey: *Caladenia hoffmanii* (Endangered) and *Eucalyptus blaxellii* (Vulnerable). The biological characteristics and known distributions of these taxa are provided below.

***Caladenia hoffmanii* (ORCHIDACEAE) – Endangered**

*Caladenia hoffmanii* (Plate 5.1 and Plate 5.2) is a tuberous perennial herb growing from 0.13 m to 0.3 m high. The flowers of this spider orchid are produced from August to October and are green, yellow and red. Long, fine hairs grow along the bracts, leaves and stems. *Caladenia hoffmanii* is generally found growing on clay-loam soils, laterite and granite rocky outcrops, ridges, swamps and gullies (WAHERB, January 2010).

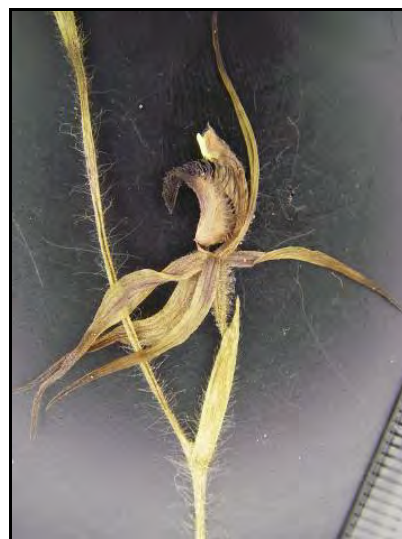
Fifteen plants of *Caladenia hoffmanii* was recorded at two locations (separated 50 m apart) in the Freehold section of the Study Area. The coordinates for the sites at which this DRF was recorded are and listed in Table G.1 and have been mapped on Figure G.1 (Appendix G).

The conservation significance of this taxon is provided in Section 0.



**Plate 5.1 – *Caladenia hoffmanii***

(Photography by A.P.Brown, S.D. Hopper & S.J. Patrick. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<http://florabase.dec.wa.gov.au/help/copyright>). Accessed on Wednesday, 2 December 2009).



**Plate 5.2 – *Caladenia hoffmanii* (photography: *ecologia*)**

***Eucalyptus blaxellii* (MYRTACEAE) - Vulnerable**

*Eucalyptus blaxellii* (Plate 5.3) is one of four species in the *Loxophlebae* series of the *Eucalyptus*. It is characterised by having buds with fully inflexed stamens, geniculate (strongly elbowed) staminal filaments and a style that tapers basally. The leaves are sparsely reticulate, and the adult leaves are glossy green. The fruit is small and obconical in shape. One of the four species within this series is the very common *Eucalyptus loxophleba*. *Eucalyptus blaxellii* is distinguished from *E. loxophleba* by smooth bark and a mallee growth habit (Johnson & Hill, 1992).

Four-hundred and thirty-three plants of *Eucalyptus blaxellii* was recorded at 44 locations (separated 50 m apart) in the Freehold section of the Study Area. The coordinates for the sites at which this vulnerable, Priority 4 taxon was recorded are listed in Table G.1 and have been mapped on Figure G.1 (Appendix G).

The conservation significance of this taxon is provided in Section O.



**Plate 5.3 – *Eucalyptus blaxellii* (photography: ecologia)**

An additional two species listed under the *EPBC Act* were recorded by the DEC database searches: *Philotheca wonganensis* (Endangered) and *Drummondita ericoides* (Endangered). The biological characteristics and known distributions of these taxa are provided below.

***Philotheca wonganensis* (RUTACEAE) – Endangered**

*Philotheca wonganensis* (Plate 5.4) is an erect shrub, growing to 0.3–1 m in height. The flowers are white, pink, occurring from August to October. *Philotheca wonganensis* is commonly found in red sandy soils.

Twelve plants of *Philotheca wonganensis* has been recorded at two locations (separated 50 m apart) in the Freehold section of the Study Area by the DEC searches.



**Plate 5.4 – *Philotheca wonganensis***

Photography by K. Bettink & K. Dixon. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<http://florabase.dec.wa.gov.au/help/copyright>). Accessed on Monday, 17 May 2010.

***Drummondita ericoides* (RUTACEAE) – Endangered**

*Drummondita ericoides* (Plate 5.4) is a divaricately branched shrub, growing to 0.3 – 1 m in height. The flowers are yellow, white, violet to purple, and occur from September to October. *Drummondita ericoides* occurs on rocky coastline areas.

Ten plants of *Drummondita ericoides* has been recorded at four locations (separated 50 m apart) in the Freehold section of the Study Area by the DEC searches.



**Plate 5.5 – *Drummondita ericoides***

Photography by S.D. Hopper & S.F. Patrick. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<http://florabase.dec.wa.gov.au/help/copyright>). Accessed on Monday, 17 May 2010.

### 5.3.2 Wildlife Conservation Act 1950

Conservation significance in Western Australia is determined under the *WC Act*. Currently, DRF species are protected under the *Western Australian Wildlife Conservation (Rare Flora) Notice 2008(2)* of the *WC Act*. This notice lists flora taxa that are extant and considered likely to become extinct or rare. They are defined as “taxa which have been adequately searched for and deemed to be either rare, in danger of extinction, or otherwise in need of special protection in the wild”. These taxa are legally protected and their removal or impact to their surroundings cannot be conducted without Ministerial approval, obtained specifically on each occasion for each population (refer to Table K.2 (Appendix K) for category definitions).

A search of the DEC’s DRF database indicated that 12 DRF taxa have been recorded within a 2 km buffer of the Study Area. These species and their preferred habitats are listed in Table 5.6, along with a comment on the probability of each species being located within the Study Area based on habitat preference.

**Table 5.6 – DRF Taxa Protected by the WC Act Recorded Within a 2 km Buffer of the Study Area**

Family	Taxa	Preferred Habitat	Likelihood of Occurrence in the Study Area
ORCHIDACEAE	<i>Caladenia bryceana</i> subsp. <i>cracens</i>	Sand over limestone, in low heath on limestone hills, or on winter-moist flats	Possible
ORCHIDACEAE	<i>Caladenia hoffmanii</i>	Clay, loam, laterite and granite. Rocky outcrops and hillsides, ridges, swamps and gullies.	Confirmed by current survey
ORCHIDACEAE	<i>Caladenia wanosa</i>	Sandstone outcrops, top edges of gorges.	Possible
PAPILIONACEAE	<i>Chorizema humile</i>	Sandy clay or loam plains.	Possible
RUTACEAE	<i>Drummondita ericoides</i>	Rocky coastline areas	Confirmed by DEC records
SCROPHULARIACEAE	<i>Eremophila viscida</i>	Granitic soils, sandy loam. Stony gullies, sandplains.	Possible
PROTEACEAE	<i>Grevillea bracteosa</i> subsp. <i>bracteosa</i>	Lateritic and granitic soils. Yellow and brown sands.	Possible
PROTEACEAE	<i>Grevillea bracteosa</i> subsp. <i>howatharra</i>	Gravelly clay over limestone	Possible
PROTEACEAE	<i>Grevillea phanerophlebia</i>	Gravelly soil, sand, loam, or clay; occupying heathland.	Possible
RUTACEAE	<i>Philothea wonganensis</i>	Red sandy soils	Confirmed by DEC records
ASTERACEAE	<i>Schoenia filifolia</i> subsp. <i>subulifolia</i>	Pale yellow-grey-brown clay. Swampy flats, tops of breakaways, crabholes.	Possible
COLCHICACEAE	<i>Wurmbea tubulosa</i>	Clay, loam. River banks, seasonally-wet places.	Possible

Currently, 73 DRF taxa are listed as occurring in the Geraldton Sandplains region, 11 in the Yalgoo region and 1 in the Murchison region (WAHERB, April, 2010).

One DRF taxon; *Caladenia hoffmanii* was recorded in the Study Area during the current survey and is protected by the *WC Act*. An additional two DRF taxa; *Drummondita ericoides* and *Philothea wonganensis* were recorded in the Study Area by the DEC database searches. These are described in section 5.3.1.

### 5.3.3 Priority Flora

The DEC maintains a list of Priority Flora taxa, which are considered poorly known, uncommon or under threat but for which there is insufficient justification, based on known distribution and population sizes, for inclusion on the DRF schedule. A Priority Flora taxon is assigned to one of four priority categories (Atkins (2), 2008) as defined in Table K.3, Appendix K.

Currently, 507 Priority Flora taxa are listed as occurring in the Geraldton Sandplains regions, 97 in the Yalgoo region and 150 in the Murchison region (WAHERB, April, 2010).

### 5.3.4 Priority Flora with Potential to Occur in the Study Area

Database searches indicate that 123 Priority Flora occur within a 2 km buffer of the Study Area, or have been recorded in the vicinity of the Study Area (Table C.1, Appendix C). When information from surveys carried out at Jack Hills, Weld Range, Oakajee and Central Tallering by the DEC, Mattiske Consulting and *ecologia*, is collated, an additional 31 Priority Flora not produced by the DEC database searches could potentially occur within the Study Area (Table C.2, Appendix C).

### 5.3.5 Priority Flora Recorded in the Study Area During the Current Survey

Fifty-seven Priority Flora taxa were recorded in the Study Area during the *ecologia* survey (including the vulnerable Priority 4 taxon *Eucalyptus blaxellii*) (Table 5.7).

**Table 5.7 – Priority Flora Taxa Recorded in the Study Area**

Conservation Significance	Taxa
Priority 1	<i>Acacia lineolata</i> subsp. <i>multilineata</i>
	<i>Chamelaucium</i> sp. Yalgoo (Y. Chadwick 1816)
	<i>Euphorbia sarcostemmoides</i>
	<i>Gunniopsis divisa</i>
	<i>Lepidosperma</i> sp. Moresby Range (R.J. Cranfield 2751)
	<i>Melaleuca huttensis</i>
	<i>Mirbelia ternata</i>
	<i>Petrophile vana</i>
	<i>Sauropus</i> sp. Woolgorong (M. Officer s.n. 10/8/94)
	<i>Scholtzia</i> ?sp. Binnu (M.E. Trudgen 2218)
Priority 2	<i>Frankenia confusa</i>
	<i>Homalocalyx inerrabundus</i>
	<i>Leucopogon borealis</i>
	<i>Leucopogon</i> sp. Howatharra (D. & N. McFarland 1046)
	<i>Scholtzia</i> sp. East Yuna (A.C. Burns 6)
	<i>Thryptomene</i> sp. East Yuna (J.W. Green (4639)
	<i>Thryptomene stenophylla</i>
Priority 3	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>
	<i>Acacia speckii</i>
	<i>Acacia subsessilis</i>
	<i>Acanthocarpus parviflorus</i>
	<i>Blackallia nudiflora</i>
	<i>Calytrix erosipetala</i>
	<i>Calytrix formosa</i>
	<i>Calytrix uncinata</i>
	<i>Calytrix verruculosa</i>
	<i>Dicrastylis linearifolia</i>
	<i>Dodonaea amplisemina</i>
<i>Eremophila arachnoides</i> subsp. <i>arachnoides</i>	








Conservation Significance	Taxa
Priority 3	<i>Eremophila muelleriana</i>
	<i>Geleznowia verrucosa</i> subsp. Kalbarri (L.M. Broadhurst 123)
	<i>Grevillea stenostachya</i>
	<i>Grevillea triloba</i>
	<i>Hemigenia tysonii</i>
	<i>Hemigenia virescens</i>
	<i>Homalocalyx echinulatus</i>
	<i>Indigofera gilesii</i> subsp. <i>gilesii</i>
	<i>Microcorys tenuifolia</i>
	<i>Petrophile pauciflora</i>
	<i>Prostanthera petrophila</i>
	<i>Ptilotus beardii</i>
	<i>Ptilotus luteolus</i>
	<i>Serichonus gracilipes</i>
	<i>Thryptomene</i> sp. Moresby Range (A.S. George 14873)
	<i>Thryptomene</i> sp. Wandana (M.E. Trudgen MET 22016)
	<i>Verticordia chrysostachys</i> var. <i>pallida</i>
	<i>Verticordia densiflora</i> var. <i>roseostella</i>
<i>Verticordia jamiesonii</i>	
Priority 4	<i>Acacia guinetii</i>
	<i>Baeckea</i> sp. Melita Station(H. Pringle 2738)
	<i>Diuris recurva</i>
	<i>Eucalyptus blaxellii</i> (Vulnerable)
	<i>Goodenia berringbinensis</i>
	<i>Grevillea inconspicua</i>
	<i>Jacksonia velutina</i>
	<i>Verticordia capillaris</i>
	<i>Verticordia penicillaris</i>






The coordinates for the Priority Flora recorded during the survey are listed in Table G.1, Appendix G and their locations are plotted on Figures G.1 to G.5, Appendix G.

Voucher forms for the 57 Priority Flora taxa collected during the current survey will be submitted to the WAHERB and have been included electronically as Appendix L.




The biological characteristics, known distributions and photographs of the Priority Flora recorded in the Study Area are detailed in Table 5.8.







Table 5.8 – Descriptions of Priority Flora Recorded in the Project Area



Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><b><i>Acacia lineolata</i> subsp. <i>multilineata</i></b> (FABACEAE) Priority 1</p>	<p>A dense, rounded shrub growing from 0.5 m to 2 m in height. Its phyllodes are erect and the yellow, globular flowers are produced from June to August.</p> <p>(Photograph on right by S.J. Patrick. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Thursday, 3 December 2009) and growth habit again (right) (Photography: <i>ecologia</i>).</p>	Sandplains.	1	1	Mullewa, east of Mingenew, Arrino and the locality of Yuna.	 
<p><b><i>Chamelaucium</i> sp. Yalgoo</b> (Y. Chadwick 1816) (MYRTACEAE) Priority 1</p>	<p>A bushy low shrub to 1.5 m high. This species produces white/pink/purple flowers during August and September.</p>	Granite outcrops.	2	3	73 km south of Yalgoo, near Blue Hills, along Morawa-Yalgoo Road, and Wurarga.	 
<p><b><i>Euphorbia sarcostemmoides</i></b> (EUPHORBIACEAE) Priority 1</p>	<p>An upright, leafless, semi-succulent herb that grows to between 0.4 and 1 m, although it has been recorded as growing to 2 m. The stems are light green, and have a bluish-grey waxy light covering. When broken a white sap is exuded from the stems. The rarely present leaves are narrow, lanceolate, opposite and are held horizontally. The flowers are produced at the top of the branches, are green and look like a ball and cup. The fruit are green to reddish and when split open have pinkish brown seeds.</p>	Sandstone and quartzite hills but has been located on flat plains at Weld Range.	67	254	Robinson Ranges, Mount Augustus Station. Also East Chewing Ranges, Mount Giles and George Gill Range in N.T.	  




Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<b><i>Gunniopsis divisa</i></b> (AIZOACEAE) Priority 1	An annual herb, growing to between 0.05 to 0.1 m in height. The base of the plant is often thickened. The leaves are opposite, green and fleshy looking and pale yellow to white flowers are produced between August and October.	Loamy soils and quartz. The species is also common along roadsides.	1	1000	Jack Hills, Blue Hills Range, Mullewa-Carnarvon Road and Mullewa-Gascoyne Junction Road.	
<b><i>Lepidosperma</i> sp.</b> Moresby Range (R.J. Cranfield 2751) (CYPERACEAE) Priority 1	A tufted herb growing to 0.5 m high. The stems are flat, sticky to touch along the margins and have a prominent midrib, especially towards the base of the plant. The stem bases are yellow becoming red-brown. The flowering heads are dense, ovate and there are between 4-9 clumps per stalk that are sometimes sticky. The stalks are green and rounded but become flattened at the base of the flower heads. The flower bracts are brown with an obvious light brown or cream margin. The seeds are olive green.	Western end of the Moresby Range where it occurs in <i>Acacia</i> – <i>Melaleuca radula</i> dominated heaths or shrublands on laterite slopes or breakaways.	28	149	Moresby Range.	 
<b><i>Melaleuca huttensis</i></b> (MYRTACEAE) Priority 1	An upright shrub growing to a height of approximately 3 m. This species has grey to white gnarled bark and from June to September produces cream to yellow flowers.	Sandy to gravelly soil and on undulating coastal plains.	1	1	Geraldton, Coronation Beach Road, Northampton and Waggrakine.	 



Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><b><i>Mirbelia ternata</i></b> (FABACEAE) Priority 1</p>	<p>A low shrub growing to 0.5 m in height.</p>	<p>Yellow Sand.</p>	<p>3</p>	<p>3</p>	<p>10.8 km from Morawa and 4.9 km north of Morawa.</p>	
<p><b><i>Petrophile vana</i></b> (PROTEACEAE) Priority 1</p>	<p>An upright shrub growing to 1.5 m tall. Mature branches have smooth barked while juvenile branches have long white hairs on them. The terete leaves are 30 to 60 mm in length, 1 to 1.5 mm in diameter and are alternate, sessile, erect and curve inwards towards the branches. The upper surface of the leaves also has a shallow groove. White/cream flowers are produced along the branches in September and are approximately 10 mm long and 3 to 4 mm wide (Cranfield, &amp; Macfarlane, 2007).</p>	<p>Soil pockets of white gritty clay on laterite / sandstone and breakaways (Cranfield, &amp; Macfarlane, 2007).</p>	<p>16</p>	<p>145</p>	<p>Mount Magnet, Burnerbinmah Station and Malangata Station.</p>	
<p><b><i>Sauropus</i> sp. <i>Woolgorong</i> (M. Officer s.n. 10/8/94)</b> (EUPHORBIACEAE) Priority 1</p>	<p>A low shrub that grows 0.3 m to 1 m and generally produces tiny yellow flowers in June. The leaves are obovate with a notched tip, are a light to medium green, and are approximately 0.5-2 cm long and 0.2-0.8 cm wide.</p>	<p>Grows on red sand plains in open <i>Acacia</i> – <i>Eremophila</i> woodlands, but has been found on moderately rocky hill crests and slopes on the Weld Range.</p>	<p>18</p>	<p>43</p>	<p>Weld Range, Woolgorong Homestead and Pinegrove Homestead.</p>	

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><b><i>Scholtzia</i> sp. Binnu (M.E. Trudgen 2218)</b> (MYRTACEAE) Priority 1</p>	<p><i>Scholtzia</i> sp. Binnu (M.E. Trudgen 2218) is an open shrub that grows to 2 m high. Its pink flowers are produced in September.</p> <p>The identity of the specimen collected could not be confirmed, as there was no flowering or fruiting material on it. However, the specimen collected closely matches <i>Scholtzia</i> sp. Binnu (M.E. Trudgen 2218).</p> <p>(Photography M. Kealley. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Thursday, 3 December 2009).</p>	Yellow sand dunes.	1	20	Binnu East Road, Indarra Reserve, 60 km north-east of Northampton and 40 km east of Binnu.	 
<p><b><i>Frankenia confusa</i></b> (FRANKENIACEAE) Priority 2</p>	<p>A low, diffuse shrub that grows to 0.75 m in height and produces pink flowers in September.</p>	Banks of rivers and waterholes, and on river floodplains on wet, pale brown sands, brown clay and grey soil.	14	245	Kalbarri, Port Gregory, 7 Mile Crossing, Galena, Meeberrie Station and along the Gascoyne and Yalgar Rivers.	 
<p><b><i>Homalocalyx inerrabundus</i></b> (MYRTACEAE) Priority 2</p>	<p>A shrub that grows to 0.5 m in height. The violet/pink flowers of this species is produced from September to November.</p>	Yellow sand and sandy loam soil.	16	151	Bindoo Hill Nature Reserve, East Yuna Reserve, Geraldton and Mount Magnet.	 

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<i>Leucopogon borealis</i> (ERICACEAE) Priority 2	An erect, lignotuberous shrub growing to approximately 1.2 m in height. White flowers are produced from July to October.	Rocky sandy loam over limestone on the rangelands.	2	10	Waggrakine Cutting, Moresby Conservation Park, Oakabella Nature Reserve, Oakajee, Bella Vista Nature Reserve.	NO PHOTO AVAILABLE
<i>Leucopogon</i> sp. Howatharra (D. & N. McFarland 1046) (ERICACEAE) Priority 2	A compact, dense shrub growing to 0.6 m in height. This species produces white flowers in June.	Brown sandy loams on midslopes of valleys.	7	52	Moresby Conservation Park, Moresby Ranges and Howatharra Hill Reserve.	
<i>Scholtzia</i> sp. East Yuna (A.C. Burns 6) (MYRTACEAE) Priority 2	A shrub that typically grows to 2 m high. The pink flowers are produced in August.	Clay breakaway screes.	4	23	East Yuna Nature Reserve and north of Murchison River.	

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Thryptomene</i> sp. East Yuna (J.W. Green 4639) (MYRTACEAE) Priority 2</p>	<p>A shrub that grows between 0.6 m and 1 m in height. The white/pink flowers are produced from August to November.</p>	<p>Yellow sand.</p>	<p>2</p>	<p>3</p>	<p>Indarra Springs Nature Reserve, Bindoo Hill Nature Reserve, East Yuna Nature Reserve and west of Mullewa.</p>	
<p><i>Thryptomene stenophylla</i> (MYRTACEAE) Priority 2</p>	<p>A spreading shrub that grows from 0.3 m to 2 m high. The pink to purple flowers are produced from June to August.  (Photography B.L. Rye. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Thursday, 3 December 2009).</p>	<p>Limestone hills and sandplains comprising red to yellow sand or loamy soil.</p>	<p>2</p>	<p>2</p>	<p>Chapman River Regional Park, Mount Rennie, Moonyoonooka, Giles Road, Scott Road and Spalding Park Reserve.</p>	
<p><i>Acacia leptospermoides</i> subsp. <i>psammophila</i> (FABACEAE) Priority 3</p>	<p>A spreading shrub growing from 0.3 m to 1.5 m in height. The globular flowers are yellow and are produced in August. The phyllodes are 5 mm long, small, fleshy and thick.  (Photography S.J. Patrick. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Thursday, 3 December 2009).</p>	<p>Yellow or red sand to gravelly soils of sandplains.</p>	<p>4</p>	<p>4</p>	<p>Yuna, Eradu, East Yuna Nature Reserve, Station Valentine Road and Bindoo Hill Nature Reserve.</p>	

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Acacia speckii</i> (FABACEAE) Priority 3</p>	<p>A bushy, rounded shrub or gnarled tree, growing to between 1.5 m to 3.0 m in height with grey and fissured bark on the main branches. The phyllodes are light green, rigid and erect, circular in cross-section, and have a hardened brown tip. The pod is light brown, narrow and compressed between each seed.</p>	<p>Rocky soils over granite, basalt or dolerite, and has been located on the rocky hills and rises of Weld Range.</p>	101	256	Weld Range, Mount Magnet, Meekatharra and Yalgoo.	
<p><i>Acacia subsessilis</i> (FABACEAE) Priority 3</p>	<p>A rounded, straggly, pungent shrub that grows from 1 m to 2 m in height. Its yellow cylindrical flowers are produced from July to August.</p>	<p>Red sand or stony gravel over ironstone rocky hills.</p>	17	48	Along Yalgoo to Ninghan Road, near State Barrier Fence, Wadgingarra, Paynes Find to Yalgoo Road, Edamurta Range, Buddadoo Range and Mugga Mugga Hill.	
<p><i>Acanthocarpus parviflorus</i> (DASYPOGONACEAE) Priority 3</p>	<p>A tufted, perennial herb ranging from 15 cm to 40 cm in height. This species produces small white flowers from May to June.</p>	<p>Coastal habitats of sandy soil over limestone or sandstone.</p>	6	15	Kalbarri, Kalbarri National Park, Murchison House Station, Moresby Ranges, Shark Bay and The Loop along the Murchison River.	







Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Blackallia nudiflora</i> (F. Muell) Rye &amp; Kellerman (RHAMNACEAE) Priority 3</p>	<p>A low, perennial shrub growing to approximately 30 cm in height. This species produces white to pink or deep pink to red-brown small, flowers from July to August.</p>	<p>Moist, sandy locations on flats, drainage channels, slopes, and breakaways near rivers.</p>	1	22	<p>Along Chapman River, Bishops Gully Road, Ogilvie East and West Road and North West Coastal Highway.</p>	
<p><i>Calytrix erosipetala</i> (MYRTACEAE) Priority 3</p>	<p>A low shrub that grows from 0.3 m to 0.7 m in height. The leaves are erect to spreading, obovate in outline, and club shaped. Its white or pink flowers are produced between September and October.</p>	<p>Rocky sandstone or granite breakaways.</p>	10	79	<p>Cue, Agnew, Lake Barlee, Mount Richardson, Yakabindie Station, Mount Mason, Booylgoo Range and Windimurra Homestead.</p>	
<p><i>Calytrix formosa</i> (MYRTACEAE) Priority 3</p>	<p>A shrub that grows between 0.3 m and 0.8 m in height. The pink/yellow flowers are produced from September to November.</p> <p>(Photography on right by D. &amp; B. Bellairs. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Wednesday, 20 January 2010)</p>	<p>White or yellow sandplains.</p>	2	3	<p>Wandana Reserve, Eurardy Station, Kalbarri National Park and Bindoo Hill Nature Reserve.</p>	




Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Calytrix uncinata</i> (MYRTACEAE) Priority 3</p>	<p>A low shrub that grows from 0.3 m to 0.7 m in height. The leaves are erect to spreading, oblong to linear obovate in outline, with a straight to recurved tip that is unique to the genus. Its white/yellow flowers are produced from August to November.</p>	<p>Granite and sandstone breakaways, in addition to stony rises in the Murchison and Yalgoo regions of Western Australia.</p>	6	18	<p>Wanjarri Nature Reserve, Leinster, Yalgoo, Gullewa, Yakabindie Station, Booylgoo Range, Joyner's Find and the Blue Hills Ranges.</p>	
<p><i>Calytrix verruculosa</i> (MYRTACEAE) Priority 1</p>	<p>A compact, evergreen shrub growing to approximately 40 cm to 75 cm in height, and has minutely verrucose (warty) branchlets. It contains small, terete, bright green whorled leaves, predominantly occurring at the tip of the stipules and bearing aromatic essential oils. It produces scattered pink to white flowers from August to October. The petals are up to 14 mm long and are usually bright pink. The calyx segments are joined at the base and have ovate blades and awns to 20 mm long.</p>	<p>Shallow hardpan plains with sparse mulga or brown, clayey sand in open scrub.</p>	68	860	<p>Jack Hills, Weld Range, Noonie Hills and Meekatharra.</p>	
<p><i>Dicrastylis linearifolia</i> (LAMIACEAE) Priority 3</p>	<p>A multi-branched shrub, growing to between 1 m and 3 m in height. The upper surface of the leaves is hairy, and the braches are often rust-coloured. Its white, woolly flowers are produced from November to December.</p>	<p>Red sand and open sandplains.</p>	28	274	<p>Mount Mulgine, Warriedar Station, Shark Bay, Muggon Station, Eurardy Station, Burnerbinmah Station, Tooolonga Nature Reserve and Meka Station.</p>	

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Dodonaea amplisemina</i> (SAPINDACEAE) Priority 3</p>	<p>A multi-stemmed open shrub, on which the branchlets sometimes becoming spiny. The two leaf forms (linear or narrow spear shaped) have blunt tips and are often clumped together. The flowers are inconspicuous, but the mature fruits (produced from late August to October) are pink-brown with three incurving horns.</p>	<p>Open shrubland with <i>Acacia</i>, <i>Eremophila</i> and other low shrubs on red-brown sandy clay soils over basalt or banded ironstone. One population has been recorded on quartzite.</p>	27	106	Mount Magnet, Weld Range, Cue and Buddadoo Range.	
<p><i>Eremophila arachnoides</i> subsp. <i>arachnoides</i> (MYOPORACEAE) Priority 3</p>	<p>An open shrub growing to 3.5 m in height. The stems and leaves have a whitish-green appearance (due to a covering of microscopic white scales), and the stems have rows of tiny round warts along their lengths. The leaves are linear, upright and have a hooked tip. The flowers may be white to mauve, and the inside of the flowers can have yellow or purple spots.</p>	<p>Open mulga woodland in shallow loams over limestone.</p>	1	1	Jilyili Hills, Yarrabubba Homestead and Lake Mason Homestead.	
<p><i>Eremophila muelleriana</i> (MYOPORACEAE) Priority 3</p>	<p>A shrub or tree generally growing from 0.5 m to 2.8 m in height and sometimes from 0.3 m to 4m in height. The red/purple flowers are produced from August to October.</p> <p>(Photography on right by A.P. Brown &amp; B. Buirchell. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Tuesday, 19 January 2010)</p>	<p>Granitic soils.</p>	195	560	Carnarvon-Mullewa Road, Jingemarra Station, Mount Narryer, Mileura Station, Kalli Station and Weld Range.	



Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Gelezowia verrucosa</i> subsp. Kalbarri (L.M. Broadhurst 123) (RUTACEAE) Priority 3</p>	<p>A branching shrub growing up to 1.5 m in height. The vivid inflorescences have 10-15 or more florets at the end of each erect branch, and have lime-yellow with yellow to orange anthers and sometimes brown to red or green bracts.</p>	<p>Undulating coastal habitats with sandy or gravelly soils where there is laterite, sandstone or limestone.</p>	1	1	<p>Kalbarri National Par, Kalbarri, Northampton, Chapman Regional Park, Meanarra Hill and Kalbarri-Ajana Road.</p>	
<p><i>Grevillea stenostachya</i> (PROTEACEAE) Priority 3</p>	<p>A dense, spiky shrub growing from 0.6 m to 1.5 m in height. The leaves resemble fine green sticks - each of which is dissected into a number of segments which each terminates in a sharp tip. The flowers are a greenish/creamy yellow colour on a cylindrical inflorescence, and are generally produced from July to September.</p>	<p>Red sand or sandy loams in open shrublands and mallee.</p>	132	235	<p>Toolonga Nature Reserve, Woolgorong Station, Carnarvon and Belele Station.</p>	
<p><i>Grevillea triloba</i> (PROTEACEAE) Priority 3</p>	<p>A tall, spreading shrub that sometimes grows to more than 2.5 m in height, although generally ranges between 1 m and 1.5 m tall. This species produces pink or white flowers from June to October in upright, loose clusters, supported by elongated peduncles.</p>	<p>Coastal habitats with sandy loam over sandstone or limestone and lateritic soils.</p>	139	2444	<p>North West Coastal Highway road reserve, near Oakajee Port, Nature reserve 8937, Moresby Conservation Park, Oakajee Nature Reserve and Waggrakine.</p>	







Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Hemigenia tysonii</i> (LAMIACEAE) Priority 3</p>	<p>A dense, finely-branched, mint bush that grows to 0.6 m in height. The small leaves are a grey-green, stiff, 4-7 mm long and 1-3 mm wide. They are arranged opposite one another or are occasionally grouped on the stem. The flowers are purple/light pink, with white spots inside, and they are produced from May to December.</p>	<p>Red sand, sandy clay and lateritic sand on flats, sand dunes and hills.</p>	161	3189	Mount Hale, Noonie Hills and Muggon Station.	 
<p><i>Hemigenia virescens</i> [syn. sp. Belele Station (A.L. Payne 80)] (LAMIACEAE) Priority 3</p>	<p>A perennial, erect and compact mint shrub, that grows to between 0.4 m and 0.6 m in height. The leaves do not have petioles, are erect and often pressed back along the stem. The purple to pale lilac flowers are tubular, 8.5 to 18 mm in length and are produced from July to August.</p>	<p>Sand and lateritic gravel.</p>	117	2306	Meekatharra, Annean Station, Belele Station and Bryah.	 
<p><i>Homalocalyx echinulatus</i> (MYRTACEAE) Priority 3</p>	<p>A shrub that grows to between 0.45 to 1.0 m high. Its flowers are pink and are produced between June and September. The leaves are small and are approximately 2 to 4 mm long and 1 to 2 mm wide.</p>	<p>Laterite and on breakaways and sandstone hills.</p>	13	187	Jack Hills, Weld Range, Wiluna, Doolgunna Station, Princess Range, Lake Way Station, Booylgoo Range, Longreach and Windidda.	 

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Indigofera gilesii</i> subsp. <i>gilesii</i> (FABACEAE) Priority 3</p>	<p>A shrub growing to 1.5 m in height. The leaves consist of 10-12 pairs of leaflets, with a dark gland at each leaflet base. The purple to pink flowers are produced from May to August. The pods are narrow, cylindrical and red-brown.</p>	<p>Pebbly loam amongst boulders and outcrops of hills. Along drainage channels and creeklines.</p>	1	1	Ophthalmia Range and Hamersley Range.	
<p><i>Microcorys tenuifolia</i> (LAMIACEAE) Priority 3</p>	<p>A shrub that grows between 0.5 m and 1.8 m in height. The white/blue/purple flowers are produced from either October to December or from March to April.</p>	<p>Red/brown sand, lateritic gravelly soils. Undulating plains</p>	5	5	Eurardy Bush Heritage Reserve, Mullewa, East Yuna Reserve, Kalbarri National Park and north west of Wongan Hills.	
<p><i>Petrophile pauciflora</i> (PROTEACEAE) Priority 3</p>	<p>A compact shrub that grows to 1 m in height. Its leaves are erect, sparse and terete and are divided into three forked segments. Its globular, yellow flowers are produced in September and grow on stalks towards the end of the branchlets.</p>	<p>Low, very open heath on decaying and dissected granite breakaways.</p>	16	64	Damperwah Hills, Karara Station, Lochada Station, Mount Magnet, Woolgorong Station, Pindarburra Station, Bimbijy Station and Mileura Station.	

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by ecologia	No of Plants Recorded by ecologia	Distribution	Photographs
<p><i>Prostanthera petrophila</i> (LAMIACEAE) Priority 3</p>	<p>A spreading shrub that grows from 0.6 m to 2 m in height. Its young stems are covered in white-grey hairs and the leaves are opposite and elliptic in shape. The white flowers have purple to violet striations and are produced in August.</p>	<p>Rocky banded ironstone outcrops and lateritic soils.</p>	27	151	<p>Weld Range, Woolgorong Homestead, Mount Barloweerie and Cue.</p>	
<p><i>Ptilotus beardii</i> (AMARANTHACEAE) Priority 3</p>	<p>A many-branched, rigid shrub growing from 0.15 m to 0.5 m in height. The leaves are often clustered along the stem and are small, linear, and have tiny sharp points. Pale pink/red flowers grow on the ends of branchlets and the inflorescences are open, and head-shaped to cylindrical in outline. Flowering occurs from August to October.</p>	<p>Clayey soils, on saline flats and on low breakaways.</p>	52	2272	<p>Yalalong Station, Weld Range, Muggon Station, Crystal Hill and Mount Narryer Homestead.</p>	
<p><i>Ptilotus luteolus</i> (AMARANTHACEAE) Priority 3</p>	<p><i>Ptilotus luteolus</i> is a low, somewhat spreading shrub that grows between 0.15 m and 0.7 m in height. The whole plant, in particular the stems, are yellow in colour. The leaves are grey-yellow and oblong in shape. The flowers are lemon to greenish-yellow, often purplish at flower bract bases; the head is ovate to shortly cylindrical in outline, and flowers are produced from March to October.</p>	<p>Rocky hill slopes and crests, often in red sandy soils.</p>	305	9	<p>Thomas River, Neds Creek, Wiluna and Murchison Roadhouse.</p>	



Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Serichonus gracilipes</i> (Diels) K.R.Thiele (RHAMNACEAE) Priority 3</p>	<p>An evergreen shrub that grows to between 0.2 m to 0.7 m in height. This species produces pink or white flowers from August to September.</p> <p>(Photography S.J. Patrick. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Friday, 4 December 2009).</p>	<p>Rock crevices, rock gullies, and margins of summits, basal slopes of mesas and rocky outcrops. Generally found growing in sandy clay over granite, laterite gravel and yellow-brown sandy loam over sandstone.</p>	6	11	<p>Mount Rennie, Ballatarra Hill, Northampton, Moresby Ranges and near Sugar Loaf Peak.</p>	
<p><i>Thryptomene</i> sp. Moresby Range (A.S. George 14873) (MYRTACEAE) Priority 3</p>	<p>A spreading shrub that grows from 0.3 m to 1 m high. Its pink flowers are produced from June to August and they have long red flower stalks extending from the stems.</p>	<p>Light brown loam, clay loam, sandy clay or sandstone hillsides or summits.</p>	18	334	<p>Moresby Range, Moresby Conservation Reserve, Bella Vista Nature Reserve, Mount Rennie, Howatharra Nature Reserve, Wokatherra Hill and Chapman Valley.</p>	
<p><i>Thryptomene</i> sp. Wandana (M.E. Trudgen MET 22016) (MYRTACEAE) Priority 3</p>	<p>A shrub that typically grow to between 0.75 m and 1.2 m high, and its pink flowers are produced from July to September.</p>	<p>Yellow sand or red clay sand dunes.</p>	3	80	<p>Binnu East Road, Eurardy Station, Wandana Nature Reserve, McGuaran Nature Reserve, Coolcalalaya Road, Ninghan District and south-west of Yuna.</p>	

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Verticordia chrysostachys</i> var. <i>pallida</i> (MYRTACEAE) Priority 3</p>	<p>An erect to spreading shrub that grows between 0.6 to 2 m in height. The yellow/cream flowers are produced from September to January.</p> <p>(Photography G. Byrne &amp; E.A. George. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<a href="http://florabase.dec.wa.gov.au/help/copyright">http://florabase.dec.wa.gov.au/help/copyright</a>). Accessed on Friday, 19 January 2010).</p>	Yellow sandplains and sand dunes.	4	5	Valentine Road, Erangy Springs Road, south-east of Yuna, Mullewa, Beacon Hill and East Yuna Nature Reserve.	
<p><i>Verticordia densiflora</i> var. <i>rosteostella</i> (MYRTACEAE) Priority 3</p>	<p>An open shrub that grows between 0.4 m and 1.5 m in height. The pink/white flowers are produced from September to December.</p>	Sandy gravelly soils.	3	7	Eneabba, Yerina Springs Nature Reserve, Wicherina, Chapman River Regional Wildlife Corridor, Chapman Park and Weelawadji Lake.	
<p><i>Verticordia jamiesonii</i> (MYRTACEAE) Priority 3</p>	<p>A small, irregularly branched rounded shrub growing sometimes to 60 cm in height, but more commonly to 20 cm. It has tiny leaves, mostly crowded on short, lateral branchlets and flowers that are initially creamish-white turning pink with maturity. The flower buds are shiny and pale to bright red and flowering occurs from September to October.</p>	Sandy clay soils on lateritic breakaways.	9	31	Mt Hale, Noonie Hills, Cue, Yalgoo and South Warburton.	

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<i>Acacia guinetii</i> (FABACEAE) Priority 4	A spreading to straggly shrub or erect and spindly shrub that generally grows to between 0.3 m and 2 m in height but can sometimes grow up to 2.5 m high. The yellow cylindrical flowers are produced from June to September.	Rocky loam and lateritic gravelly soils of stony hills.	33	121	Bella Vista Nature Reserve, Moresby Conservation Park, Moresby Range, Wokatherra Hill and Wells Park.	 
<i>Baeckea sp. Melita Station</i> (H. Pringle 2738) (MYRTACEAE) Priority 4	An upright shrub that grows to a between 2.0 to 2.5 m. The leaves are round in cross section, 3 to 5 mm long, approximately 1 mm in diameter and are hooked at their tips.	Shallow, red rocky soil over ironstone amongst mulga shrubs.	13	75	Sandstone and more commonly to the east of the Goldfields Hwy between Wiluna and Kalgoorlie.	 
<i>Diuris recurva</i> (ORCHIDACEAE) Priority 4	A tuberous perennial herb that grows to between 0.2 m and 0.3 m high. The yellow and brown flowers are produced from July to August.	Loamy winter wet areas.	6	5	Eurardy Station, Drummond Nature Reserve, Moorajin Nature Reserve, Howatherra Hill Nature Reserve and Yandan Hill Reserve.	 

Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Goodenia berringbinensis</i> (GOODENIACEAE) Priority 4</p>	<p>A prostrate to ascending herb growing to 0.3 m in height. The basal leaves are spoon-shaped and up to 6 cm long while the stem leaves are usually up to 3 cm long. The flowers are yellow and peak flowering occurs in October.</p>	<p>Along watercourses in red sandy loams.</p>	3	70	Noonie Hills, Killara Station, Nallan Lake and Belele Station.	
<p><i>Grevillea inconspicua</i> (PROTEACEAE) Priority 4</p>	<p>An intricately branched, often messy looking spreading shrub that grows to between 0.6 m and 2 m in height. The leaves are linear, flat, silvery green, bend downwards from the stem and have an obvious hardened point. Its white/pink flowers are generally produced from June to August.</p>	<p>Along drainage lines, on rocky outcrops and creeklines, and tends to favour loamy soils with a gravel surface.</p>	3	3	Weld Range, Sandstone, Mount Magnet and Booylgoo Range.	
<p><i>Jacksonia velutina</i> (FABACEAE) Priority 4</p>	<p>An erect broom-like shrub that grows between 0.3 m to 1.5m in height. The fruit of this species is hairy. Its orange/red flowers are generally produced from August to September.</p>	<p>Yellow sandplains and sand hills.</p>	1	1	Mullewa, Yuna, Eurardy Station, Kalbarri and Wandana Reserve.	



Species, Family and Rank	Description	Typical Habitat	No of Locations Recorded by <i>ecologia</i>	No of Plants Recorded by <i>ecologia</i>	Distribution	Photographs
<p><i>Verticordia capillaris</i> (MYRTACEAE) Priority 4</p>	<p>A corymbose shrub growing from 0.3 m to 1.5 m in height. The creamy-white flowers are produced from October to November.</p>	<p>Yellow sand, sandy loam and sandy clay sand plains.</p>	<p>71</p>	<p>197</p>	<p>Eurardy Station, Murchison House Station, along Kalbarri to Ajana Road, McGaurans Nature Reserve and East Yuna Nature Reserve.</p>	
<p><i>Verticordia penicillaris</i> (MYRTACEAE) Priority 4</p>	<p>A low shrub growing to 30 cm high and approximately 1 m wide. From September to October this species produces cream to yellow flowers that have long red to brown styles.</p>	<p>Gravelly or rocky shallow soils sometimes on granite outcrops.</p>	<p>104</p>	<p>2698</p>	<p>Three Springs, Arrino, 14 km west of Mullewa, Caron Reserve, Wilson Nature Reserve, Ogilvie East Road, 45 km south of Mingenew and Tardun.</p>	

Note: Unless otherwise noted, photography by ecologia.

### 5.3.6 Priority Flora Recorded During the *ecologia* Regional Surveys

*ecologia* has surveyed previously proposed OPR rail corridor / alignment alternatives in the mid-west in the vicinity of the Study Area. During these earlier surveys, conducted in the Pastoral lands only, 15 Priority Flora were recorded, all of which were recorded in the Study Area. These Priority Flora are listed in Table 5.9 below, the coordinates are provided in Table M.1, Appendix M and are mapped in Figure 5.3.

**Table 5.9 – Priority Flora Taxa Recorded During the *ecologia* Regional Surveys**

Conservation Code	Taxa	Number of Records
Priority 1	<i>Petrophile vana</i>	2
	<i>Sauropus</i> sp. Woolgorong (M. Officer s.n. 10/8/94)	4
Priority 3	<i>Acacia speckii</i>	9
	<i>Calytrix erosipetala</i>	1
	<i>Calytrix verruculosa</i>	2
	<i>Dicrastylis linearifolia</i>	2
	<i>Dodonaea amplisemina</i>	5
	<i>Grevillea stenostachya</i>	10
	<i>Hemigenia tysonii</i>	10
	<i>Petrophile pauciflora</i>	4
	<i>Prostanthera petrophila</i>	1
	<i>Ptilotus beardii</i>	5
	<i>Ptilotus luteolus</i>	1
<i>Verticordia jamiesonii</i>	4	
Priority 4	<i>Goodenia berringbinensis</i>	1



### 5.3.7 Range Extensions Recorded in the Study Area

Based on records lodged at the WA Herbarium (WAHERB, January 2010), 29 species located within the Study Area represent significant range extensions for the species. These are listed in Table 5.10.













200000 300000 400000 500000 600000

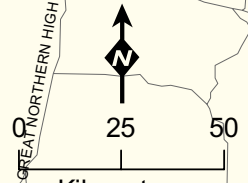
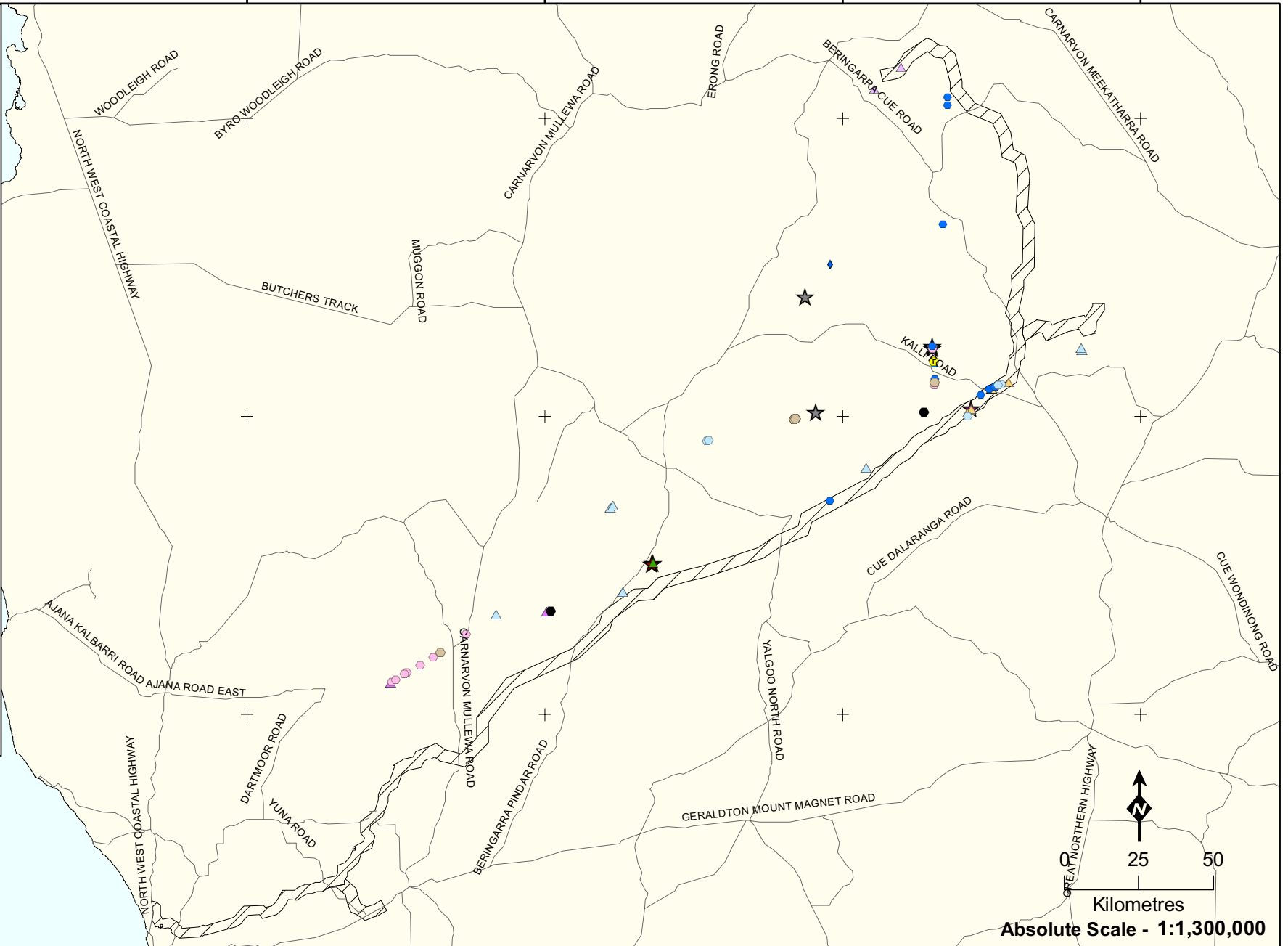
710000  
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# Legend

-  Main roads
-  OPR Rail Corridor

## Regional Priority Flora

-  *Petrophile vana* (P1)
-  *Ptilotus luteolus* (P1)
-  *Sauropous* sp. Woolgorong (P1)
-  *Acacia speckii* (P3)
-  *Calytrix erosipetala* (P3)
-  *Calytrix verruculosa* (P3)
-  *Dicrasyllis linearifolia* (P3)
-  *Dodonaea amplisemina* (P3)
-  *Grevillea stenostachya* (P3)
-  *Hemigenia tysonii* (P3)
-  *Petrophile pauciflora* (P3)
-  *Prostanthera petrophila* (P3)
-  *Ptilotus beardii* (P3)
-  *Verticordia jamiesonii* (P3)
-  *Goodenia berringbinensis* (P4)



**Absolute Scale - 1:1,300,000**



### Priority Flora Locations of the Old Rail Corridor Alignments (overview)

Figure: 5.3  
Project ID: 1131

Drawn: AH  
Date: 19/01/2010

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A103

**Table 5.10 – Range Extensions Recorded in the Study Area**

Family	Taxa	Approximate Location in Study Area	Bioregional Distribution	Range Extension Details
FABACEAE	<i>Acacia subsessilis</i> (Priority 3)	Freehold	Central Yalgoo and couple records from western Murchison.	A small range extension of approximately 100 km west of the nearest collection record at Mugga Mugga Hill.
FABACEAE	<i>Acacia wiseana</i>	Jack Hills & Freehold	Throughout Carnarvon and Little Sandy Desert.	A range extension of approximately 200 km to the east of its nearest named collection at Muggon Station.
POACEAE	* <i>Arundo donax</i>	Freehold	Scattered populations through W.A.; records from Swan Coastal Plain and Carnarvon are closest.	A range extension of approximately 425 km to the south of the nearest named collection of Carnarvon.
CHENOPODIACEAE	<i>Atriplex spongiosa</i>	Wandina Section	Widespread throughout southern half of W.A. Most records in Murchison and Coolgardie.	A large range extension of approximately 340 km to the west-north west of the nearest named collection of Youangarra Outstation.
ASTERACEAE	<i>Brachyscome glandulosa</i>	Freehold	Avon Wheatbelt, Jarrah Forest, Swan Coastal Plain, Geraldton Sandplains and Esperance Plains.	A range extension of approximately 200 km to the north of the nearest named collection 7 km west of Brand Highway on Jurien Road.
CYPERACEAE	<i>Cyperus ixiocarpus</i>	Jack Hills	Throughout Pilbara and Carnarvon.	A large range extension of approximately 400 km south-east of the nearest collection record at Rocky Pool on the Gascoyne River.
ACANTHACEAE	<i>Diclanthera forrestii</i>	Jack Hills	Pilbara, Gascoyne and Carnarvon and two Murchison records.	A small range extension of approximately 50 km south of the nearest collection record at Mount Gould Station.
DROSERACEAE	<i>Drosera microphylla</i>	Freehold	Avon Wheatbelt, Jarrah Forest, Esperance Plains, southern Geraldton Sandplains and Swan Coastal Plain.	A large range extension of approximately 210 km to the north of the nearest named collection of Mount Lesueur.
SCROPHULARIACEAE	<i>Eremophila stronglylophylla</i>	Wandina Section	Murchison, Gascoyne, Pilbara and Carnarvon.	A range extension of approximately 140 km to the north-east of the nearest named location of Champion Bay.
SCROPHULARIACEAE	<i>Eremophila tietkensis</i>	Central portion of the proposed OPR rail alignment	Central Ranges in the east and Carnarvon in the west.	A range extension of approximately 300 km to the south of the nearest named collection record at Williambury Station in the Gascoyne.
MYRTACEAE	<i>Eucalyptus sargentii</i> subsp. <i>sargentii</i>	Freehold	Widespread throughout Avon Wheatbelt and Mallee. Couple of records in Carnarvon.	A range extension of approximately 170 km to the south-east of the nearest named collection of Woollberoo.

Family	Taxa	Approximate Location in Study Area	Bioregional Distribution	Range Extension Details
FABACEAE	<i>Gompholobium aristatum</i>	Freehold	Geraldton Sandplains, Jarrah Forrest and Swan Coastal Plain.	A range extension of approximately 170 km to the north of the nearest named collection 25 km south of Eneabba.
GOODENIACEAE	<i>Goodenia maideniana</i>	Jack Hills Section	Most records in Murchison.	A range extension of approximately 150 km to the north-west of the nearest named collection of Nannine.
GOODENIACEAE	<i>Goodenia triodiophila</i>	Jack Hills Section	Widespread throughout W.A. A few records in Murchison.	A large range extension of approximately 240 km to the west-north west of the nearest named collection of Joyner's Find.
PROTEACEAE	<i>Grevillea haplantha</i>	Wandina Section	Avon Wheatbelt.	A large range extension of approximately 450 km to the north-west of the nearest named collection of Merredin
AIZOACEAE	<i>Gunniopsis glabra</i>	Wandina Section	Coolgardie, Avon Wheatbelt, Mallee and Yalgoo.	A range extension of approximately 150 km to the north of the nearest named collection of Mount Narryer.
AIZOACEAE	<i>Gunniopsis intermedia</i>	Freehold	Avon Wheatbelt, Mallee, Coolgardie and two records from southern Murchison.	A range extension of approximately 240 km to the north of the nearest named collection north of Jibberding.
DILLENIACEAE	<i>Hibbertia glomerata</i>	Freehold	Avon Wheatbelt, Jarrah Forest, Swan Coastal Plain and Warren.	A large range extension of approximately 430 km to the north of the nearest named collection of Alcoa-DEC study site west of Admiral Road.
FABACEAE	<i>Indigofera gilesii</i> subsp. <i>gilesii</i> (Priority 3)	Murgoo Section	Pilbara.	A large range extension of approximately 600 km to the north-east of the nearest named collection of Ophthalmia Range.
PROTEACEAE	<i>Isopogon teretifolius</i>	Freehold	Geraldton Sandplains, Avon Wheatbelt, Jarrah Forrest, Swan Coastal Plain, Mallee and Esperance Plains.	A range extension of approximately 180 km to the north of the nearest named collection of Warradarge.
MYRTACEAE	<i>Melaleuca tuberculata</i>	Freehold	Geraldton Sandplains, Avon Wheatbelt, Jarrah Forrest, Swan Coastal Plain, Mallee and Esperance Plains.	A range extension of approximately 170 km to the north of the nearest named collection of Alexander - Morrisson National Park.
RUTACEAE	<i>Philotheca brucei</i> subsp. <i>brevifolia</i>	Wandina Section	Murchison and Yalgoo.	A range extension of approximately 200 km to the north-west of the nearest named collection of Charles Darwin Reserve.
THYMELAEACEAE	<i>Pimelea subvillifera</i>	Freehold	Murchison, Coolgardie, Great Victoria Desert, Yalgoo and Esperance Plains.	A large range extension of approximately 300 km to the east-south east of the nearest named location of Paynes Find.

Family	Taxa	Approximate Location in Study Area	Bioregional Distribution	Range Extension Details
ASTERACEAE	<i>Pluchea rubelliflora</i>	Freehold	Widespread throughout Northern Half of W.A. Small number of records for Murchison and Yalgoo. No records for Avon Wheatbelt and Geraldton Sandplains.	A range extension of approximately 100 km to the south-west south of the nearest named collection of Galena Bridge along the Murchison River.
ASTERACEAE	<i>Rhodanthe sterilescens</i>	Freehold	Scattered throughout Murchison and Gascoyne. Records from Pilbara, Little Sandy Desert and couple records from Avon Wheatbelt.	A range extension of approximately 215 km to the south-west of the nearest named collection of Walga Rock.
LAMIACEAE	<i>Spartothamnella teucriflora</i>	Freehold	Widespread throughout Murchison and Carnarvon. Records also for Yalgoo, Gascoyne, Central Ranges, Gibson Desert and Great Victoria Desert.	A range extension of approximately 110 km to the west of the nearest named collection of Buddadoo Range.
STYLIDIACEAE	<i>Stylidium arenicola</i>	Jack Hills	Coolgardie, Avon Wheatbelt and small number of collections in south-eastern corner of the Murchison.	A large range extension of approximately 500 km to the north-west of the nearest named collection at Walling Rock Homestead.
STYLIDIACEAE	<i>Stylidium bulbiferum</i>	Freehold	Avon Wheatbelt, Jarrah Forest and Swan Coastal Plain.	A large range extension of approximately 380 km to the north of the nearest named collection of Yanchep.
FABACEAE	<i>Swainsona oroboides</i>	Murgoo Section	Widespread throughout W.A. Coolgardie, Central Ranges, Gascoyne, Gibson Desert, Great Victoria Desert, Murchison, Pilbara and Yalgoo.	A range extension of approximately 150 km to the south-east of the nearest named location of Burnerbinmah Station.

### 5.3.8 Other Flora of Interest Recorded in the Study Area

Two species of interest: *Acacia* aff. *rhodophloia* and *Philotheca* sp. nov. (aff. *tubiflora*), were recorded during the first phase and these are described below.

#### ***Acacia* aff. *rhodophloia* [P 59] (FABACEAE) - Species of Interest**

This species is similar to *Acacia rhodophloia*, but has been poorly collected previously and appears to represent a unique taxon (B Maslin 2009, pers. comm.) (Plate 5.6). The phyllode and general inflorescence characters are similar to *Acacia rhodophloia*, but it is a tree rather than a shrub, and grows to around 8 m high. It has a grey, flaky bark stocking 1 to 2 m from the base and red mini-ritchie bark above (similar to *Acacia cyperophylla*).

It grows as a tree on and surrounding granite outcrops located (approximately) between Meka and Twin Peaks stations (but it is possibly more widespread).

Further work is required to fully determine the taxonomic status of this apparently undescribed species. Flowering and fruiting material is needed to be able to fully describe the taxon.



Plate 5.6 – *Acacia* aff. *rhodophloia* (photography: ecologia)

#### ***Philotheca* sp. nov. (aff. *tubiflora*) (RUTACEAE) - Species of Interest**

*Philotheca* sp. nov. (aff. *tubiflora*) is a shrub that grows to 0.5 m tall. The stems have minute hairs (bristles) which are often bent downwards (retorse) (Plate 5.7). The leaves usually grow on the ends of branchlets, are small (approximately 1 mm long), club-shaped and sometimes have bristles along their margins. When crushed the leaves smell of citrus and creosote. No flowers or fruits were on the specimens collected.

This taxon was found on lateritic and granite breakaways north of Weld Range. It resembles *Philotheca tubiflora*, a shrubby species that is restricted to the Laverton area; however, the leaves differ in that they are semi-circular and much bigger than *P. tubiflora*'s (approximately 3 mm long).



Plate 5.7 – *Philotheca* aff. *tubiflora* (photography: *ecologia*)

Two additional species of interest; *Eremophila* aff. *forrestii* and *Acacia* aff. *incongesta*, were recorded during the transect survey and their coordinates are listed in Table G.2 (Appendix G).

#### 5.4 INTRODUCED FLORA

Two hundred and eighty three species of weeds are currently known to occur in the Geraldton Sandplains regions, 73 in the Yalgoo region and 104 in the Murchison region (WAHERB, January 2010).

Sixty-two introduced flora taxa (weeds) were recorded within the Study Area at 466 locations: 51 weed species were recorded at 423 locations within the Freehold land area and 15 weed species were recorded from 43 locations within the Pastoral land area. Four of these species were recorded in both areas.

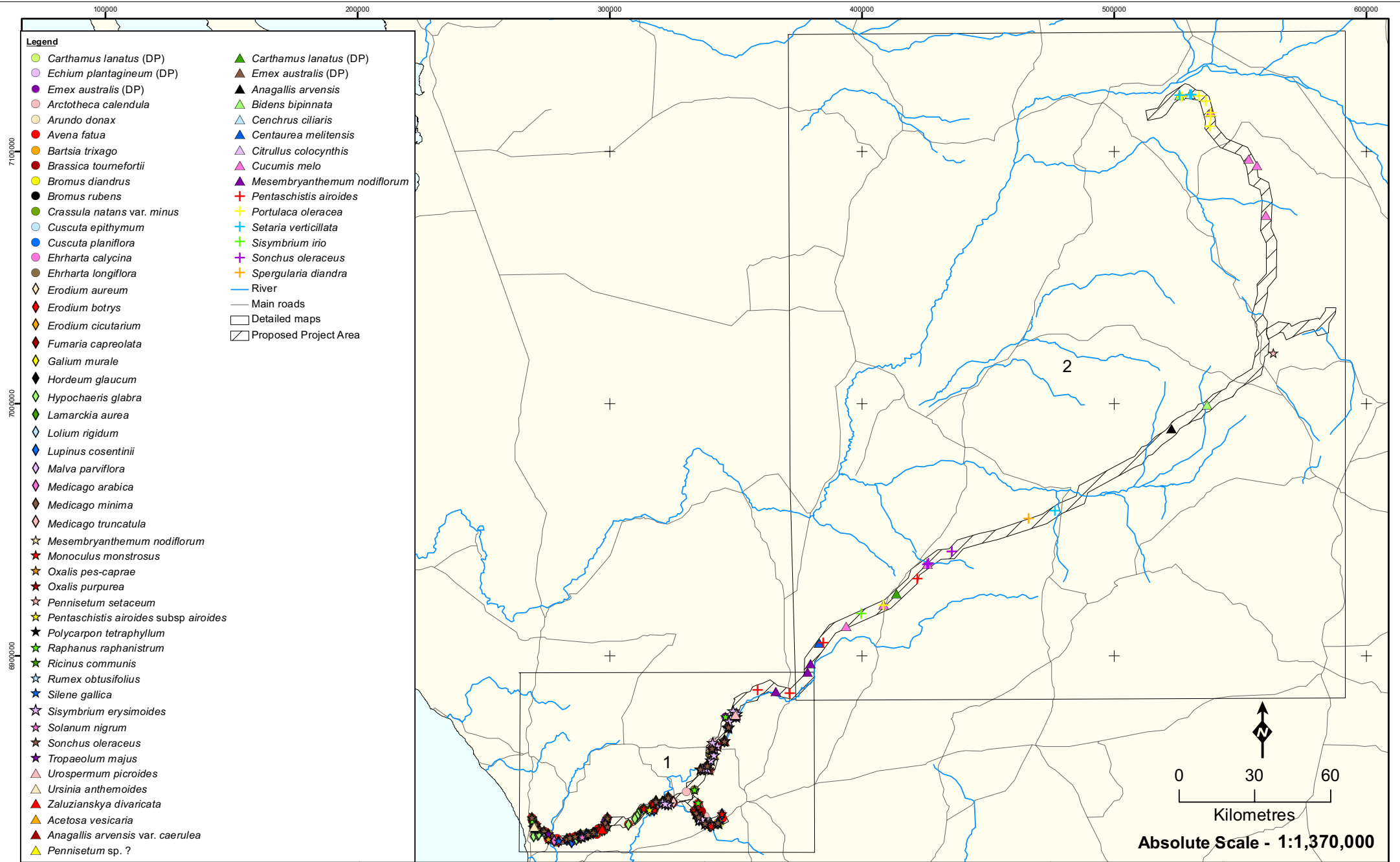
The list of weeds and numbers recorded during in the Study Area are listed in Table 5.11, have been mapped in Figure 5.4 to Figure 5.6 and the coordinates are listed in Table N.1, Appendix N.






Table 5.11 – Introduced Flora Taxa Recorded in the Study Area

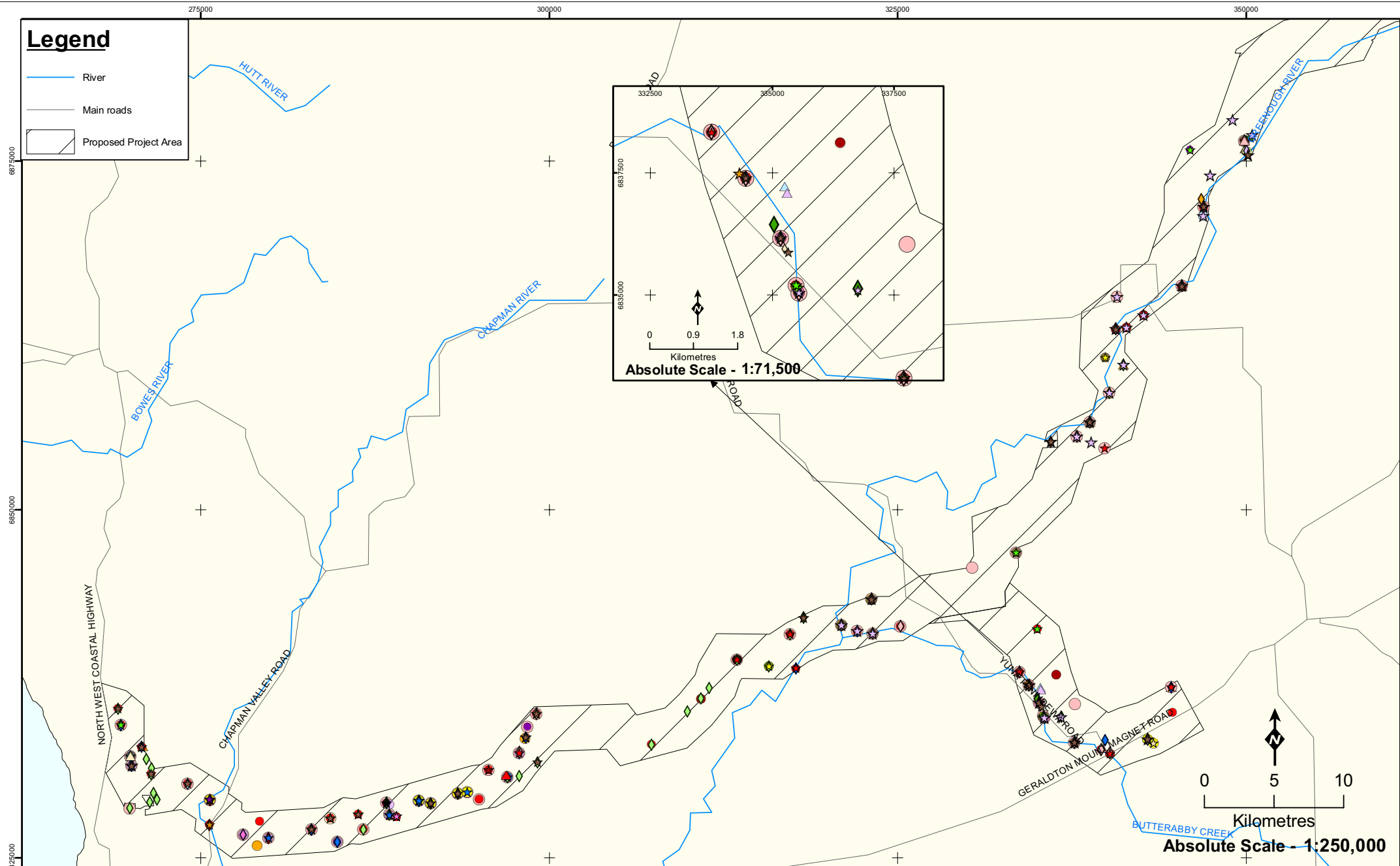
Taxa	Freehold Records	Pastoral Records	Taxa	Freehold Records	Pastoral Records	Taxa	Freehold Records	Pastoral Records
?* <i>Pennisetum</i> sp.	1	-	* <i>Erodium aureum</i>	1	-	* <i>Ricinus communis</i>	3	-
* <i>Acetosa vesicaria</i>	7	-	* <i>Erodium botrys</i>	2	-	* <i>Rumex obtusifolius</i>	1	-
* <i>Anagallis arvensis</i>	-	1	* <i>Erodium cicutarium</i>	2	-	* <i>Setaria verticillata</i>	-	4
* <i>Anagallis arvensis</i> var. <i>caerulea</i>	1	-	* <i>Fumaria capreolata</i>	2	-	* <i>Silene gallica</i>	7	-
* <i>Arctotheca calendula</i>	48	-	* <i>Galium murale</i>	2	-	* <i>Sisymbrium erysimoides</i>	29	-
* <i>Arundo donax</i>	1	-	* <i>Hordeum glaucum</i>	15	-	* <i>Sisymbrium irio</i>	-	1
* <i>Avena fatua</i>	53	-	* <i>Hypochaeris glabra</i>	29	-	* <i>Solanum nigrum</i>	3	-
* <i>Bartsia trixago</i>	2	-	* <i>Lamarckia aurea</i>	5	-	* <i>Sonchus oleraceus</i>	30	3
* <i>Bidens bipinnata</i>	-	3	* <i>Lolium rigidum</i>	1	-	* <i>Spergularia diandra</i>	-	1
* <i>Brassica tournefortii</i>	11	-	* <i>Lupinus cosentinii</i>	17	-	* <i>Tropaeolum majus</i>	1	-
* <i>Bromus diandrus</i>	10	-	* <i>Malva parviflora</i>	1	-	* <i>Urospermum picroides</i>	1	-
* <i>Bromus rubens</i>	2	-	* <i>Medicago arabica</i>	1	-	* <i>Ursinia anthemoides</i>	1	-
* <b>Carthamus lanatus (DP)</b>	1	2	* <i>Medicago minima</i>	1	-	* <i>Zaluzianskya divaricata</i>	1	-
* <i>Cenchrus ciliaris</i>	-	2	* <i>Medicago truncatula</i>	20	-	* <i>Ricinus communis</i>	3	-
* <i>Centaurea melitensis</i>	-	1	* <i>Mesembryanthemum nodiflorum</i>	2	3			
* <i>Citrullus colocynthis</i>	-	1	* <i>Monoculus monstrosus</i>	28	-			
* <i>Crassula natans</i> var. <i>minus</i>	2	-	* <i>Oxalis pes-caprae</i>	10	-			
* <i>Cucumis melo</i>	-	7	* <i>Oxalis purpurea</i>	3	-			
* <i>Cuscuta epithymum</i>	1	-	* <i>Pennisetum setaceum</i>	1	-			
* <i>Cuscuta planiflora</i>	2	-	* <i>Pentaschistis airoides</i>	-	5			
* <b>Echium plantagineum (DP)</b>	8	-	* <i>Pentaschistis airoides</i> subsp. <i>airoides</i>	5	-			
* <i>Ehrharta calycina</i>	2	-	* <i>Polycarpon tetraphyllum</i>	1	-			
* <i>Ehrharta longiflora</i>	9	-	* <i>Portulaca oleracea</i>	-	8			
* <b>Emex australis (DP)</b>	4	1	* <i>Raphanus raphanistrum</i>	29	-			

Note: \* indicates weed species and DP indicates a Declared Plant.



**Legend**

-  River
-  Main roads
-  Proposed Project Area






**Introduced Flora  
of the Study Area  
(Map 1)**

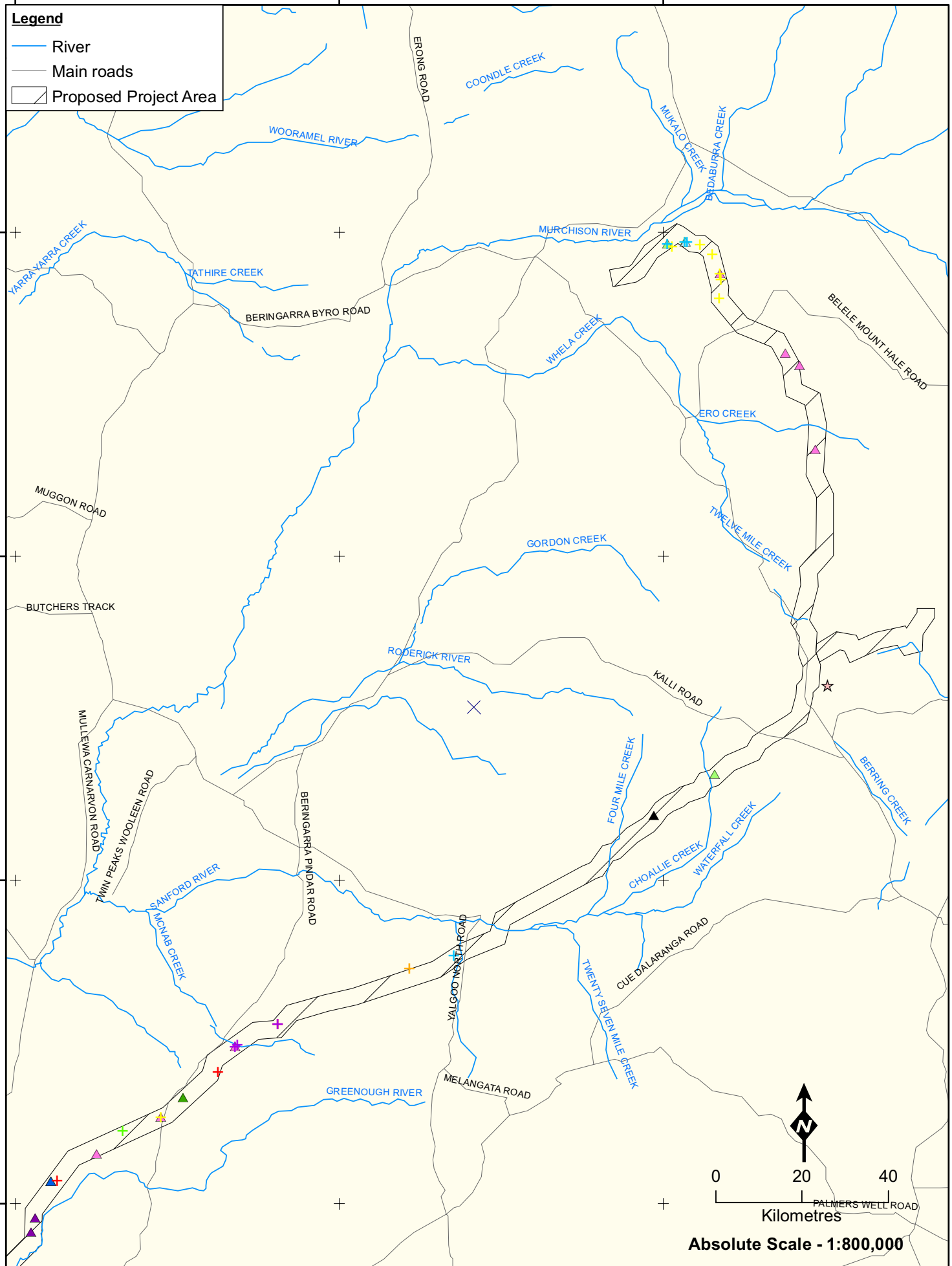
**Figure: 5.5**  
**Project ID: 1131**

**Drawn: AH**  
**Date: 20/01/2010**

*Coordinate System*  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A110

- Legend**
-  River
  -  Main roads
  -  Proposed Project Area



**Absolute Scale - 1:800,000**



**Introduced Flora  
of the Study Area  
(Map 2)**

**Figure: 5.6**  
**Project ID: 1131**

**Drawn: AH**  
**Date: 20/01/10**

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A111

### 5.4.1 Declared Plants

Weeds that are, or have the potential to become, pests to agriculture can be declared formally under the *Agriculture and Related Resources Protection Act 1976 (ARRP Act)* as declared plants. Weeds listed under this Act are listed with Standard Control Codes that outline the requirements for their control. Five priority groupings exist (P1, P2, P3, P4 or P5) and more than one priority may be assigned to a weed species, and different municipal districts can use different priority levels. Details of these codes are included in Table O.1 (Appendix I). Landholders having declared plants on their property are obliged to control them at their own expense, and are encouraged to follow the standard control codes. Information regarding the status of Declared Plants can be viewed at the Department of Agriculture and Food’s (DAF) website:

<http://agspsrv95.agric.wa.gov.au/dps/version02/01plantsearch.asp>.

A search was conducted of the Declared Plants listed under the *ARRP Act* (DAF, January 2010) for any Declared Plants that potentially could be found in the Geraldton, Mullewa and Cue regions. The search listed 82 Declared Plants for each region, 81 of which are Declared Plants State-wide.

Three Declared Plants listed under the *ARRP Act* were recorded during the survey, the biological characteristics, known distributions and photographs of *\*Carthamus lanatus*, *\*Echium plantagineum* and *\*Emex australis* are provided below. Locations are provided in Table N.1, Appendix N and are mapped in Figure 5.4 to Figure 5.6.

#### **\**Carthamus lanatus* (ASTERACEAE) – Declared Plant**

*\*Carthamus lanatus* (Saffron Thistle) is an erect, spiny annual growing to 70 cm in height (WAHERB, December 2009). The leaves are rigid and have spiny lobes, and the yellow flower heads (produced from spring to summer) are surrounded by spiny bracts and are borne in terminal clusters (Plate 5.8). Originating from southern Europe, it is now distributed in Western Australia from the south coast to Geraldton, and inland to Kalgoorlie (Hussey *et al.*, 2007). This species was recorded twice in the Pastoral land area and once in the Freehold land area.

*\*Carthamus lanatus* is listed as a Priority 1 Declared Plant in Western Australia, which prohibits the movement of plants or their seeds within the State. It is also listed as a Priority 4 weed in the Murchison region; this listing aims to prevent the infestation spreading beyond existing boundaries (DAF, 2009). The Priority 4 requirements state that the infested area must be managed in such a way as to prevent the spread of seeds or plant parts within and from the property.



**Plate 5.8 – *\*Carthamus lanatus***

(Photography by S. Williamson & R. Knox. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<http://florabase.dec.wa.gov.au/help/copyright>). Accessed on Saturday, 5 December 2009).

**\**Echium plantagineum* (POLYGONACEAE) – Declared Plant**

\**Echium plantagineum* (Paterson’s Curse) is an erect, bristly annual, growing to 0.1 m to 0.6 m in height (WAHERB, December 2009). The numerous flowers are produced from September to January and are generally blue or purple, but can also be pink and white. The deep-veined, hairy and broad leaves form rosettes, and in late winter to spring a branched shoot system forms which carries the flowers (Plate 5.9). Originating from southern Europe, it is now widely distributed throughout agricultural land in south-west Australia particularly in the Geraldton Sandplains, Avon Wheatbelt and Swan Coastal Plain Bioregions (Hussey *et al.*, 2007). This species was recorded at seven locations in the Freehold land area.

\**Echium plantagineum* is listed as a Priority 1 Declared Plant in Western Australia and this prohibits the movement of plants or their seeds within the State. It is also listed as a Priority 3 and Priority 4 weed in the wheatbelt, and these listings respectively aim to control an infestation by reducing the area and/or density of the infestation and to prevent the infestation from spreading beyond the existing boundaries of the infestation (DAF, December 2009). The Priority 3 and Priority 4 requirements state that the infested area must be managed in such a way as to prevent the spread of seeds or plant parts within and from the property. .



**Plate 5.9 – \**Echium plantagineum***

(Photography by J. Dodd & R. Knox. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<http://florabase.dec.wa.gov.au/help/copyright>). Accessed on Saturday, 5 December 2009).

**\**Emex australis* (BORAGINACEAE) – Declared Plant**

\**Emex australis* (Doublegee) is a hairless, prostrate annual plant, growing to 0.1 m to 0.6 m in height (WAHERB, December 2009). The green flowers are produced in winter as clusters in the leaf axils. The woody fruit has three rigid spines and the leaves are ovate (Plate 5.10). Originating from South Africa, it is now widely distributed throughout agricultural and waste land in south-west Australia particularly in the Geraldton Sandplains and Avon Wheatbelt (Hussey *et al.*, 2007; WAHERB, December 2009). This species was recorded at seven locations in the Freehold land area.

\**Emex australis* is listed as a Priority 1 Declared Plant in certain regions in the south-west of Western Australia, which prohibits the movement of plants or their seeds within those regions. It is also listed as a Priority 3 and Priority 4 weed, and these listings respectively aim to control an infestation by reducing the area and/or density of the infestation and to prevent the infestation from spreading beyond the existing boundaries of the infestation (DAF, December 2009). The Priority 3 and 4 requirements state that the infested area must be managed in such a way as to prevent the spread of

seeds or plant parts within and from the property. The Priority 5 requirements state that infestations on public land must be controlled.



**Plate 5.10 – \*Emex australis**

(Photography by J. Dodd, R. Knox & Anon. Image used with the permission of the Western Australian Herbarium, Department of Environment and Conservation (<http://florabase.dec.wa.gov.au/help/copyright>). Accessed on Saturday, 5 December 2009).

#### 5.4.2 Weeds of National Significance

The Australian Weeds Strategy (Australian Weeds Committee, 2006) defines a weed as “a plant that requires some form of action to reduce the harmful effects on the economy, the environment, human health and amenity”. Weeds that have proliferated in bushland without direct human intervention or assistance are also referred to as naturalised alien species.

The Weed Plan for Western Australia (State Weed Plan Steering Group, 2001) outlines 20 Weeds of National Significance. None of these species were recorded in the Study Area.

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## 6 SURVEY LIMITATIONS AND CONSTRAINTS

According to the EPA Guidance Statement for Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA, 2004a), vegetation and flora surveys may be constrained by several aspects.

- Scope (i.e. the influence in terms of reference, such as what life forms etc. were sampled);
- Proportion of flora collected and identified (based on sampling, timing and intensity);
- Sources of information (i.e. pre-existing background versus new material);
- The proportion of the task achieved and further work which might be needed;
- Timing, weather, season and cycle;
- Disturbances (e.g. fire, flood, accidental human intervention, etc.);
- Intensity (i.e. in retrospect, was the intensity adequate?);
- Completeness (e.g. was the relevant area fully surveyed?);
- Resources (e.g. degree of expertise available in plant identification to taxon level);
- Access problems;
- Availability of contextual information; and
- Experience levels.

These constraints are addressed with regards to the Study Area in Table 6.1 overleaf.

**Table 6.1 – Survey Limitations and Constraints**

Aspect	Constraint	Comment
Sources of information and availability of contextual information (i.e. pre-existing background versus new material)	Negligible	Beard (1976) and Beard & Burn’s (1976) mapped the vegetation of the Study Area at a scale of 1:000,000 and 1:250,000 respectively, however, at this scale the mapping is not very detailed. More recently the land systems (Curry <i>et al.</i> , 1994; Payne <i>et al.</i> , 1998) and soil-landscape systems (Rogers, 1996) have been mapped and these provide a good source of regional information. Other surveys that have been conducted close to the Study Area include EIA surveys at Weld Range, Jack Hills, Oakajee Port and Central Talling Land System (Section 2.8); however, these surveys have focused on landforms that are not common along the Study Area. Large sections of the Study Area have not been surveyed in detail before, and this report provides baseline vegetation and flora information on these areas.
The scope (i.e. what life forms were sampled)	None	The vascular flora of the Study Area was sampled. The survey scope was prepared in consultation with the relevant government agencies (via OPR), and was designed to comply with EPA requirements.
Proportion of flora collected and identified (based on sampling, timing and intensity)	None	6,864 specimens were collected during the survey of the Study Area (3430 specimens were collected from the Pastoral section and 2199 from the Freehold section during the quadrat survey, with a further 1,235 collected during the threatened flora survey) and the following identifications were made from these specimens. Taxa identified to species, subspecies and variety: 1016, of these 220 (21.7%) were annuals. Identified to family only: 8, Identified to genus only: 52. A species accumulation curve analysis indicates 110% of the total flora was recorded in the Freehold land area and 98% in the Pastoral land area.
Completeness and further work which might be needed (e.g. was the relevant area fully surveyed)	Moderate	Aerial photographs were used to select quadrat locations. This ensured that all areas displaying potentially different or unique vegetation units were visited during the survey. In addition, the botanists undertaking the survey ground-truthed the vegetation associations occurring in the sites chosen from the aerial photographs, and added or removed sites depending on the vegetation encountered while traversing the Study Area. Given the length and width of the Study Area, and that the quadrats were targeted in the vegetation units along the centreline, it is likely that small uncommon vegetation units, indistinguishable from aerial photography, and occurring away from the proposed alignment will not have been sampled. The Study Area incorporates some of the hilly areas at both Weld Range and Jack Hills. The vegetation units in these areas are probably more diverse than what has been mapped, but as the rail is unlikely to impact the hills, quadrats were not focused in these areas making it difficult to accurately map them. However, these areas have been intensely surveyed and mapped by other EIA surveys carried out by the respective mine proponents.
Mapping reliability	Negligible	Good aerial imagery was used to select sites and to reliably map the vegetation of most of the Study Area. However, aerial imagery available for a 40 km section of the Study Area through Yuin station was of poor quality and the mapping reliability will be slightly lower in this section. One quadrat per linear kilometre was pre selected before each field survey. This number is believed to be adequate to determine the vegetation of the 4 km wide corridor in the Pastoral and 3.2 km wide corridor in the Freehold, as the vegetation is relatively uniform along most of the Study Area. The areas that were more diverse (e.g. Moresby Range and salt lake communities) were more intensely surveyed. Also, any uncommon vegetation communities, that were not visible on the aerial photographs, and that were encountered during the survey were opportunistically sampled.

Aspect	Constraint	Comment
Timing/weather/season / cycle	Negligible	<p>Rainfall recorded at Meekatharra in the six months preceding the phase one quadrat survey along Sections 1 and 2 in the Pastoral land area (June 2009) was 70 mm; this was 78.6 mm less than the long-term mean for the same six months. However, during 2008, 28% more rain than the long-term mean was recorded at Meekatharra Airport. Rainfall in the six months preceding the phase two transect survey for section 1 (September 2009) was 55.6 mm, 81.6 mm below the long-term mean for those months and section 2 (March, 2010) was 21.8 mm, 100.4 mm below the long term average.</p> <p>Rainfall recorded at Mullewa in the six months preceding the phase one quadrat survey along Sections 2 and 4 in the Pastoral land area (April/May 2009) was 51.1 mm; this was 28.1 mm less than the long-term mean for the same six months. However, during 2008, 14% more rain than the long-term mean was recorded at Mullewa. Rainfall in the six months preceding the phase two transect survey for section 3 (September 2009) was 235.1 mm, 20.4 mm below the long-term mean for those months and section 4 (October, 2009) was 265.2 mm, 7.1 mm above the long-term mean for those months.</p> <p>Rainfall recorded at Geraldton Airport in the six months preceding the phase one quadrat survey along the Freehold section (Section 1, August 2009) was 251.4 mm; this is 62.5 mm less than the long-term mean for the same six months. During 2008, 22% less rain than the long-term mean was recorded at Geraldton Airport. Rainfall in the six months preceding the phase two transect survey for section 5 (October 2009) was 357.8 mm, 26.2 mm less the long-term mean for those months.</p>
Disturbances (e.g. fire, flood, accidental human intervention)	None	Farming has affected the condition of the vegetation in the Freehold section of the Study Area. Factors affecting the vegetation condition include; clearing of land, the introduction of weeds and the proliferation of species that are resistant to grazing and salinity. As a result, remnants in good condition were targeted in this section of the Study Area. Recent, low intensity and localised fires had occurred in small patches of vegetation. This did not affect the vegetation mapping, as nearby, unburnt patches of similar vegetation were surveyed.
Intensity (in retrospect, was the intensity adequate?)	None	Approximately one quadrat per 0.91 km was surveyed along the length of the Study Area (605 <i>ecologia</i> quadrats and 9 Weld Range quadrats over approximately 560 km). This was adequate to map the vegetation communities of the Study Area. During the second phase transect survey 1,250 km (2,364 ha) of transects were walked, equating to 1.05% of the total Study Area.
Resources	None	Resources were adequate for the botanical survey, as 141 person days were invested in the field during the quadrat surveys and 103 person days during the targeted threatened flora surveys.
Access problems	Moderate	<p>All sections of the Study Area were accessible on foot; however, some areas of the Moresby Range were very densely vegetated and they were impenetrable.</p> <p>One patch of remnant vegetation in the Freehold section of the Study Area could not be surveyed as the owners denied access to the property. While aerial photographs indicate that similar vegetation occurs in the quadrats surveyed close by, the actual species composition is not known.</p>
Experience levels (e.g. degree of expertise in plant identification to taxon level)	None	The field botanists on the surveys had between one and four years of experience in conducting botanical surveys of this type and in the Gascoyne and Murchison bioregions. Plant specimens were collected from each quadrat surveyed for verification by a plant taxonomist. The plant taxonomists have had between 2 and 15 years of experience of identifying the flora of Western Australia, and challenging specimens were identified with the help of experts at the Western Australian Herbarium. The project was overseen by the principle botanist with 19 years of experience in surveys of this kind.

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## 7 VEGETATION COMMUNITIES CONSERVATION ASSESSMENT

The significance of the vegetation of the Study Area has been assessed at four spatial scales; national, state, regional and local.

Conservation significance is being calculated for the whole Study Area. The actual impact from the proposed rail alignment will be discussed in a separate document in the OPR Rail Public Environmental Review.

### 7.1 VEGETATION OF NATIONAL SIGNIFICANCE

National significance refers to those features of the environment which are recognised under legislation as being of importance to the Australian community. TECs listed under the *EPBC Act* are regarded as nationally significant.

No TECs of national significance were recorded in the Study Area.

### 7.2 VEGETATION OF STATE SIGNIFICANCE

State significance refers to those features of the environment that are recognised under State legislation as being of importance to the Western Australian community, in particular, communities listed as PECs. Ecological communities with insufficient information available to be considered a TEC, or which are rare but not currently threatened, are placed on the Priority list and referred to as PECs; four Priority 1 state-listed PECs were recorded in the Study Area and are of state significance.

A Priority 1 PEC is defined as a poorly known ecological community with apparently few and small occurrences, with all or most not actively managed for conservation (e.g. within agricultural or Pastoral lands, urban areas and active mineral leases) and for which current threats exist. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range. The PECs recorded in the Study Area include:

1. Jack Hills vegetation complexes (Banded Ironstone Formation); associated with vegetation communities; Mh1, Mh2, Mh3, Mh4 and Mc3. These communities are restricted to Jack Hills and are significant.
2. Plant assemblages of the Moresby Range system; associated with vegetation communities; Gh1, Gh2 and Gh3. These communities are restricted to the Moresby Range and are significant.
3. Tallering Peak vegetation complexes; associated with vegetation communities Yh1 and Yp2. Yh1 is restricted to the Tallering land system and is significant, whereas Yp2 is more widespread in the local area and is not significant.
4. Weld Range vegetation complexes (Banded Ironstone Formation); associated with vegetation communities; Mh5, Mh6, Mh7, Mh8, Mc3 and Mc4. These communities were restricted to the Weld Range and are significant.

### 7.3 VEGETATION OF REGIONAL SIGNIFICANCE

Regional significance addresses the representation of species and habitats at a biogeographic regional level. Species or habitat types that are endemic to the Geraldton Sandplains, Yalgoo and Murchison bioregions and whose distributions are limited or unknown are considered regionally significant.

Regional conservation significance of the vegetation communities of the Study Area has been assessed based upon two sources of information; land systems and Beards vegetation mapping of the Study Area. These are the only wide scale mapping projects that have been carried out in Western Australia and are a means of determining regional significance.

#### 7.3.1 Land System and Soil-Landscape System Analysis

The Study Area has been mapped into 30 land systems and 10 soil-landscape systems. As the vegetation communities, though not always restricted to, are associated with certain land systems, the extent of each in Western Australia gives a reasonably accurate measure to determine vegetation communities that are not widespread and are therefore significant in the Study Area.

In the discussion below, a density of number of Priority Flora records is provided as a means to compare the number of records of each Priority Flora taxon between each system to determine if it is significant habitat for these species. High numbers of Priority Flora counts are often seen in large systems only because it covers a large area and not because it provides suitable habitat and providing a density shows if a large system is significant or not. For every Priority Flora taxon listed below, a percentage is given to represent the percent of the total records for each Priority Flora taxon in each system e.g. a percentage of 80% indicates that 80% of the records for that taxon occurred in that particular system. Only *ecologia* records are used in this section and one record means one GPS location. A matrix showing which Priority Flora taxa were recorded in each system is provided in Table P.1, Appendix P and a summary table for each land system is provided in Table 7.1.

In summary; systems that are considered significant because they have a low regional distribution and have a large area of the total system in the Study Area include; the Millex, Tallering, Weld, Yarrameedie and Yewin land systems and the Binnu, Casuarina, Dartmoor, Eradu, Greenough, Moresby and Northampton soil-landscape systems.

Systems considered significant because they provide significant habitat for Priority Flora include; the Kalli (18.8% of Priority Flora at 1 record / 50.1 ha), Moresby (15% of Priority Flora at 1 record / 8.3 ha), Northampton (14% of Priority Flora at 1 record / 19.9 ha), Yanganoo (7.5% of Priority Flora at 1 record / 276.9 ha) and Sherwood (7.06% of Priority Flora at 1 record / 79.6 ha).

### **Soil-landscape System Analysis**

The soil-landscape systems are mapped in the Freehold land area only. All of these systems are significant as they have largely been cleared for agriculture and most of the native vegetation remains as small patches of remnant bushland.

**Binnu** is a small to moderate and fairly restricted soil-landscape system characterised by gently undulating yellow sandplains with numerous dune ridges and has 6.44% of its total area in the Study Area. A large area of the Binnu system is mapped to the eastern end of the Freehold, making up 3.97% or 8,947 ha of the Study Area, however of this total only 16.8% is native vegetation and the rest has been cleared. Thirteen Priority Flora taxa, including: *Acacia lineolata* subsp. *multilineata* (100%), *Mirbelia ternata* (67%), *Scholtzia* sp. Binnu (M.E. Trudgen 2218) (100%), *Thryptomene* sp. Wandana (M.E. Trudgen MET 22016) (67%), *Homalocalyx inerrabundus* (100%), *Scholtzia* sp. East Yuna (A.C. Burns 6) (75%), *Thryptomene* sp. East Yuna (J.W. Green 4639) (50%), *Acacia leptospermoides* subsp. *psammophila* (50%), *Acacia speckii* (1%), *Acacia subsessilis* (24%), *Calytrix formosa* (50%), *Jacksonia velutina* (100%) and *Verticordia capillaris* (96%) were recorded. The Binnu system contained a significant 5.1% of the total Priority Flora (1 record per 86 ha), which was a high density in the system. Binnu is associated with vegetation communities; Gy2 and Gp2.

**Casuarina** is a small and restricted soil-landscape system characterised by a level to gently undulating grey to pale brown sandplain and has 0.61% of its total area in the Study Area. Scattered small patches of the Casuarina system are mapped in the centre of the Freehold, making up 0.19% or 430 ha of the Study Area, however of this total 2.3% is native vegetation and the rest has been cleared. No Priority Flora was recorded. Casuarina is associated with vegetation community; Gp1.

**Dartmoor** is a small to moderate and fairly restricted soil-landscape system characterised by an undulating drainage network and has 13.63% of its total area in the Study Area. Large areas of the Dartmoor system are mapped towards the east of the Freehold land area, making up 6.9% or 15,678 ha of the Study Area, however of this total 19.1% is native vegetation and the rest has been cleared. Eleven Priority Flora taxa, including; *Mirbelia ternata* (33%), *Thryptomene* sp. Wandana (M.E. Trudgen MET 22016) (33%), *Frankenia confusa* (29%), *Thryptomene* sp. East Yuna (J.W. Green 4639) (50%), *Acacia leptospermoides* subsp. *psammophila* (50%), *Acacia subsessilis* (41%), *Calytrix formosa* (50%), *Grevillea triloba* (1%), *Microcorys tenuifolia* (100%), *Ptilotus beardii* (2%) and *Verticordia capillaris* (4%) were recorded. The Dartmoor system contained 1.4% of the total Priority Flora (1 record per 560 ha) which was a low density in the system. Dartmoor is associated with vegetation communities; Gp1, Gf1 and Gf2.

**Eradu** is a small to moderate and fairly restricted soil-landscape system characterised by level to gently undulating sand plains and has 4.95% of its total area in the Study Area. A large section in the middle of the Freehold is mapped as the Eradu system, making up 3.19% or 7,183 ha of the Study Area, however of this total 7% is native vegetation and the rest has been cleared. One Priority Flora taxon; *Verticordia chrysostachys* var. *pallida* (100%) was recorded. The Eradu system contained 0.2% of the total Priority Flora (1 record per 1437 ha), which was a low density over the system. Eradu is associated with vegetation community; Gy1.

**Greenough** is a very small and restricted soil-landscape system characterised by the river beds and alluvial flats of the Greenough River and has a significant 25.7% of its total area in the Study Area. The Greenough system loosely follows the Study Area corridor and crosses back and forth a number of times in the Freehold, making up 2.05% or 4,620 ha of the Study Area, however of this total 42% is native vegetation and the rest has been cleared. Three Priority Flora taxa, including; *Scholtzia* sp.

East Yuna (A.C. Burns 6) (25%), *Acacia subsessilis* (12%) and *Eremophila muelleriana* (19%) were recorded. The Greenough system contained 2% of the total Priority Flora (1 record per 115 ha) which was a high density in the system. Greenough is associated with vegetation communities; Gp1 and Gc1.

**Moresby** is a very small and restricted soil-landscape system characterised by flat topped ranges and isolated mesas and it has a significant 8.03% of its total area in the Study Area. The Moresby system is mapped in one large area at the western end of the Freehold, making up 0.95% or 2,144 ha of the Study Area, however of this total 33% is native vegetation and the rest has been cleared. The footslopes and tops of some of the larger mesas have been cleared for crop and the steeper sides are commonly un-cleared. One endangered DRF taxon: *Caladenia hoffmanii* (100%), one vulnerable, Priority 4 taxon; *Eucalyptus blaxellii* (58%) and 12 Priority Flora taxa, including; *Lepidosperma* sp. Moresby Range (R.J. Cranfield 2751) (39%), *Melaleuca huttensis* (100%), *Leucopogon borealis* (100%), *Leucopogon* sp. Howatharra (D. & N. McFarland 1046) (100%), *Thryptomene stenophylla* (50%), *Acanthocarpus parviflorus* (17%), *Grevillea triloba* (45%), *Serichonus gracilipes* (100%), *Thryptomene* sp. Moresby Range (A.S. George 14873) (100%), *Acacia guinetii* (100%), *Diuris recurva* (100%) and *Verticordia penicillaris* (25%) were recorded. The Moresby system contained 12.6% of the total Priority Flora (1 record per 8 ha), which was the highest density for a system in the Study Area. Moresby is associated with vegetation communities; Gh1, Gh2, Gh3 and Gp1.

**Mt Horner** is a very small and restricted soil-landscape system characterised by lateritic breakaways with spillway sands and has 1.34% of its total area in the Study Area. The Mount Horner system is mapped in a small area in the middle of the Freehold making up 0.18% or 395 ha of the Study Area, however of this total 45.8% is native vegetation and the rest has been cleared. No Priority Flora was recorded. Mt Horner is associated with vegetation community; Gp1.

**Northampton** is a small and restricted soil-landscape system characterised by narrow valleys, low rolling rises and hills, with an integrated drainage pattern and has 5.73% of its total area in the Study Area. A large section of the Northampton system is mapped at the western edge of the Freehold, making up 2.12% or 4,780 ha of the Study Area, however of this total 20% is native vegetation and the rest has been cleared for agriculture, with native vegetation only left on the steeper slopes of the drainage lines. One vulnerable, Priority 4 taxon; *Eucalyptus blaxellii* (42%) and eight Priority Flora taxa, including; *Lepidosperma* sp. Moresby Range (R.J. Cranfield 2751) (61%), *Thryptomene stenophylla* (50%), *Acanthocarpus parviflorus* (83%), *Blackallia nudiflora* (100%), *Geleznovia verrucosa* subsp. Kalbarri (L.M. Broadhurst 123) (100%), *Grevillea triloba* (53%), *Verticordia densiflora* var. *roseostella* (100%) and *Verticordia penicillaris* (75%) were recorded. The Northampton system contained 11.8% of the total Priority Flora (1 record per 20 ha), which was the second highest density for a system in the Study Area. Northampton is associated with vegetation communities; Gp1 and Gc2.

**Sugarloaf** is a small and restricted soil-landscape system characterised by undulating rolling rises and has 3.51% of its total area in the Study Area. An area of the Sugarloaf system is mapped to the east of the Moresby Ranges, making up 0.90% or 2,021 ha of the Study Area, however of this total 16.5% is native vegetation and the rest has been cleared. No Priority Flora was recorded. Sugarloaf is associated with vegetation community; Gp1.

**Tamala** is a very small and restricted soil-landscape system characterised by low limestone hills that run parallel to the coast and has <0.01% of its total area in the Study Area. A small area of the Tamala system is mapped on the far western boundary of the Study Area. This is a very insignificant amount (0.15 ha) and does not relate to the conservation significance of the Study Area. The



conservation significance of the Tamala system is discussed in the Oakajee Port Vegetation and Flora survey.

### Land System Analysis

**Belele** is a large, widespread land system characterised by hardpan wash plains and sandy banks and has 0.75% of its total area occurring within the Study Area. Two patches of the Belele system are mapped immediately south of Jack Hills making up 1.93% or 4,352 ha of the Study Area. Four Priority Flora taxa including; *Euphorbia sarcostemmoides* (27%), *Calytrix verruculosa* (73%), *Hemigenia tysonii* (7%) and *Hemigenia virescens* (5%) were recorded. Belele contained 4.6% of the total Priority Flora (1 record per 46 ha), which was a high density in the system. The Belele system has 1% of the total area classified as severely degraded and eroded. Belele is associated with vegetation communities; Mr1 and Mc5.

**Beringarra** is a small to moderate, averagely widespread land system characterised by major riverine plains and floodplains with 0.54% of its total area occurring within the Study Area. One small area of the Beringarra system is mapped at Jack Hills and another small area is mapped south of Weld Range, making up 0.63% or 1,422 ha of the Study Area. One Priority Flora taxon; *Eremophila arachnoides* subsp. *arachnoides* (75%) was recorded. Beringarra contained 0.1% of the total Priority Flora (1 record per 474 ha), which was a very low density in the system. The Beringarra system is the most degraded system in the Pastoral land area, with 27% of its total area classified as severely degraded and eroded. Beringarra is associated with vegetation communities; Yf3 and Mc1.

**Challenge** is a very large, widespread land system characterised by sandy plains, granite outcrops and minor breakaways and has 1.7% of its total area occurring within the Study Area. Many patchy areas of the Challenge system were mapped south of Weld Range, making up 7.63% or 17,211 ha, the third largest system in the Study Area. Eleven Priority Flora taxa, including; *Chamelaucium* sp. Yalgoo (Y. Chadwick 1816) (100%), *Euphorbia sarcostemmoides* (3%), *Petrophile vana* (44%), *Ptilotus luteolus* (27%), *Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94) (6%), *Acacia speckii* (18%), *Calytrix erosipetala* (30%), *Dodonaea amplisemina* (7%), *Eremophila muelleriana* (24%), *Petrophile pauciflora* (13%) and *Verticordia jamiesonii* (44%) were recorded. The Challenge system contained 5.6% of the total Priority Flora (1 record per 212.5 ha), which was a low density in the system. No areas in the Challenge system were classified as severely degraded and eroded. Challenge is associated with vegetation communities; Yh3, Yp6, Mh11, Mh17, Mh18, Mp9 and Mc6.

**Cunyu** is a moderate to large and widespread land system characterised by calcreted drainage zones and calcreted platforms with 0.47% of its total area occurring within the Study Area. One small patch of the Cunyu system was mapped at Weld Range, making up 0.69% or 1,545 ha of the Study Area. No Priority Flora was recorded. The Cunyu system has 1% of the total area classified as severely degraded and eroded. Cunyu is associated with vegetation community; Mp6.

**Ero** is small to moderate and restricted land system characterised by tributary floodplains on hardpan plains and has 1.82% of its total area occurring within the Study Area. Four small areas of the Ero land system were mapped from Jack Hills to south of Weld Range, making up 1.73% or 3,907 ha of the Study Area. Four Priority Flora taxa, including; *Euphorbia sarcostemmoides* (1%), *Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94) (6%), *Eremophila arachnoides* subsp. *arachnoides* (25%) and *Ptilotus beardii* (6%) were recorded. The Ero system contained 0.3% of the total Priority Flora (1 record per 651 ha), which was a very low density in the system. The Ero system has 13% of the total area classified as severely degraded and eroded, the second most degraded system in the Pastoral land area. Ero is associated with vegetation communities; Yf2, Yc2, Mp3, Mc5, Mc6 and Mc8.

**Flood** is a small to moderate and restricted land system characterised by hardpan wash plains and sand banks and has 1.8% of its total area occurring within the Study Area. One area of the Flood

system was mapped at Jack Hills making up 1.33% or 2,999 ha of the Study Area. One Priority taxon, *Euphorbia sarcostemmoides* (12%) was recorded. The Flood system contained 0.4% of the total Priority Flora (1 record per 333 ha), which was a low density in the system. No areas in the Flood system are classified as severely degraded and eroded. Flood is associated with vegetation community; Mc3

**Gabanintha** is a small to moderate and restricted land system characterised by volcanic ridges, hills and footslopes and has 1.07% of its total area occurring within the Study Area. Four small areas of the Gabanintha system were mapped from immediately south of Weld Range to near the Freehold land area making up 1.19% or 2,688 ha of the Study Area. Seven Priority Flora taxa, including; *Euphorbia sarcostemmoides* (4%), *Acacia speckii* (26%), *Acacia subsessilis* (6%), *Dodonaea amplisemina* (29%), *Grevillea stenostachya* (2%), *Hemigenia virescens* (3%) and *Grevillea inconspicua* (88%) were recorded. The Gabanintha system contained 5.6% of the total Priority Flora (1 record per 23 ha), which was a high density in the system. No areas in the Gabanintha system are classified as severely degraded and eroded. Gabanintha is associated with vegetation communities; Yh3, Mh15 and Mh16.

**Joseph** is a moderate to large and widespread land system characterised by undulating yellow sandplains and has 0.17% of its total area occurring within the Study Area. One small area of the Joseph system was mapped on the border of the Freehold land area, making up 0.36% or 809 ha of the Study Area. No Priority Flora was recorded. No areas in the Joseph system are classified as severely degraded and eroded. Joseph is associated with vegetation community; Yp3

**Jundee** is a large, widespread land system characterised by hardpan plains and ironstone gravel mantles and has 0.66% of its total area occurring within the Study Area. A few small patches of the Jundee system were mapped around Weld Range, making up 1.94% or 4,363 ha of the total Study Area. Five Priority Flora taxa, including; *Acacia speckii* (<0.1%), *Euphorbia sarcostemmoides* (9%), *Dodonaea amplisemina* (1%), *Hemigenia virescens* (17%) and *Hemigenia tysonii* (5%) were recorded. The Jundee system contained 2.5% of the total Priority Flora (1 record per 85 ha), which was a low density in the system. No areas in the Jundee system are classified as severely degraded and eroded. Jundee is associated with vegetation communities; Mp8 and Mc4.

**Kalli** is a very large and widespread land system characterised by red sandplains and has 1.44% of its total area occurring within the Study Area. Many patches of the Kalli system were mapped across the Murchison and Yalgoo bio-regions, making up 7.15% or 16,124 ha, the fourth most widespread system in the Study Area. Thirteen Priority Flora taxa, including; *Euphorbia sarcostemmoides* (8%), *Petrophile vana* (6%), *Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94) (72%), *Acacia subsessilis* (6%), *Calytrix erosipetala* (10%), *Dicrastylis linearifolia* (86%), *Eremophila muelleriana* (1%), *Grevillea stenostachya* (87%), *Hemigenia tysonii* (41%), *Hemigenia virescens* (38%), *Prostanthera petrophila* (81%), *Baekkea* sp. Melita Station (H. Pringle 2738) (38%) and *Goodenia berringbinensis* (33.3%) were recorded. The Kalli system contained 15.8% of the total Priority Flora (1 record per 50 ha), which was the highest density in any system in the Study Area. No areas in the Kalli system are classified as severely degraded and eroded. Ero is associated with vegetation communities; Yy1 and Mr2.

**Koonmarra** is a large, widespread land system characterised by stony quartzite plains and low rises and has 2.11% of its total area occurring in the Study Area. The Koonmarra system is mapped south of Jack Hills, making up 5.32% or 11,997 ha and the sixth most widespread system in the Study Area. Five Priority Flora taxa, including; *Euphorbia sarcostemmoides* (9%), *Calytrix verruculosa* (15%), *Dodonaea amplisemina* (6%), *Grevillea stenostachya* (1%) and *Hemigenia virescens* (1%) were recorded. The Koonmarra system contained 1.2% of the total Priority Flora (1 record per 480 ha) which was a low density in the system. No areas in the Koonmarra system are classified as severely degraded and eroded. Koonmarra is associated with vegetation communities; Mp1, Mp2, Mc2 and Mc5.

**Mileura** is a small to moderate and restricted land system characterised by saline and non-saline calcreted river plains and has 0.56% of its total area occurring in the Study Area. One small patch of the Mileura system was mapped at Weld Range, making up 0.65% or 1,454 ha of the Study Area. One Priority Flora taxon; *Goodenia berringbinensis* (33.3%) was recorded. Mileura contained 0.1% of the total Priority Flora (1 record per 1,455 ha), which was a very low density in the system. The Mileura system has 3% of the total area classified as severely degraded and eroded. Mileura is associated with vegetation communities; Mf1, Mf2 and Mf3.

**Millex** is a small and very restricted land system characterised by plains overlying granite and sandy banks, with a significant 6% of its total area occurring in the Study Area. One small patch of the Millex system is mapped south of Weld Range, making up 1.27% or 2,867 ha of the Study Area. Three Priority Flora taxa, including; *Acacia speckii* (1%), *Ptilotus beardii* (2%) and *Verticordia jamiesonii* (11%) were recorded. Millex contained 0.2% of the total Priority Flora (1 record per 956 ha) which was a low density in the system. No areas in the Millex system are classified as severely degraded and eroded. Millex is associated with vegetation communities; Mp7 and Mp9.

**Millrose** is a small to moderate and restricted land system characterised by stony plains on hardpan and granite, with irregularly distributed sand banks and has 1.2% of its total area occurring in the Study Area. A few small patches are mapped north of Weld Range, making up 0.58% or 1,317 ha of the Study Area. Six Priority Flora taxa, including; *Euphorbia sarcostemmoides* (1%), *Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94) (6%), *Calytrix uncinata* (17%), *Grevillea stenostachya* (6%), *Hemigenia tysonii* (22%) and *Hemigenia virescens* (2%) were recorded. Millrose contained 1.7% of the total Priority Flora (1 record per 39 ha) which was a high density in the system. No areas in the Millrose system are classified as severely degraded and eroded. Millrose is associated with vegetation communities; Mh10 and Mh14.

**Mindura** is a moderate to large and widespread land system characterised by low hills, ridges and outcrops of granite and has 0.72% of its total area occurring within the Study Area. Small patches of the Mindura system are mapped south of Jack Hills, making up 1.4% or 3,156 ha of the Study Area. Five Priority Flora taxa, including; *Euphorbia sarcostemmoides* (4%), *Acacia speckii* (4%), *Calytrix verruculosa* (3%), *Dodonaea amplisemina* (15%) and *Ptilotus beardii* (6%) were recorded. Mindura contained 1.4% of the total Priority Flora (1 record per 109 ha) which was a high density in the system. No areas in the Mindura system are classified as severely degraded and eroded. Mindura is associated with vegetation communities; Mh9, Mh10, Mp5 and Mc5.

**Mulline** is a very small and very restricted land system characterised by greenstone hills and has 0.45% of its total area occurring within the Study Area. One small area of the Mulline system is mapped near the Freehold as 0.04% or 89 ha of the total Study Area. No Priority Flora was recorded. No areas in the Mulline system are classified as severely degraded and eroded.

**Nerramyne** is a small to moderate and fairly widespread land system characterised by undulating sandy and gravelly plains with low plateaus and breakaways and has 2.29% of its total area in the Study Area. Large patches of the Nerramyne system are mapped immediately north of the Freehold, making up 2.55% or 5,752 ha of the Study Area. Three Priority Flora taxa, including; *Frankenia confusa* (7%), *Dicrastylis linearifolia* (11%) and *Petrophile pauciflora* (6%) were recorded. Nerramyne contained 0.2% of the total Priority Flora (1 record per 1,150 ha) at one of the lowest densities in the Study Area. No areas in the Nerramyne system are classified as severely degraded and eroded. Nerramyne is associated with vegetation communities; Yh2, Yp1, Yp2 and Yp5.

**Norie** is a small to moderate and fairly widespread land system characterised by granite hills, exfoliating domes and extensive tor fields and has 1.13% of its total area in the Study Area. Small patches of the Norie system is mapped throughout the Pastoral land area, making up 1.06% or 2,393 ha of the Study Area. Four Priority Flora taxa; *Petrophile vana* (25%), *Acacia speckii* (<1%),

*Dicrastylis linearifolia* (4%) and *Eremophila muelleriana* (8%) were recorded. Norie contained 1.1% of the total Priority Flora (1 record per 109 ha), which was a high density in the system. No areas in the Norie system are classified as severely degraded and eroded. Norie is associated with vegetation communities; Mh11, Mh12, Mh17 and Mp10.

**Pindar** is a small to moderate and restricted land system characterised by loamy and sandy plains and has 0.43% of its total area in the Study Area. One small area of the Pindar system was mapped near the Freehold, making up 0.29% or 646 ha of the Study Area. One Priority Flora taxon; *Acacia subsessilis* (12%) was recorded. Pindar contained 0.1% of the total Priority Flora (1 record per 323 ha) which was a medium density in the system. No areas in the Pindar system are classified as severely degraded and eroded. Pindar is associated with vegetation community; Yp4.

**Sherwood** is a very large and widespread land system characterised by saline footslopes of laterised breakaways and outcrops of weathered rock and has 0.61% of its total area in the Study Area. Large areas of the Sherwood system are mapped between Weld Range and Jack Hills, making up 4.27% or 9,636 ha of the Study Area. Twelve Priority Flora taxa, including; *Euphorbia sarcostemmoides* (8%), *Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94) (6%), *Acacia speckii* (18%), *Calytrix uncinata* (83%), *Dodonaea amplisemina* (1%), *Grevillea stenostachya* (1%), *Hemigenia tysonii* (2%), *Hemigenia virescens* (1%), *Petrophile pauciflora* (69%), *Ptilotus beardii* (85%), *Verticordia jamiesonii* (44%) and *Baeckea* sp. Melita Station (H. Pringle 2738) (38%) were recorded. The Sherwood system contained 5.9% of the total Priority Flora (1 record per 79 ha), which was a high density in the system. The Sherwood system has 2% of the total area classified as severely degraded and eroded. Sherwood is associated with vegetation communities; Mh13, Mp5, Mp6 and Mc5.

**Tallering** is a small and restricted land system characterised by prominent ridges and hills of BIF, dolerite and sedimentary rocks and has 3.17% of its total area in the Study Area. Two small areas of the Tallering system are mapped close to the border of the Freehold, making up 0.46% or 1,045 ha of the Study Area. No Priority Flora was recorded. No areas in the Tallering system are classified as severely degraded and eroded. Tallering is associated with vegetation communities; Yh1 and Yp2.

**Tindalarra** is a large, widespread land system characterised by hardpan plains with sparse drainage lines and has 4.1% of its total area in the Study Area. The Tindalarra system is very common near the Freehold boundary, making up 12.97% or 29,231 ha, the second most widespread of the Study Area. Eight Priority Flora taxa, including; *Euphorbia sarcostemmoides* (3%), *Gunniopsis divisa* (100%), *Frankenia confusa* (14%), *Acacia speckii* (1%), *Eremophila muelleriana* (41%), *Grevillea stenostachya* (1%), *Indigofera gilesii* subsp. *gilesii* (100%) and *Petrophile pauciflora* (13%) were recorded. The Tindalarra system contained 4.5% of the total Priority Flora (1 record per 321 ha) which was a low density in the system. The Tindalarra system has 4.3% of the total area classified as severely degraded and eroded. Tindalarra is associated with vegetation communities; Yp2, Yp5, Yf1, Yf2, Yf3, Yc1 and Yc2.

**Violet** is a large, widespread land system characterised by undulating stony and gravelly plains with low rises and has 0.34% of its total area in the Study Area. The Violet system is mapped in one area immediately south of Weld Range, making up 0.88% or 1,981 ha of the Study Area. Four Priority Flora taxa, including; *Dodonaea amplisemina* (4%), *Hemigenia tysonii* (9%), *Hemigenia virescens* (2%) and *Grevillea inconspicua* (33%) were recorded. Violet contained 1.1% of the total Priority Flora (1 record per 90 ha) which was a high density in the system. No areas in the Violet system are classified as severely degraded and eroded. Violet is associated with vegetation community; Mp8.

**Waguin** is a moderate to large, widespread land system characterised by low breakaways with short stony and sandy plains, and has 0.18% of its total area in the Study Area. The Waguin system is mapped in one small area near the Freehold, making up 0.26% or 586 ha of the Study Area. Three Priority Flora taxa, including; *Petrophile vana* (19%), *Calytrix erosipetala* (60%) and *Baeckea* sp. Melita Station (H. Pringle 2738) (23%) were recorded. The Waguin system contained 0.6% of the

total Priority Flora (1 record per 49 ha) which was a high density in the system. No areas in the Waguin system are classified as severely degraded and eroded. Waguin is associated with vegetation community; Mh18.

**Weld** is a small and restricted land system characterised by rugged ranges and ridges of BIF and has a significant 9.68% of its total area in the Study Area. The Weld system includes the Weld Range and Jack Hills, making up 1.6% or 3,604 ha of the Study Area. Seven Priority Flora taxa, including; *Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94) (6%), *Acacia speckii* (14%), *Calytrix verruculosa* (1%), *Dodonaea amplisemina* (40%), *Homalocalyx echinulatus* (8%), *Prostanthera petrophila* (19%) and *Grevillea inconspicua* (4%) were recorded. The Weld system contained 3.7% of the total Priority Flora (1 record per 48 ha) which was a high density in the system. No areas in the Weld system are classified as severely degraded and eroded. Weld is associated with vegetation communities; Mh1, Mh2, Mh3, Mh4, Mh5, Mh6, Mc3 and Mc4.

**Wiluna** is a small to moderate and widespread land system characterised by low greenstone hills and lateritic breakaways, with lower saline stony plains and has 0.31% of its total area in the Study Area. The Wiluna system is mapped in one small area immediately south of Weld Range, making up 0.36% or 814 ha of the Study Area. Three Priority Flora taxa, including; *Acacia speckii* (15%), *Ptilotus luteolus* (73%) and *Grevillea inconspicua* (4%) were recorded. The Wiluna system contained 2% of the total Priority Flora (1 record per 20.3 ha) which was a high density in the system. No areas in the Wiluna system are classified as severely degraded and eroded. Wiluna is associated with vegetation community; Mh15.

**Yandil** is a moderate to large and widespread land system characterised by flat hardpan wash plains, and has 0.62% of its total area in the Study Area. The Yandil system is mapped in one area immediately south of Weld Range and one south of Jack Hills, making up 1.36% or 3,055 ha of the Study Area. Two Priority Flora taxa, including; *Calytrix verruculosa* (4%) and *Hemigenia tysonii* (4%) were recorded. Yandil contained 0.5% of the total Priority Flora (1 record per 305 ha) which were recorded at a low density in the system. The Yandil system has 3% of the total area classified as severely degraded and eroded. Yandil is associated with vegetation communities; Mr3, Mp2, Mp3, Mp4, Mp5, Mp8, Mp9, Mp11, Mp12 and Mc5.

**Yanganoo** is a very large land system characterised by flat hardpan wash plains and has 1.75% of its total area in the Study Area. Large areas of Yanganoo system are mapped along most of the Pastoral land area, making up 15.72% or 35,446 ha the most widespread system in the Study Area. Eight Priority Flora taxa, including; *Euphorbia sarcostemmoides* (6%), *Petrophile vana* (6%), *Acacia speckii* (1%), *Eremophila muelleriana* (8%), *Grevillea stenostachya* (2%), *Hemigenia tysonii* (21%), *Hemigenia virescens* (32%) and *Goodenia berringbinensis* (1%) were recorded. The Yanganoo system contained 6.3% of the total Priority Flora (1 record per 277 ha) which was a low density in the system. The Yanganoo system has 1% of the total area classified as severely degraded and eroded. Yanganoo is associated with vegetation communities; Yp5, Yc2, Mp7, Mc5, Mc6, Mc7, Mc8.

**Yarrameedie** is a small, restricted land system characterised by undulating stony interfluvies and foot hill plains and has a significant 10.31% of its total area in the Study Area. Large areas of the Yarrameedie system are mapped below the major ranges seen in the Weld system, making up 3.13% or 7,045 ha of the Study Area. Five Priority Flora taxa, including; *Acacia speckii* (<1%), *Euphorbia sarcostemmoides* (5%), *Calytrix verruculosa* (4%), *Hemigenia tysonii* (1%) and *Homalocalyx echinulatus* (92%) were recorded. The Yarrameedie system contained 1% of the total Priority Flora (1 record per 335 ha) which was a low density in the system. No areas in the Yarrameedie system are classified as severely degraded and eroded. Yarrameedie is associated with vegetation communities; Mh3, Mh5 and Mh7.

**Yewin** is a small, restricted land system characterised by flat saline floodplains on the Greenough and Sanford Rivers and has 3.7% of its total area in the Study Area. One area of the Yewin system is mapped near the Freehold around the Greenough River, making up 0.73% or 1,692 ha of the Study Area. One Priority Flora taxon: *Frankenia confusa* (50%) was recorded. The Yewin system contained 0.4% of the total Priority Flora (1 record per 242 ha) which was a low density in the system. The Yewin system has 3% of the total area classified as severely degraded and eroded. Yewin is associated with vegetation communities; Yf4 and Yf5.

**Table 7.1 – Land System and Soil-Landscape System Conservation Significance Assessment**

	Land or Soil Landscape System	Area in WA (ha)	% of the Total System	Area in Study Area (ha)	% in the Study Area	% of Native Vegetation Remaining Within the Study Area	% With No to Minor erosion	% With Moderate to Severe Erosion	% That is Severely Degraded & Eroded	No of Cons Sig Flora Recorded	% of Priority Flora Records	Density of Priority Flora Records (per ha)	Vegetation Communities Associated With the System
Soil-Landscape	Binnu	138,843	6.4	8,947	4	16.8	-	-	-	13	5.1	86.0	Gy2, Gp2
	Casuarina	70,117	0.6	430	0.2	2.3	-	-	-	-	0.0	-	Gp1
	Dartmoor	115,013	13.6	15,678	7	19.1	-	-	-	11	1.4	559.9	Gp1, Gf1, Gf2
	Eradu	145,118	4.9	7,183	3.2	7	-	-	-	1	0.2	1436.6	Gy1
	Greenough	17,976	25.7	4,620	2	42	-	-	-	3	2.0	115.5	Gp1, Gc1
	Moresby	26,697	8	2,144	1	33	-	-	-	14	12.6	8.3	Gh1, Gh2, Gh3, Gp1
	Mt Horner	29,451	1.3	395	0.2	45.8	-	-	-	-	0.0	-	Gp1
	Northampton	83,467	5.7	4,780	2.1	20	-	-	-	9	11.8	19.9	Gp1, Gc2
	Sugarloaf	57,582	3.5	2,021	0.9	16.5	-	-	-	-	0.0	-	Gp1
	Tamala	7,274	0	0	0	n/a	-	-	-	-	0.0	-	n/a
Land System	Belele	578,300	0.8	4,352	1.9	-	96	4	0.6	4	4.6	46.3	Mr1, Mc5
	Beringarra	262,436	0.5	1,422	0.6	-	63	37	26.8	1	0.1	474.1	Yf3, Mc1
	Challenge	1,010,000	1.7	17,211	7.6	-	98	2	-	11	5.6	151.0	Yh3, Yp6, Mh11, Mh17, Mh18, Mp9, Mc6
	Cunyu	329,933	0.5	1,545	0.7	-	95	5	1.1	-	0.0	-	Mp6
	Ero	215,007	1.8	3,907	1.7	-	73	27	13.3	4	0.3	651.2	Yf2, Yc2, Mp3, Mc5, Mc6, Mc8
	Flood	159,252	1.9	2,999	1.3	-	100	-	0	1	0.4	333.2	Mc3
	Gabarintha	251,455	1.1	2,688	1.2	-	99	1	0.1	7	5.6	23.4	Yh3, Mh15, Mh16
	Joseph	464,045	0.2	809	0.4	-	100	-	-	-	0.0	-	Yp3
	Jundee	660,224	0.7	4,363	1.9	-	98	2	-	5	2.5	85.5	Mp8, Mc4
	Kalli	1,115,901	1.4	16,124	7.2	-	100	-	-	13	15.8	50.1	Yy1, Mr2
	Koonmarra	569,874	2.1	11,997	5.3	-	100	-	-	5	1.2	479.9	Mp1, Mp2, Mc2, Mc5
	Mileura	261,223	0.6	1,455	0.6	-	93	7	2.7	1	0.0	1454.5	Mf1, Mf2, Mf3
	Millex	47,825	6	2,868	1.3	-	95	5	-	3	0.2	716.9	Mp7, Mp9
Millrose	109,649	1.2	1,317	0.6	-	96	4	-	6	1.7	38.7	Mh10, Mh14	
Mindura	440,593	0.7	3,156	1.4	-	100	-	-	5	1.4	108.8	Mh9, Mh10, Mp5, Mc5	

	Land or Soil Landscape System	Area in WA (ha)	% of the Total System	Area in Study Area (ha)	% in the Study Area	% of Native Vegetation Remaining Within the Study Area	% With No to Minor erosion	% With Moderate to Severe Erosion	% That is Severely Degraded & Eroded	No of Cons Sig Flora Recorded	% of Priority Flora Records	Density of Priority Flora Records (per ha)	Vegetation Communities Associated With the System
Land System	Mulline	19,688	0.5	89	<0.1	-	100	-	-	-	0.0	-	n/a
	Nerramyne	250,958	2.3	5,752	2.6	-	93	7	0.4	3	0.2	1150.4	Yh2, Yp1, Yp2, Yp5
	Norie	211,177	1.1	2,393	1.1	-	100	-	-	4	1.1	108.8	Mh11, Mh12, Mh17, Mp10
	Pindar	151,876	0.4	646	0.3	-	100	-	-	1	0.1	323.2	Yp4
	Sherwood	1,579,691	0.6	9,636	4.3	-	89	11	2.1	12	5.9	79.6	Mh13, Mp5, Mp6, Mc5
	Tallering	32,949	3.2	1,045	0.5	85.4	100	-	-	-	0.0	-	Yh1, Yp2
	Tindalarra	713,173	4.1	29,231	13	-	96	4	1.6	8	4.5	321.2	Yp2, Yp5, Yf1, Yf2, Yf5, Yc1, Yc2
	Violet	584,096	0.3	1,981	0.9	-	98	2	0.2	4	1.1	90.1	Mp8
	Waguin	317,146	0.2	586	0.3	-	99	1	-	3	0.6	48.9	Mh18
	Weld	37,235	9.7	3,604	1.6	-	100	-	-	7	3.7	48.0	Mh1, Mh2, Mh3, Mh4, Mh5, Mh6, Mh8, Mc3, Mc4
	Wiluna	258,978	0.3	814	0.4	-	99	1	-	3	2.0	20.3	Mh15
	Yandil	494,525	0.6	3,055	1.4	-	95	5	3.2	2	0.5	305.5	Mr3, Mp2, Mp3, Mp4, Mp5, Mp8, Mp9, Mp11, Mp12, Mc5
	Yanganoo	2,019,907	1.8	35,446	15.7	-	98	2	0.8	8	6.3	276.9	Yp5, Yc2, Mp7, Mc5, Mc6, Mc7, Mc8
	Yarrameedie	68,324	10.3	7,045	3.1	-	100	-	-	5	1.0	335.5	Mh3, Mh5, Mh7
Yewin	45,709	3.7	1,692	0.8	-	89	11	3.4	1	0.3	241.8	Yf4, Yf5	



### 7.3.2 Beard Mapping Analysis

Assessment of the significance at a state level of the vegetation of the Study Area is constrained by the lack of mapping across the state at a scale comparable to the mapping during the current survey. The only source of vegetation mapping available across the state is that conducted by Beard (1976) and Beard & Burns (1976) at a scale of 1:1000000, with areas of the south-west mapped at 1:250,000. The vegetation of the Study Area was mapped as 28 communities by Beard (1976) and Beard & Burns (1976). As this mapping was completed at a large scale, it does not accurately represent the mapped communities in the Study Area. Quite often one or a number of the vegetation communities mapped during the current survey can be attributed to a Beard vegetation unit, where it becomes a useful tool to loosely determine the potential extent of this community in the region.

As the Beard mapping was completed at a high scale many minor details including drainage channels, creeklines and low hill slopes are not mapped and cannot be related to the Beard mapping. As this mapping was completed in 1976 old species names used by Beard could be referring to a newly described species.

A summary table for each Beard unit is provided in Table 7.2 and are further described below;

The Beard mapping has been completed as if it was pre-European settlement, therefore the areas in the Freehold section of the Study Area are inaccurate as they don't take any land clearing into consideration. Areas of remnant vegetation in the Geraldton Sandplains region have been mapped and overlain over the Beard vegetation map to give an idea of the amount of each remaining (Table 7.3).

**a1,14Si:** *Acacia aneura* and *Acacia quadrimarginea* scrub.

a1,14Si is a moderate to large and widespread Beard unit that is mapped as 1.1% of the Study Area. Of the total area of the Beard unit, 0.6% occurs within the Study Area. The vegetation communities related to this unit include those associated with the Jack Hills PEC; Mh1, Mh2, Mh3, Mh4 and Mc3 and those associated with the Weld Range PEC; Mh5, Mh6, Mh7, Mh8, Mc3 and Mc4. The distribution of this vegetation unit includes many of the BIF ranges in Western Australia and because the vegetation communities vary substantially between each BIF range, it does not accurately represent the potential distribution of these *ecologia* vegetation communities.

**a1,8Sr k1,2Ci:** *Acacia aneura* and *Acacia sclerosperma* with *Atriplex* and *Maireana* spp. succulent steppe.

a1,8Sr k1,2Ci is a small to moderate and restricted Beard unit that is mapped as 1.5% of the Study Area. Of the total area of the Beard unit, 1.6% occurs within the Study Area. The vegetation communities related to this unit include those associated with the salt lake floodplains near Weld Range: Mf1, Mf2 and Mf3. The distribution of the Beard unit in Western Australia includes the floodplains from a number of different land systems and because these vary substantially, it is unlikely to be an indicator for the regional distribution of the *ecologia* communities. It does however indicate areas with the potential for these vegetation units to occur, which shows that there is not much in Western Australia and are therefore significant.

**a1,9Li:** *Acacia aneura*, *Acacia ramulosa* var. *ramulosa* and *Acacia ramulosa* var. *linophylla* low woodland.

a1,9Li is a small and restricted Beard unit that is mapped as 3% of the Study Area. Of the total area of the Beard unit, 7.3% occurs within the Study Area. The vegetation communities related to this unit include those associated with the red sandplains, Mr2. The distribution of this

vegetation unit is not an accurate representation of the potential distribution of the *ecologia* vegetation community.

**a10,11Si k1,2Ci:** *Acacia victoriae*, *Acacia xiphophylla* and *Acacia eremaea* with *Atriplex* and *Maireana* spp. succulent steppe.

a10,11Si k1,2Ci is a small and restricted Beard unit that is mapped as 1% of the Study Area. Of the total area of the Beard unit, 3% occurs within the Study Area. The vegetation communities related to this unit include; Yf3 and Mc1. The distribution of this vegetation unit loosely represents the potential distribution of the *ecologia* vegetation communities and shows that they are represented out side of the Study Area.

**a14Si:** *Acacia quadrimarginea* scrub.

a14Si is a very small and restricted Beard unit that is mapped as 0.1% of the Study Area. Of the total area of the Beard unit, 3% occurs within the Study Area. The vegetation communities related to this unit include that associated with the Talling Peak PEC, Yh1. The distribution of this vegetation unit represents the potential distribution of the *ecologia* vegetation community, showing that it is very restricted and uncommon locally and regionally.

**a1Li:** *Acacia aneura* low woodland.

a1Li is the largest and most widespread Beard unit that is mapped as 24% of the Study Area. Of the total area of the Beard unit, 0.2% occurs within the Study Area. The *ecologia* vegetation communities related to this unit include those recorded on the hardpan plains across the Yalgoo and Murchison bioregions, including; Mp6, Mp9, Mp11, Mp12, Mc5, Mr3, Mh5, Mp5, Mh9, Mh10, Mh14, Mp1, Mp2 and Mp8. The large area covered by this vegetation unit shows that the potential distribution of the *ecologia* vegetation communities associated with it are widespread and common in Western Australia.

**a1Li a9,17Si:** *Acacia aneura* low woodland with understory of *Acacia ramulosa* var. *ramulosa*, *Acacia ramulosa* var. *linophylla* and *Acacia grasbyi*.

a1Li a9,17Si is a very large and widespread Beard unit that is mapped as 13.4% of the Study Area. Of the total area of the Beard unit, 2.7% occurs within the Study Area. The vegetation communities related to this unit include those associated with floodplains of the Yalgoo region, including; Yp5 and Yp6. The large area covered by this vegetation unit shows that the potential distribution of the *ecologia* vegetation communities associated with it are widespread and common in Western Australia.

**a1Lp:** *Acacia aneura*, trees in groves or patches.

a1Lp is a very large and widespread Beard unit that is mapped as 16.3% of the Study Area. Of the total area of the Beard unit, 0.5% occurs within the Study Area. The vegetation communities related to this unit include those associated with the sandy plains in the Murchison region, including; Mp2, Mp3, Mp4, Mr1, Mr2, Mr3. The distribution of this vegetation unit shows that the common *ecologia* vegetation communities represent a large potential distribution in Western Australia.

**a1Si:** *Acacia aneura* scrub.

a1Si is a very large and widespread Beard unit that is mapped as 3.5% of the Study Area. Of the total area of the Beard unit, 0.1% occurs within the Study Area. The vegetation communities related to this unit include those associated with rockier areas, including; Mh10, Mh11, Mh12, Mh15, Mh16, Mp6, Mp9 and Mp10. The distribution of this vegetation unit shows that these *ecologia* communities have the potential to occur over a large area in Western Australia and are not significant.

**a33Sc:** *Acacia rostelifera* thicket.

a33Sc is a very small and restricted Beard unit that is mapped as 0.5% of the Study Area. Of the total area of the Beard unit, 35.9% occurs within the Study Area. The vegetation community related to this unit include; Gc2. Gc2 is therefore very significant in the Study Area as such a large percentage of its total is mapped. This is therefore a very significant vegetation community, as it was more than likely locally abundant as mapped by Beard, but is now largely cleared. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 75% occurs within the Study Area. This unit has half of its known distribution in the Geraldton Sandplains region and is moderately endemic.

**a8,9Sr k1,2Ci:** *Acacia sclerosperma*, *Acacia ramulosa* var. *ramulosa* and *Acacia ramulosa* var. *linophylla* with *Atriplex* and *Maireana* spp. succulent steppe.

a8,9Sr k1,2Ci is a small to moderate and restricted Beard unit that is mapped as 0.05% of the Study Area. Of the total area of the Beard unit, 0.1% occurs within the Study Area. It therefore is not widespread in the Study Area and any impact to this unit is unlikely.

**a8Sr k1,2Ci:** *Acacia sclerosperma* with *Atriplex* and *Maireana* spp. succulent steppe.

a8Sr k1,2Ci is a small and restricted Beard unit that is mapped as 0.8% of the Study Area. Of the total area of the Beard unit, 11.9% occurs within the Study Area. The vegetation communities related to this unit include those associated with major creeklines in the Yalgoo area and include; Yc1, Yf4 and Yf5. The distribution of this vegetation unit shows that the potential distribution of the associated *ecologia* vegetation communities in Western Australia is limited and are therefore significant.

**a9,19Si:** *Acacia ramulosa* var. *ramulosa*, *Acacia ramulosa* var. *linophylla* and *Acacia acuminata* scrub.

a9,19Si is a large and widespread Beard unit that is mapped as 1.6% of the Study Area. Of the total area of the Beard unit, 0.5% occurs within the Study Area. The vegetation communities related to this unit include those associated with hardpan plains, including; Yp2 and Yp6. The distribution of this Beard vegetation unit shows that these *ecologia* communities have the potential to occur over a large area in Western Australia and are not significant.

**a9,20Si:** *Acacia ramulosa* var. *ramulosa*, *Acacia ramulosa* var. *linophylla* and *Acacia murrayana* scrub.

a9,20Si is a moderate to large and fairly widespread Beard unit that is mapped as 1.4% of the Study Area. Of the total area of the Beard unit, 1.5% occurs within the Study Area. The vegetation communities related to this unit include those associated with hardpan plains and sandy plains; Yp2 and Yy1. The distribution of this Beard vegetation unit shows that these *ecologia* communities have the potential to occur over a large area in Western Australia and are not significant.

**a9Si:** *Acacia ramulosa* var. *ramulosa* and *Acacia ramulosa* var. *linophylla* scrub.

a9Si is a very large and widespread Beard unit that is mapped as 3.4% of the Study Area. Of the total area of the Beard unit, 0.6% occurs within the Study Area. The vegetation communities related to this unit include those associated with sandy plains of the Yalgoo and Murchison regions; Yy1 and Mr2. The distribution of this Beard vegetation unit shows that these *ecologia* communities have the potential to occur over a large area in Western Australia and are not significant.

**acSc:** *Acacia - Casuarina* spp. thicket.

acSc is a moderate to large and widespread Beard unit that is mapped as 0.2% of the Study Area. Of the total area of the Beard unit, 0.1% occurs within the Study Area. The vegetation communities related to this unit include those associated with floodplains and includes; Yp3 and Gf2. The distribution of this Beard vegetation unit shows that these *ecologia* communities have the potential to occur over a large area in Western Australia and are not significant, however as it is such a small area within the Study Area, this Beard unit was not seen in *ecologia's* communities. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, only 1% occurs within the Study Area.

**anSi:** Mixed *Acacia* spp. scrub.

anSi is a moderate to large and widespread Beard unit that is mapped as 8.1% of the Study Area. Of the total area of the Beard unit, 4.9% occurs within the Study Area. The vegetation communities related to this unit include those associated with the sandy-clay plains and includes; Yp1, Yp2, Yp5 and Yf5. The distribution of this Beard vegetation unit shows that these *ecologia* communities have the potential to occur over a large area in Western Australia and are not significant.

**ceLr a9Si:** *Acacia ramulosa* var. *ramulosa* and *Acacia ramulosa* var. *linophylla* scrub with *Callitris columellaris* and *Eucalyptus* spp.

ceLr a9Si is a large and widespread Beard unit that is mapped as 1.3% of the Study Area. Of the total area of the Beard unit, 0.6% occurs within the Study Area. The vegetation communities related to this unit include those associated with sandy plains and includes; Yp2 and Yp3, however based on the known current extent of this vegetation unit in the Geraldton Sandplains region, none remains in the Study Area.

**e6,8Mi:** *Eucalyptus loxophleba* and *Eucalyptus salmonophloia* sclerophyll woodland.

e6,8Mi is a large and widespread Beard unit that is mapped as 0.1% of the Study Area. Of the total area of the Beard unit, 0.04% occurs within the Study Area. The vegetation community that is related to this unit is associated with red sandy plains and includes; Gy2. The distribution of this Beard unit shows that the *ecologia* community has the potential to occur over a large area in Western Australia and is not significant. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 36% occurs within the Study Area, however this unit is not endemic to this region (0.28% of the total area is in the Geraldton Sandplains), the actual impact is likely to be a lot less.

**e6c5Mr a9,19Si:** *Acacia ramulosa* var. *ramulosa*, *Acacia ramulosa* var. *linophylla* and *Acacia acuminata* scrub with scattered *Eucalyptus loxophleba* and *Casuarina huegeliana*.

e6c5Mr a9,19Si is a small and restricted Beard unit that is mapped as 2.7% of the Study Area. Of the total area of the Beard unit, 10.8% occurs within the Study Area. The vegetation community related to this unit include that associated with floodplains of the Geraldton Sandplains region and includes; Gf2. The distribution of this Beard unit represents the potential distribution of the *ecologia* vegetation community, showing that it is very restricted and is likely to be uncommon locally and regionally. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 24% occurs within the Study Area, however this unit is not endemic to this region (31% of the total area is in the Geraldton Sandplains) and the actual impact is likely to be a lot less.

**e6Mr a19Si:** *Acacia acuminata* scrub with scattered *Eucalyptus loxophleba*.

e6Mr a19Si is a small to moderate and fairly restricted Beard unit that is mapped as 3.8% of the Study Area. Of the total area of the Beard unit, 4.7% occurs within the Study Area. The vegetation communities related to this unit include those with floodplain of the Geraldton Sandplains region and includes; Gp1 and Gf2. The distribution of this vegetation unit represents the potential distribution of the *ecologia* vegetation community, showing that it is very restricted and is likely to be uncommon locally and regionally and is endemic to the Geraldton Sandplains region. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 4% occurs within the Study Area.

**e6Mr eaSi:** *Eucalyptus* spp. (mallee) and *Acacia* spp. scrub with scattered *Eucalyptus loxophleba*.

e6Mr eaSi is a small and restricted Beard unit that is mapped as 3.6% of the Study Area. Of the total area of the Beard unit, 8.3% occurs within the Study Area. The vegetation communities related to this unit include those associated with floodplains of the Geraldton Sandplains region and includes; Gp1, Gf1 and Gf2. The distribution of this vegetation unit represents the potential distribution of the *ecologia* vegetation community, showing that it is very restricted and is likely to be uncommon locally and regionally and is almost endemic (99%) to the Geraldton Sandplains region. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 10% occurs within the Study Area.

**k1,3Ci:** *Atriplex* spp., *Tecticornia* spp. and other samphires succulent steppe.

k1,3Ci is a small and restricted Beard unit that is mapped as 0.2% of the Study Area. Of the total area of the Beard unit, 0.7% occurs within the Study Area. The vegetation communities related to this unit include those associated with floodplain of the Yalgoo region and include; Yf4. The distribution of this vegetation unit represents the potential distribution of the *ecologia* vegetation community, showing that it is very restricted and is likely to be uncommon locally and regionally. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 14% occurs within the Study Area. This unit is not endemic to the Geraldton Sandplains region (7% of its total is in the Geraldton Sandplains region).

**k3Ci:** *Tecticornia* spp. and other samphires succulent steppe.

k3Ci is a very large and widespread Beard unit that is mapped as 0.01% of the Study Area. Of the total area of the Beard unit, <0.01% occurs within the Study Area. It is therefore an insignificant Beard unit.

**mhSc:** *Melaleuca* - *Hakea* spp. thicket.

mhSc is a small and restricted Beard unit that is mapped as 0.9% of the Study Area. Of the total area of the Beard unit, 4% occurs within the Study Area. The vegetation communities related to this unit include those associated the Moresby Range PEC; Gh1, Gh2 and Gh3. The distribution of this vegetation unit represents the potential distribution of the *ecologia* vegetation communities, showing that they are very restricted and is uncommon locally and is regionally endemic to the Geraldton Sandplains region. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 4% occurs within the Study Area.

**x2SZc:** Scrub heath coastal association.

x2SZc is a moderate to large and widespread Beard unit that is mapped as 2.9% of the Study Area. Of the total area of the Beard unit, 2% occurs within the Study Area. The vegetation community related to this unit include those associated with the yellow sandy plains and includes; Gy1. The distribution of this Beard vegetation unit shows that this *ecologia* community has the potential to occur over a large area in Western Australia, however as this

area has been extensively cleared is locally rare. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 1% occurs within the Study Area. This unit is endemic to the Geraldton Sandplains region.

**x3SZc:** Scrub heath inland association.

x3SZc is a large and widespread Beard unit that is mapped as 1.7% of the Study Area. Of the total area of the Beard unit, 0.6% occurs within the Study Area. The vegetation communities related to this unit include those associated with floodplains and sandy plains; Yp3 and Gf2. The distribution of this Beard vegetation unit shows that this *ecologia* community has the potential to occur over a large area in Western Australia and are not significant. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 1% occurs within the Study Area. This unit is highly endemic to the Geraldton Sandplains region (87% of its total area).

**x3SZc/acSc:** *Acacia - Casuarina* spp. thicket with scrub heath inland association.

x3SZc/acSc is a small and restricted Beard unit that is mapped as 2.6% of the Study Area. Of the total area of the Beard unit, 7.1% occurs within the Study Area. The vegetation communities related to this unit include those associated with yellow sand plains, including; Gy2 and Gp2. The distribution of this vegetation unit represents the potential distribution of the *ecologia* vegetation communities, showing that they are very restricted and are likely to be uncommon locally and regionally. Based on the known current extent of this vegetation unit in the Geraldton Sandplains region, 9% occurs within the Study Area. This unit is endemic to the Geraldton Sandplains region and only has 11% of the original extent of its total remaining.

**Table 7.2 – Beard Vegetation Units Conservation Significance Assessment**

Beard Vegetation Unit	Description	Total Area of Unit in WA (Ha)	% of The Total Vegetation Unit	Total Area in Study Area (Ha)	% of Study Area
a1,14Si	<i>Acacia aneura</i> and <i>Acacia quadrimarginea</i> scrub.	448,700	0.56	2,525	1.12
a1,8Sr k1,2Ci	<i>Acacia aneura</i> and <i>Acacia sclerosperma</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.	199,534	1.65	3,290	1.46
a1,9Li	<i>Acacia aneura</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> low woodland.	94,031	7.29	6,851	3.04
a10,11Si k1,2Ci	<i>Acacia victoriae</i> , <i>Acacia xiphophylla</i> and <i>Acacia eremaea</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.	65,169	3.50	2,279	1.01
a14Si	<i>Acacia quadrimarginea</i> scrub.	10,387	3.10	322	0.14
a1Li	<i>Acacia aneura</i> low woodland.	24,751,239	0.22	53,891	23.90
a1Li a9,17Si	<i>Acacia aneura</i> low woodland with understorey of <i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia grasbyi</i> .	1,136,021	2.67	30,281	13.43
a1Lp	<i>Acacia aneura</i> , trees in groves or patches.	7,914,567	0.46	36,772	16.31
a1Si	<i>Acacia aneura</i> scrub.	6,666,951	0.12	7,909	3.51
a33Sc	<i>Acacia rostellifera</i> thicket.	3,478	35.88	1,248	0.55
a8,9Sr k1,2Ci	<i>Acacia sclerosperma</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.	119,058	0.10	121	0.05
a8Sr k1,2Ci	<i>Acacia sclerosperma</i> with <i>Atriplex</i> and <i>Maireana</i> spp. succulent steppe.	15,539	11.92	1,852	0.82
a9,19Si	<i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia acuminata</i> scrub.	756,674	0.47	3,519	1.56
a9,20Si	<i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia murrayana</i> scrub.	206,457	1.54	3,170	1.41
a9Si	<i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> scrub.	1,331,779	0.58	7,768	3.45
acSc	<i>Acacia - Casuarina</i> spp. thicket.	495,385	0.08	381	0.17
anSi	Mixed <i>Acacia</i> spp. scrub.	368,979	4.95	18,282	8.11
ceLr a9Si	<i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> scrub with <i>Callitris columellaris</i> and <i>Eucalyptus</i> spp.	511,008	0.59	2,992	1.33
e6,8Mi	<i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia acuminata</i> scrub with scattered <i>Eucalyptus loxophleba</i> and <i>Casuarina huegeliana</i> .	796,448	0.04	340	0.15
e6c5Mr a9,19Si	<i>Eucalyptus loxophleba</i> and <i>Eucalyptus salmonophloia</i> sclerophyll woodland.	56,427	10.85	6,120	2.71

Beard Vegetation Unit	Description	Total Area of Unit in WA (Ha)	% of The Total Vegetation Unit	Total Area in Study Area (Ha)	% of Study Area
e6Mr a19Si	<i>Acacia acuminata</i> scrub with scattered <i>Eucalyptus loxophleba</i> .	184,571	4.71	8,692	3.86
e6Mr eaSi	<i>Eucalyptus</i> spp. (mallee) and <i>Acacia</i> spp. scrub with scattered <i>Eucalyptus loxophleba</i> .	97,368	8.26	8,038	3.57
k1,3Ci	<i>Atriplex</i> spp., <i>Tecticornia</i> spp. and other samphires succulent steppe.	64,719	0.72	463	0.21
k3Ci	<i>Tecticornia</i> spp. and other samphires succulent steppe.	2,078,904	0.00	23	0.01
mhSc	<i>Melaleuca</i> - <i>Hakea</i> spp. thicket.	51,880	4.00	2,077	0.92
x2SZc	Scrub heath coastal association.	328,738	2.01	6,593	2.92
x3SZc	Scrub heath inland association.	580,547	0.65	3,778	1.68
x3SZc/acSc	<i>Acacia</i> - <i>Casuarina</i> spp. thicket with scrub heath inland association.	82,081	7.15	5,868	2.60



**Table 7.3 – Extent of Beard Vegetation Units Remaining in the Geraldton Sandplains Bioregion**

Code	Description	Pre-European Extent in WA (ha)	Pre-European Extent in the Geraldton Sandplains (ha)	% of total Pre-European in the Geraldton Sandplains (Degree of Endemism)	Current Extent in the Geraldton Sandplains Region (ha)	% of Original Vegetation Extent Remaining (Degree of Clearing)	Area of the Current Extent in the Study Area (ha)	% of Current Extent in the Study Area
a33Sc	<i>Acacia rostellifera</i> thicket.	3,478	1,749	50	370	21	279	75
acSc	<i>Acacia - Casuarina</i> spp. thicket.	495,385	118,103	24	6,422	5	59	1
ceLr a9Si	<i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> scrub with <i>Callitris columellaris</i> and <i>Eucalyptus</i> spp.	511,008	1,248	0.24	0	0	0	0
e6,8Mi	<i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia acuminata</i> scrub with scattered <i>Eucalyptus loxophleba</i> and <i>Casuarina huegeliana</i> .	796,448	2,194	0.28	117	5	42	36
e6c5Mr a9,19Si	<i>Eucalyptus loxophleba</i> and <i>Eucalyptus salmonophloia</i> sclerophyll woodland.	56,427	17,554	31	4,617	26	1,108	24
e6Mr a19Si	<i>Acacia acuminata</i> scrub with scattered <i>Eucalyptus loxophleba</i> .	184,571	184,571	100	31,410	17	1,259	4
e6Mr eaSi	<i>Eucalyptus</i> spp. (mallee) and <i>Acacia</i> spp. scrub with scattered <i>Eucalyptus loxophleba</i> .	97,368	96,821	99	7,470	8	778	10
k1,3Ci	<i>Atriplex</i> spp., <i>Tecticornia</i> spp. and other samphires succulent steppe.	64,719	4,454	7	1,145	26	165	14
mhSc	<i>Melaleuca - Hakea</i> spp. thicket.	51,880	51,880	100	14,221	27	621	4
x2SZc	Scrub heath coastal association.	328,738	328,739	100	43,126	13	443	1
x3SZc	Scrub heath inland association.	580,547	507,874	87	52,364	10	782	1
x3SZc/acSc	<i>Acacia - Casuarina</i> spp. thicket with scrub heath inland association.	82,081	82,081	100	9,276	11	845	9

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## 7.4 VEGETATION OF LOCAL SIGNIFICANCE

Vegetation of local significance is confined to a specialised habitat type that is not common in the local area and whose disturbance or removal may lead to local extinction of that community type.

The local conservation assessment of the vegetation communities recorded in the Study Area has been assessed using a number of factors as discussed below. The vegetation communities have been assigned a conservation significance rating of; very high, high, moderate or low and are listed below;

<b>Very high</b>	Gh1, Gh2, Gh3, Gy1, Gy2, Mh6, Mf2.
<b>High</b>	Gp2, Gc1, Gc2, Yh1, Yf4, Mh1, Mh2, Mh3, Mh4, Mh7, Mh8, Mh13, Mh18, Mf1, Mf3, Mc3.
<b>Moderate</b>	Gf1, Gf2, Yp3, Mh10, Mh11, Mh12, Mr1, Mr2, Mp6, Mp7, Mp10, Mc2.
<b>Low</b>	Gp1, Yh2, Yh3, Yy1, Yp1, Yp2, Yp4, Yp5, Yp6, Yf1, Yf2, Yf3, Yf5, Yc1, Yc2, Mh9, Mh14, Mh15, Mh16, Mh17, Mr3, Mp1, Mp2, Mp3, Mp4, Mp5, Mp8, Mp11, Mc1, Mc5, Mc6, Mc7, Mc8.

A matrix showing which Priority Flora taxa were recorded in each vegetation community is provided in Table P.2, Appendix P and a summary table for each community is provided in Table 7.4.

**Gh1:** Isolated *Eucalyptus loxophleba* subsp. *loxophleba* low mallee trees, over *Melaleuca megacephala* and *Hakea pycnoneura* closed mid shrubland, over *Hibbertia hypericoides*, *Acacia lasiocarpa* var. *lasiocarpa*, *Gastrolobium plicatum*, *Gastrolobium triangulare* sparse low shrubland, over *Lepidosperma tenue* open sedgeland.

Gh1 was restricted to the mesa mid slopes and flat tops of the Moresby system and is part of the Moresby Range PEC. The Moresby system is very restricted in the Study Area (0.95%) and Western Australia, with a significant 8.03% of its total area occurring in the Study Area. The Moresby system has been extensively cleared and only 33% of native vegetation remains. Gh1 is mapped as a very small area in the Study Area (129 ha, 0.06%) and provides habitat for the vulnerable, Priority 4 taxon, *Eucalyptus blaxellii* and an additional 10 Priority Flora taxa (Table P.2) of which 2 were only recorded in Gh1. Gh1 therefore has very high conservation significance, as it is restricted in the Study Area and in Western Australia, provides habitat for threatened flora and is part of the Moresby Range PEC.

**Gh2:** Mixed *Acacia* spp. and *Melaleuca* spp. sparse to open tall shrubs, over *Verticordia chrysanthella* and *Gastrolobium plicatum* low shrubland.

Gh2 was restricted to the lower mesa footslopes of the Moresby system and is part of the Moresby Range PEC. The Moresby system is very restricted in the Study Area (0.95%) and Western Australia, with a significant 8.03% of its total area occurring in the Study Area. The Moresby system has been extensively cleared and only 33% of native vegetation remains. Gh2 is mapped as a small area in the Study Area (587 ha, 0.26%) and provides habitat for the endangered DRF taxon, *Caladenia hoffmanii*, the vulnerable, Priority 4 taxon, *Eucalyptus blaxellii* and nine additional Priority Flora taxa (Table P.2) of which one was only recorded in Gh2. Gh2 therefore has very high conservation significance, as it is restricted in the Study Area and in Western Australia and provides habitat for threatened flora and is part of the Moresby Range PEC.

**Gh3:** *Allocasuarina campestris* closed tall to mid shrubland, over *Lepidosperma tenue* sparse sedgeland.

Gh3 was restricted to the mesa midslopes, lower footslopes and flat tops of the Moresby system and is part of the Moresby Range PEC. The Moresby system is very restricted in the Study Area (0.95%) and in Western Australia, with a significant 8.03% of its total area occurring in the Study Area. The Moresby system has been extensively cleared and only 33% of native

vegetation remains. Gh3 is mapped as a very small area in the Study Area (88 ha, 0.04%) and provides habitat for the endangered DRF taxon, *Caladenia hoffmanii*, the vulnerable, Priority 4 taxon, *Eucalyptus blaxellii* and four additional Priority Flora taxa (Table P.2). Gh3 therefore has very high conservation significance, as it is restricted in the Study Area and in Western Australia and provides habitat for threatened flora and is part of the Moresby Range PEC.

**Gy1:** *Eucalyptus* spp., *Xylomelum angustifolium*, *Actinostrobus arenarius* and *Banksia* spp. sparse to open low woodland, over mixed Myrtaceae spp. open low to mid shrubland.

Gy1 was restricted to the yellow-brown sandy plains of the Eradu system. The Eradu system is relatively widespread in the Study Area (3.19%) but is fairly restricted in Western Australia, with 4.95% of its total area occurring in the Study Area. The Eradu system has been extensively cleared and has only 7% of native vegetation remaining in the Study Area and therefore is extremely restricted. Gy1 is mapped as a very small area in the Study Area (489 ha, 0.22%) and provides habitat for one Priority Flora taxon (Table P.2), which was only recorded in Gy1. Gy1 therefore has very high conservation significance, as it is restricted in the Study Area and in Western Australia.

**Gy2:** Mixed *Eucalyptus* spp. open low woodland, over *Acacia* spp. and *Melaleuca* spp. sparse mid shrubland.

Gy2 was restricted to the yellow sand plains and dunes of the Binnu soil-landscape system. The Binnu system is relatively widespread in the Study Area (3.97%) but is fairly restricted in Western Australia, with a significant 6.44% of its total area occurring in the Study Area. The Binnu system has been extensively cleared and has only 16.8% of native vegetation remaining in the Study Area and is therefore very restricted. Gy2 is mapped as a very small area in the Study Area (1755 ha, 0.78%) and provides habitat for 13 Priority Flora taxa (Table P.2). Of these 13 Priority Flora taxa, 8 were only recorded in Gy2. Gy2 therefore has very high conservation significance, as it is restricted in the Study Area and in Western Australia and provides significant Priority Flora habitat.

**Gp1:** *Acacia tetragonophylla* and *Hakea recurva* subsp. *recurva* (+/-*Eucalyptus loxophleba* subsp. *loxophleba*, *Acacia acuminata* and *Acacia burkittii*) low woodland, over *Ptilotus obovatus* sparse low shrubland, over \**Avena fatua* and \**Bromus diandrus* tussock grassland.

Gp1 was a degraded vegetation community, dominated by species that increase in disturbed areas and is widespread across many habitat types and soil-landscape systems in the Freehold, including; the Casuarina, Dartmoor, Greenough, Moresby, Mt Horner, Northampton and Sugarloaf systems. Gp1 is mapped as a small area in the Study Area (924 ha, 0.41%) and provides habitat for four Priority Flora taxa (Table P.2). These Priority Flora taxa were recorded in low numbers and were not endemic to Gp1. Gp1 therefore has very low conservation significance as it is widespread in the Study Area and not restricted to any systems or habitats and is likely to be widespread in the region.

**Gp2:** *Melaleuca adnata* sparse low woodland, over *Calothamnus quadrifidus* and *Acacia acuminata* open tall to mid shrubland, over *Ptilotus obovatus* open low shrubland, over *Amphipogon caricinus* var. *caricinus* open tussock grassland.

Gp2 was restricted to the red sand plains of the Binnu soil-landscape system. The Binnu system is relatively widespread in the Study Area (3.97%) but is fairly restricted in Western Australia, with a significant 6.44% of its total area occurring in the Study Area. The Binnu system has been extensively cleared and has only 16.8% of native vegetation remaining in the Study Area and is therefore very restricted. Gp2 is mapped as a very small area in the Study Area (39 ha, 0.02%) and no Priority Flora were recorded. Because of the small area mapped.

Gp2 therefore has high conservation significance as it is restricted in the Study Area and in Western Australia.

**Gf1:** Isolated *Hakea preissii* tall shrubs, over *Tecticornia indica* subsp. *bidens* and *Atriplex amnicola* (+/- *Tecticornia lepidosperma*, *Tecticornia pergranulata* subsp. *pergranulata* and *Frankenia setosa*) low Chenopod shrubland, over \**Avena fatua* and *Eragrostis dielsii* sparse tussock grassland.

Gf1 was restricted to the floodplains near the Mullewa link in the Dartmoor soil-landscape system. The Dartmoor system is widespread in the Study Area (6.95%) and in Western Australia and has a significant 13.6% of its total area occurring in the Study Area. The Dartmoor system has been extensively cleared and has only 19.1% of native vegetation remaining. Gf1 is mapped as a very small area in the Study Area (753 ha, 0.33%) and provides habitat for two Priority Flora taxa (Table P.2). Gf1 therefore has moderate conservation significance as it is restricted in the Study Area, but is likely to be widespread in the region.

**Gf2:** *Eucalyptus loxophleba* subsp. *loxophleba* open low woodland, over *Acacia acuminata* and *Acacia burkittii* sparse tall shrubland, over *Acacia tetragonophylla* and *Enchylaena tomentosa* sparse mid shrubland, over *Acacia andrewsii* and *Ptilotus obovatus* sparse low shrubland.

Gf2 was restricted to the floodplains of the Freehold land area of the Dartmoor soil-landscape system. The Dartmoor system is widespread in the Study Area (6.95%) and in Western Australia and has a significant 13.6% of its total area occurring in the Study Area. The Dartmoor system has been extensively cleared and has only 19.1% of native vegetation remaining. Gf2 is mapped as a very small area in the Study Area (2,292 ha, 1.02%) and provides habitat for seven Priority Flora taxa (Table P.2). Gf2 therefore has moderate conservation significance as it is restricted in the Study Area, but is likely to be widespread in the region.

**Gc1:** *Eucalyptus camaldulensis* var. *obtusa* mid to low woodland (+/- *Casuarina obesa* and *Melaleuca raphiophylla*) isolated to open tall shrubland, over *Atriplex amnicola* and *Chenopodium gaudichaudianum* sparse low shrubland, over *Cyperus gymnocaulos* sparse sedgeland and \**Avena fatua* and \**Bromus diandrus* tussock grassland.

Gc1 was restricted to the major creeklines of the Greenough soil-landscape system. The Greenough system is moderately widespread in the Study Area (2.05%), but is very restricted in Western Australia with a significant 25.7% of its total area occurring in the Study Area and of which 42% of native vegetation remains. Gc1 is mapped as a very small area in the Study Area (996 ha, 0.44%) and provides habitat for two Priority Flora taxa (Table P.2), of which one was only recorded in Gc1 therefore has high conservation significance as it is restricted to the Greenough system of which a considerable amount of the total area is mapped in the Study Area and it is not likely to be widespread in the region.

**Gc2:** *Grevillea* spp., *Acacia* spp. and *Melaleuca* spp. tall shrubland.

Gc2 was restricted to a creek bank and floodplain of the Northampton soil-landscape system, in one area on the far western boundary of the Study Area. The Northampton system is fairly widespread in the Study Area (2.12%), but restricted in Western Australia and has 5.73% of its total area occurring in the Study Area. The Northampton system has been extensively cleared and now has only 20% of native vegetation remaining. Gc2 is very restricted in the Study Area (13 ha, 0.01%) and provides habitat for four Priority Flora taxa (Table P.2), of which two were only recorded in Gc2. Gc2 therefore has high conservation significance as it is very restricted in the Study Area and is likely to be restricted in the region. Gc2 is restricted as it only just nicks the western edge of the Study Area and has been mapped further in the Oakajee Port Vegetation and Flora survey.

**Yh1:** *Allocasuarina dielsiana* sparse mid woodland, over *Acacia quadrimarginea* and *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over *Ptilotus obovatus* sparse low shrubland.

Yh1 was restricted to the low rocky hill slopes of the Tallering land system and is part of the Tallering Peak PEC. The Tallering system is restricted in the Study Area (0.46%) and in Western Australia, with 3.17% of its total area occurring in the Study Area. The Tallering system is the only system in the Pastoral land area that has had any significant vegetation cleared and has 85.4% of native vegetation remaining. Yh1 is mapped as a very small area in the Study Area (928 ha, 0.41%) and it contained no Priority Flora. Yh1 therefore has high conservation significance as it is restricted in the Study Area and in Western Australia and is part of the Tallering Peak PEC.

**Yh2:** *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over isolated *Thryptomene decussata*, *Eremophila latrobei* subsp. *latrobei* and *Sida ectogama* mid shrubs, over *Eriachne pulchella* subsp. *pulchella* and *Aristida contorta* sparse tussock grassland.

Yh2 was restricted to the low gravelly hill slopes and plains of the Nerramyne land system. The Nerramyne system is widespread in the Study Area (2.55%) and in Western Australia, with 2.29% of its total area occurring in the Study Area. Yh2 is mapped as a very small area in the Study Area (58 ha, 0.03%) and does not contain Priority Flora. Yh2 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Yh3:** Isolated *Acacia aneura*, *Acacia ramulosa* var. *linophylla*, *Acacia quadrimarginea* and *Acacia grasbyi* low trees, over *Thryptomene costata* and *Thryptomene decussata* open mid to low shrubland, over *Aristida contorta* open tussock grassland.

Yh3 was recorded on the low gravelly hills and plains of the Challenge and Gabanintha land systems. The Challenge system is one of the most common systems in the Study Area and is very widespread across both Western Australia and the Study Area. Although the Challenge system is mapped as 7.63% of the Study Area, only 1.7% of the total area of the system is mapped within it. The Gabanintha system is moderately widespread in the Study Area (1.19%) and in Western Australia, with 1.07% of its total area occurring in the Study Area. Yh3 is mapped as a very small area in the Study Area (112 ha, 0.05%) and provides habitat for one Priority Flora taxon (Table P.2). Yh3 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Yy1:** *Acacia ramulosa* var. *linophylla* and *Acacia ramulosa* var. *ramulosa* open tall shrubland.

Yy1 was restricted to the yellow sand plains of the Kalli land system. The Kalli system is one of the most common in the Study Area and is widespread across both Western Australia and the Study Area. Although the Kalli system is mapped as 7.15% of the Study Area, only 1.44% of the total area of the system is mapped within it. Yy1 is mapped as a very small area in the Study Area (4,923 ha, 2.18%) and provides habitat for four Priority Flora taxa (Table P.2). Yy1 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Yp1:** *Acacia coolgardiensis* tall shrubland to low woodland, over isolated *Eremophila forrestii* mid to low shrubs.

Yp1 was restricted to the red-sandy clay plains of the Nerramyne land system. The Nerramyne system is moderately widespread in the Study Area (2.55%) and in Western Australia, with 2.29% of its total area occurring in the Study Area. Yp1 is mapped as a very small area in the Study Area (231 ha, 0.1%) and provides habitat for one Priority Flora taxon (Table P.2). Yp1

therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Yp2:** *Acacia ramulosa* var. *linophylla* (+/- *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla*) tall to mid shrubland, over *Enchylaena tomentosa* var. *tomentosa* sparse low shrubland.

Yp2 was a widespread vegetation community recorded on the red sand plains of the Study Area, occurring over a number of land systems, including the Tindalarra, Tallering and Nerramyne systems. The Tindalarra system is widespread in Western Australia and the Study Area contained 4.1% of the total area of the system. The Tindalarra system is the second most common and covers 12.97% of the Study Area, the Tallering system is not widespread in Western Australia and the Study Area contained a significant 3.17% of the total area of the system and the Nerramyne system is moderately widespread in the Yalgoo region of Western Australia and the Study Area contained 2.29% of the total area of the system. Yp2 is mapped as a moderate area in the Study Area (5,164 ha, 2.29%) and provides habitat for five Priority Flora taxa (Table P.2). Yp2 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Yp3:** Mixed *Eucalyptus* spp. low woodland, over sparse *Acacia* spp. mid shrubland.

Yp3 was restricted to the yellow sand plains of the Joseph land system. The Joseph system is restricted in the Study Area (0.36%), but is widespread in Western Australia, with a low 0.17% of its total area occurring in the Study Area. Yp3 is mapped as a very small area in the Study Area (1,078 ha, 0.48%) and provides habitat for three Priority Flora taxa (Table P.2), of which one is only recorded in Yp3. Yp3 therefore has moderate conservation significance as it is restricted in the Study Area, but is likely to be widespread in the region.

**Yp4:** *Eucalyptus kochii* subsp. *amaryssia* open mid woodland, over isolated *Acacia ramulosa* var. *ramulosa* tall shrubs, over isolated *Acacia andrewsii*, *Ptilotus obovatus* and *Maireana* spp. low shrubs, over isolated *Eriachne helmsii* tussock grasses.

Yp4 was restricted to the sand plains of the Pindar land system. The Pindar system is restricted in the Study Area (0.29%) and is moderately widespread in Western Australia, with 0.49% of its total area occurring in the Study Area. Yp4 is mapped as a very small area in the Study Area (851 ha, 0.38%) and provides habitat for one Priority Flora taxon (Table P.2). Yp4 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Yp5:** *Acacia ramulosa* var. *linophylla*, *Acacia grasbyi*, *Acacia burkittii* and *Acacia aneura* open tall shrubland.

Yp5 was the most widespread vegetation community in the Study Area. It mainly falls on three large and widespread land systems including; the Tindalarra, Yanganoo and Nerramyne systems. The Yanganoo and Tindalarra systems are respectively the first and second most widespread, covering 15.72% and 12.97% of the total Study Area. The Nerramyne system is less widespread in the Study Area (2.29%). Yp5 is mapped as a large area in the Study Area (28,448 ha, 12.61%) and provides habitat for seven Priority Flora taxa (Table P.2), of which two were only recorded in Yp5. Yp5 therefore has low conservation significance as it is very widespread in the Study Area and is likely to be very widespread in the region.

**Yp6:** *Acacia burkittii*, *Acacia quadrimarginea*, *Acacia aneura* (+/- *Acacia* aff. *rhodophloia*) over isolated *Hakea preissii* and *Senna* spp. mid shrubs, over *Ptilotus obovatus* and *Acacia scleroclada* sparse low shrubland, over *Cymbopogon ambiguus* and *Aristida contorta* open tussock grassland.

Yp6 was restricted to the stony plains of the Challenge land system. The Challenge system is one of the most widespread systems in the Study Area and is widespread across Western Australia. Although the Challenge system is mapped as 7.63% of the Study Area, only 1.7% of the total area of the system is mapped within it. Yp6 is mapped as a moderately sized area in the Study Area (4,006 ha, 1.78%) and provides habitat for six Priority Flora taxa (Table P.2). Yp6 therefore has low conservation significance as it is very widespread in the Study Area and is likely to be very widespread in the region.

**Yf1:** *Acacia burkittii* and *Acacia grasbyi* and (+/- *Acacia ramulosa* var. *linophylla*) sparse tall shrubland over *Acacia tetragonophylla* sparse tall to mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland.

Yf1 was restricted to the floodplains of the Tindalarra system, which is widespread in Western Australia and the Study Area contained a significant 4.1% of the total area of the system. The Tindalarra system is the second most common and covers 12.97% of the Study Area. Yf1 is mapped as a moderately sized area in the Study Area (5,460 ha, 2.42%) and provides habitat for three Priority Flora taxa (Table P.2). Yf1 therefore has low conservation significance as it is very widespread in the Study Area and is likely to be very widespread in the region.

**Yf2:** Isolated *Acacia synchronicia* tall shrubs, over isolated *Senna* sp. Meekatharra (E. Bailey 1-26), *Acacia synchronicia*, *Acacia tetragonophylla* and *Eremophila galeata* mid shrubs, over *Aristida contorta* tussock grassland.

Yf2 was restricted to the floodplains of the Tindalarra and Ero land systems. The Tindalarra system is widespread in Western Australia and the Study Area contained 4.1% of the total area of the system. The Tindalarra system is the second most common and covers 12.97% of the Study Area. The Ero system is moderately widespread in Western Australia and the Study Area contained 1.82% of the total area of the system and is mapped as 1.73% of the Study Area. Yf2 is mapped as a very small area in the Study Area (856 ha, 0.38%) and no Priority Flora were recorded (Table P.2). Yf2 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Yf3:** *Acacia victoriae* sparse tall shrubland, over *Atriplex bunburyana* open mid shrubland, over *Atriplex bunburyana* sparse low shrubland, over *Aristida contorta* and *Eragrostis dielsii* sparse tussock grassland.

Yf3 was restricted to the floodplains of the Beringarra land system. The Beringarra system is restricted in the Study Area (0.63%), but moderately widespread in Western Australia, with 0.54% of its total area occurring in the Study Area. Yf3 is mapped as a very small area in the Study Area (403 ha, 0.18%) and no Priority Flora were recorded. Yf3 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Yf4:** *Tecticornia disarticulata*, *Rhagodia eremaea*, *Frankenia laxiflora*, *Sclerolaena cuneata* and *Cratystylis subspinescens* low shrubland.

Yf4 was restricted to the floodplains of the Yewin land system. The Yewin system is restricted in the Study Area (0.75%) and Western Australia, with a significant 3.7% of its total area occurring in the Study Area. Yf4 is mapped as a very small area in the Study Area (63 ha, 0.03%) and no Priority Flora were recorded. Yf4 therefore has high conservation significance as it is restricted in the Study Area, and is likely to be restricted in the region.

**Yf5:** *Acacia eremaea* sparse tall shrubland, over mixed Chenopod spp. low shrubland.

Yf5 was restricted to the floodplains of the Yewin and Tindalarra land systems. The Yewin system is not widespread in the Study Area (0.75%) or Western Australia, with 3.7% of its total



area occurring in the Study Area. The Tindalarra system is very widespread in the Study Area (0.75%) and Western Australia, with 4.1% of its total area occurring in the Study Area. Yf5 is mapped as a moderate area in the Study Area (8,049 ha, 3.57%) and provides habitat for seven Priority Flora taxa (Table P.2). Yf5 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Yc1:** *Casuarina obesa* open to sparse low forest, over *Duboisia hopwoodii* sparse tall shrubland, over *Atriplex amnicola*, *Tecticornia indica* subsp. *bidens* and *Tecticornia lepidosperma* open low Chenopod shrubland, over \**Hordeum glaucum* and \**Avena fatua* tussock grassland.

Yc1 was restricted to the major creeklines of the Tindalarra land system. The Tindalarra system is the second most common and covers 12.97% of the Study Area. Yc1 is mapped as a very small area in the Study Area (532 ha, 0.24%) and provides habitat for one Priority Flora taxon (Table P.2). Yc1 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Yc2:** *Acacia burkittii* (+/-*Acacia acuminata*) mid woodland, over *Acacia burkittii*, *Hakea preissii* and *Acacia tetragonophylla* low woodland to sparse tall shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Cyperus bifax* sparse sedgeland, over *Monachather paradoxus* and \**Setaria verticillata* tussock grassland.

Yc2 was restricted to the minor creeklines or drainage channels of the Yanganoo, Tindalarra and Ero land systems. The Yanganoo and Tindalarra systems are respectively the first and second most widespread, covering 15.72% and 12.97% of the total Study Area. The Ero system is moderately widespread in the Study Area (1.73%) or Western Australia, with 1.82% of its total area occurring in the Study Area. Yc2 is mapped as a very small area in the Study Area (2,712 ha, 1.20%) and provides habitat for four Priority Flora taxa (Table P.2), one of which was only recorded in Yc2. Yc2 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mh1:** *Acacia rhodophloia*, *Acacia ramulosa* var. *linophylla* and *Acacia cuthbertsonii* subsp. *cuthbertsonii* open tall shrubland, over *Eriachne aristidea* sparse tussock grassland.

Mh1 was restricted to the Jack Hills, mid slope drainage channels of the Weld land system and is part of the Jack Hills PEC. The Weld system is moderately widespread in the Study Area (1.60%) and is restricted in Western Australia, with 9.68% of its total area occurring in the Study Area. Mh1 is mapped as a small area in the Study Area (384 ha, 0.17%) and no Priority Flora were recorded. Mh1 therefore has high conservation significance as it is restricted in the Study Area and the region and is part of the Jack Hills PEC.

**Mh2:** Sparse *Acacia aneura* and/or *Acacia rhodophloia* low woodland, over *Ptilotus obovatus* sparse low shrubland.

Mh2 was restricted to the Jack Hills, mid slopes and ridgetops of the Weld land system and is part of the Jack Hills PEC. The Weld system is moderately widespread in the Study Area (1.60%) and is restricted in Western Australia, with 9.68% of its total area occurring in the Study Area. Mh2 is mapped as a small area in the Study Area (225 ha, 0.10%) and no Priority Flora were recorded. Mh2 therefore has high conservation significance as it is restricted in the Study Area and the region and is part of the Jack Hills PEC.

**Mh3:** Isolated *Acacia aneura* (+/- *Acacia ramulosa* var. *linophylla* and *Acacia cuthbertsonii* subsp. *cuthbertsonii*) low trees, over isolated *Aristida contorta* tussock grasses.

Mh3 was restricted to lower foot slopes at Jack Hills of the Weld and Yarrameedie land system and is part of the Jack Hills PEC. The Weld system is moderately widespread in the Study Area (1.60%) and is restricted in Western Australia, with 9.68% of its total area occurring in the

Study Area. The Yarrameedie system is not widespread in Western Australia and the Study Area contains 10.31% of the total area of the system. The Yarrameedie system is mapped as 3.13% of the Study Area. Mh3 is mapped as a moderate area in the Study Area (3,632 ha, 1.61%) and provides habitat for three Priority Flora taxa (Table P.2), one of which was only recorded in Mh3. Mh3 therefore has high conservation significance as it is moderately widespread in the Study Area but is restricted in the region and is part of the Jack Hills PEC.

**Mh4:** *Acacia aneura* and *Acacia citrinoviridis* open low woodland, over *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over *Sida cardiophylla* and *Ptilotus obovatus* open low shrubland, over isolated *Monachather paradoxus* tussock grasses.

Mh4 was restricted to the Jack Hills on a low quartzite hill of the Weld land system and is part of the Jack Hills PEC. The Weld system is moderately widespread in the Study Area (1.60%) and is restricted in Western Australia, with 9.68% of its total area occurring in the Study Area. Mh4 is mapped as a small area in the Study Area (426 ha, 0.19%) and provides habitat for one Priority Flora taxon (Table P.2). Mh4 therefore has high conservation significance as it is restricted in the Study Area and the region.

**Mh5:** *Acacia aneura* (+/- *Acacia ramulosa* var. *linophylla*) sparse to open low woodland, over mixed *Eremophila* spp. mid shrubland.

Mh5 was restricted to midslopes and lower foot slopes at Weld Range of the Weld and Yarrameedie land system and is part of the Weld Range PEC. The Weld system is moderately widespread in the Study Area (1.60%) and is restricted in Western Australia, with 9.68% of its total area occurring in the Study Area. The Yarrameedie system is not widespread in Western Australia and the Study Area contains 10.31% of the total area of the system. The Yarrameedie system is mapped as 3.13% of the Study Area. Mh5 is mapped as a moderately sized area in the Study Area (4,298 ha, 1.91%) and five Priority Flora taxa were recorded (Table P.2). Mh5 therefore has high conservation significance as it is moderately widespread in the Study Area but is restricted in the region and is part of the Weld Range PEC.

**Mh6:** Isolated *Acacia pruinocarpa* low trees, over *Acacia aneura* sparse tall shrubland, over *Thryptomene decussata* (+/- *Prostanthera petrophila*, *Dodonaea petiolaris*, *Eremophila latrobei* subsp. *latrobei* and *Philothea brucei* subsp. *brucei*) mid shrubland, over *Ptilotus obovatus* low shrubland, over *Eriachne mucronata* and *Cymbopogon ambiguus* sparse tussock grassland.

Mh6 was restricted to the Weld Range BIF ridge tops of the Weld land system and is part of the Weld Range PEC. The Weld system is moderately widespread in the Study Area (1.60%) and is restricted in Western Australia, with 9.68% of its total area occurring in the Study Area. Mh6 is mapped as a very small area in the Study Area (71 ha, 0.03%) and provides habitat for two Priority Flora taxa (Table P.2). Mh6 therefore has very high conservation significance as it is very restricted in the Study Area and in Western Australia and provides significant Priority Flora habitat.

**Mh7:** *Acacia* sp. Weld Range (A. Markey & S. Dillon 2994) and *Acacia aneura* open tall shrubland, over *Eremophila macmillaniana* and *Senna artemisioides* subsp. *helmsii* open mid shrubland, over *Ptilotus obovatus* open low shrubland.

Mh7 was restricted to a lower granite and basalt hill slope at Weld Range of the Yarrameedie land system and is part of the Weld Range PEC. The Yarrameedie system is restricted in Western Australia and the Study Area contained 10.31% of its total area. The Yarrameedie system is mapped as 3.13% of the Study Area. Mh7 is mapped as a very small area in the Study Area (94 ha, 0.04%) and no Priority Flora were recorded. Mh7 therefore has high conservation significance as it is restricted in the Study Area and the region and is part of the Weld Range PEC.

**Mh8:** *Acacia aneura* open low woodland, over *Eremophila macmillaniana* open mid shrubland, over *Sida* sp. dark green fruits (S. van Leeuwen 2260) scattered low shrubs, over *Aristida contorta* open tussock grassland.

Mh8 was restricted to the Weld Range BIF mid slopes of the Weld land system and is part of the Weld Range PEC. The Weld system is moderately widespread in the Study Area (1.60%) and is restricted in Western Australia, with 9.68% of its total area occurring in the Study Area. Mh8 is mapped as a very small area in the Study Area (750 ha, 0.33%) and provides habitat for three Priority Flora taxa (Table P.2). Mh8 therefore has high conservation significance as it is restricted in the Study Area and the region and is part of the Weld Range PEC.

**Mh9:** *Acacia aneura* open low woodland, over *Grevillea obliquistigma* subsp. *obliquistigma* and *Eremophila spathulata* sparse mid shrubland, over *Eremophila latrobei* subsp. *latrobei* sparse low shrubland, over *Eriachne pulchella* subsp. *pulchella* sparse tussock grassland.

Mh9 was restricted to the low quartzite hill slopes of the Mindura land system. The Mindura system is widespread in the Study Area (1.4%) and Western Australia, with 0.72% of its total area occurring in the Study Area. Mh9 is mapped as a very small area in the Study Area (115 ha, 0.05%) and provides habitat for two Priority Flora taxa (Table P.2). Mh9 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Mh10:** *Acacia* spp., sparse tall shrubland, over *Eremophila* spp. sparse mid shrubland.

Mh10 was restricted to the granite ridgetops and outcrops of the Mindura and Millrose land systems. The Mindura system is widespread in the Study Area (1.4%) and Western Australia, with 0.72% of its total area occurring in the Study Area. The Millrose system is moderately widespread in the Study Area (1.4%) and Western Australia with 1.2% of its total area occurring in the Study Area. Mh10 is mapped as a very small area in the Study Area (29 ha, 0.01%) and provided habitat for two Priority Flora taxa. Mh10 therefore has moderate conservation significance as it is restricted in the Study Area and although it is likely to be widespread in the region, corresponds to a less common characteristic of the land systems and is likely to be rare.

**Mh11:** *Acacia* aff. *rhodophloia* open tall shrubland, over *Dodonaea petiolaris* sparse mid shrubland, over *Ptilotus obovatus*, *Pluchea dentex*, *Stemodia viscosa*, *Solanum lasiophyllum* and *Hibiscus coatesii* sparse low shrubland, over *Aristida contorta* and *Cymbopogon ambiguus* tussock grassland.

Mh11 was restricted to the bases of granite outcrops and boulders of the Norie and Challenge land systems. The Norie system is not widespread in Western Australia, and is mapped as 1.06% of the Study Area. The Challenge system is very widespread in Western Australia, and is mapped as 7.63% of the Study Area. Mh11 is mapped as a very small area in the Study Area (746 ha, 0.33%) and provides habitat for three Priority Flora taxa. Mh11 therefore has moderate conservation significance as it is restricted in the Study Area and although it is likely to be widespread in the region, corresponds to a less common characteristic of the land systems and is likely to be rare.

**Mh12:** *Eremophila platycalyx* subsp. *platycalyx* and *Acacia tetragonophylla* sparse tall shrubland, over isolated *Dodonaea viscosa* subsp. *spatulata* low shrubs, over *Cymbopogon ambiguus* sparse tussock grassland.

Mh12 was restricted to the bases of granite outcrops and boulders of the Norie and Challenge land systems. The Norie system is not very widespread in Western Australia, and is mapped as 1.06% of the Study Area. The Challenge system is very widespread in Western Australia, and is mapped as 7.63% of the Study Area. Mh12 is mapped as a very small area in the Study Area

(1,094 ha, 0.49%) and did not contain any Priority Flora. Mh12 therefore has moderate conservation significance as it is restricted in the Study Area and although it is likely to be widespread in the region, corresponds to a less common characteristic of the land systems and is likely to be rare.

**Mh13:** *Acacia* sp. Weld Range (A. Markey & S. Dillon 2994) sparse mid shrubland, over *Dodonea pachyneura* and *Philotheca* aff. *tubiflora* sparse low shrubland, over isolated *Eragrostis* sp. tussock grasses.

Mh13 was restricted to the lateritic breakaways of the Sherwood land system. The Sherwood system is widespread in the Study Area (4.27%) and Western Australia, with 0.61% of its total area occurring in the Study Area. Mh13 is mapped as a very small area in the Study Area (526 ha, 0.23%) and it provides habitat for five Priority Flora taxa (Table P.2). Mh13 therefore has high conservation significance as it is restricted in the Study Area and although it is likely to be widespread in the region, corresponds to a less common characteristic of the land systems and is likely to be rare and provides habitat for many Priority Flora taxa.

**Mh14:** Isolated *Acacia aneura* low trees, over *Thryptomene decussata* sparse mid to low shrubland, over isolated *Monachather paradoxus* tussock grasses.

Mh14 was restricted to the low gravelly hill slopes of the Millrose land system. The Millrose system is not widespread in the Study Area (0.58%) and is moderately widespread in Western Australia, with 1.2% of its total area occurring in the Study Area. Mh14 is mapped as a very small area in the Study Area (159 ha, 0.07%) and it provides habitat for three Priority Flora taxa (Table P.2). Mh14 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Mh15:** *Acacia aneura* open low woodland, over *Sida* spp. and *Ptilotus obovatus* sparse low shrubland.

Mh15 was restricted to the low lateritic hill slopes of the Wiluna and Gabanintha land system. The Wiluna system is moderately widespread in Western Australia, and is mapped as 0.36% of the Study Area. The Gabanintha system is moderately widespread in Western Australia, and is mapped as 1.19% of the Study Area. Mh15 is mapped as a very small area in the Study Area (1,814 ha, 0.80%) and it provides habitat for four Priority Flora taxa (Table P.2). Mh15 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Mh16:** *Acacia aneura* open low woodland, over *Acacia synchronicia* and *Acacia tetragonophylla* sparse tall shrubland, over *Maireana triptera* and *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* open tussock grassland.

Mh16 was restricted to the lateritic footslopes of the Gabanintha land system. The Gabanintha system is moderately widespread in the Study Area (1.19%) or Western Australia, with 1.07% of its total area occurring in the Study Area. Mh16 is mapped as a very small area in the Study Area (718 ha, 0.32%) and it provides habitat for three Priority Flora taxa (Table P.2). Mh16 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Mh17:** *Acacia aneura* open low woodland, over *Acacia ramulosa* var. *linophylla* open tall shrubland, over *Aluta aspera* subsp. *hesperia* or *Eremophila forrestii* open mid shrubland, over *Monachather paradoxus* sparse tussock grassland.

Mh17 was restricted to the low gravelly hill slope of the Norie and Challenge land systems. The Norie system is moderately widespread in Western Australia and is mapped as 1.06% of the Study Area. The Challenge system is very widespread in Western Australia and is mapped

as 7.63% of the Study Area. Mh17 is mapped as a very small area in the Study Area (1,876 ha, 0.86%) and it provides habitat for two Priority Flora taxa (Table P.2). Mh17 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Mh18:** *Acacia* spp. sparse tall shrubland, over *Eremophila latrobei* subsp. *latrobei* and mixed Myrtaceae spp. open low shrubland.

Mh18 was restricted to the lateritic and calcreted breakaways of the Challenge and Waguin land systems. The Challenge system is very widespread in Western Australia, and is mapped as 7.63% of the Study Area. The Waguin land system is also very widespread in Western Australia, and is mapped as 0.26% of the Study Area. Mh18 is mapped as a very small area in the Study Area (103 ha, 0.05%) and it provides habitat for four Priority Flora taxa (Table P.2). Mh18 therefore has high conservation significance as it is restricted in the Study Area and although it is likely to be widespread in the region, corresponds to a less common characteristic of the land systems and is likely to be rare.

**Mr1:** *Acacia aneura* (+/- *Acacia ramulosa* var. *linophylla*) sparse low woodland, over *Eremophila compacta* subsp. *compacta* mid shrubland, over *Mirbelia rhagodioides* and (+/- *Hemigenia virescens*) sparse low shrubland, over *Aristida holathera* var. *holathera* and *Eriachne aristidea* tussock grassland.

Mr1 was restricted to the red sand plains of the Belele and Flood land systems. The Belele system is widespread in Western Australia, and is mapped as 1.93% of the Study Area. The Flood land system is moderately widespread in Western Australia, and is mapped as 1.33% of the Study Area. Mr1 is mapped as a large area in the Study Area (7,239 ha, 3.21%) and it provides habitat for four Priority Flora taxa (Table P.2). Mr1 therefore has moderate conservation significance as it is widespread in the Study Area and likely to be widespread in the region, but provides significant habitat for Priority Flora.

**Mr2:** *Acacia aneura* open low woodland, over *Acacia ramulosa* var. *linophylla* open tall shrubland, over *Eremophila forrestii* (+/- *Eremophila simulans* subsp. *simulans*) open mid shrubland, over *Eriachne helmsii* and *Monachather paradoxus* open tussock grassland.

Mr2 was restricted to the orange-yellow sand plains of the Kalli land system. The Kalli system is very widespread in the Study Area (7.15%) and Western Australia, with 1.44% of its total area occurring in the Study Area. Mr2 is mapped as a large area in the Study Area (10,661 ha, 4.73%) and it provides habitat for seven Priority Flora taxa (Table P.2). Mr2 therefore has moderate conservation significance as it is widespread in the Study Area and likely to be widespread in the region, but provides significant habitat for Priority Flora.

**Mr3:** *Acacia aneura* open tall shrubland, over *Eremophila forrestii* (+/- *Eremophila fraseri* and *Senna* spp.) open mid shrubland, over *Ptilotus obovatus* open low shrubland, over *Monachather paradoxus* open tussock grassland.

Mr3 was restricted to the red sand plains of the Yandil land system. The Yandil system is widespread in the Study Area (1.36%) and Western Australia, with 0.62% of its total area occurring in the Study Area. Mr3 is mapped as a very small area in the Study Area (2,487 ha, 1.1%) and it provides habitat for three Priority Flora taxa (Table P.2). Mr3 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mp1:** *Eremophila spathulata* and/or *Eremophila macmillaniana* sparse mid shrubland.

Mp1 was restricted to the stony quartzite plains of the Koonmarra land system. The Koonmarra system is widespread in the Study Area (5.32%) and Western Australia, with 2.11%

of its total area occurring in the Study Area. Mp1 is mapped as a large area in the Study Area (10,634 ha, 4.71%) and it provides habitat for six Priority Flora taxa (Table P.2). Mp1 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mp2:** *Acacia aneura* sparse low woodland, over *Eremophila fraseri* (+/- *Eremophila macmillaniana*) and *Senna artemisioides* subsp. *helmsii* open mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Eriachne pulchella* subsp. *pulchella* and *Aristida contorta* sparse tussock grassland.

Mp2 was restricted to the hard clay plains of the Koonmarra and Yandil land system. The Koonmarra land system is widespread in Western Australia, and is mapped as 5.32% of the Study Area and the Yandil system is also widespread in Western Australia, and mapped as 1.36% of the Study Area. Mp2 is mapped as a large area in the Study Area (7,562 ha, 3.35%) and it provides habitat for six Priority Flora taxa (Table P.2). Mp2 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mp3:** Isolated *Acacia aneura* low trees, over open *Senna artemisioides* subsp. *helmsii*, *Senna glaucifolia* and *Senna* sp. Meekatharra (E. Bailey 1-26) mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland.

Mp3 was restricted to the hardpan plains of the Ero and Yandil land systems. The Ero land system is moderately widespread in Western Australia, and is mapped as 1.73% of the Study Area. The Yandil system is widespread in Western Australia, and is mapped as 1.36% of the Study Area. Mp3 is mapped as a moderate area in the Study Area (2,771 ha, 1.23%) and it provides habitat for two Priority Flora taxa (Table P.2). Mp3 therefore has low conservation significance as it is fairly widespread in the Study Area and is likely to be widespread in the region.

**Mp4:** Isolated *Acacia pruinocarpa* low trees, over *Acacia aneura* and *Acacia craspedocarpa* x *aneura* sparse tall shrubland, over isolated *Eremophila fraseri* mid shrubs, over *Ptilotus obovatus* sparse low shrubland.

Mp4 was restricted to the hardpan plains of the Yandil land system. The Yandil system is widespread in the Study Area (1.36%) and Western Australia, with 0.62% of its total area occurring in the Study Area. Mp4 is mapped as a very small area in the Study Area (2,783 ha, 1.23%) and it provides habitat for three Priority Flora taxa (Table P.2). Mp4 therefore has low conservation significance as it is fairly widespread in the Study Area and is likely to be widespread in the region.

**Mp5:** *Acacia aneura* open low woodland, over isolated *Acacia demissa* tall shrubs, over *Senna artemisioides* subsp. *helmsii* sparse mid shrubland, over *Ptilotus obovatus* sparse low shrubland.

Mp5 was restricted to the hardpan plains with outcropping granite of the Sherwood, Yandil and Mindura land systems. The Sherwood system is very widespread in Western Australia and is mapped as 4.27% of the Study Area, the Yandil system is widespread in Western Australia and is mapped as 1.36% of the Study Area and the Mindura system is widespread in Western Australia and is mapped as 1.4% of the Study Area. Mp5 is mapped as a moderate area in the Study Area (4,103 ha, 1.82%) and it provides habitat for eight Priority Flora taxa (Table P.2). Mp5 therefore has low conservation significance as it is fairly widespread in the Study Area and is likely to be widespread in the region.

**Mp6:** Isolated *Acacia aneura* low trees, over *Ptilotus obovatus* and mixed *Maireana* spp. low shrubland.

Mp6 was restricted to the clay pans of the Cunyu and Sherwood land system. The Cunyu system is restricted in the Study Area (0.69%) and widespread in Western Australia, with 0.47% of its total area occurring in the Study Area. The Sherwood system is widespread in the Study Area (4.27%) and in Western Australia, with 0.61% of its total area occurring in the Study Area. Mp6 is mapped as a moderate area in the Study Area (4,070 ha, 1.8%) and it provides habitat for nine Priority Flora taxa (Table P.2). Mp6 therefore has moderate conservation significance as it is fairly widespread in the Study Area and likely to be widespread in the region, but provides significant habitat for Priority Flora.

**Mp7:** *Acacia aneura* sparse low woodland, over *Acacia craspedocarpa* tall shrubland, over *Acacia tetragonophylla* sparse mid shrubland, over *Eremophila punicea*, *Solanum lasiophyllum* and *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland.

Mp7 was recorded on the hardpan clay plains of the Yanganoo and Millex land systems. The Yanganoo system is very widespread in Western Australia, and is mapped as 15.72% of the Study Area. The Millex system is restricted in Western Australia, and is mapped as 1.27% of the Study Area. Mp7 is mapped as a large area in the Study Area (6,315 ha, 2.8%) and it provides habitat for four Priority Flora taxa (Table P.2). Mp7 therefore has moderate conservation significance as it is widespread in the Study Area and likely to be widespread in the region, but provides significant habitat for Priority Flora.

**Mp8:** *Acacia aneura* isolated low trees to open woodland, (+/-*Acacia tetragonophylla*, *Acacia craspedocarpa* and *Acacia ramulosa* var. *linophylla*) tall shrubs, over *Eremophila fraseri*, *Ptilotus obovatus* and *Solanum lasiophyllum* sparse low shrubland, over *Aristida contorta* open tussock grassland.

Mp8 was restricted to the hard clay pans of the Jundee, Violet and Yandil land systems. The Jundee system is widespread in Western Australia, and is mapped as 1.94% of the Study Area, the Violet system is widespread in Western Australia and is mapped as 1.36% of the Study Area and the Yandil system is widespread in Western Australia, and is mapped as 1.36% of the Study Area. Mp8 is mapped as a moderate area in the Study Area (4,914 ha, 2.18%) and it provides habitat for four Priority Flora taxa (Table P.2). Mp8 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mp9:** Isolated *Acacia aneura* and *Eremophila platycalyx* low trees, over *Eremophila fraseri* subsp. *fraseri*, *Eremophila platycalyx*, *Senna artemisioides* subsp. *helmsii* and *Senna* sp. Meekatharra (E. Bailey 1-26) open mid shrubland, over *Ptilotus obovatus* sparse low shrubland, over *Aristida contorta* sparse tussock grassland.

Mp9 was restricted to the hardpan plains of the Challenge, Millex and Yandil land systems. The Challenge system is very widespread in Western Australia, and is mapped as 7.63% of the Study Area, the Millex system is not very widespread in Western Australia, and is mapped as 1.27% of the Study Area and the Yandil system is widespread in Western Australia, and is mapped as 1.36% of the Study Area. Mp9 is mapped as a large area in the Study Area (9,900 ha, 4.39%) and it provides habitat for five Priority Flora taxa (Table P.2). Mp9 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mp10:** *Aristida holathera* var. *holathera*, *Eragrostis cumingii*, *Eriachne flaccida*, *Eriachne pulchella* subsp. *pulchella* and *Eragrostis setifolia* tussock grassland, over *Bulbostylis barbata* and *Fimbristylis dichotoma* sedgeland.

Mp10 was restricted to the shallow soils on granite of the Norie land system. The Norie system is not very widespread in the Study Area (1.06%) and is moderately widespread in Western Australia, with 1.13% of its total area occurring in the Study Area. Mp10 is mapped as

a very small area in the Study Area (92 ha, 0.04%) and no Priority Flora were recorded. Mp10 therefore has moderate conservation significance as it is restricted in the Study Area and although it is likely to be widespread in the region, corresponds to a less common characteristic of the system and is likely to be rare.

**Mp11:** *Acacia aneura* sparse to open low woodland, over *Eremophila forrestii*, *Eremophila fraseri* and *Senna* spp. sparse mid shrubland, over *Aristida contorta* tussock grassland.

Mp11 was restricted to the hardpan plains of the Yandil land system. The Yandil system is moderately widespread in the Study Area (1.36%) and in Western Australia, with 0.62% of its total area occurring in the Study Area. Mp11 is mapped as a large area in the Study Area (13,342 ha, 5.91%) and it provides habitat for four Priority Flora taxa (Table P.2). Mp11 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mp12:** *Acacia aneura* low woodland, over *Acacia aneura* x *craspedocarpa* and *Acacia tetragonophylla* open tall shrubland, over isolated *Eremophila forrestii* and *Eremophila fraseri* mid shrubs, over *Aristida contorta* and *Eragrostis dielsii* open tussock grassland.

Mp12 was restricted to the hardpan plains of the Yandil land system. The Yandil system is widespread in the Study Area (1.36%) and Western Australia, with 0.62% of its total area occurring in the Study Area. Mp12 is mapped as a moderate area in the Study Area (4,573 ha, 2.03%) and it provides habitat for two Priority Flora taxa (Table P.2). Mp12 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region.

**Mf1:** *Melaleuca stereophloia* open to closed mid shrubland, over mixed *Chenopod* spp. low shrubland.

Mf1 was restricted to the floodplains bordering the salt lakes of the Mileura land system. The Mileura system is not widespread in the Study Area (0.65%) or Western Australia, with 0.56% of its total area occurring in the Study Area. Mf1 was mapped as a very small area in the Study Area (529 ha, 0.23%) and it provided habitat for two Priority Flora taxa (Table P.2). Mf1 therefore has high conservation significance as it is restricted in the Study Area and the region, was recorded at Weld Range and likely to be different to other salt lake vegetation communities in the area.

**Mf2:** *Eucalyptus striatocalyx* subsp. *striatocalyx* and *Eucalyptus trivalva* open mid to low forest, over *Maireana georgei*, *Frankenia laxiflora* and *Atriplex bunburyana* sparse low shrubland.

Mf2 was restricted to the floodplains bordering salt lakes of the Mileura land system. The Mileura system is not widespread in the Study Area (0.65%) or Western Australia, with 0.56% of its total area occurring in the Study Area. Mf2 was mapped as a very small area in the Study Area (20 ha, 0.01%). No Priority Flora was recorded. Mf2 therefore has very high conservation significance as it is very restricted in the Study Area and the region, was recorded at Weld Range and likely to be different to other salt lake vegetation communities in the area.

**Mf3:** *Tecticornia pruinosa* low shrubland, over *Fimbristylis dichotoma* and *Eragrostis pergracilis* open tussock grassland.

Mf3 was restricted to the dry salt lake beds of the Mileura land system. The Mileura system is not widespread in the Study Area (0.65%) or Western Australia, with 0.56% of its total area occurring in the Study Area. Mf3 is mapped as a very small area in the Study Area (20 ha, 0.01%) and no Priority Flora were recorded. Mf3 therefore has high conservation significance as it is restricted in the Study Area and the region, was recorded at Weld Range and likely to be different to other salt lake vegetation communities in the area.



**Mc1:** *Casuarina pauper* sparse low woodland, over *Tecticornia* spp. low shrubland.

Mc1 was restricted to the creeklines and minor channels of the Beringarra land system. The Beringarra system is restricted in the Study Area (0.63%) and moderately widespread in Western Australia, with 0.54% of its total area occurring in the Study Area. Mc1 is mapped as a very small area in the Study Area (263 ha, 0.12%) and it provided habitat for one Priority Flora taxon (Table P.2). Mc1 therefore has low conservation significance as it is restricted in the Study Area but likely to be widespread in the region.

**Mc2:** *Eucalyptus victrix* open mid woodland, over *Acacia burkittii* and *Acacia aneura* sparse low woodland, over *Acacia burkittii* and *Dodonaea viscosa* subsp. *spatulata* open mid shrubland, over *Cyperus bifax* sparse sedgeland and *Eriachne helmsii* and *Themeda triandra* sparse tussock grassland.

Mc2 was restricted to the creeklines of the Koonmarra land system. The Koonmarra system is widespread in the Study Area (5.32%) and Western Australia, with 2.11% of its total area occurring in the Study Area. Mc2 is mapped as a very small area in the Study Area (326 ha, 0.14%) and it provides habitat for two Priority Flora taxa (Table P.2). Mc2 therefore has moderate conservation significance as it is restricted in the Study Area and although it is likely to be widespread in the region, corresponds to a less common characteristic of the land systems and is likely to be rare.

**Mc3:** *Eucalyptus victrix* and *Acacia cyperophylla* var. *cyperophylla* closed low to mid woodland.

Mc3 was restricted to the major creeklines at Jack Hills of the Weld and Flood land systems. The Weld system is not widespread in Western Australia and is mapped as 1.6% of the Study Area and the Flood system is not widespread in Western Australia and is mapped as 1.33% of the Study Area. Mc3 was mapped as a very small area in the Study Area (424 ha, 0.19%) and no Priority Flora were recorded. Mc3 therefore has high conservation significance as it is restricted in the Study Area and the region and is part of the Jack Hills PEC.

**Mc4:** *Acacia aneura* and *Acacia ramulosa* var. *linophylla* open to closed low woodland, over mixed *Eremophila* spp. open mid shrubland, over *Ptilotus* spp. sparse low shrubland.

Mc4 was restricted to the major creeklines at Weld Range of the Weld and Jundee land systems. The Weld system is not widespread in Western Australia and is mapped as 1.6% of the Study Area and the Jundee system is widespread in Western Australia and is mapped as 1.94% of the Study Area. Mc4 is mapped as a small area in the Study Area (1,094 ha, 0.48%) and it provided habitat for two Priority Flora taxa (Table P.2). Mc4 therefore has moderate conservation significance as it is restricted in the Study Area, is likely to be widespread in the region but is part of the Weld Range PEC.

**Mc5:** *Acacia aneura* and *Acacia tetragonophylla* (+/- *Acacia kempeana*) low woodland.

Mc5 was restricted to the minor drainage channels and creeklines of many land systems in the Murchison region, including the; Sherwood, Yanganoo, Ero, Koonmarra, Mindura, Yandil and Belele systems. Mc5 was mapped as a moderately sized area in the Study Area (3,141 ha, 1.39%) and provides habitat for four Priority Flora taxa (Table P.2). Mc5 therefore has low conservation significance as it is widespread in the Study Area and is likely to be widespread in the region, across many different land systems.

**Mc6:** Mixed *Acacia aneura*, *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla* low woodland.

Mc6 was restricted to the minor drainage channels and creeklines of many land systems in the Murchison region, including the; Yanganoo, Challenge and Ero systems. Mc6 is mapped as a

small area in the Study Area (891 ha, 0.4%) and it provided habitat for three Priority Flora taxa (Table P.2). Mc6 therefore has low conservation significance as it is restricted in the Study Area, but likely to be widespread in the region across many different land systems.

**Mc7:** *Acacia ramulosa* var. *ramulosa* open low woodland, over *Acacia burkittii* and *Acacia craspedocarpa* x *aneura* sparse low woodland, over *Acacia tetragonophylla* sparse mid shrubland, over *Monachather paradoxus*, *Eragrostis leptocarpa* and *Eriachne flaccida* sparse tussock grassland.

Mc7 is restricted to the minor drainage channels and creeklines of the Yanganoo land system. The Yanganoo system is very widespread in the Study Area (15.72%) and Western Australia, with 1.75% of its total area occurring in the Study Area. Mc7 is mapped as a very small area in the Study Area (43 ha, 0.02%) and no Priority Flora were recorded. Mc6 is mapped as a small area in the Study Area (891 ha, 0.4%) and no Priority Flora were recorded. Mc6 therefore has low conservation significance as it is restricted in the Study Area, but likely to be widespread in the region across many different land systems.

**Mc8:** *Acacia acuminata* and *Acacia aneura* open low woodland (+/-*Casuarina pauper*), over *Acacia acuminata*, *Grevillea obliquistigma* subsp. *obliquistigma*, *Callistemon phoeniceus* and *Senna artemisioides* subsp. x *artemisioides* open tall to mid shrubland, over *Cyperus* spp. sparse sedgeland.

Mc8 is restricted to the minor drainage channels and creeklines of the Yanganoo and Ero land systems. The Yanganoo system is very widespread in Western Australia and mapped as 15.72% of the Study Area and the Ero system is not very widespread in Western Australia and mapped as 1.73% of the Study Area. Mc8 was mapped as a very small area in the Study Area (455 ha, 0.20%) and no Priority Flora were recorded. Mc8 therefore has low conservation significance as it is restricted in the Study Area, but likely to be widespread in the region across different land systems.

**Table 7.4 – Vegetation Communities Conservation Significance Assessment**

Veg Com	Vegetation Description	Assigned Cons Sig	Area Mapped in Study Area (ha)	% of Study Area	Associated System (s)	No of Priority Flora Recorded	No of Endemic Priority Flora	% of Priority Flora Records	Vegetation Condition	Species Richness	Part of a PEC?
Gh1	Isolated <i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> low mallee trees, over <i>Melaleuca megacephala</i> and <i>Hakea pycnoneura</i> closed mid shrubland, over <i>Hibbertia hypericoides</i> , <i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i> , <i>Gastrolobium plicatum</i> , <i>Gastrolobium triangulare</i> sparse low shrubland, over <i>Lepidosperma tenue</i> open sedgeland.	Very High	129	0.06	Moresby	11	2	3.0	Excellent	19.2	Moresby Range
Gh2	Mixed <i>Acacia</i> spp. and <i>Melaleuca</i> spp. sparse to open tall shrubs, over <i>Verticordia chrysanthella</i> and <i>Gastrolobium plicatum</i> low shrubland.	Very High	587	0.26	Moresby	11	1	17.4	Excellent	38.4	Moresby Range
Gh3	<i>Allocasuarina campestris</i> closed tall to mid shrubland, over <i>Lepidosperma tenue</i> sparse sedgeland.	Very High	88	0.04	Moresby	6		0.9	Good	9	Moresby Range
Gy1	<i>Eucalyptus</i> spp., <i>Xylomelum angustifolium</i> , <i>Actinostrobus arenarius</i> and <i>Banksia</i> spp. sparse to open low woodland, over mixed Myrtaceae spp. open low to mid shrubland.	Very High	489	0.22	Eradu	1	1	0.2	Good	38.4	-
Gy2	Mixed <i>Eucalyptus</i> spp. open low woodland, over <i>Acacia</i> spp. and <i>Melaleuca</i> spp. sparse mid shrub land.	Very High	1,755	0.78	Binnu	13	8	5.2	Excellent	21.3	-
Gp1	<i>Acacia tetragonophylla</i> and <i>Hakea recurva</i> subsp. <i>recurva</i> (+/- <i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> , <i>Acacia acuminata</i> and <i>Acacia burkittii</i> ) low woodland, over <i>Ptilotus obovatus</i> sparse low shrubland, over * <i>Avena fatua</i> and * <i>Bromus diandrus</i> tussock grassland.	Low	924	0.41	Casuarina, Dartmoor, Greenough, Moresby, Mt Horner, Northampton, Sugarloaf	4		1.0	Poor	17.9	-
Gp2	<i>Melaleuca adnata</i> sparse low woodland, over <i>Calothamnus quadrifidus</i> and <i>Acacia acuminata</i> open tall to mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland, over <i>Amphipogon caricinus</i> var. <i>caricinus</i> open tussock grassland.	High	39	0.02	Binnu	0		0.0	Excellent	30	-
Gf1	Isolated <i>Hakea preissii</i> tall shrubs, over <i>Tecticornia indica</i> subsp. <i>bidens</i> and <i>Atriplex amnicola</i> (+/- <i>Tecticornia lepidosperma</i> , <i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i> and <i>Frankenia setosa</i> ) low chenopod shrubland, over * <i>Avena fatua</i> and <i>Eragrostis dielsii</i> sparse tussock grassland.	Moderate	753	0.33	Dartmoor	2		0.2	Good	15.6	-
Gf2	<i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> open low woodland, over <i>Acacia acuminata</i> and <i>Acacia burkittii</i> sparse tall shrubland, over <i>Acacia tetragonophylla</i> and <i>Enchylaena tomentosa</i> sparse mid shrubland, over <i>Acacia andrewsii</i> and <i>Ptilotus obovatus</i> sparse low shrubland.	Moderate	2292	1.02	Dartmoor	7		3.0	Good	24.6	-

Veg Com	Vegetation Description	Assigned Cons Sig	Area Mapped in Study Area (ha)	% of Study Area	Associated System (s)	No of Priority Flora Recorded	No of Endemic Priority Flora	% of Priority Flora Records	Vegetation Condition	Species Richness	Part of a PEC?
Gc1	<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i> mid to low woodland (+/- <i>Casuarina obesa</i> and <i>Melaleuca raphiophylla</i> ) isolated to open tall shrubland, over <i>Atriplex amnicola</i> and <i>Chenopodium gaudichaudianum</i> sparse low shrubland, over <i>Cyperus gymnocaulus</i> sparse sedgeland and * <i>Avena fatua</i> and * <i>Bromus diandrus</i> tussock grassland.	High	996	0.44	Greenough	2	1	0.2	Poor	11.5	-
Gc2	<i>Grevillea</i> spp., <i>Acacia</i> spp. and <i>Melaleuca</i> spp. tall shrubland.	High	13	0.01	Northampton	4	2	1.0	Good	N/A	-
Yh1	<i>Allocasuarina dielsiana</i> sparse mid woodland, over <i>Acacia quadrimarginea</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland.	High	928	0.41	Tallering	0		0.0	Good	8	Tallering
Yh2	<i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over isolated <i>Thryptomene decussata</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> and <i>Sida ectogama</i> mid shrubs, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Aristida contorta</i> sparse tussock grassland.	Low	58	0.03	Nerramyne	0		0.0	Good	13	-
Yh3	Isolated <i>Acacia aneura</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia quadrimarginea</i> and <i>Acacia grasbyi</i> low trees, over <i>Thryptomene costata</i> and <i>Thryptomene decussata</i> open mid to low shrubland, over <i>Aristida contorta</i> open tussock grassland.	Low	112	0.05	Challenge, Gabanintha	1		0.0	Good	16	-
Yy1	<i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia ramulosa</i> var. <i>ramulosa</i> open tall shrubland.	Low	4,923	2.18	Kalli	4		1.3	Good	11.7	-
Yp1	<i>Acacia coolgardiensis</i> tall shrubland to low woodland, over isolated <i>Eremophila forrestii</i> subsp. <i>hastieana</i> mid to low shrubs.	Low	231	0.1	Nerramyne	1		0.0	Good	8.5	-
Yp2	<i>Acacia ramulosa</i> var. <i>linophylla</i> (+/- <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia tetragonophylla</i> ) tall to mid shrubland, over <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> sparse low shrubland.	Low	5,164	2.29	Tindalarra, Tallering, Nerramyne	5		0.4	Good	10.6	Tallering
Yp3	Mixed <i>Eucalyptus</i> spp. low woodland, over sparse <i>Acacia</i> spp. mid shrubland.	Moderate	1,078	0.48	Joseph	3	1	0.6	Excellent	23.9	-
Yp4	<i>Eucalyptus kochii</i> subsp. <i>amaryssia</i> open mid woodland, over isolated <i>Acacia ramulosa</i> var. <i>ramulosa</i> tall shrubs, over isolated <i>Acacia andrewsii</i> , <i>Ptilotus obovatus</i> and <i>Maireana</i> spp. low shrubs, over isolated <i>Eriachne helmsii</i> tussock grasses.	Low	851	0.38	Pindar	1		0.1	Poor	9	-
Yp5	<i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia grasbyi</i> , <i>Acacia burkittii</i> and <i>Acacia aneura</i> open tall shrubland.	Low	28,448	12.61	Tindalarra, Yanganoo, Nerramyne	7	2	7.1	Good	12.3	-

Veg Com	Vegetation Description	Assigned Cons Sig	Area Mapped in Study Area (ha)	% of Study Area	Associated System (s)	No of Priority Flora Recorded	No of Endemic Priority Flora	% of Priority Flora Records	Vegetation Condition	Species Richness	Part of a PEC?
Yp6	<i>Acacia burkittii</i> , <i>Acacia quadrimarginea</i> , <i>Acacia aneura</i> (+/- <i>Acacia</i> aff. <i>rhodophloia</i> ) over isolated <i>Hakea preissii</i> and <i>Senna</i> spp. mid shrubs, over <i>Ptilotus obovatus</i> and <i>Acacia scleroclada</i> sparse low shrubland, over <i>Cymbopogon ambiguus</i> and <i>Aristida contorta</i> open tussock grassland.	Low	4,006	1.78	Challenge	6		0.8	Good	15.4	-
Yf1	<i>Acacia burkittii</i> and <i>Acacia grasbyi</i> and (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> ) sparse tall shrubland over <i>Acacia tetragonophylla</i> sparse tall to mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.	Low	5,460	2.42	Tindalarra	3		0.2	Poor	11.1	-
Yf2	Isolated <i>Acacia synchronicia</i> tall shrubs, over isolated <i>Senna</i> sp. Meekatharra (E. Bailey 1-26), <i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i> and <i>Eremophila galeata</i> mid shrubs, over <i>Aristida contorta</i> tussock grassland.	Low	856	0.38	Tindalarra, Ero	0		0.0	Degraded	10.2	-
Yf3	<i>Acacia victoriae</i> sparse tall shrubland, over <i>Atriplex bunburyana</i> open mid shrubland, over <i>Atriplex bunburyana</i> sparse low shrubland, over <i>Aristida contorta</i> and <i>Eragrostis dielsii</i> sparse tussock grassland.	Low	403	0.18	Beringarra	0		0.0	Poor	7	-
Yf4	<i>Tecticornia disarticulata</i> , <i>Rhagodia eremaea</i> , <i>Frankenia laxiflora</i> , <i>Sclerolaena cuneata</i> and <i>Cratystylis subspinescens</i> low shrubland.	High	63	0.03	Yewin	0		0.0	Good	6	-
Yf5	<i>Acacia eremaea</i> sparse tall shrubland, over mixed <i>chenopod</i> spp. low shrubland.	Low	8,049	3.57	Yewin, Tindalarra	7		1.2	Good	11.7	-
Yc1	<i>Casuarina obesa</i> open to sparse low forest, over <i>Duboisia hopwoodii</i> sparse tall shrubland, over <i>Atriplex amnicola</i> , <i>Tecticornia indica</i> subsp. <i>bidens</i> and <i>Tecticornia lepidosperma</i> open low chenopod shrubland, over * <i>Hordeum glaucum</i> and * <i>Avena fatua</i> tussock grassland.	Low	532	0.24	Tindalarra	1		0.2	Poor	17.9	-
Yc2	<i>Acacia burkittii</i> (+/- <i>Acacia acuminata</i> ) mid woodland, over <i>Acacia burkittii</i> , <i>Hakea preissii</i> and <i>Acacia tetragonophylla</i> low woodland to sparse tall shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Cyperus bifax</i> sparse sedgeland, over <i>Monachather paradoxus</i> and * <i>Setaria verticillata</i> tussock grassland.	Low	2,712	1.2	Yanganoo, Tindalarra, Ero	4	1	0.8	Poor	19.3	-
Mh1	<i>Acacia rhodophloia</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> open tall shrubland, over <i>Eriachne aristidea</i> sparse tussock grassland.	High	384	0.17	Weld	0		0.0	Excellent	12	Jack Hills
Mh2	Sparse <i>Acacia aneura</i> and/or <i>Acacia rhodophloia</i> low woodland, over <i>Ptilotus obovatus</i> sparse low shrubland.	High	225	0.1	Weld	0		0.0	Good	8.2	Jack Hills
Mh3	Isolated <i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> ) low trees, over isolated <i>Aristida contorta</i> tussock grasses.	High	3,632	1.61	Weld, Yarrameedie	3	1	0.8	Good	15	Jack Hills

Veg Com	Vegetation Description	Assigned Cons Sig	Area Mapped in Study Area (ha)	% of Study Area	Associated System (s)	No of Priority Flora Recorded	No of Endemic Priority Flora	% of Priority Flora Records	Vegetation Condition	Species Richness	Part of a PEC?
Mh4	<i>Acacia aneura</i> and <i>Acacia citrinoviridis</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over <i>Sida cardiophylla</i> and <i>Ptilotus obovatus</i> open low shrubland, over isolated <i>Monachather paradoxus</i> tussock grasses.	High	426	0.19	Weld	1		0.1	Good	12	Jack Hills
Mh5	<i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> ) sparse to open low woodland, over mixed <i>Eremophila</i> spp. mid shrubland.	High	4,298	1.91	Weld, Yarrameedie	5		2.1	Poor	6.5	Weld Range
Mh6	Isolated <i>Acacia pruinocarpa</i> low trees, over <i>Acacia aneura</i> sparse tall shrubland, over <i>Thryptomene decussata</i> (+/- <i>Prostanthera petrophila</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Philotheca brucei</i> subsp. <i>brucei</i> ) mid shrubland, over <i>Ptilotus obovatus</i> low shrubland, over <i>Eriachne mucronata</i> and <i>Cymbopogon ambiguus</i> sparse tussock grassland.	Very High	71	0.03	Weld	2		0.1	Good	13	Weld Range
Mh7	<i>Acacia</i> sp. Weld Range (A. Markey & S. Dillon 2994) and <i>Acacia aneura</i> open tall shrubland, over <i>Eremophila macmillaniana</i> and <i>Senna artemisioides</i> subsp. <i>helmsii</i> , open mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland.	High	94	0.04	Yarrameedie	0		0.0	Good	17	Weld Range
Mh8	<i>Acacia aneura</i> open low woodland, over <i>Eremophila macmillaniana</i> open mid shrubland, over <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260) scattered low shrubs, over <i>Aristida contorta</i> open tussock grassland.	High	750	0.33	Weld	3		1.8	Good	14	Weld Range
Mh9	<i>Acacia aneura</i> open low woodland, over <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> and <i>Eremophila spathulata</i> sparse mid shrubland, over <i>Eremophila latrobei</i> subsp. <i>latrobei</i> sparse low shrubland, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> sparse tussock grassland.	Low	115	0.05	Mindura	2		0.2	Good	9	-
Mh10	<i>Acacia</i> spp., sparse tall shrubland, over <i>Eremophila</i> spp. sparse mid shrubland.	Moderate	29	0.01	Mindura, Millrose	2		0.1	Excellent	12.8	-
Mh11	<i>Acacia</i> aff. <i>rhodophloia</i> open tall shrubland, over <i>Dodonaea petiolaris</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> , <i>Pluchea dentex</i> , <i>Stemodia viscosa</i> , <i>Solanum lasiophyllum</i> and <i>Hibiscus coatesii</i> sparse low shrubland, over <i>Aristida contorta</i> and <i>Cymbopogon ambiguus</i> tussock grassland.	Moderate	746	0.33	Norie, Challenge	3		0.2	Good	18.1	-
Mh12	<i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over isolated <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> low shrubs, over <i>Cymbopogon ambiguus</i> , sparse tussock grassland.	Moderate	1,094	0.49	Norie, Challenge	0		0.0	Poor	8.3	-
Mh13	<i>Acacia</i> sp. Weld Range (A. Markey & S. Dillon 2994) sparse mid shrubland, over <i>Dodonaea pachyneura</i> and <i>Philotheca</i> aff. <i>tubiflora</i> sparse low shrubland, over isolated <i>Eragrostis</i> sp. tussock grasses.	High	526	0.23	Sherwood	5		1.0	Excellent	11	-

Veg Com	Vegetation Description	Assigned Cons Sig	Area Mapped in Study Area (ha)	% of Study Area	Associated System (s)	No of Priority Flora Recorded	No of Endemic Priority Flora	% of Priority Flora Records	Vegetation Condition	Species Richness	Part of a PEC?
Mh14	Isolated <i>Acacia aneura</i> low trees, over <i>Thryptomene decussata</i> sparse mid to low shrubland, over isolated <i>Monachather paradoxus</i> tussock grasses.	Low	159	0.07	Millrose	3		0.9	Good	12	-
Mh15	<i>Acacia aneura</i> open low woodland, over <i>Sida</i> spp. and <i>Ptilotus obovatus</i> sparse low shrubland.	Low	1,814	0.8	Wiluna, Gabanintha	4		6.9	Good	13.5	-
Mh16	<i>Acacia aneura</i> open low woodland, over <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over <i>Maireana triptera</i> and <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.	Low	718	0.32	Gabanintha	3		0.8	Good	14	-
Mh17	<i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> open tall shrubland, over <i>Aluta aspera</i> subsp. <i>hesperia</i> or <i>Eremophila forrestii</i> open mid shrubland, over <i>Monachather paradoxus</i> sparse tussock grassland.	Low	1,876	0.83	Norie, Challenge	2		0.8	Good	18.5	-
Mh18	<i>Acacia</i> spp. sparse tall shrubland, over <i>Eremophila latrobei</i> subsp. <i>latrobei</i> and mixed Myrtaceae spp. open low shrubland.	High	103	0.05	Challenge, Waguin	4		0.6	Excellent	12.2	-
Mr1	<i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> ) sparse low woodland, over <i>Eremophila compacta</i> subsp. <i>compacta</i> mid shrubland, over <i>Mirbelia rhagodioides</i> and (+/- <i>Hemigenia virescens</i> ) sparse low shrubland, over <i>Aristida holathera</i> var. <i>holathera</i> and <i>Eriachne aristidea</i> tussock grassland.	Moderate	7,239	3.21	Belele, Flood	4		4.7	Good	13.6	-
Mr2	<i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> open tall shrubland, over <i>Eremophila forrestii</i> (+/- <i>Eremophila simulans</i> subsp. <i>simulans</i> ) open mid shrubland, over <i>Eriachne helmsii</i> and <i>Monachather paradoxus</i> open tussock grassland.	Moderate	10,661	4.73	Kalli	7		14.2	Excellent	14.2	-
Mr3	<i>Acacia aneura</i> open tall shrubland, over <i>Eremophila forrestii</i> (+/- <i>Eremophila</i> and <i>Senna</i> spp.) open mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland, over <i>Monachather paradoxus</i> open tussock grassland.	Low	2,487	1.1	Yandil	3		1.6	Good	15.2	-
Mp1	<i>Eremophila spathulata</i> and/or <i>Eremophila macmillaniana</i> sparse mid shrubland.	Low	10,634	4.71	Koonmarra	6		0.9	Good	9.9	-
Mp2	<i>Acacia aneura</i> sparse low woodland, over <i>Eremophila fraseri</i> (+/- <i>Eremophila macmillaniana</i> ) and <i>Senna artemisioides</i> subsp. <i>helmsii</i> open mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Aristida contorta</i> sparse tussock grassland.	Low	7,562	3.35	Koonmarra, Yandil	6		1.7	Good	12.6	-

Veg Com	Vegetation Description	Assigned Cons Sig	Area Mapped in Study Area (ha)	% of Study Area	Associated System (s)	No of Priority Flora Recorded	No of Endemic Priority Flora	% of Priority Flora Records	Vegetation Condition	Species Richness	Part of a PEC?
Mp3	Isolated <i>Acacia aneura</i> low trees, over open <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glaucifolia</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.	Low	2,771	1.23	Ero, Yandil	2		0.2	Good	10.1	-
Mp4	Isolated <i>Acacia pruinoscarpa</i> low trees, over <i>Acacia aneura</i> and <i>Acacia craspedocarpa</i> x <i>aneura</i> sparse tall shrubland, over isolated <i>Eremophila fraseri</i> mid shrubs, over <i>Ptilotus obovatus</i> sparse low shrubland.	Low	2,783	1.23	Yandil	3		0.8	Excellent	12.7	-
Mp5	<i>Acacia aneura</i> open low woodland, over isolated <i>Acacia demissa</i> tall shrubs, over <i>Senna artemisioides</i> subsp. <i>helmsii</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland.	Low	4,103	1.82	Sherwood, Yandil, Mindura	8		2.5	Good	11.4	-
Mp6	Isolated <i>Acacia aneura</i> low trees, over <i>Ptilotus obovatus</i> and mixed <i>Maireana</i> spp. low shrubland.	Moderate	4,070	1.8	Cunyu, Sherwood	9		4.8	Good	11.8	-
Mp7	<i>Acacia aneura</i> sparse low woodland, over <i>Acacia craspedocarpa</i> tall shrubland, over <i>Acacia tetragonophylla</i> sparse mid shrubland, over <i>Eremophila punicea</i> , <i>Solanum lasiophyllum</i> and <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.	Moderate	6,315	2.8	Yanganoo, Millex	4		1.0	Good	11.9	-
Mp8	<i>Acacia aneura</i> isolated low trees to open woodland, (+/- <i>Acacia tetragonophylla</i> , <i>Acacia craspedocarpa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> ) tall shrubs, over <i>Eremophila fraseri</i> , <i>Ptilotus obovatus</i> and <i>Solanum lasiophyllum</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.	Low	4,914	2.18	Jundee, Violet, Yandil	4		1.6	Good	12	-
Mp9	Isolated <i>Acacia aneura</i> and <i>Eremophila platycalyx</i> low trees, over <i>Eremophila fraseri</i> subsp. <i>fraseri</i> , <i>Eremophila platycalyx</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) open mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.	Low	9,900	4.39	Challenge, Millex, Yandil	5		2.0	Poor	11.5	-
Mp10	<i>Aristida holathera</i> var. <i>holathera</i> , <i>Eragrostis cumingii</i> , <i>Eriachne flaccida</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Eragrostis setifolia</i> tussock grassland, over <i>Bulbostylis barbata</i> and <i>Fimbristylis dichotoma</i> sedgeland.	Moderate	92	0.04	Norie	0		0.0	Excellent	16	-
Mp11	<i>Acacia aneura</i> sparse to open low woodland, over <i>Eremophila forrestii</i> , <i>Eremophila fraseri</i> and <i>Senna</i> spp. sparse mid shrubland, over <i>Aristida contorta</i> tussock grassland.	Low	13,342	5.91	Yandil	4		1.5	Poor	9.7	-
Mp12	<i>Acacia aneura</i> low woodland, over <i>Acacia aneura</i> x <i>craspedocarpa</i> and <i>Acacia tetragonophylla</i> open tall shrubland, over isolated <i>Eremophila forrestii</i> and <i>Eremophila fraseri</i> mid shrubs, over <i>Aristida contorta</i> and <i>Eragrostis dielsii</i> open tussock grassland.	Low	4,573	2.03	Yandil	2		0.1	Poor	9.3	-



Veg Com	Vegetation Description	Assigned Cons Sig	Area Mapped in Study Area (ha)	% of Study Area	Associated System (s)	No of Priority Flora Recorded	No of Endemic Priority Flora	% of Priority Flora Records	Vegetation Condition	Species Richness	Part of a PEC?
Mf1	<i>Melaleuca stereophloia</i> open to closed mid shrubland, over mixed <i>Chenopod</i> spp. low shrubland.	High	529	0.23	Mileura	2		0.1	Good	11.4	-
Mf2	<i>Eucalyptus striatocalyx</i> subsp. <i>striatocalyx</i> and <i>Eucalyptus trivalva</i> open mid to low forest, over <i>Maireana georgei</i> , <i>Frankenia laxiflora</i> and <i>Atriplex bunburyana</i> sparse low shrubland.	Very High	20	0.01	Mileura	0		0.0	Poor	12	-
Mf3	<i>Tecticornia pruinosa</i> low shrubland, over <i>Fimbristylis dichotoma</i> and <i>Eragrostis pergracilis</i> open tussock grassland.	High	568	0.25	Mileura	0		0.0	Good	3.5	-
Mc1	<i>Casuarina pauper</i> sparse low woodland, over <i>Tecticornia</i> spp. low shrubland.	Low	263	0.12	Beringarra	1		0.0	Poor	12.5	-
Mc2	<i>Eucalyptus victrix</i> open mid woodland, over <i>Acacia burkittii</i> and <i>Acacia aneura</i> sparse low woodland, over <i>Acacia burkittii</i> and <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> open mid shrubland, over <i>Cyperus bifax</i> sparse sedgeland and <i>Eriachne helmsii</i> and <i>Themeda triandra</i> sparse tussock grassland.	Moderate	326	0.14	Koonmarra	2		0.1	Good	22.7	-
Mc3	<i>Eucalyptus victrix</i> and <i>Acacia cyperophylla</i> var. <i>cyperophylla</i> closed low to mid woodland.	High	424	0.19	Weld, Flood	0		0.0	Good	28.5	Jack Hills
Mc4	<i>Acacia aneura</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> open to closed low woodland, over mixed <i>Eremophila</i> spp. open mid shrubland, over <i>Ptilotus</i> spp. sparse low shrubland.	Moderate	1,094	0.48	Weld, Jundee	2		0.1	Good	15.8	Weld Range
Mc5	<i>Acacia aneura</i> and <i>Acacia tetragonophylla</i> (+/- <i>Acacia kempeana</i> ) low woodland.	Low	3,141	1.39	Sherwood, Yanganoo, Ero, Koonmarra, Mindura, Yandil, Belele	4		0.4	Good	17.6	-
Mc6	Mixed <i>Acacia aneura</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia tetragonophylla</i> low woodland.	Low	891	0.4	Yanganoo, Challenge, Ero	3		0.3	Good	15.3	-
Mc7	<i>Acacia ramulosa</i> var. <i>ramulosa</i> open low woodland, over <i>Acacia burkittii</i> and <i>Acacia craspedocarpa</i> x <i>aneura</i> sparse low woodland, over <i>Acacia tetragonophylla</i> sparse mid shrubland, over <i>Monachather paradoxus</i> , <i>Eragrostis leptocarpa</i> and <i>Eriachne flaccida</i> sparse tussock grassland.	Low	43	0.02	Yanganoo	0		0.0	Good	9	-
Mc8	<i>Acacia acuminata</i> and <i>Acacia aneura</i> open low woodland (+/- <i>Casuarina pauper</i> ), over <i>Acacia acuminata</i> , <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> , <i>Callistemon phoeniceus</i> and <i>Senna artemisioides</i> subsp. x <i>artemisioides</i> open tall to mid shrubland, over <i>Cyperus</i> spp. sparse sedgeland.	Low	455	0.2	Yanganoo, Ero	0		0.0	Excellent	12.3	-

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## 8 FLORA CONSERVATION ASSESSMENT

The conservation significance of the flora of the Study Area has been assessed at four spatial scales; national, state, regional and local. A number of sources have been used to determine an estimate of total abundance and distribution for each species that were recorded in the Study Area, both from the current survey and the other sources, including;

1. The current survey of the Study Area (indicated by bold font in Table 8.2);
2. *ecologia* regional survey (Section 5.3.6);
3. *ecologia* Priority Flora searches regional survey 2010.
4. Oakajee Vegetation and Flora Survey (*ecologia*, 2009);
5. Ecoscape Vegetation and Flora survey (Ecoscape, 2009);
6. Weld Range Vegetation and Flora survey and Threatened Flora survey (*ecologia*, 2009a);
7. GHD Jack Hills to Weld Range Proposed Haul Route Ecological Survey (GHD, 2009);
8. Jack Hills Vegetation and Flora Survey (*ecologia*, 2009b Draft); and the
9. Government database searches.

The government records vary considerably in the amount of detail, regarding abundance that is available ranging from accurate counts or general abundance descriptions to no detail at all. Where multiple records at the same location were available, the highest numeric estimate was utilised. Where descriptions of abundance only were available, numbers were inferred according to Table 8.1. Where no estimate of abundance was available, it was assumed only one plant was present. The latter assumption is likely to be an underestimate in many instances, and hence the final estimates of total abundance of each species are likely to be very conservative.

In some instances estimates of cover only was available for collections from quadrats surveyed during the 2006 *ecologia* survey. The number of plants assumed from these cover estimates is also detailed below (Table 8.1).

**Table 8.1 – Number of Plants Assumed for Records Where Only Descriptions or % Cover was Available**

Abundance Inferred From Descriptions or Percentage Cover	No. of Plants Assumed
no indication	1
very rare	1
several	3
infrequent, uncommon, scarce, one small group, a few scattered	5
occasional, moderately common, locally frequent, very localised	10
common here, locally common, locally frequent, locally abundant	20
frequent, common, plentiful, abundant, dominant	50
>2% cover	5
2-10 % cover	10
10-30 % cover	20
30-70 % cover	30
70-100 % cover	40

One endangered DRF taxon and 57 Priority Flora (including one vulnerable Priority 4 taxon) were recorded by the current *ecologia* survey and an additional two DRF and 31 Priority Flora were recorded by other sources and are listed in Table 8.2.

Table 8.2 summarises the known distribution and abundance of each conservation significant species occurring within the Study Area. The number of \*locations (clusters of plants recorded more than 50 m distant from each other) both inside the current Study Area and in the region is detailed. The distribution of each taxon is provided as a means to determine if the species is locally restricted or widespread in the region and a kilometre value is given which represents the two farthest locations from one another. Large outliers are also provided in Table 8.2.

Each taxon has been assigned a conservation significance of; Very High, High(a), High(b), Moderate, Low(a) or Low(b) (Table 8.2).

**Very High:** The percentage of the taxon impacted is high as it is only common in the local area and is locally significant.

**High(a):** It is a poorly known and collected taxon that has been recorded from few locations that are widespread in the region, but because of the low total numbers, a high total percentage is within the Study Area, however as it is unknown any impact could be significant.

**High(b):** It is a poorly known and collected taxon that has only been recorded in the local area, but because the species is undescribed it is likely to be more widespread than what is known, however as this is unknown, any impact could be significant.

**Moderate:** >10% of the total individuals were recorded in the Study Area, but is likely to be widespread as the current collections indicate this.

**Low(a):** <10% of the total individuals were recorded in the Study Area.

**Low(b):** Large percentages of the total population have been recorded in the Study Area but this is due to the targeted survey which has increased the total known numbers within the Study Area substantially and these taxa are therefore likely to be very common in the region also.

**Table 8.2 – Conservation Assessment of DRF and Priority Flora Taxa Recorded in the Study Area**

Conservation Code	Taxa	Assigned Conservation Significance	Regional Information			Local Information			
			Known Distribution (km)	Total Number of Plants	Total Number of Locations	Number of Plants Recorded Within Study Area	% Total Number of Plants Within the Study Area	Number of Locations Recorded Within the Study Area	% All Locations Within the Study Area
DRF	<i>Caladenia hoffmanii</i>	Nationally significant	50 (outlier to 70 km)	285	38	266	93%	28	74%
DRF	<i>Drummondita ericoides</i>	Nationally significant	42	212	12	10	5%	4	33%
DRF	<i>Philothea wonganensis</i>	Nationally significant	30 (outlier to 300 km)	136	8	12	9%	2	25%
P1	<i>Acacia lineolata</i> subsp. <i>multilineata</i>	Moderate	135	85	16	10	12%	1	6%
P1	<i>Acacia</i> sp. <i>Jack Hills</i>	Low(a)	15 (outlier to 40 km)	1,318	95	2	0.2%	1	1%
P1	<i>Baeckea staminosa</i>	High(b)	55 km	5	5	1	20%	1	20%
P1	<i>Chamelaucium</i> sp. <i>Yalgoo</i>	Moderate	184	22	7	3	14%	2	29%
P1	<i>Eremophila</i> sp. <i>Tallering</i>	High(b)	75	123	9	25	20%	2	22%
P1	<i>Euphorbia sarcostemmoides</i>	Low(b)	400	318	68	307	97%	65	96%
P1	<i>Goodenia lyrata</i>	High(a)	620	56	10	40	71%	3	30%
P1	<i>Gunniopsis divisa</i>	High(a)	125	1,168	9	1,000	86%	1	11%
P1	<i>Harperia ferruginipes</i>	High(b)	33 (outlier to 160 km)	29	7	4	14%	3	43%
P1	<i>Lepidobolus basiflorus</i>	Low(a)	6	51	2	1	2%	1	50%
P1	<i>Lepidosperma</i> sp. <i>Moresby Range</i>	Very High	20	176	22	139	79%	16	73%
P1	<i>Leucopogon psammophilus</i>	Moderate	110	72	13	10	14%	1	8%
P1	<i>Melaleuca huttensis</i>	Low(a)	45 (outlier to 85 km)	4,976	644	63	1%	3	0.5%
P1	<i>Mirbelia ternata</i>	High(a)	128	7	5	3	43%	3	60%
P1	<i>Petrophile vana</i>	High(a)	100 (outlier to 150 km)	230	14	144	63%	8	57%

Conservation Code	Taxa	Assigned Conservation Significance	Regional Information			Local Information			
			Known Distribution (km)	Total Number of Plants	Total Number of Locations	Number of Plants Recorded Within Study Area	% Total Number of Plants Within the Study Area	Number of Locations Recorded Within the Study Area	% All Locations Within the Study Area
P1	<i>Ptilotus tetrandrus</i>	High(a)	350	2	2	2	100%	2	100%
P1	<i>Sauropus</i> sp. Woolgorong	Low(b)	283	168	26	51	30%	15	58%
P1	<i>Scholtzia</i> sp. Binnu	Low(a)	94	212	7	20	9%	1	14%
P1	<i>Scholtzia</i> sp. Valentine Road	High(a)	<1	13	2	13	100%	2	100%
P1	<i>Tricoryne</i> sp. Geraldton	High(b)	30	28	4	11	39%	1	25%
P1	<i>Vittadinia cervicalis</i> var. <i>occidentalis</i>	High(a)	40 (outlier at 150 km)	6	5	2	33%	1	20%
P2	<i>Acacia megacephala</i>	Low(a)	90	162	20	2	1%	1	5%
P2	<i>Dicrastylis incana</i>	Low - A	70	55	12	3	5%	2	17%
P2	<i>Frankenia confusa</i>	Low(b)	500	476	21	244	51%	11	52%
P2	<i>Homalocalyx inerrabundus</i>	Moderate	500	253	13	151	60%	9	69%
P2	<i>Leucopogon borealis</i>	Very High	35	418	43	314	75%	24	56%
P2	<i>Leucopogon</i> sp. Howatharra	Very High	20	91	6	70	77%	4	67%
P2	<i>Malleostemon</i> sp. Moonyoonooka	High(a)	1	51	1	51	100%	1	100%
P2	<i>Scholtzia</i> sp. East Yuna	High(b)	115	219	10	217	99%	8	80%
P2	<i>Thryptomene</i> sp. East Yuna	Low(a)	60	141	17	4	3%	3	18%
P2	<i>Thryptomene</i> sp. Yuna Reserve	Low(a)	30 (outlier at 50 km)	1	1	1	100%	1	100%
P2	<i>Thryptomene stenophylla</i>	Low(a)	25	685	35	18	3%	10	29%
P2	<i>Verticordia aereiflora</i>	High(b)	40	54	3	51	94%	1	33%
P3	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	Low(a)	50 (outlier to 85 km)	280	34	23	8%	5	15%
P3	<i>Acacia speckii</i>	Low(b)	410	1,587	325	706	44%	206	63%
P3	<i>Acacia subsessilis</i>	Low(a)	150	882	40	48	5%	14	35%

Conservation Code	Taxa	Assigned Conservation Significance	Regional Information			Local Information			
			Known Distribution (km)	Total Number of Plants	Total Number of Locations	Number of Plants Recorded Within Study Area	% Total Number of Plants Within the Study Area	Number of Locations Recorded Within the Study Area	% All Locations Within the Study Area
P3	<i>Acanthocarpus parviflorus</i>	Low(a)	330	715	72	18	2%	3	4%
P3	<i>Arnocrinum drummondii</i>	Low(a)	600	101	7	10	10%	1	14%
P3	<i>Baeckea</i> sp. Walkaway	Low(a)	117	1,206	29	4	0.3%	2	7%
P3	<i>Blackallia nudiflora</i>	Low(a)	85 (outlier to 340 km)	2,069	28	22	1%	1	4%
P3	<i>Calytrix erosipetala</i>	Low(a)	550	2,117	45	109	5%	10	22%
P3	<i>Calytrix formosa</i>	Low(a)	230	201	24	3	1%	2	8%
P3	<i>Calytrix uncinata</i>	Low(a)	530	1,252	49	18	1%	6	12%
P3	<i>Calytrix verruculosa</i>	Low(b)	160	1,091	62	871	80%	51	82%
P3	<i>Dicrastylis linearifolia</i>	Low(a)	420	1,720	39	274	16%	15	38%
P3	<i>Dodonaea amplisemina</i>	Low(b)	480	1,466	171	754	51%	96	56%
P3	<i>Eremophila arachnoides</i> subsp. <i>arachnoides</i>	Moderate	580	266	10	45	17%	4	40%
P3	<i>Eremophila muelleriana</i>	Low(b)	300	593	129	558	94%	119	92%
P3	<i>Gastrolobium propinquum</i>	Low(a)	80 (outlier to 130 km)	374	26	1	0.3%	1	4%
P3	<i>Gastrolobium rotundifolium</i>	Low(a)	650	387	30	11	3%	5	17%
P3	<i>Geleznovia verrucosa</i> subsp. <i>Kalbarri</i>	Moderate	355	459	37	78	17%	7	79%
P3	<i>Gnephosis cassiniana</i>	Low(a)	130 (outlier to 284 km)	12,040	13	3	0.1%	2	15%
P3	<i>Grevillea candicans</i>	Moderate	165 (outlier to 400 km)	75	28	10	13%	3	11%
P3	<i>Grevillea stenostachya</i>	Low(b)	360	657	224	388	59%	158	71%
P3	<i>Grevillea triloba</i>	Low(b)	110	15,734	493	5,924	38%	345	70%
P3	<i>Hemigenia tysonii</i>	Low(b)	282	8,239	280	5,904	72%	197	70%
P3	<i>Hemigenia virescens</i>	Low(b)	330	5,439	120	5,115	94%	112	93%

Conservation Code	Taxa	Assigned Conservation Significance	Regional Information			Local Information			
			Known Distribution (km)	Total Number of Plants	Total Number of Locations	Number of Plants Recorded Within Study Area	% Total Number of Plants Within the Study Area	Number of Locations Recorded Within the Study Area	% All Locations Within the Study Area
P3	<i>Homalocalyx echinulatus</i>	Moderate	620	862	51	218	25%	11	22%
P3	<i>Indigofera gilesii</i> subsp. <i>gilesii</i>	Low(a)	581	123	16	1	1%	1	6%
P3	<i>Lasiopetalum oppositifolium</i>	Low(a)	115 (outlier to 560 km)	351	49	79	22%	2	4%
P3	<i>Lepidium scandens</i>	Low(a)	60 (outlier to 400 km)	54	5	1	2%	1	20%
P3	<i>Microcorys tenuifolia</i>	Low(a)	400	200	17	7	4%	6	35%
P3	<i>Micromyrtus placoides</i>	Low(a)	180	3,955	80	11	0.3%	4	5%
P3	<i>Petrophile pauciflora</i>	Low(a)	400	429	29	64	15%	8	28%
P3	<i>Prostanthera petrophila</i>	Low(a)	260	1,607	105	218	14%	26	25%
P3	<i>Ptilotus beardii</i>	Low(b)	230	4,104	83	2,565	63%	45	54%
P3	<i>Ptilotus luteolus</i>	Low(a)	600	894	31	315	35%	10	32%
P3	<i>Scaevola oldfieldii</i>	Low(a)	160	162	12	6	4%	1	8%
P3	<i>Serichonus gracilipes</i>	High C	50	76	21	36	47%	13	62%
P3	<i>Stenanthemum divaricatum</i>	Low(a)	500	17	12	1	6%	1	8%
P3	<i>Tecticornia cymbiformis</i>	Moderate	290	66	8	11	17%	2	25%
P3	<i>Thryptomene</i> sp. Moresby Range	Very High	30	1,834	61	1,459	80%	38	62%
P3	<i>Thryptomene</i> sp. Wandana	Moderate	130 (outlier at 330 km)	747	22	684	92%	8	36%
P3	<i>Verticordia chrysostachys</i> var. <i>pallida</i>	Moderate	180	262	35	86	33%	8	23%
P3	<i>Verticordia densiflora</i> var. <i>roseostella</i>	Moderate	250	439	59	83	19%	4	7%
P3	<i>Verticordia jamiesonii</i>	Low(a)	350	590	37	31	5%	6	16%
P4	<i>Acacia guinetii</i>	Low(a)	40	362	52	47	13%	19	37%
P4	<i>Baeckea</i> sp. Melita Station	Low(a)	540	1,317	77	88	7%	13	17%



Conservation Code	Taxa	Assigned Conservation Significance	Regional Information			Local Information			
			Known Distribution (km)	Total Number of Plants	Total Number of Locations	Number of Plants Recorded Within Study Area	% Total Number of Plants Within the Study Area	Number of Locations Recorded Within the Study Area	% All Locations Within the Study Area
P4	<i>Diuris recurva</i>	Low(a)	450	732	28	20	3%	2	7%
P4	<i>Eucalyptus blaxellii</i>	Nationally significant	68 (outlier to 170 km)	2,948	170	696	24%	64	38%
P4	<i>Eucalyptus ebbanoensis</i> subsp. <i>photina</i>	Moderate	145	169	25	4	2%	4	16%
P4	<i>Goodenia berringbinensis</i>	Low(a)	520	28,191	10	50	0.2%	2	20%
P4	<i>Grevillea inconspicua</i>	Low(a)	560	2,254	82	68	3%	18	22%
P4	<i>Jacksonia velutina</i>	Low(a)	200 (outliers to 400 km)	390	35	1	0.3%	1	3%
P4	<i>Lechenaultia longiloba</i>	Low(a)	80	264	15	2	1%	1	7%
P4	<i>Verticordia capillaris</i>	Low(b)	300	558	83	198	35%	42	51%
P4	<i>Verticordia penicillaris</i>	Low(b)	190	5,346	121	3,417	64%	77	64%
P4	<i>Verticordia polytricha</i>	Low(a)	200 (outlier to 475 km)	859	26	6	1%	1	4%

\*Locations are defined as records of occurrence separated by more than 50 metres.

**Bold** font indicates species recorded by *ecologia* during the current survey of the Study Area.

P1 = Priority 1, P2 = Priority 2, P3 = Priority 3, P4 = Priority 4, Vul = Vulnerable, DRF = Declared Rare Flora

## 8.1 FLORA OF NATIONAL AND STATE CONSERVATION SIGNIFICANCE

National significance refers to those features of the environment which are recognised under legislation as being of importance to the Australian community; in particular, species listed under the *EPBC Act* are regarded as nationally significant. State significance refers to those features of the environment that are recognised under State legislation as being of importance to the Western Australian community, in particular, species listed as DRF under the *WC Act* are of state significance.

During the current survey, two flora species of national and state significance were recorded in the Study Area: *Caladenia hoffmanii* (Endangered, DRF) and *Eucalyptus blaxellii* (Vulnerable, Priority 4). During the database searches, an additional two flora species of national and state significance were recorded in the Study Area; *Drummondita ericoides* (Endangered, DRF) and *Philothea wonganensis* (Endangered, DRF). The significance of these species is discussed below.

*Caladenia hoffmanii* is listed as Endangered under the *EPBC Act* and as DRF under the *WC Act*. It is endemic to the Geraldton Sandplains bioregion as shown by the current WA HERB distribution for *C. hoffmanii* in Figure 8.1 below.

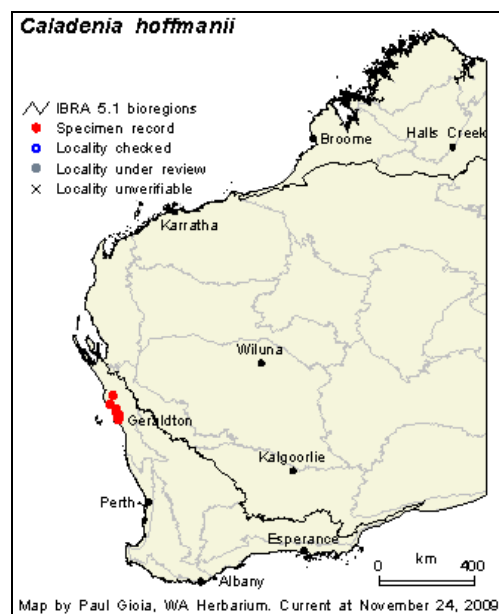


Figure 8.1 – Distribution of *Caladenia hoffmanii*

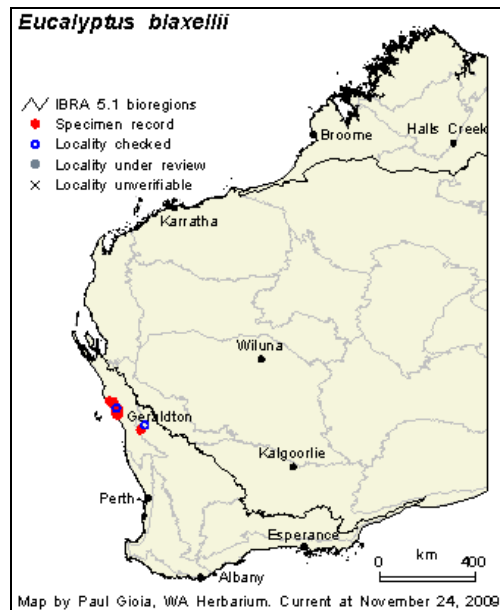
Using the information provided in Table 8.2, this species is known from 285 individuals at 38 locations. Of these 93% of the total number of plants were inside the Study Area.

*Caladenia hoffmanii* grows in clay or sandy-clay on laterite rocky hill sides and ridges, or in winter wet flats. A disjunct occurrence is recorded 600 km south-east of the Geraldton area in the Pinharing area, growing around large granite outcrops. These habitats are not widespread in the Study Area and the region and the large percentage of total individuals (52.3%) recorded in the Study Area indicates a high local endemism for this species.

The known populations of *C. hoffmanii* are severely fragmented and the quality of habitat for many populations is in decline (Pers. com. Murray Baker, DEC, 2009). The *EPBC Act* conservation advice lists the main threats to *C. hoffmanii* as fire and grazing by feral pigs and rabbits.

Due to the fragmentation of the populations, decrease in habitat quality, the small distribution of known occurrences (50 km with one outlier to 70 km), the high percentage of the total population in the Study Area and the likelihood that it is locally endemic to the area, it is considered that *C. hoffmanii* has high local significance in the Study Area.

*Eucalyptus blaxellii* is listed as Vulnerable under the *EPBC Act* and Priority 4 under the *WC Act*. It has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions as shown by the current WA HERB distribution of *E. blaxellii* in Figure 8.2 below.



**Figure 8.2 – Distribution of *Eucalyptus blaxellii***

Using the information provided in Table 8.2, this species is known from 2,948 individuals at 170 locations. Of these 24% of the total number of plants were recorded inside the Study Area.

The *EPBC Act* conservation advice states the main threat to *E. blaxellii* is inappropriate fire regimes, however most known populations are secure as they occur in areas that are unsuitable for farming due to the inaccessibility of the steep slope.

*Eucalyptus blaxellii* grows in sand over laterite, or brown clay on sandstone hills or creek flats which is widespread at the Western end of the Study Area. As these habitats are moderately widespread in the region and as the percentage of total individuals is moderate (16.4%) in the Study Area, it indicates a low to moderate local endemism for this species. *E. blaxellii* does not appear to be locally restricted with records spanning 70 km and one outlier to 170 km.

*Eucalyptus blaxellii* has recently been removed from the *WC Act* DRF list, but still remains on the *EPBC Act* listing as vulnerable. Because of the large population numbers, longevity, disturbance recovery abilities and the removal of *E. blaxellii* from the listing of DRF (*WC Act*) it is considered that *E. blaxellii* has low conservation significance in the Study Area.

*Drummondita ericoides* is listed as Endangered under the *EPBC Act* and as DRF under the *WC Act*. It is endemic to the Geraldton Sandplains bioregion as shown by the current WA HERB distribution of *D. ericoides* subsp. *cracens* in Figure 8.3 below.

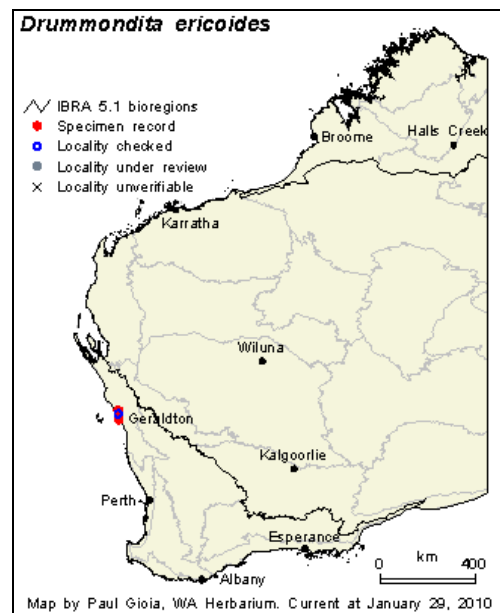


Figure 8.3 – Distribution of *Drummondita ericoides*

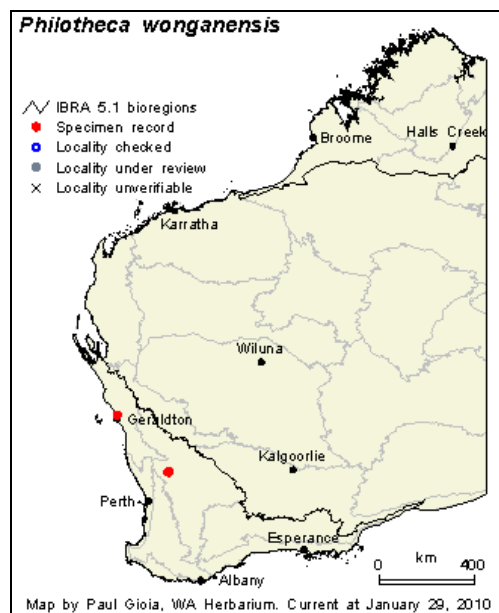
Using the information provided in Table 8.2, this species is known from 212 individuals at 12 locations. Of these 5% of the total numbers of plants were recorded inside the Study Area.

The DEC's Moresby Range *Drummondita* Interim Recovery Plan (DEC, 2004) for *D. ericoides* states that the main threats include inappropriate fire regimes and high levels of human activity.

*Drummondita ericoides* grows on low heath on sandstone and laterite slopes, ridges and gullies of the Moresby Range in brown loam or sandy loam and clay soils in areas not suitable for agriculture and so has not been so highly cleared.

*Drummondita ericoides* appears to be locally restricted with all known records spanning 40 km and therefore has high local significance in the Study Area.

*Philothea wonganensis* is listed as Endangered under the *EPBC Act* and as DRF under the *WC Act*. It has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions as shown by the current WA HERB distribution of *P. wonganensis* in Figure 8.4 below



**Figure 8.4 – Distribution of *Philothea wonganensis***

Using the information provided in Table 8.2, this species is known from 136 individuals at eight \*locations. Of these 8% of the total number of individuals were recorded inside the Study Area.

*Philothea wonganensis* grows in red sandy soils over fractured greenstone. These habitats are not very widespread in the region, and the percentage of total individuals (8.1%) recorded in the Study Area indicates a high local endemism for this species. *P. wonganensis* appears to be locally restricted with most of the known records spanning 30 km, with one outlier to 300 km.

Because of the low known population numbers and as 8% of the total known individuals were recorded in the Study Area, impact to the species could result in a significant loss and despite the large percentage (12.6%) of individuals in conservation reserves *P. wonganensis* has high local conservation significance in the Study Area.

## 8.1 FLORA OF REGIONAL SIGNIFICANCE

Regional significance addresses the representation of habitats at a biogeographic regional level. Priority Flora taxa that are endemic to the Geraldton Sandplains, Yalgoo and Murchison bioregions and whose distributions are limited or unknown are considered regionally significant.

Fifty-five Priority Flora taxa were recorded during the current survey of the Study Area and an additional 32 were recorded by the DEC searches or other sources as listed in Section 8.

Species that are endemic (using information provided from the WA Herb) to one IBRA bioregion include the following;

**Avon Wheatbelt:** *Mirbelia ternata* (P1)

**Geraldton Sandplains:** *Baeckea staminosa* (P1), *Chamelaucium* sp. Yalgoo (P1), *Harperia ferruginipes* (P1), *Lepidobolus basiflorus* (P1), *Lepidosperma* sp. Moresby Range (P1), *Leucopogon psammophilus* (P1), *Melaleuca huttensis* (P1), *Scholtzia* sp. Binu (P1), *Scholtzia* sp. Valentine Road (P1), *Tricoryne* sp. Geraldton (P1), *Acacia megacephala* (P2), *Dicrastylis incana* (P2), *Leucopogon borealis* (P2), *Leucopogon* sp. Howatharra (P2), *Malleostemon* sp. Moonyoonooka (P2), *Scholtzia* sp. East Yuna (P2), *Thryptomene* sp. Yuna Reserve (P2), *Thryptomene* sp. Wandana (P3), *Thryptomene stenophylla* (P2), *Verticordia aereiflora* (P2), *Acacia leptospermoides* subsp. *psammophila* (P3), *Blackallia nudiflora* (P3), *Geleznowia verrucosa* subsp. Kalbarri (P3), *Grevillea triloba* (P3), *Lasiopetalum oppositifolium* (P3), *Scaevola oldfieldii* (P3), *Serichonus gracilipes* (P3), *Thryptomene* sp. Moresby Range (P3), *Acacia guinetii* (P4) and *Lechenaultia longiloba* (P4).

**Murchison:** *Acacia* sp. Jack Hills (P1), *Calytrix verruculosa* (P3), *Eremophila muelleriana* (P3) and *Grevillea inconspicua* (P4).

**Pilbara:** *Indigofera gilesii* subsp. *gilesii* (P3).

## 8.2 FLORA OF LOCAL SIGNIFICANCE

Priority Flora are of local significance when their presence is confined to a specialised habitat type that is not common in the local area and whose disturbance or removal may lead to local extinction.

Table 8.2 shows the total known distribution and abundance for each species recorded and the subsequent percentage of this total in the Study Area. The conservation significance of each species recorded in the Study Area is discussed below.

### Priority 1 Flora

*Acacia lineolata* subsp. *multilineata* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 85 individuals at 16 \*locations. In the Study Area, ten individuals were recorded at one location (12% of the total known individuals). This species is not a widely known species and has a moderate amount of the total known individuals in the Study Area. However, as this species has been recorded in two bioregions, and its distribution spans 135 km, it is not locally endemic and it has moderate local conservation significance.

*Acacia* sp. Jack Hills (R. Meissner & Y. Caruso 4) has only been recorded in the Murchison bioregion and is known from 1,318 individuals at 95 \*locations. In the Study Area, one individual was recorded at one location (<1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Baeckea staminosa* has only been recorded in the Geraldton Sandplains bioregion and is known from five individuals at five \*locations. In the Study Area, one individual was recorded at one location (20% of the total known individuals). *Baeckea staminosa* is not a widely known species (the total

known distribution spans 55 km) and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result on the species and therefore has high(b) conservation significance.

*Chamelaucium* sp. Yalgoo (Y. Chadwick 1816) has only been recorded in the Geraldton Sandplains bioregion and is known from 22 individuals at seven \*locations. In the Study Area, three individuals were recorded at two locations (14% of the total known individuals). *Chamelaucium* sp. Yalgoo is not a widely known species and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has moderate conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area (the total known distribution spans 185 km), but poorly collected, however as this is not known the former should be assumed.

*Eremophila* sp. Tallering (J.D. Start & M.J. Greeve D 516) has been recorded in the Geraldton Sandplains and Yalgoo bioregions and is known from 123 individuals at nine \*locations and seven □populations, none of which are in conservation reserves. In the Study Area, 25 individuals were recorded at two locations (20% of the total known individuals). *Eremophila* sp. Tallering is not a widely known species and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(b) conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area (the total known distribution spans 75 km), but poorly collected, however as this is not known the former should be assumed.

*Euphorbia sarcostemmoides* has been recorded in the Murchison and Gascoyne bioregions and is known from 318 individuals at 68 \*locations. In the Study Area, 307 individuals were recorded at 65 locations (97% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic (the total known distribution spans 400 km) and therefore has low(b) conservation significance.

*Goodenia lyrata* has been recorded in the Murchison, Gibson Desert and Pilbara bioregions and is known from 56 individuals at 10 \*locations. In the Study Area, 40 individuals were recorded at three locations (71% of the total known individuals). *Goodenia lyrata* is not a widely known species and a very large amount of the known population is recorded in the Study Area. However, as this species has been recorded in three bioregions, it is likely that it is more widespread than what is known (the total known distribution spans 620 km) and is not locally endemic. It therefore has high(a) conservation significance.

*Gunniopsis divisa* has been recorded in the Murchison and Yalgoo bioregions and is known from 1,168 individuals at nine \*locations. In the Study Area, 1000 individuals were recorded at one location (86% of the total known individuals). *Gunniopsis divisa* is not a widely known species (the total known distribution spans 125 km) and a very large amount of the known population is recorded in the Study Area and any impact could have a significant result to the species and therefore has high(a) conservation significance.

*Harperia ferruginipes* has been recorded in the Geraldton Sandplains bioregion and is known from 29 individuals at seven \*locations. In the Study Area, four individuals were recorded at three locations (14% of the total known individuals). *Harperia ferruginipes* is not a widely known species (the total known distribution spans 33 km, with an outlier to 160 km) and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(b) conservation significance.

*Lepidobolus basiflorus* has been recorded in the Geraldton Sandplains bioregion and is known from 51 individuals at two \*locations. In the Study Area, one individual was recorded at one location (2%

of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Lepidosperma* sp. Moresby Range (R.J. Cranfield 2751) has been recorded in the Geraldton Sandplains bioregion and is known from 176 individuals at 22 \*locations. In the Study Area, 139 individuals were recorded at 16 locations (79% of the total known individuals). This species appears to be restricted to the Moresby Range area, and the large percentage of total population within the Study Area in this case likely indicates a high local endemism in this area (the total known distribution spans 20 km). Any Impact to this species is likely to significantly affect species numbers and therefore has high(c) conservation significance.

*Leucopogon psammophilus* has been recorded in the Geraldton Sandplains bioregion and is known from 72 individuals at 13 \*locations. In the Study Area, 10 individuals were recorded at one location (14% of the total known individuals). *Leucopogon psammophilus* is not a widely known species (the total known distribution spans 110 km) and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has moderate conservation significance.

*Melaleuca huttensis* has been recorded in the Geraldton Sandplains bioregion and is known from 4,976 individuals at 644 \*locations. In the Study Area, 63 individuals were recorded at three locations (1.3% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Mirbelia ternata* has been recorded in the Avon Wheatbelt bioregion and is known from seven individuals at five \*locations. In the Study Area, three individuals were recorded at three locations (43% of the total known individuals). *Mirbelia ternata* is not a widely known species (the total known distribution spans 128 km) and a very large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(a) conservation significance.

*Petrophile vana* has been recorded in the Murchison and Yalgoo bioregions and is known from 230 individuals at 14 \*locations. In the Study Area, 144 individuals were recorded at eight locations (63% of the total known individuals). *Petrophile vana* is not a widely known species (the total known distribution spans 100 km) and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(a) conservation significance.

*Ptilotus tetrandrus* has been recorded in the Murchison and Little Sandy Desert bioregions and is known from two individuals at two \*locations. In the Study Area, two individuals were recorded at two locations (100% of the total known individuals). *Ptilotus tetrandrus* is not a widely known species (the total known distribution spans 350 km) and a very large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(a) conservation significance.

*Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94) has been recorded in the Murchison and Yalgoo bioregions and is known from 168 individuals at 26 \*locations. In the Study Area, 51 individuals were recorded at 15 locations (30% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic (the total known distribution spans 280 km) and therefore has low(b) conservation significance.

*Scholtzia* sp. Binu (M.E. Trudgen 2218) has been recorded in the Geraldton Sandplains bioregion and is known from 212 individuals at seven \*locations. In the Study Area, 20 individuals were recorded at one location (9% of the total known individuals). This species is not very common in the



Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Scholtzia* sp. Valentine Road (S. Patrick 2142) has been recorded in the Geraldton Sandplains bioregion and is known from 13 individuals at two \*locations. In the Study Area, 13 individuals were recorded at two locations (100% of the total known individuals). *Scholtzia* sp. Valentine Road is not a widely known species (only one record is known) and almost all of the known individuals have been recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(a) conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area, but poorly collected, however as this is not known, the former should be assumed.

*Tricoryne* sp. Geraldton (G.J. Keighery 10461) has been recorded in the Geraldton Sandplains bioregion and is known from 28 individuals at four \*locations. In the Study Area, 11 individuals were recorded at one location (39% of the total known individuals). *Tricoryne* sp. Geraldton is not a widely known species (the total known distribution spans 30 km) and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(b) conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area, but poorly collected, however as this is not known, the former should be assumed.

*Vittadinia cervicalaris* var. *occidentalis* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from six individuals at five \*locations. In the Study Area, two individuals were recorded at one location (33% of the total known individuals). *Vittadinia cervicalaris* var. *occidentalis* is not a widely known species (the total known distribution spans 40 km, with an outlier to 150 km) and a large amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(a) conservation significance.

## Priority 2 Flora

*Acacia megacephala* has been recorded in the Geraldton Sandplain bioregion and is known from 162 individuals at 20 \*locations. In the Study Area, two individuals were recorded at one location (1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Dicrastylis incana* has been recorded in the Geraldton Sandplain bioregion and is known from 55 individuals at 12 \*locations. In the Study Area, three individuals were recorded at two locations (5% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Frankenia confusa* has been recorded in the Murchison, Gascoyne and Geraldton Sandplains bioregions and is known from 476 individuals at 21 \*locations. In the Study Area, 244 individuals were recorded at 11 locations (51% of the total known individuals). Despite the high number of the total population recorded in the Study Area, it is a widespread species that is distributed widely in Western Australia (the total known distribution spans 500 km). It therefore has low(b) conservation significance in the Study Area.

*Homalocalyx inerrabundus* has been recorded in the Murchison and Geraldton Sandplains bioregions and is known from 253 individuals at 13 \*locations. In the Study Area, 151 individuals were recorded at nine locations (60% of the total known individuals). *Homalocalyx inerrabundus* is not a widely known species, however as the total known distribution spans 500 km and a significant amount of the known population was recorded in the Study Area because of the transect survey, it has low(b) conservation significance.

*Leucopogon borealis* has been recorded in the Geraldton Sandplain bioregion and is known from 418 individuals at 43 \*locations. In the Study Area, 314 individuals were recorded at 24 \*locations (75% of the total known individuals). This species appears to be restricted in the local area, and the large percentage of total population within the Study Area in this case likely indicates a high local endemism in this area (the total known distribution spans 35 km). Any Impact to this species is likely to significantly affect species numbers and therefore has high(c) conservation significance.

*Leucopogon* sp. Howatharra (D. & N. McFarland 1046) has been recorded in the Geraldton Sandplain bioregion and is known from 91 individuals at six \*locations. In the Study Area, 70 individuals were recorded at four locations (77% of the total known individuals). This species appears to be restricted in the local area, and the large percentage of total population within the Study Area in this case likely indicates a high local endemism in this area (the total known distribution spans 20 km). Any Impact to this species is likely to significantly affect species numbers and therefore has high(c) conservation significance.

*Malleostemon* sp. Moonyoonooka (R.J. Cranfield 2947) has been recorded in the Geraldton Sandplains bioregion and is known from 51 individuals at one \*location. The one known record is located within the Study Area (100% of the total known individuals). *Malleostemon* sp. Moonyoonooka is not a widely known species and any impact could have a significant result to the species and therefore has high(a) conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area, but poorly collected, however as this is not known, the former should be assumed.

*Scholtzia* sp. East Yuna (A.C. Burns 6) has been recorded in the Geraldton Sandplains bioregion and is known from 219 individuals at 10 \*locations. In the Study Area, 217 individuals were recorded at four locations (99% of the total known individuals). *Scholtzia* sp. East Yuna is not a widely known species (the total known distribution spans 115 km) and almost all of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has high(b) conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area, but poorly collected, however as this is not known, the former should be assumed.

*Thryptomene* sp. East Yuna (J.W. Green 4639) has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 141 individuals at 17 \*locations. In the Study Area, four individuals were recorded at three locations (3% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Thryptomene* sp. Yuna Reserve (A.C. Burns 100) has been recorded in the Geraldton Sandplains bioregion and is known from one individual at one \*location. In the Study Area, one individual was recorded at one location (100% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Thryptomene stenophylla* has been recorded in the Geraldton Sandplains bioregion and is known from 685 individuals at 35 \*locations. In the Study Area, 18 individuals were recorded at 10 locations (3% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Verticordia aereiflora* has been recorded in the Geraldton Sandplains bioregion and is known from 54 individuals at three \*locations. In the Study Area, 51 individuals were recorded at one location (94% of the total known individuals). *Verticordia aereiflora* is not a widely known species (the total known distribution spans 40 km) and almost all of the known population is recorded in the Study Area. Any

impact could have a significant result to the species and therefore has high(b) conservation significance.

*Acacia leptospermoides* subsp. *psammophila* has been recorded in the Geraldton Sandplains bioregion and is known from 280 individuals at 34 \*locations. In the Study Area, 23 individuals were recorded at five locations (8% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

### Priority 3 Flora

*Acacia speckii* has been recorded in the Murchison, Yalgoo and Gascoyne bioregions and is known from 1,587 individuals at 325 \*locations. In the Study Area, 706 individuals were recorded at 206 locations (44% of the total known individuals). This species was widely recorded across the Study Area (the total known distribution spans 410 km) and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic and therefore has low(b) conservation significance.

*Acacia subsessilis* has been recorded in the Murchison and Yalgoo bioregions and is known from 882 individuals at 40 \*locations. In the Study Area, 48 individuals were recorded at 14 locations (5% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Acanthocarpus parviflorus* has been recorded in the Carnarvon and Geraldton Sandplains bioregions and is known from 715 individuals at 72 \*locations. In the Study Area, 18 individuals were recorded at three locations (2.5% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Arnocrinum drummondii* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 101 individuals at seven \*locations. In the Study Area, 10 individuals were recorded at one location (10% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance, especially as a large proportion of the known population is located within a conservation reserve.

*Baeckea* sp. Walkaway (A.S. George 11249) has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 1,206 individuals at 29 \*locations. In the Study Area, four individuals were recorded at two locations (<1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Blackallia nudiflora* has been recorded in the Geraldton Sandplains bioregion and is known from 2,069 individuals at 28 \*locations. In the Study Area, 22 individuals were recorded at one location (1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Calytrix erosipetala* has been recorded in the Murchison and Yalgoo bioregions and is known from 2,117 individuals at 45 \*locations. In the Study Area, 109 individuals were recorded at 10 locations (5% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Calytrix formosa* has been recorded in the Yalgoo, Geraldton Sandplains and Carnarvon bioregions and is known from 201 individuals at 24 \*locations. In the Study Area, three individuals were

recorded at two locations (1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Calytrix uncinata* has been recorded in the Murchison and Yalgoo bioregions and is known from 1,252 individuals at 49 \*locations. In the Study Area, 18 individuals were recorded at six locations (1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Calytrix verruculosa* has been recorded in the Murchison bioregion and is known from 1,091 individuals at 62 \*locations. In the Study Area, 871 individuals were recorded at 51 locations (80% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic and therefore has low(b) conservation significance.

*Dicrastylis linearifolia* has been recorded in the Murchison, Yalgoo, Geraldton Sandplains, Gascoyne and Carnarvon bioregions and is known from 1,720 individuals at 39 \*locations. In the Study Area, 274 individuals were recorded at 15 locations (16% of the total known individuals). This species was relatively common in the Study Area, but as the numbers recorded outside the Study Area are rather well known and widespread, and the percentage of total numbers is low, this species has low(a) conservation significance in the Study Area.

*Dodonaea amplusemina* has been recorded in the Murchison, Yalgoo, Gascoyne and Avon Wheatbelt bioregions and is known from 1,466 individuals at 171 \*locations. In the Study Area, 754 individuals were recorded at 96 locations (51% of the total known individuals). This species was relatively common in the Study Area, but as the numbers recorded outside the Study Area are rather well known and widespread, and the percentage of total numbers is low, this species has low(b) conservation significance in the Study Area.

*Eremophila arachnoides* subsp. *arachnoides* has been recorded in the Murchison and Little Sandy Desert bioregions and is known from 266 individuals at 10 \*locations. In the Study Area, 45 individuals were recorded at four locations (17% of the total known individuals). This species is moderately common in the Study Area and is likely to be widespread over bioregions, therefore impact to it will not result in any significant loss to the species, and it has moderate conservation significance.

*Eremophila muelleriana* has been recorded in the Murchison bioregion and is known from 593 individuals at 129 \*locations. In the Study Area, 558 individuals were recorded at 119 locations (94% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic and therefore has low(b) conservation significance.

*Gastrolobium propinquum* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 374 individuals at 26 \*locations. In the Study Area, one individual was recorded at one location (<1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Gastrolobium rotundifolium* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 387 individuals at 30 \*locations. In the Study Area, 11 individuals were recorded at five locations (3% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Geleznovia verrucosa* subsp. Kalbarri (L.M. Broadhurst 123) has been recorded in the Geraldton Sandplains bioregion and is known from 459 individuals at 37 \*locations. In the Study Area, 78 individuals were recorded at seven locations (17% of the total known individuals). *Geleznovia verrucosa* subsp. Kalbarri is not a widely known species and any impact could have a significant result to the species and therefore has moderate conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area, but poorly collected, however as this is not known the former should be assumed.

*Gnephis cassiniana* has been recorded in the Yalgoo, Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 12,040 individuals at 13 \*locations. In the Study Area, three individuals were recorded at two locations (<1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Grevillea candicans* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 75 individuals at 28 \*locations. In the Study Area, 10 individuals were recorded at three locations (13% of the total known individuals). *Grevillea candicans* is not a widely known species and a moderate amount of the known population is recorded in the Study Area. Any impact could have a significant result to the species and therefore has moderate conservation significance.

*Grevillea stenostachya* has been recorded in the Murchison, Yalgoo, Geraldton Sandplains and Carnarvon bioregions and is known from 657 individuals at 224 \*locations. In the Study Area, 388 individuals were recorded at 158 locations (59% of the total known individuals). This species was relatively common in the Study Area, but as the numbers recorded outside the Study Area are rather well known and widespread, and the percentage of total numbers is low, this species has low(b) conservation significance in the Study Area.

*Grevillea triloba* has been recorded in the Geraldton Sandplains bioregion and is known from 15,734 individuals at 493 \*locations. In the Study Area, 5,924 individuals were recorded at 345 locations (38% of the total known individuals). This species was relatively common in the Study Area, but as the numbers recorded outside the Study Area are rather well known and widespread, and the percentage of total numbers is low, this species has low(b) conservation significance in the Study Area.

*Hemigenia tysonii* has been recorded in the Murchison, Geraldton Sandplains, Gascoyne and Carnarvon bioregions and is known from 8,239 individuals at 280 \*locations. In the Study Area, 5,904 individuals were recorded at 197 locations (72% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic and therefore has low(b) conservation significance.

*Hemigenia virescens* has been recorded in the Murchison and Gascoyne bioregions and is known from 5,439 individuals at 120 \*locations. In the Study Area, 5,115 individuals were recorded at 112 locations (94% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic and therefore has low(b) conservation significance.

*Homalocalyx echinulatus* has been recorded in the Murchison and Gascoyne bioregions and is known from 862 individuals at 51 \*locations. In the Study Area, 218 individuals were recorded at 11 locations (25% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic and therefore has moderate conservation significance.

*Indigofera gilesii subsp. gilesii* has been recorded in the Pilbara bioregion and is known from 123 individuals at 16 \*locations. In the Study Area, one individual was recorded at one location (1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Lasiopetalum oppositifolium* has been recorded in the Geraldton Sandplains bioregion and is known from 351 individuals at 49 \*locations. In the Study Area, 79 individuals were recorded at two locations (22% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Lepidium scandens* has been recorded in the Murchison and Carnarvon bioregions and is known from 54 individuals at five \*locations. In the Study Area, one individual was recorded at one location (2% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Microcorys tenuifolia* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 200 individuals at 17 \*locations. In the Study Area, seven individuals were recorded at six locations (4% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Micromyrtus placoides* has been recorded in the Murchison and Yalgoo bioregions and is known from 3,955 individuals at 80 \*locations. In the Study Area, 11 individuals were recorded at four locations (<1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Petrophile pauciflora* has been recorded in the Murchison and Yalgoo bioregions and is known from 429 individuals at 29 \*locations. In the Study Area, 64 individuals were recorded at eight locations (15% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low conservation significance.

*Prostanthera petrophila* has been recorded in the Murchison and Yalgoo bioregions and is known from 1,607 individuals at 105 \*locations. In the Study Area, 218 individuals were recorded at 26 locations (14% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Ptilotus beardii* has been recorded in the Murchison and Yalgoo bioregions and is known from 4,104 individuals at 83 \*locations. In the Study Area, 2,565 individuals were recorded at 45 locations (63% of the total known individuals). This species was widely recorded across the Study Area and because of this, despite the large percentage of the total species population in the Study Area; it is likely to be poorly collected, rather than locally endemic (the total known distribution spans 230 km) and therefore has low(b) conservation significance.

*Ptilotus luteolus* has been recorded in the Murchison and Gascoyne bioregions and is known from 894 individuals at 31 \*locations. In the Study Area, 315 individuals were recorded at 10 locations (35% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Scaevola oldfieldii* has been recorded in the Geraldton Sandplains bioregion and is known from 162 individuals at 12 \*locations. In the Study Area, six individuals were recorded at one location (4% of

the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Serichonus gracilipes* has been recorded in the Geraldton Sandplains bioregion and is known from 76 individuals at 21 \*locations. In the Study Area, 36 individuals were recorded at 13 locations (47% of the total known individuals). This species appears to be restricted in the local area, and the large percentage of total population within the Study Area in this case likely indicates a high local endemism in this area (the total known distribution spans 50 km). Any Impact to this species is likely to significantly affect species numbers and therefore has high(c) conservation significance.

*Stenanthemum divaricatum* has been recorded in the Geraldton Sandplains and Carnarvon bioregions and is known from 17 individuals at 12 \*locations. In the Study Area, one individual was recorded at one location (6% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Tecticornia cymbiformis* has been recorded in the Murchison and Yalgoo bioregions and is known from 66 individuals at eight \*locations. In the Study Area, 11 individuals were recorded at two locations (17% of the total known individuals). This species is not very common in the Study Area and impact to it will result in a moderate loss to the species, it therefore has moderate conservation significance.

*Thryptomene* sp. Moresby Range (A.S. George 14873) has been recorded in the Geraldton Sandplains bioregion and is known from 1,834 individuals at 61 \*locations. In the Study Area, 1,459 individuals were recorded at 38 locations (80% of the total known individuals). This species appears to be restricted in the local area, and the large percentage of total population within the Study Area in this case likely indicates a high local endemism in this area (the total known distribution spans 30 km). Any Impact to this species is likely to significantly affect species numbers and therefore has high(c) conservation significance.

*Thryptomene* sp. Wandana (M.E. Trudgen MET 22016) has been recorded in the Geraldton Sandplains bioregion and is known from 747 individuals at 22 \*locations. In the Study Area, 684 individuals were recorded at 8 locations (92% of the total known individuals). *Thryptomene* sp. Wandana is not a widely known species (the total known distribution spans 150 km) and almost all of the known populations are recorded in the Study Area. Any impact could have a significant result to the species and therefore has moderate conservation significance. As this is not a fully described species, it is possible that it is not a rare in the local area, but poorly collected, however as this is not known, the former should be assumed.

*Verticordia chrysostachys* var. *pallida* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 262 individuals at 35 \*locations. In the Study Area, 86 individuals were recorded at eight locations (33% of the total known individuals). This species is not very common in the Study Area and impact to it will result in a moderate loss to the species, but as its known distribution spans 180 km it therefore has moderate conservation significance.

*Verticordia densiflora* var. *roseostella* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 439 individuals at 49 \*locations. In the Study Area, 83 individuals were recorded at four locations (19% of the total known individuals). This species is not very common in the Study Area and impact to it will result in a moderate loss to the species, but as its known distribution spans 250 km it therefore has moderate conservation significance.

*Verticordia jamiesonii* has been recorded in the Murchison, Yalgoo and Gibson Desert bioregions and is known from 590 individuals at 37 \*locations. In the Study Area, 31 individuals were recorded at six locations (5% of the total known individuals). This species is not very common in the Study Area and

impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

#### Priority 4 Flora

*Acacia guinetii* has been recorded in the Geraldton Sandplains bioregion and is known from 362 individuals at 52 \*locations. In the Study Area, 47 individuals were recorded at 19 locations (13% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Baeckea* sp. Melita Station (H. Pringle 2738) has been recorded in the Murchison and Yalgoo bioregions and is known from 1,317 individuals at 77 \*locations. In the Study Area, 88 individuals were recorded at 13 locations (7% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Diuris recurva* has been recorded in the Geraldton Sandplains, Avon Wheatbelt and Jarrah Forest bioregions and is known from 732 individuals at 28 \*locations. In the Study Area, 20 individuals were recorded at two locations (3% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Eucalyptus ebbanoensis* subsp. *photina* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 169 individuals at 25 \*locations. In the Study Area, four individuals were recorded at four locations (2% of the total known individuals). This species is not very common in the Study Area and impact to it will result in a moderate loss to the species, but as its known distribution spans 145 km and it therefore has moderate conservation significance.

*Goodenia berringbinensis* has been recorded in the Murchison, Yalgoo and Gascoyne bioregions and is known from 28,191 individuals at 10 \*locations. In the Study Area, 50 individuals were recorded at two locations (<1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Grevillea inconspicua* has been recorded in the Murchison bioregion and is known from 2,254 individuals at 81 \*locations. In the Study Area, 68 individuals were recorded at 18 locations (3% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Jacksonia velutina* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 390 individuals at 35 \*locations. In the Study Area, one individual was recorded at one location (<1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Lechenaultia longiloba* has been recorded in the Geraldton Sandplains bioregion and is known from 264 individuals at 15 \*locations. In the Study Area, two individuals were recorded at one location (1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

*Verticordia capillaris* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 558 individuals at 83 \*locations. In the Study Area, 198 individuals were recorded at 42 locations (35% of the total known individuals). High numbers of individuals have been recorded inside and outside the Study Area, which indicate that the species is not locally endemic (the total known distribution spans 300 km) and therefore conservation significance is low(b).



*Verticordia penicillaris* has been recorded in the Geraldton Sandplains and Avon Wheatbelt bioregions and is known from 5,346 individuals at 121 \*locations. In the Study Area, 3,417 individuals were recorded at 77 locations (64% of the total known individuals). High numbers of individuals have been recorded inside and outside the Study Area, which indicate that the species is not locally endemic (the total known distribution spans 190 km) and therefore conservation significance is low(b).

*Verticordia polytricha* has been recorded in the Geraldton Sandplains, Yalgoo and Jarrah Forest bioregions and is known from 859 individuals at 26 \*locations. In the Study Area, six individuals were recorded at one location (1% of the total known individuals). This species is not very common in the Study Area and impact to it will not result in any significant loss to the species, it therefore has low(a) conservation significance.

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## 9 STUDY TEAM

The vegetation and flora assessment described in this document was planned, coordinated and executed by:

Project Staff and Qualifications		
Christina Cox	PhD	Manager Botany
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Palitha Jayasekara	PhD	Botanist/Taxonomist
Peter Jobson	MSc.	Taxonomist

Licences - "Licence to Take Flora for Scientific Purposes"		
The vegetation and flora assessment described in this report was conducted under the authorisation of the following licences issued by the DEC:		
	Permit Number	Valid Until
Melissa Hay	SL008100	30 <sup>th</sup> April, 2009
	SL008528	30 <sup>th</sup> April, 2010
Scott Hitchcock	SL008095	30 <sup>th</sup> April, 2009
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## 10 REFERENCES

*Agriculture and Related Resources Protection Act 1976 (Western Australia)*

Alan Tingay & Associates (1998). Tallering Peak – Oakajee Standard Gauge Railway. Environmental Appraisal and Management Plan. Unpublished report for An Feng Kingstream Steel. December 1998.

Atkins, K.J. (2) (2008). Declared Rare and Priority Flora List. Department of Environment and Conservation, Perth, Western Australia. October, 2008.

Australian Weeds Committee (2006). The Australian Weeds Strategy; A national study for weed management in Australia, Natural Resource Management Ministerial Council, Canberra, ACT.

Beard, J.S. (1976). Vegetation Survey of Western Australia – Murchison. Explanatory Notes and Map Sheet 5, 1:1,000,000 series. Vegetation Survey of Western Australia. University of Western Australia Press, Nedlands.

Beard, J. S. & Burns, A. C. (1976). The Vegetation of the Geraldton Area - Western Australia. Map and Explanatory Memoir 1:250,000 series. Vegetation Survey of Western Australia. Vegmap Publications, Perth.

Bureau of Meteorology (2009). Accessed August/September 2009 from: <http://www.bom.gov.au/>

Bush Forever (2000) Bush Forever Volume Two – Policies, Principles and Processes. December 2000.

Colwell, R. K. (2006). EstimateS: Statistical estimation of species richness and shared species from samples. User's Guide and Application, Version 8.0.0.

Curry, P. J., Payne, A. L., Leighton, K. A., Henning, P., & Blood, D. A. (1994). An inventory and condition survey of the Murchison River catchment, Western Australia, Technical Bulletin No.84. Department of Agriculture Western Australia, South Perth.

Dames & Moore (1993). Flora and Fauna Assessment: Oakajee Proposed Industrial Site. Unpublished report for LandCorp, WA. May 1993.

Department of Agriculture and Food (2009) Declared Plants search: online, <http://agspsrv95.agric.wa.gov.au/dps/version02/01plantsearch.asp>.

Department of Environment and Conservation (2004) Moresby Range Drummondita (*Drummondita ericoides*) Interim Recovery Plan. June 2004.

Department of Environment and Conservation (2009a). Land Management Planning - Additions to WA's Conservation Reserves. Available at: <http://www.dec.wa.gov.au/management-and-protection/land-management-planning/additions-to-wa-s-conservation-reserves.html>

Department of Environment and Conservation (2009b). Native Vegetation Map Viewer. Available at: <http://maps.dec.wa.gov.au/idelve/nv/index.jsp>

Department of the Environment, Water, Heritage and the Arts (2008). Rangelands 2008 - Taking the pulse. Australian Collaborative Pastoral land area Information System: Reporting Change in the Rangelands. August 2008. Available at: <http://www.environment.gov.au/land/publications/acris/report08.html>

Department of the Environment, Water, Heritage and the Arts (2009). Interim Biogeographic Regionalisation for Australia (IBRA), Version 6.1. Available at <http://www.environment.gov.au/parks/nrs/science/bioregion-framework/ibra/index.html#ibra>

- Desmond, A., Cowan, M. & Chant, A. (2001). Murchison 2 (MUR2 – Western Murchison subregion). IN: A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002. The Department of Conservation and Land Management.
- Desmond, A. & Chant, A. (2001a). Yalgoo (YAL). IN: A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002. The Department of Conservation and Land Management.
- Desmond, A. & Chant, A. (2001b). Geraldton Sandplains (GS2 – Geraldton Hills subregion). IN: A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002. The Department of Conservation and Land Management.
- ecologia* Environment (2009a in preparation). Weld Range flora and vegetation assessment. Published report to Sinosteel Midwest Corporation Ltd.
- ecologia* Environment (2009b DRAFT). Jack Hills Stage 2 flora and vegetation assessment. Published report to Crosslands Resources Limited. April 2009.
- ecologia* Environment (2009c in preparation). Oakajee Port Development: Vegetation and Flora Survey. Unpublished report to Oakajee Port and Rail.
- ecologia* Environment (2009d in preparation). Oakajee Port and Rail: Buller River Biological Survey. Unpublished report to Oakajee Port and Rail.
- Edwards, H. (1994). Meekatharra - the gold beyond the rivers. Swanbourne, Western Australia.
- Elias, M. (1982). Belele Western Australia 1:250,000 Geological Series – Explanatory Notes. Geological Survey of Western Australia. Department of Mines Western Australia. Perth Western Australia.
- Environmental Protection Authority (2002). Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3. Western Australia.
- Environmental Protection Authority (2004a). Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No. 51. Western Australia.
- Environmental Protection Authority (2004b). Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No. 56. Western Australia.
- Fortech (1999). Pilbara Mulga Study. Report for the Department of Resources Development.
- Hedde, E.M., Loneragan O. W. & Havel, J. J. (1980). Vegetation complexes of the Darling System, Western Australia. IN: Atlas of natural resources of the Darling System, Western Australia. Chapter 3. Department of Environment and Conservation Perth.
- Hussey, B. M. J., Keighery, G. J., Dodd, J., Lloyd, S. G. & Cousens, R. D. (2007). Western Weeds – second edition. A guide to the weeds of Western Australia. The Weeds Society of WA Inc., Victoria Park, Western Australia.
- Johnson, L.A.S., and Hill, K.D. 1992). *Eucalyptus blaxellii*, original paper in NSW botanical journal; *Telopea*, 4: 564, Cited here in; EUCLID: eucalypts of Australia, third ed. (CD Rom), (2006), Centre for Plant Biodiversity Research, CSIRO Publishing, Collingwood, VIC.
- Landcare Services (1995). Baseline vegetation survey Hill 50 Gold N. L. Mt Magnet, Western Australia (Preliminary Report). Unpublished report for Western Mining Corporation Hill 50 N. L. Mt Magnet Operations. March 1995.
- Landcare Services Pty Ltd (1998). Oakajee Pipeline Route Flora and Fauna Study: Desktop Review and Field Survey. Unpublished report for Gutteridge Haskins & Davey Pty Ltd. September 1998.

- Markey, A. S. & Dillon, S. J. (2008a). Flora and vegetation of the banded iron formations of the Yilgarn Craton: the central Talling Land System. *Conservation Science Western Australia Volume 7 (1)*, pp 121-149. Department of Environment and Conservation, Western Australia.
- Markey, A. S. & Dillon, S. J. (2008b). Flora and vegetation of the banded iron formations of the Yilgarn Craton: the Weld Range. *Conservation Science Western Australia Volume 7 (1)*, pp 153-178. Department of Environment and Conservation, Western Australia.
- Mattiske Consulting Pty Ltd (2005). Flora and vegetation on the Jack Hills Study Area. Unpublished report for Murchison Metals Ltd. November 2005.
- Meissner, R. & Caruso, Y. (2008). Flora and vegetation of banded ironstone formations of the Yilgarn Craton: Jack Hills. *Conservation Science Western Australia Volume 7 (1)*, pp 89-103. Department of Environment and Conservation, Western Australia.
- Muir Environmental (1997). August 1997 Re-evaluation of Flora and Fauna: Oakajee Proposed Industrial Estate and Quarries. Unpublished report for the Department of Resources Development, WA. September 1997.
- Payne, A. L., Van Vreeswyk, A. M. E., Pringle, H. J. R., Leighton, K. A. & Hennig, P. (1998). An inventory and condition survey of the Sandstone-Yalgoo-Paynes Find area, Western Australia, Technical Bulletin No. 90. Agriculture Western Australia, South Perth.
- Paczkowska, G. and Chapman, A. (2000). The Western Australian Flora: a descriptive catalogue. Wildflower Society of Western Australia (Inc.), Western Australian Herbarium CALM, Botanic Gardens and Parks Authority.
- Playford, P. E., Horwitz, R. C., Peers, R. & Baxter, J. L. (1970). Geraldton Western Australia 1:250,000 Geological Series – Explanatory Notes. Geological Survey of Western Australia. Bureau of Mineral Resources, Geology and Geophysics, Australia.
- Rogers, L. G. (1996). Geraldton Region Land Resources Survey, Land Resources Series 13. Agriculture Western Australia. South Perth.
- Speck (1963). The vegetation of the Wiluna-Meekatharra area. IN: Mabbutt *et al.*, General report on lands of the Wiluna-Meekatharra area of Western Australia 1958. CSIRO Land Research Series 7. Melbourne.
- State Weed Plan Steering Group (2001). Bulletin 4490: A Weed Plan for Western Australia. Department of Agriculture and Food, Bentley Delivery Centre, WA.
- Tille, P. (2006). Soil-landscapes of Western Australia's Rangelands and Arid Interior - Resource Management Technical Report 313. Department of Agriculture and Food, Government of Western Australia. Available at: <http://www.agric.wa.gov.au/>
- WAHERB, (2009). FloraBase. Department of Conservation and Land Management. <http://florabase.calm.wa.gov.au/>
- WC Act (2008 (2)). Wildlife Conservation (Rare Flora) Act 1950, Notice 2008(2), Western Australian Government Gazette, August 2008.

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**APPENDIX A                      DEFINITION OF CODES FOR THREATENED AND  
PRIORITY ECOLOGICAL COMMUNITIES**

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**Table A.1 – Definition of codes for Threatened Ecological Communities**

Code	Definition
<b>PD: Presumed Totally Destroyed</b>	An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future. An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant
<b>CR: Critically Endangered</b>	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated. An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future.
<b>EN: Endangered</b>	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future. An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future.
<b>VU: Vulnerable</b>	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range. An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium to long-term future.

**Table A.2 – Definition of codes for Priority Ecological Communities**

Code	Definition
<b>P1: Priority One</b>	Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or Pastoral lands, urban areas, active mineral leases) and for which current threats exist. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
<b>P2: Priority Two</b>	Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
<b>P3: Priority Three</b>	<p>(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:</p> <p>(ii) Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;</p> <p>(iii) Communities made up of large, and/or widespread occurrences that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.</p> <p>Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.</p>
<b>P4: Priority Four</b>	<p>Ecological communities that are adequately known, Rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.</p> <p>(a) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.</p> <p>(b) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>(c) Ecological communities that have been removed from the list of threatened communities during the past five years.</p> <p>P5: Priority Five Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.</p>
<b>P5: Priority Five</b>	Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

**APPENDIX B                      BIOLOGICAL SURVEYS CONDUCTED IN THE VICINITY  
OF THE STUDY AREA**

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**Table B.1 - Biological surveys conducted in the vicinity of the Study Area**

Survey Location (and Reference)	Date of Survey	Survey Details	Number Vegetation Units Described	Number Taxa Recorded	DRF/Priority Flora Taxa Recorded	Code
Weld Range ( <i>ecologia</i> , 2009a in preparation)	Nov-06 Apr-07 May-08	239 x 400 m2 quadrats (Note: includes 37 repeat quadrats surveyed in 2006 and 2007). Total quadrat area surveyed = 95, 600 m <sup>2</sup> .	7 main communities (16 sub-communities)	379	<i>Acacia burrowsiana</i>	P1
					<i>Euphorbia sarcostemmoides</i>	P1
					<i>Goodenia lyrata</i>	P1
					<i>Ptilotus astrolasius</i> var. <i>luteolus</i>	P1
					<i>Sauropus</i> sp. Woolgorong (M. Officer s.n. 10/8/94)	P1
					<i>Stenanthemum patens</i>	P1
					<i>Beyeria lapidicola</i>	P2
					<i>Acacia speckii</i>	P3
					<i>Calytrix erosipetala</i>	P3
					<i>Dodonaea amplisemina</i>	P3
					<i>Eremophila arachnoides</i> subsp. <i>arachnoides</i>	P3
					<i>Grevillea stenostachya</i>	P3
					<i>Hemigenia tysonii</i>	P3
					<i>Homalocalyx echinulatus</i>	P3
					<i>Micromyrtus placoides</i>	P3
					<i>Mirbelia ?stipitata</i>	P3
					<i>Prostanthera ferricola</i>	P3
					<i>Prostanthera petrophila</i>	P3
<i>Ptilotus beardii</i>	P3					
<i>Tecticornia cymbiformis</i>	P3					
<i>Verticordia jamiesonii</i>	P3					
<i>Baeckea</i> sp. Melita Station (H. Pringle 2738)	P4					
<i>Goodenia berringbinensis</i>	P4					
<i>Grevillea inconspicua</i>	P4					

Survey Location (and Reference)	Date of Survey	Survey Details	Number Vegetation Units Described	Number Taxa Recorded	DRF/Priority Flora Taxa Recorded	Code
Jack Hills ( <i>ecologia</i> , 2009b Draft)	June 2006 September 2007	195 x 400 m <sup>2</sup> quadrats surveyed (Note: includes 59 repeat quadrats surveyed in 2006 and 2007). Total quadrat area surveyed = 78, 000 m <sup>2</sup> .	6 main communities (18 sub-communities)	259	<i>Acacia</i> sp. Jack Hills (R. Meissner & Y. Caruso 4)	P1
					<i>Ptilotus tetrandrus</i>	P1
					<i>Dodonaea amplisemina</i>	P3
					<i>Homalocalyx echinulatus</i>	P3
					<i>Indigofera gilesii</i> subsp. <i>gilesii</i>	P3
					<i>Prostanthera ferricola</i>	P3
Jack Hills (Mattiske, 2005)	October 2004 June 2005 October 2005	122 x 400 m <sup>2</sup> quadrats surveyed Total area surveyed = 48, 800 m <sup>2</sup> .	18 communities	211	<i>Acacia</i> sp. Jack Hills (R. Meissner & Y. Caruso 4)	P1
					<i>Calytrix verruculosa</i>	P1
					<i>Gunniopsis divisa</i>	P1
					<i>Verticordia jamiesonii</i>	P3
Central Tallering Land System (Markey & Dillon, 2008a)	September to October 2005	103 x 400 m <sup>2</sup> quadrats surveyed. Total quadrat area surveyed = 41, 200 m <sup>2</sup> .	5 main communities(6 sub-communities)	414	<i>Acacia woodmaniorum</i>	DRF
					<i>Gunniopsis divisa</i>	P1
					<i>Millotia dimorpha</i>	P1
					<i>Rhodanthe collina</i>	P1
					<i>Acacia karina</i>	P2
					<i>Austrostipa blackii</i>	P3
					<i>Calytrix uncinata</i>	P3
					<i>Drummondita fulva</i>	P3
					<i>Gunniopsis rubra</i>	P3
					<i>Micromyrtus acuta</i>	P3
					<i>Micromyrtus trudgenii</i>	P3
<i>Persoonia pentasticha</i>	P3					
<i>Polianthion collinum</i>	P3					
					<i>Psammomoya implexa</i>	P3



Survey Location (and Reference)	Date of Survey	Survey Details	Number Vegetation Units Described	Number Taxa Recorded	DRF/Priority Flora Taxa Recorded	Code
Weld Range (Markey & Dillon, 2008b)	August 2005	52 x 400 m <sup>2</sup> quadrats surveyed. Total quadrat area surveyed = 20, 800 m <sup>2</sup> .	6 main communities(4 sub-communities)	244	<i>Sauropus</i> sp. Woolgorong (M. Officer s.n. 10/8/94)	P1
					<i>Stenanthemum patens</i>	P1
					<i>Acacia speckii</i>	P3
					<i>Dodonaea amplisemina</i>	P3
					<i>Micromyrtus placoides</i>	P3
					<i>Phyllanthus baeckeoides</i>	P3
					<i>Prostanthera ferricola</i>	P3
<i>Prostanthera petrophila</i>	P3					
Jack Hills (Meissner & Caruso, 2008)	August 2005	50 x 400 m <sup>2</sup> quadrats surveyed. Total quadrat area surveyed = 20, 000 m <sup>2</sup> .	6 communities	209	<i>Acacia</i> sp. Jack Hills (R. Meissner & Y. Caruso 4)	P1
					<i>Gunniopsis propinqua</i>	P3
					<i>Homalocalyx echinulatus</i>	P3
					<i>Prostanthera ferricola</i>	P3
Oakajee ( <i>ecologia</i> , 2009c in preparation)	August 2006 March 2009	Single phase vegetation and flora survey 21 x 400 m <sup>2</sup> quadrats surveyed. Total quadrat area surveyed = 8, 400 m <sup>2</sup> . Threatened flora survey - transects surveyed	14 sub-associations	367	<i>Eucalyptus blaxellii</i>	Vulnerable, P4
					<i>Lepidosperma</i> sp. Moresby Range	P1
					<i>Leucopogon psammophilus</i>	P1
					<i>Melaleuca huttensis</i>	P1
					<i>Acanthocarpus parviflorus</i>	P3
					<i>Blackallia nudiflora</i>	P3
					<i>Geleznowia verrucosa</i> subsp. Kalbarri	P3
					<i>Grevillea triloba</i>	P3
					<i>Lasiopetalum oppositifolium</i>	P3
					<i>Verticordia densiflora</i> var. <i>roseostella</i>	P3
<i>Verticordia penicillaris</i>	P4					

Survey Location (and Reference)	Date of Survey	Survey Details	Number Vegetation Units Described	Number Taxa Recorded	DRF/Priority Flora Taxa Recorded	Conservation Code
Jack Hills to Weld Range Haul Route (GHD, 2009)	September and October 2009	Single phase vegetation and flora survey 29 x 400 m <sup>2</sup> quadrats surveyed and 9 releves.  Total quadrat area surveyed = 11,600 m <sup>2</sup> .	18 Vegetation units	260	<i>Acacia</i> sp. Jack Hills (R. Meissner & Y. Caruso 4)	P1
					<i>Ptilotus astrolasius</i> var. <i>luteolus</i>	P1
					<i>Acacia speckii</i>	P3
					<i>Calytrix uncinata</i>	P
					<i>Dodonaea amplisemina</i>	3
					<i>Grevillea stenostachya</i>	P3
					<i>Indigofera gilesii</i> subsp. <i>gilesii</i>	P3
					<i>Petrophile pauciflora</i>	P3

**APPENDIX C                      CONSERVATION SIGNIFICANT FLORA RECORDED  
DURING THE DEC'S DATABASE SEARCHES AND OTHER  
BIOLOGICAL SURVEYS IN THE AREA**

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**Table C.1 – Conservation Significant Flora Taxa Potentially Occurring in the Study Area**

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
DRF	ORCHIDACEAE	<i>Caladenia bryceana</i> subsp. <i>cracens</i>	ATKINS	Sand over limestone, in low heath on limestone hills, or on winter-moist flats	Confirmed by DEC Searches
DRF	ORCHIDACEAE	<i>Caladenia hoffmanii</i>	ATKINS, DEFL, WA HERB	Clay, loam, laterite and granite. Rocky outcrops and hillsides, ridges, swamps and gullies.	Confirmed by Current Survey
DRF	ORCHIDACEAE	<i>Caladenia wanosa</i>	ATKINS	Sandstone outcrops, top edges of gorges.	Possible
DRF	FABACEAE	<i>Chorizema humile</i>	ATKINS	Sandy clay or loam plains.	Possible
DRF	RUTACEAE	<i>Drummondita ericoides</i>	ATKINS, DEFL, WA HERB	Rocky coastline areas	Confirmed by DEC Searches
DRF	SCROPHULARIACEAE	<i>Eremophila viscida</i>	ATKINS	Granitic soils, sandy loam. Stony gullies, sandplains.	Possible
Vulnerable P4	MYRTACEAE	<i>Eucalyptus blaxellii</i>	ATKINS, DEFL, WA HERB	Grey sand, clay. Rocky hillsides, creek flats.	Confirmed by Current Survey
DRF	PROTEACEAE	<i>Grevillea bracteosa</i> subsp. <i>bracteosa</i>	ATKINS	Lateritic and granitic soils. Yellow and brown sands.	Possible
DRF	PROTEACEAE	<i>Grevillea bracteosa</i> subsp. <i>howatharra</i>	ATKINS, DEFL	Gravelly clay over limestone	Possible
DRF	PROTEACEAE	<i>Grevillea phanerophlebia</i>	ATKINS	Gravelly soil, sand, loam, or clay; occupying heathland.	Possible
DRF	RUTACEAE	<i>Philotheca wonganensis</i>	DEFL, WA HERB	Red sandy soils	Confirmed by DEC Searches
DRF	ASTERACEAE	<i>Schoenia filifolia</i> subsp. <i>subulifolia</i>	ATKINS	Pale yellow-grey-brown clay. Swampy flats, tops of breakaways, crabholes.	Possible
DRF	COLCHICACEAE	<i>Wurmbea tubulosa</i>	ATKINS	Clay, loam. River banks, seasonally-wet places.	Possible
Priority 1	FABACEAE	<i>Acacia ampliata</i>	ATKINS	Red/orange sand, sandy loam, loam. Sandplains, hillsides.	Possible
Priority 1	FABACEAE	<i>Acacia lineolata</i> subsp. <i>multilineata</i>	ATKINS	Yellow sand, rocky clay. Sandplains.	Confirmed by Current Survey
Priority 1	FABACEAE	<i>Acacia</i> sp. Jack Hills (R. Meissner & Y. Caruso 4)	DEFL, WA HERB	Red to orange sandy clay. Boulders, gravel and sheet. Banded Ironstone, chert. Rocky outcrops slopes and hilltops	Unlikely

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 1	PORTULACACEAE	<i>Anacampseros</i> sp. Eremaean (F. Hort, J. Hort & J. Shanks 3248)	ATKINS	Sand patches inside rocks, brown sandy clay, and granite. Depressions in rock outcrops, breakaways, flats.	Possible
Priority 1	MYRTACEAE	<i>Baeckea</i> sp. East Yuna (R. Spjut & C. Edson 7077)	ATKINS	Hillslope	Possible
Priority 1	MYRTACEAE	<i>Baeckea</i> sp. Nolba (M.E. Trudgen MET21632)	ATKINS	Light brown silty sand, gravel, laterite. Rocky outcrops, mid-slopes of low hills.	Possible
Priority 1	MYRTACEAE	<i>Baeckea staminosa</i>	ATKINS, DEFL	Wetland.	Possible
Priority 1	ASTERACEAE	<i>Dithyrostegia gracilis</i>	ATKINS	Details not available	
Priority 1	MYRTACEAE	<i>Enekbatus dualis</i>	ATKINS	Orange-brown silty sand, brown clayey sand, granite. Low hills, gentle mid to upper slopes, rocky outcrops.	Possible
Priority 1	SCROPHULARIACEAE	<i>Eremophila rhegos</i>	DEFL, WA HERB	Skeletal stony loam over granite.	Possible
Priority 1	SCROPHULARIACEAE	<i>Eremophila</i> sp. Tallering (J.D. Start & M.J. Greeve D 516)	ATKINS, WA HERB	Red/brown loam/clay over hematite. BIF. Drainage line, Hilltop, Ridge.	Possible
Priority 1	EUPHORBIACEAE	<i>Euphorbia sarcostemmoides</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Sandstone ridges, quartzite hills.	Confirmed by Current Survey
Priority 1	FRANKENIACEAE	<i>Frankenia bracteata</i>	ATKINS	Saline sand, brown clay, Pale brown-cream sand. Salt Lake.	Possible
Priority 1	GOODENIACEAE	<i>Goodenia lyrata</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Red sandy loam. Near claypan.	Possible
Priority 1	AIZOACEAE	<i>Gunniopsis divisa</i>	Central Tallering Land System (Markey & Dillon, 2008a); Jack Hills (Mattiske, 2005)	Loam, quartz. Roadsides.	Confirmed by Current Survey
Priority 1	RESTIONACEAE	<i>Harperia ferruginipes</i>	ATKINS, WA HERB	Red sandy loam. Dry kwongan.	Possible
Priority 1	RESTIONACEAE	<i>Lepidobolus basiflorus</i>	ATKINS, WA HERB	Sand & sandy loam. Dry heath.	Possible
Priority 1	CYPERACEAE	<i>Lepidosperma</i> sp. Moresby Range (R.J. Cranfield 2751)	DEFL, WA HERB	Red-brown stony gravel, lateritic soil. Sandstone. Mesa.	Confirmed by Current Survey
Priority 1	MYRTACEAE	<i>Leptospermum exsertum</i>	ATKINS	Sandy soils. Sandplains.	Possible
Priority 1	ERICACEAE	<i>Leucopogon psammophilus</i>	Oakajee ( <i>ecologia</i> , 2009c in preparation)	Breakaways.	Possible

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 1	ERICACEAE	<i>Leucopogon</i> sp. Kojarena (J. Brooker 232)	ATKINS	Lateritic gravel, grey brown sand, loam, ironstone gravel. Breakaway.	Possible
Priority 1	MYRTACEAE	<i>Malleostemon</i> sp. Hardabutt Rapids (D. Bellairs 1654A)	DEFL, WA HERB	Red rocky clay. Near river, sandplain.	Possible
Priority 1	MYRTACEAE	<i>Malleostemon</i> sp. Mullewa (P. Winson B7365)	ATKINS	Sandy clay. Hillslopes, flats.	Possible
Priority 1	MYRTACEAE	<i>Malleostemon</i> sp. Woodacurrie Rd (S. Patrick 3364)	ATKINS	Orange clayey sand. Low depression between steep dunes.	Possible
Priority 1	MYRTACEAE	<i>Malleostemon</i> sp. Woolgorong Station (M. Officer 100)	ATKINS	Deep red sand.	Possible
Priority 1	MYRTACEAE	<i>Melaleuca huttensis</i>	WA HERB	Light yellow or beige sand. Lower slopes of undulating plains, sandplains.	Confirmed by Current Survey
Priority 1	ASTERACEAE	<i>Millotia dimorpha</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Red loamy soils.	Possible
Priority 1	PROTEACEAE	<i>Petrophile vana</i>	ATKINS	Shallow, white, gritty clay-soil pockets, laterite. Breakaways.	Confirmed by Current Survey
Priority 1	AMARANTHACEAE	<i>Ptilotus lazaridis</i>	WA HERB	Clay loam. Floodplains.	Possible
Priority 1	AMARANTHACEAE	<i>Ptilotus tetrandrus</i>	Jack Hills ( <i>ecologia</i> , 2009b DRAFT)	Loamy sand.	Possible
Priority 1	ASTERACEAE	<i>Rhodanthe collina</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Loam. Rocky hills.	Possible
Priority 1	EUPHORBIACEAE	<i>Sauropus</i> sp. Woolgorong (M. Officer s.n. 10/8/94)	( <i>ecologia</i> , 2009a in preparation); (Markey & Dillon, 2008b)	Red sand. Plains.	Confirmed by Current Survey
Priority 1	MYRTACEAE	<i>Scholtzia cordata</i>	ATKINS	Sand.	Possible
Priority 1	MYRTACEAE	<i>Scholtzia</i> sp. Valentine Road (S. Patrick 2142)	ATKINS, WA HERB	Yellow sand. Hilltop.	Possible
Priority 1	RHAMNACEAE	<i>Stenanthemum bilobum</i>	ATKINS	Details not available	Possible
Priority 1	RHAMNACEAE	<i>Stenanthemum mediale</i>	WA HERB	Red clayey sand.	Possible
Priority 1	RHAMNACEAE	<i>Stenanthemum patens</i>	ATKINS, WA HERB	Rocky hillside.	Possible

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 1	RHAMNACEAE	<i>Stenanthemum patens</i>	(ecologia, 2009a in preparation); (Markey & Dillon, 2008b)	Rocky hillside.	Possible
Priority 1	STYLIDIACEAE	<i>Stylidium xanthopis</i>	ATKINS	Pockets of damp soils. Outcrops.	Possible
Priority 1	CHENOPODIACEAE	<i>Tecticornia annelida</i>	ATKINS	Moderately saline pale brown to cream sand, grey-red sandy clay, orange-brown sand. Sand dunes, saline pan, undulating plain.	Possible
Priority 1	MYRTACEAE	<i>Thryptomene</i> sp. Wandana (M.E. Trudgen MET 22016)	ATKINS	Yellow sand, red clay. Sand dunes.	Confirmed by Current Survey
Priority 1	HEMEROCALLIDACEAE	<i>Tricoryne</i> sp. Geraldton (G.J. Keighery 10461)	ATKINS, WA HERB	White or yellow sand. Plains, crests of dunes.	Possible
Priority 1	ASTERACEAE	<i>Vittadinia cervicalaris</i> var. <i>occidentalis</i>	ATKINS, WA HERB	Details not available	Possible
Priority 2	FABACEAE	<i>Acacia megacephala</i>	ATKINS, WA HERB	White/yellow sand. Sandplains.	Possible
Priority 2	SOLANACEAE	<i>Anthotroche myoporoides</i>	ATKINS	Yellow or red sand. Sandplains.	Possible
Priority 2	MYRTACEAE	<i>Baeckea</i> sp. Whelarra (A.C. Burns 7)	ATKINS	Details not available	Possible
Priority 2	MYRTACEAE	<i>Baeckea</i> sp. Yuna (M.E. Trudgen 2224)	ATKINS	Sand, sandy loam, sandstone. Breakaways.	Possible
Priority 2	EUPHORBIACEAE	<i>Beyeria lapidicola</i>	WA HERB	Dry yellow brown sandy loam. Ironstone outcrops, Breakaways, Hillslopes. BIF.	Unlikely
Priority 2	MYRTACEAE	<i>Calytrix harvestiana</i>	ATKINS	White or yellow sand. Flats.	Possible
Priority 2	POLYGALACEAE	<i>Comesperma rhadinocarpum</i>	ATKINS, WA HERB	Sandy soils.	Possible
Priority 2	MALVACEAE	<i>Commersonia microphylla</i>	WA HERB	Sand.	Possible
Priority 2	GOODENIACEAE	<i>Dampiera krauseana</i>	ATKINS, WA HERB	Sand, gravel.	Possible
Priority 2	LAMIACEAE	<i>Dicrastyliis incana</i>	ATKINS, WA HERB	Low, open woodlands.	Possible
Priority 2	SCROPHULARIACEAE	<i>Eremophila brevifolia</i>	ATKINS	Red brown loam, yellow sand, red clayey sand. Hillslope, Riverbank.	Possible
Priority 2	SCROPHULARIACEAE	<i>Eremophila mirabilis</i>	ATKINS	Clay sand, stony clayey loam. Granite country.	Possible
Priority 2	LAMIACEAE	<i>Hemigenia pimelifolia</i>	ATKINS	Gravelly soils.	Possible



Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 2	MYRTACEAE	<i>Homalocalyx chapmanii</i>	ATKINS	Yellow or grey/brown sand. Undulating plains, weathered granite.	Possible
Priority 2	MYRTACEAE	<i>Homalocalyx inerrabundus</i>	ATKINS, WA HERB	Yellow sand, sandy loam.	Confirmed by Current Survey
Priority 2	ERICACEAE	<i>Leucopogon borealis</i>	WA HERB	Rocky sandy loam over sandstone. Pastoral.	Confirmed by Current Survey
Priority 2	ERICACEAE	<i>Leucopogon</i> sp. Howatharra (D. & N. McFarland 1046)	WA HERB	Brown sandy loam. Mid-slopes of valley.	Confirmed by Current Survey
Priority 2	MYRTACEAE	<i>Malleostemon</i> sp. Moonyoonooka (R.J. Cranfield 2947)	ATKINS, WA HERB	Sandy clay. Hillslopes, sandplains.	Possible
Priority 2	PROTEACEAE	<i>Persoonia papillosa</i>	ATKINS	Sand.	Possible
Priority 2	PROTEACEAE	<i>Petrophile pilostyla</i> subsp. <i>syntoma</i>	ATKINS	Yellow sand. Crests of sand dunes.	Possible
Priority 2	RUTACEAE	<i>Philotheca kalbarriensis</i>	WA HERB	Yellow sandy clay. Acacia acuminata scrub.	Possible
Priority 2	LAMIACEAE	<i>Prostanthera scutata</i>	ATKINS	Gravelly sand.	Possible
Priority 2	MYRTACEAE	<i>Scholtzia</i> sp. East Yuna (A.C. Burns 6)	ATKINS	Clay. Breakaway screes.	Confirmed by Current Survey
Priority 2	MYRTACEAE	<i>Scholtzia</i> sp. Eradu (R.D. Royce 8016)	ATKINS	Yellow sand.	Possible
Priority 2	MYRTACEAE	<i>Scholtzia</i> sp. Murchison River (A.S. George 7098)	ATKINS	Sand over sandstone.	Possible
Priority 2	RHAMNACEAE	<i>Stenanthemum poecilum</i>	ATKINS	Red clay or sandy clay, loam.	Possible
Priority 2	MYRTACEAE	<i>Thryptomene</i> sp. East Yuna (J.W. Green 4639)	ATKINS, WA HERB	Yellow sand.	Confirmed by Current Survey
Priority 2	MYRTACEAE	<i>Thryptomene</i> sp. Yuna Reserve (A.C. Burns 100)	ATKINS, WA HERB	Yellow, red, brown loamy sand, sand. Sandstone. Hillslopes, Ridge.	Possible
Priority 2	MYRTACEAE	<i>Thryptomene stenophylla</i>	ATKINS, WA HERB	Red or yellow sand, loam. Limestone hills, sandplains.	Confirmed by Current Survey
Priority 2	MYRTACEAE	<i>Verticordia aereiflora</i>	ATKINS, WA HERB	Yellow sand. Sand ridges.	Possible

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 3	FABACEAE	<i>Acacia burrowsiana</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Red-brown loams with ironstone rubble on surface, calcrete soils, laterite, quartz. Flats adjacent to watercourses, crests of low rises, breakaways.	Possible
Priority 3	FABACEAE	<i>Acacia drummondii</i> subsp. <i>affinis</i>	ATKINS	Lateritic gravelly soils.	Possible
Priority 3	FABACEAE	<i>Acacia latipes</i> subsp. <i>licina</i>	ATKINS	White sand, granitic soils. Limestone hills, sandplains.	Possible
Priority 3	FABACEAE	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	ATKINS, WA HERB	Yellow or red sand, gravelly soils. Sandplains.	Confirmed by Current Survey
Priority 3	FABACEAE	<i>Acacia speckii</i>	ATKINS, WA HERB	Rocky soils over granite, basalt or dolerite. Rocky hills or rises.	Confirmed by Current Survey
Priority 3	DASYPOGONACEAE	<i>Acanthocarpus parviflorus</i>	Oakajee ( <i>ecologia</i> , 2009c in preparation)	Sand over limestone or sandstone.	Confirmed by Current Survey
Priority 3	HEMEROCALLIDACEAE	<i>Arnocrinum drummondii</i>	ATKINS, WA HERB	White or yellow sand.	Possible
Priority 3	POACEAE	<i>Austrostipa blackii</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Orange, red, brown soils. BIF, haematite. Hillcrest and Hillslope.	Unlikely
Priority 3	MYRTACEAE	<i>Baeckea</i> sp. Walkaway (A.S. George 11249)	ATKINS, WA HERB	Yellow brown or white sand. Undulating plains, hillslopes.	Possible
Priority 3	RHAMNACEAE	<i>Blackallia nudiflora</i>	Oakajee ( <i>ecologia</i> , 2009c in preparation)	Clay or sandy clay with granite. On hills or breakaways, plains.	Confirmed by Current Survey
Priority 3	MYRTACEAE	<i>Calytrix erosipetala</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Rocky sandstone or granite breakaways.	Confirmed by Current Survey
Priority 3	MYRTACEAE	<i>Calytrix pimeleoides</i>	WA HERB	Grey or yellow-brown sand, laterite. Sandplains, flats, hills, outcrops.	Possible
Priority 3	MYRTACEAE	<i>Calytrix uncinata</i>	Central Tallering Land System (Markey & Dillon, 2008a)	White or red sand, sandy clay. Granite or sandstone breakaways, rocky rises.	Confirmed by Current Survey
Priority 3	MYRTACEAE	<i>Calytrix verruculosa</i>	WA HERB	Sandy clay.	Confirmed by Current Survey
Priority 3	RHAMNACEAE	<i>Cryptandra nola</i>	ATKINS	Sandy soils over granite, laterite. Along drainage lines, breakaways, hillsides.	Possible
Priority 3	ORCHIDACEAE	<i>Cyanicula fragrans</i>	ATKINS	Red loam. Flat granite outcrops.	Possible

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 3	MYRTACEAE	<i>Darwinia</i> sp. Morawa (C.A. Gardner 2662)	ATKINS	Clay over granite, yellow brown clayey sand. Flat, small hill.	Possible
Priority 3	SAPINDACEAE	<i>Dodonaea amplisemina</i>	WA HERB	Red-brown sandy clay on basalt and gabbro and banded ironstone or on dolerite and quartzite. Rocky hills.	Confirmed by Current Survey
Priority 3	SCROPHULARIACEAE	<i>Eremophila arachnoides</i> subsp. <i>arachnoides</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Shallow loam over limestone.	Confirmed by Current Survey
Priority 3	SCROPHULARIACEAE	<i>Eremophila muelleriana</i>	WA HERB	Granitic soils.	Confirmed by Current Survey
Priority 3	SCROPHULARIACEAE	<i>Eremophila physocalyx</i>	ATKINS	Red/brown sand. Sandplains.	Possible
Priority 3	SCROPHULARIACEAE	<i>Eremophila shonae</i> subsp. <i>diffusa</i>	WA HERB	Stony yellow or red sandy soils.	Possible
Priority 3	MYRTACEAE	<i>Eucalyptus arachnaea</i> subsp. <i>arrecta</i>	ATKINS	Clay loam on granite, gravelly loam. Breakaway slopes, gullies.	Possible
Priority 3	FABACEAE	<i>Gastrolobium propinquum</i>	ATKINS, WA HERB	Clay, clay-loam or sandy clay soils, granite, shale. Hills, flats, drainage lines, winter-wet areas.	Possible
Priority 3	RUTACEAE	<i>Geleznovia verrucosa</i> subsp. Kalbarri (L.M. Broadhurst 123)	ATKINS, WA HERB	White/orange-brown sand, gravel, laterite, sandstone, limestone. Disturbed edges of quarries, slopes.	Confirmed by Current Survey
Priority 3	ASTERACEAE	<i>Gnephosis cassiniana</i>	ATKINS, DEFL, WA HERB	Sand, clay loam. Saline depressions, low wet areas.	Possible
Priority 3	FABACEAE	<i>Gompholobium cinereum</i>	ATKINS	Yellow sand, clayey sand, brown loam, sandy gravel, laterite. Well-drained open sites, slopes, plains, roadsides.	Possible
Priority 3	PROTEACEAE	<i>Grevillea candicans</i>	ATKINS, WA HERB	Deep yellow sand. Sandplains.	Possible
Priority 3	PROTEACEAE	<i>Grevillea granulosa</i>	ATKINS	Gravelly sand, loam, clay. Sandplains.	Possible
Priority 3	PROTEACEAE	<i>Grevillea hirtella</i>	ATKINS	Sand or loam over laterite, often with gravel.	Possible
Priority 3	PROTEACEAE	<i>Grevillea stenostachya</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation); (Markey & Dillon, 2008b)	Red sand, sandy loam.	Confirmed by Current Survey
Priority 3	PROTEACEAE	<i>Grevillea triloba</i>	ATKINS, WA HERB	Sandy loam on sandstone or limestone, lateritic soils.	Confirmed by Current Survey
Priority 3	AIZOACEAE	<i>Gunniopsis propinqua</i>	WA HERB	Stony sandy loam. Lateritic outcrops, winter-wet sites.	Possible

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 3	AIZOACEAE	<i>Gunniopsis rubra</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Sandy loam.	Possible
Priority 3	LAMIACEAE	<i>Hemiandra coccinea</i>	ATKINS	White or grey, often gravelly sand. Sandplains, gravel pits.	Possible
Priority 3	LAMIACEAE	<i>Hemigenia tysonii</i>	WA HERB	Red sand, sandy clay, lateritic sand. Flats, sand dunes, hills.	Confirmed by Current Survey
Priority 3	LAMIACEAE	<i>Hemigenia virescens</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Details not available	Confirmed by Current Survey
Priority 3	DILLENIACEAE	<i>Hibbertia glomerosa</i> var. <i>bistrata</i>	ATKINS	Sand, sandy loam, granite.	Possible
Priority 3	MYRTACEAE	<i>Homalocalyx echinulatus</i>	WA HERB	Laterite. Breakaways, sandstone hills.	Confirmed by Current Survey
Priority 3	FABACEAE	<i>Indigofera gilesii</i> subsp. <i>gilesii</i>	Jack Hills ( <i>ecologia</i> , 2009b DRAFT), GHD, 2009	Pebbly loam amongst boulders & outcrops. Hills.	Confirmed by Current Survey
Priority 3	BRASSICACEAE	<i>Lepidium scandens</i>	WA HERB	Red sand, clay.	Possible
Priority 3	ERICACEAE	<i>Leucopogon</i> sp. Moresby Range (S. Patrick 2614)	WA HERB	Brown sandy loam, gravel, sandstone. Middle slopes of valleys, steep rocky hillsides, ridges, road verges.	Possible
Priority 3	LAMIACEAE	<i>Microcorys tenuifolia</i>	ATKINS, DEFL, WA HERB	Red/brown sand, lateritic gravelly soils. Undulating plains.	Confirmed by Current Survey
Priority 3	MYRTACEAE	<i>Micromyrtus acuta</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Grey-tan silty fine to coarse sand, laterite, granite. Rocky outcrops.	Possible
Priority 3	MYRTACEAE	<i>Micromyrtus placoides</i>	DEFL, WA HERB	Red-orange sandy clay, orange-yellow sandy clay to clayey loam, coarse gravel, banded ironstone, laterite, quartz, basalt. Gently undulating plains, dry creek beds, hillcrests, ridges.	Possible
Priority 3	MYRTACEAE	<i>Micromyrtus trudgenii</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Red-brown loamy clay, yellow-brown soils, gravel, siltstone, quartz, basalt, banded ironstone, dolerite. Tops and slopes of hills and ridges.	Possible
Priority 3	FABACEAE	<i>Mirbelia stipitata</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Red sandy loam.	Possible
Priority 3	PROTEACEAE	<i>Persoonia pentasticha</i>	ATKINS	Sand, loam. Base of granite outcrops.	Possible

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 3	PROTEACEAE	<i>Petrophile pauciflora</i>	ATKINS, DEFL, WA HERB	Decaying & dissected granite breakaways.	Confirmed by Current Survey
Priority 3	EUPHORBIACEAE	<i>Phyllanthus baeckeoides</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation); (Markey & Dillon, 2008b)	Red lateritic & sandy clay soils. Granite outcrops.	Possible
Priority 3	ASTERACEAE	<i>Podotheca pritzelii</i>	ATKINS	Sand. Sand ridges in salt flats.	Possible
Priority 3	RHAMNACEAE	<i>Polianthion collinum</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Red clay loam between blocks of banded ironstone. Low hills and slopes.	Unlikely
Priority 3	LAMIACEAE	<i>Prostanthera ferricola</i>	WA HERB	Shallow red-brown skeletal sandy loam on banded ironstone, laterite, basalt or quartz. Gently inclined mid to upper slopes of hills, rocky crests, outcrops.	Possible
Priority 3	LAMIACEAE	<i>Prostanthera petrophila</i>	ATKINS, DEFL, WA HERB	Lateritic soils.	Confirmed by Current Survey
Priority 3	CELASTRACEAE	<i>Psammomoya implexa</i>	Central Tallering Land System (Markey & Dillon, 2008a)	Stony rises.	Possible
Priority 3	AMARANTHACEAE	<i>Ptilotus beardii</i>	WA HERB	Clayey soils. Saline flats, low breakaways.	Confirmed by Current Survey
Priority 3	AMARANTHACEAE	<i>Ptilotus luteolus</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation); GHD, 2009	Red sandy soils. Stony hills and screes.	Confirmed by Current Survey
Priority 3	GOODENIACEAE	<i>Scaevola globosa</i>	ATKINS	Sandy soils.	Possible
Priority 3	GOODENIACEAE	<i>Scaevola oldfieldii</i>	ATKINS, WA HERB	Sand, loam, clay. Near rivers.	Possible
Priority 3	MYRTACEAE	<i>Scholtzia</i> sp. Geraldton (F. Lullfitz L 3216)	ATKINS	Flats.	Possible
Priority 3	RHAMNACEAE	<i>Serichonus gracilipes</i>	ATKINS, DEFL, WA HERB	Red sandy clay over granite, brown sandy clay loam with laterite gravel, yellow-brown sandy loam over sandstone. Rock crevices, rocky gullies, margins of summits and basal slopes of mesas, near rock outcrops.	Confirmed by Current Survey
Priority 3	CHENOPODIACEAE	<i>Tecticornia cymbiformis</i>	ATKINS	Saline soils. Along the edge of creeklines.	Possible
Priority 3	MYRTACEAE	<i>Thryptomene</i> sp. Moresby Range (A.S. George 14873)	WA HERB	Light brown loam, clay loam, sandy clay, sandstone. Hillsides & summits.	Confirmed by Current Survey

Code	Family	Taxa	Source	Habitat	Likelihood of Occurrence
Priority 3	MYRTACEAE	<i>Verticordia chrysostachys</i> var. <i>pallida</i>	ATKINS, WA HERB	Yellow sand. Sandplains, sand dunes.	Confirmed by Current Survey
Priority 3	MYRTACEAE	<i>Verticordia densiflora</i> var. <i>roseostella</i>	ATKINS, WA HERB	Sandy gravelly soils.	Confirmed by Current Survey
Priority 3	MYRTACEAE	<i>Verticordia dichroma</i> var. <i>dichroma</i>	WA HERB	Yellow sand. Sandplains.	Possible
Priority 3	MYRTACEAE	<i>Verticordia fragrans</i>	ATKINS	White, grey or yellow sand, clay loam. Low-lying areas, sandplains.	Possible
Priority 3	MYRTACEAE	<i>Verticordia jamiesonii</i>	DEFL, WA HERB	Sandy clay soils. Lateritic breakaways.	Confirmed by Current Survey
Priority 4	FABACEAE	<i>Acacia guinetii</i>	ATKINS, WA HERB	Rocky loam, lateritic gravelly soils. Stony hills.	Confirmed by Current Survey
Priority 4	MYRTACEAE	<i>Baeckea</i> sp. Melita Station (H. Pringle 2738)	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Dark red rocky soil over ironstone. Mulga shrubland.	Confirmed by Current Survey
Priority 4	PROTEACEAE	<i>Banksia benthamiana</i>	ATKINS	Sandy loam, clay-loam, yellow sand, gravel.	Possible
Priority 4	MYRTACEAE	<i>Eucalyptus ebbanoensis</i> subsp. <i>photina</i>	ATKINS, DEFL, WA HERB	Sandy clay, red sand. Lateritic breakaways, sandplains.	Possible
Priority 4	GOODENIACEAE	<i>Goodenia berringbinensis</i>	Weld Range ( <i>ecologia</i> , 2009a in preparation)	Red sandy loam. Along watercourses.	Confirmed by Current Survey
Priority 4	PROTEACEAE	<i>Grevillea inconspicua</i>	DEFL, WA HERB	Loam, gravel. Along drainage lines on rocky outcrops, creeklines.	Confirmed by Current Survey
Priority 4	FABACEAE	<i>Jacksonia velutina</i>	ATKINS	Yellow sand. Sandplains & sand hills.	Confirmed by Current Survey
Priority 4	GOODENIACEAE	<i>Lechenaultia longiloba</i>	WA HERB	Sand with lateritic gravel. Undulating plains.	Possible
Priority 4	POACEAE	<i>Triodia bromoides</i>	WA HERB	Red, grey & calcareous sand. Dunes, sandplains, stony rises.	Possible
Priority 4	MYRTACEAE	<i>Verticordia capillaris</i>	ATKINS, WA HERB	Yellow sand, sandy loam, sandy clay. Sandplains.	Confirmed by Current Survey
Priority 4	MYRTACEAE	<i>Verticordia penicillaris</i>	ATKINS, DEFL, WA HERB	Shallow gritty soils. Granite outcrops.	Confirmed by Current Survey
Priority 4	MYRTACEAE	<i>Verticordia polytricha</i>	WA HERB	Sand, gravelly clay. Sandstone outcrops.	Possible

## APPENDIX D      QUADRAT LOCATIONS AND VEGETATION CONDITION

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**Table D.1 – Quadrat Locations and Vegetation Condition**

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
A001	557035	7036309	Good	Pastoral - Section 1
A002	557517	7037170	Poor	Pastoral - Section 1
A003	557469	7037640	Excellent	Pastoral - Section 1
A004	557959	7038253	Good	Pastoral - Section 1
A005	557707	7039017	Poor	Pastoral - Section 1
A006	558453	7039704	Excellent	Pastoral - Section 1
A007	557740	7039856	Poor	Pastoral - Section 1
A008	558187	7040821	Excellent	Pastoral - Section 1
A009	558226	7041580	Good	Pastoral - Section 1
A010	558818	7042563	Good	Pastoral - Section 1
A011	558794	7043392	Excellent	Pastoral - Section 1
A012	559588	7044473	Good	Pastoral - Section 1
A013	559428	7044040	Good	Pastoral - Section 1
A014	558624	7045477	Poor	Pastoral - Section 1
A015	558680	7046118	Good	Pastoral - Section 1
A016	559409	7046480	Good	Pastoral - Section 1
A017	560660	7048027	Good	Pastoral - Section 1
A018	559602	7047793	Excellent	Pastoral - Section 1
A019	560530	7048996	Good	Pastoral - Section 1
A020	561504	7049558	Excellent	Pastoral - Section 1
A021	561823	7050330	Good	Pastoral - Section 1
A022	562602	7050831	Good	Pastoral - Section 1
A023	562434	7051886	Good	Pastoral - Section 1
A024	563172	7052629	Good	Pastoral - Section 1
A025	562788	7053475	Poor	Pastoral - Section 1
A026	563505	7054420	Good	Pastoral - Section 1
A027	563227	7055414	Good	Pastoral - Section 1
A028	562976	7056416	Good	Pastoral - Section 1
A029	563325	7057406	Good	Pastoral - Section 1
A030	563133	7058397	Good	Pastoral - Section 1
A031	564082	7059614	Good	Pastoral - Section 1
A032	563741	7060220	Good	Pastoral - Section 1
A033	563102	7060687	Poor	Pastoral - Section 1
A034	563421	7061422	Good	Pastoral - Section 1
A035	562958	7062665	Excellent	Pastoral - Section 1
A036	563515	7063335	Excellent	Pastoral - Section 1
A037	563049	7064196	Excellent	Pastoral - Section 1
A038	561787	7064771	Good	Pastoral - Section 1
A039	561503	7066543	Excellent	Pastoral - Section 1
A040	560927	7067305	Excellent	Pastoral - Section 1
A041	561273	7068219	Good	Pastoral - Section 1
A042	560482	7068830	Good	Pastoral - Section 1
A043	560126	7069583	Poor	Pastoral - Section 1
A044	560291	7070222	Poor	Pastoral - Section 1
A045	560169	7071020	Poor	Pastoral - Section 1
A046	560135	7071936	Good	Pastoral - Section 1



Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
A047	560011	7072484	Good	Pastoral - Section 1
A048	560763	7073209	Poor	Pastoral - Section 1
A049	561253	7073981	Good	Pastoral - Section 1
A050	560233	7074778	Good	Pastoral - Section 1
A051	560704	7075654	Good	Pastoral - Section 1
A052	562109	7076480	Good	Pastoral - Section 1
A053	560896	7077314	Excellent	Pastoral - Section 1
A054	561121	7077778	Excellent	Pastoral - Section 1
A055	561081	7078980	Excellent	Pastoral - Section 1
A056	560445	7080220	Excellent	Pastoral - Section 1
A057	560822	7081106	Good	Pastoral - Section 1
A058	560595	7081416	Good	Pastoral - Section 1
A059	560848	7082421	Poor	Pastoral - Section 1
A060	560073	7083224	Poor	Pastoral - Section 1
A061	560430	7084591	Good	Pastoral - Section 1
A062	559732	7085226	Good	Pastoral - Section 1
A063	559671	7086095	Good	Pastoral - Section 1
A064	558978	7086615	Good	Pastoral - Section 1
A065	558425	7087331	Good	Pastoral - Section 1
A066	557479	7087270	Good	Pastoral - Section 1
A067	556770	7087879	Good	Pastoral - Section 1
A068	556431	7088593	Good	Pastoral - Section 1
A069	555244	7088427	Good	Pastoral - Section 1
A070	555829	7089689	Excellent	Pastoral - Section 1
A071	554881	7090303	Excellent	Pastoral - Section 1
A072	555353	7091290	Good	Pastoral - Section 1
A073	554830	7092362	Good	Pastoral - Section 1
A075	554804	7093780	Excellent	Pastoral - Section 1
A076	554367	7094877	Good	Pastoral - Section 1
A077	554355	7096030	Good	Pastoral - Section 1
A078	553404	7096983	Poor	Pastoral - Section 1
A079	553019	7096500	Good	Pastoral - Section 1
A080	553021	7098349	Poor	Pastoral - Section 1
A081	552173	7097752	Poor	Pastoral - Section 1
A082	551861	7099225	Poor	Pastoral - Section 1
A083	551590	7100088	Poor	Pastoral - Section 1
A084	550736	7100554	Poor	Pastoral - Section 1
A085	549887	7100751	Degraded	Pastoral - Section 1
A086	548907	7100798	Poor	Pastoral - Section 1
A087	547947	7101638	Good	Pastoral - Section 1
A088	546964	7101675	Poor	Pastoral - Section 1
A089	546205	7102420	Poor	Pastoral - Section 1
A090	544946	7102168	Excellent	Pastoral - Section 1
A091	543734	7102975	Excellent	Pastoral - Section 1
A092	542875	7103769	Excellent	Pastoral - Section 1
A093	542560	7104592	Excellent	Pastoral - Section 1
A094	541258	7105009	Good	Pastoral - Section 1
A095	541244	7105749	Good	Pastoral - Section 1

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
A096	540915	7106690	Poor	Pastoral - Section 1
A097	539907	7106977	Poor	Pastoral - Section 1
A098	540071	7107522	Good	Pastoral - Section 1
A099	539281	7108244	Good	Pastoral - Section 1
A100	538873	7109139	Good	Pastoral - Section 1
A101	538138	7109946	Poor	Pastoral - Section 1
A102	539502	7111112	Excellent	Pastoral - Section 1
A103	538593	7111726	Excellent	Pastoral - Section 1
A104	538442	7111487	Excellent	Pastoral - Section 1
A105	537871	7112712	Good	Pastoral - Section 1
A106	538235	7113594	Excellent	Pastoral - Section 1
A107	538452	7114218	Good	Pastoral - Section 1
A108	538265	7115614	Excellent	Pastoral - Section 1
A109	536608	7115657	Good	Pastoral - Section 1
A110	537448	7116610	Excellent	Pastoral - Section 1
A111	537903	7117607	Excellent	Pastoral - Section 1
A112	536287	7118133	Excellent	Pastoral - Section 1
A113	537390	7119743	Excellent	Pastoral - Section 1
A114	536466	7120030	Excellent	Pastoral - Section 1
A115	536406	7121048	Excellent	Pastoral - Section 1
A116	535006	7121529	Excellent	Pastoral - Section 1
A117	534489	7121871	Good	Pastoral - Section 1
A118	533648	7122187	Good	Pastoral - Section 1
A119	532814	7122204	Poor	Pastoral - Section 1
A120	531869	7122349	Good	Pastoral - Section 1
A121	530645	7122853	Good	Pastoral - Section 1
A122	530128	7122885	Good	Pastoral - Section 1
A123	528195	7122095	Excellent	Pastoral - Section 1
A124	528741	7122407	Good	Pastoral - Section 1
A125	527607	7121760	Good	Pastoral - Section 1
A126	527103	7121880	Good	Pastoral - Section 1
A127	526041	7122325	Good	Pastoral - Section 1
A128	525129	7121846	Good	Pastoral - Section 1
A129	524082	7121765	Excellent	Pastoral - Section 1
A130	523657	7121010	Excellent	Pastoral - Section 1
A131	523317	7120170	Excellent	Pastoral - Section 1
A132	522860	7119515	Excellent	Pastoral - Section 1
A133	522080	7119843	Excellent	Pastoral - Section 1
A134	522907	7120585	Excellent	Pastoral - Section 1
A135	560731	7065526	Good	Pastoral - Section 1
A136	525183	7121142	Poor	Pastoral - Section 1
A137	528028	7123269	Good	Pastoral - Section 1
A138	529712	7123785	Excellent	Pastoral - Section 1
A139	533170	7122006	Good	Pastoral - Section 1
A140	545713	7103578	Good	Pastoral - Section 1
A141	547336	7102235	Good	Pastoral - Section 1
A142	553445	7095261	Good	Pastoral - Section 1
A143	554045	7089397	Good	Pastoral - Section 1



Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
A144	559626	7077950	Excellent	Pastoral - Section 1
A145	562061	7067439	Excellent	Pastoral - Section 1
A146	564352	7063391	Excellent	Pastoral - Section 1
A147	562586	7057049	Poor	Pastoral - Section 1
A148	562399	7054061	Good	Pastoral - Section 1
A149	558990	7047542	Poor	Pastoral - Section 1
A150	558991	7044893	Good	Pastoral - Section 1
AJ001	522204	7118870	Good	Pastoral - Section 1
AJ005	515481	7113387	Good	Pastoral - Section 1
AJ006	514258	7112527	Good	Pastoral - Section 1
AJ021	521903	7119496	Good	Pastoral - Section 1
AJ023	518169	7116014	Good	Pastoral - Section 1
AJ041	521796	7118259	Good	Pastoral - Section 1
AJ042	521009	7117697	Good	Pastoral - Section 1
AJ043	519521	7117341	Good	Pastoral - Section 1
AJ045	517298	7114542	Good	Pastoral - Section 1
B001	480704	6960116	Poor	Pastoral - Section 2
B002	481487	6958417	Poor	Pastoral - Section 2
B003	482650	6959633	Poor	Pastoral - Section 2
B004	483636	6959865	Poor	Pastoral - Section 2
B005	483842	6960825	Excellent	Pastoral - Section 2
B006	484787	6960154	Poor	Pastoral - Section 2
B007	485662	6960776	Good	Pastoral - Section 2
B008	485672	6961143	Poor	Pastoral - Section 2
B009	486219	6962340	Poor	Pastoral - Section 2
B010	486915	6962322	Poor	Pastoral - Section 2
B011	487439	6963003	Poor	Pastoral - Section 2
B012	486413	6963075	Good	Pastoral - Section 2
B013	487545	6963653	Poor	Pastoral - Section 2
B014	487965	6964096	Poor	Pastoral - Section 2
B015	486699	6964277	Poor	Pastoral - Section 2
B016	488408	6965300	Degraded	Pastoral - Section 2
B017	487842	6966257	Poor	Pastoral - Section 2
B018	490635	6966895	Poor	Pastoral - Section 2
B019	488031	6967170	Poor	Pastoral - Section 2
B020	487797	6967071	Good	Pastoral - Section 2
B021	490461	6965922	Poor	Pastoral - Section 2
B022	489850	6968477	Good	Pastoral - Section 2
B023	491487	6969294	Poor	Pastoral - Section 2
B024	492471	6970457	Poor	Pastoral - Section 2
B026	496775	6971558	Poor	Pastoral - Section 2
B027	497846	6971518	Good	Pastoral - Section 2
B028	499577	6971568	Good	Pastoral - Section 2
B029	500037	6973006	Good	Pastoral - Section 2
B030	501260	6972594	Excellent	Pastoral - Section 2
B031	500097	6971118	Poor	Pastoral - Section 2
B032	502042	6973752	Poor	Pastoral - Section 2
B033	503185	6974341	Poor	Pastoral - Section 2

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
B034	503986	6973770	Poor	Pastoral - Section 2
B035	503304	6975372	Poor	Pastoral - Section 2
B036	506604	6975155	Excellent	Pastoral - Section 2
B037	505602	6976403	Poor	Pastoral - Section 2
B038	507279	6976978	Poor	Pastoral - Section 2
B039	508315	6977866	Poor	Pastoral - Section 2
B040	509121	6978643	Good	Pastoral - Section 2
B041	511069	6979401	Excellent	Pastoral - Section 2
B042	513289	6981006	Good	Pastoral - Section 2
B043	513712	6982646	Good	Pastoral - Section 2
B044	514645	6983429	Excellent	Pastoral - Section 2
B045	516350	6983580	Poor	Pastoral - Section 2
B046	517293	6984136	Poor	Pastoral - Section 2
B047	517335	6985214	Good	Pastoral - Section 2
B048	518718	6985196	Good	Pastoral - Section 2
B049	520123	6985982	Poor	Pastoral - Section 2
B050	520416	6987078	Good	Pastoral - Section 2
B051	521491	6986995	Poor	Pastoral - Section 2
B052	522653	6988024	Good	Pastoral - Section 2
B053	521582	6989095	Good	Pastoral - Section 2
B054	522861	6990024	Good	Pastoral - Section 2
B055	522532	6989793	Good	Pastoral - Section 2
B057	524588	6991157	Poor	Pastoral - Section 2
B058	525241	6991435	Poor	Pastoral - Section 2
B059	526023	6991504	Poor	Pastoral - Section 2
B060	525040	6992401	Good	Pastoral - Section 2
B061	527416	6992457	Good	Pastoral - Section 2
B062	528106	6993880	Poor	Pastoral - Section 2
B063	526465	6993409	Poor	Pastoral - Section 2
B064	529209	6994394	Poor	Pastoral - Section 2
B065	527738	6994320	Excellent	Pastoral - Section 2
B066	536954	6999460	Good	Pastoral - Section 2
B067	530217	6994493	Excellent	Pastoral - Section 2
B068	531241	6994763	Good	Pastoral - Section 2
B069	533454	6996946	Good	Pastoral - Section 2
B070	532795	6996844	Good	Pastoral - Section 2
B071	534123	6998057	Poor	Pastoral - Section 2
B072	535445	6998238	Good	Pastoral - Section 2
B073	537093	7001153	Good	Pastoral - Section 2
B074	538921	7002163	Good	Pastoral - Section 2
B075	540630	7002473	Good	Pastoral - Section 2
B076	541607	7003394	Good	Pastoral - Section 2
B077	543283	7003212	Good	Pastoral - Section 2
B078	545058	7003228	Good	Pastoral - Section 2
B079	544280	7003120	Excellent	Pastoral - Section 2
B080	546374	7004616	Excellent	Pastoral - Section 2
B081	546330	7005516	Good	Pastoral - Section 2
B082	547697	7006054	Good	Pastoral - Section 2

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
B083	549173	7006920	Good	Pastoral - Section 2
B084	548970	7008013	Poor	Pastoral - Section 2
B085	547784	7007724	Poor	Pastoral - Section 2
B086	549575	7008082	Good	Pastoral - Section 2
B088	557091	7019044	Excellent	Pastoral - Section 2
B089	556264	7022006	Poor	Pastoral - Section 2
B090	557560	7021685	Poor	Pastoral - Section 2
B091	559215	7026675	Poor	Pastoral - Section 2
B092	557349	7027842	Good	Pastoral - Section 2
B093	556432	7029355	Good	Pastoral - Section 2
B094	559684	7022350	Good	Pastoral - Section 2
B095	556013	7031607	Good	Pastoral - Section 2
B096	559863	7031874	Excellent	Pastoral - Section 2
B097	555869	7034243	Good	Pastoral - Section 2
B098	558491	7034413	Good	Pastoral - Section 2
B099	556312	7023691	Poor	Pastoral - Section 2
B100	556942	7025707	Good	Pastoral - Section 2
B101	557167	7025037	Good	Pastoral - Section 2
B102	557924	7014641	Good	Pastoral - Section 2
B103	555887	7016395	Good	Pastoral - Section 2
BM102	496138	6970508	Good	Pastoral - Section 2
BM103	493644	6969143	Good	Pastoral - Section 2
BM40	492845	6968723	Good	Pastoral - Section 2
BM82	496715	6970781	Good	Pastoral - Section 2
BO30	557438	7012463	Good	Pastoral - Section 2
BO32	556679	7012097	Poor	Pastoral - Section 2
BO33	555481	7011631	Good	Pastoral - Section 2
BO36	553204	7010664	Good	Pastoral - Section 2
BO40	551174	7009805	Good	Pastoral - Section 2
BR020	491522	6968039	Good	Pastoral - Section 2
BR063	499749	6972445	Good	Pastoral - Section 2
BR066	519136	6985964	Good	Pastoral - Section 2
BR070	509093	6977703	Good	Pastoral - Section 2
BR073	482802	6960189	Poor	Pastoral - Section 2
BR086	516552	6984093	Poor	Pastoral - Section 2
BR088	504390	6974975	Poor	Pastoral - Section 2
BR111	480254	6959109	Poor	Pastoral - Section 2
BR122	523625	6990055	Good	Pastoral - Section 2
BR123	557910	7020297	Excellent	Pastoral - Section 2
BR126	486014	6961560	Poor	Pastoral - Section 2
BR134	487484	6964741	Poor	Pastoral - Section 2
BR135	487154	6963561	Poor	Pastoral - Section 2
BRW28	556971	7034784	Good	Pastoral - Section 2
BRW43	557321	7016001	Good	Pastoral - Section 2
BRW48	558564	7029812	Good	Pastoral - Section 2
BW01	557753	7025385	Poor	Pastoral - Section 2
BW02	563317	7025414	Good	Pastoral - Section 2
BW03	559849	7027191	Good	Pastoral - Section 2



Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
BW04	563415	7026464	Good	Pastoral - Section 2
BW05	563231	7030325	Good	Pastoral - Section 2
BW06	563479	7027637	Good	Pastoral - Section 2
BW07	565650	7026510	Good	Pastoral - Section 2
BW08	567491	7027591	Good	Pastoral - Section 2
BW09	565553	7028994	Good	Pastoral - Section 2
BW10	566320	7030900	Good	Pastoral - Section 2
BW11	568802	7032751	Good	Pastoral - Section 2
BW12	571003	7034390	Excellent	Pastoral - Section 2
BW13	571424	7031721	Good	Pastoral - Section 2
BW14	575257	7031712	Good	Pastoral - Section 2
BW17	569879	7034562	Good	Pastoral - Section 2
BW18	569647	7034092	Good	Pastoral - Section 2
BW19	568182	7029128	Good	Pastoral - Section 2
BW20	575266	7030644	Good	Pastoral - Section 2
BW21	573856	7030371	Good	Pastoral - Section 2
BW22	578561	7031062	Good	Pastoral - Section 2
BW23	569438	7031261	Excellent	Pastoral - Section 2
C067	410559	6921201	Good	Pastoral - Section 3
C068	412346	6921935	Good	Pastoral - Section 3
C069	412910	6923197	Poor	Pastoral - Section 3
C070	413820	6924548	Poor	Pastoral - Section 3
C071	414878	6924762	Poor	Pastoral - Section 3
C072	415582	6925408	Poor	Pastoral - Section 3
C073	415746	6926392	Good	Pastoral - Section 3
C074	417244	6926574	Good	Pastoral - Section 3
C075	418093	6928036	Poor	Pastoral - Section 3
C076	418505	6929018	Good	Pastoral - Section 3
C077	419069	6929188	Good	Pastoral - Section 3
C079	421455	6931146	Excellent	Pastoral - Section 3
C080	422106	6934022	Excellent	Pastoral - Section 3
C081	422990	6934455	Good	Pastoral - Section 3
C082	423429	6935018	Good	Pastoral - Section 3
C083	424517	6935464	Good	Pastoral - Section 3
C084	425297	6936079	Good	Pastoral - Section 3
C085	425943	6936439	Degraded	Pastoral - Section 3
C086	426631	6936980	Poor	Pastoral - Section 3
C087	427644	6938587	Good	Pastoral - Section 3
C088	427969	6939373	Poor	Pastoral - Section 3
C089	427962	6938485	Good	Pastoral - Section 3
C090	429960	6939306	Excellent	Pastoral - Section 3
C091	429468	6939110	Good	Pastoral - Section 3
C092	430706	6940535	Excellent	Pastoral - Section 3
C093	432233	6940212	Excellent	Pastoral - Section 3
C094	433023	6940656	Excellent	Pastoral - Section 3
C095	433891	6940357	Excellent	Pastoral - Section 3
C096	434730	6941042	Excellent	Pastoral - Section 3
C097	436032	6942117	Excellent	Pastoral - Section 3

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
C098	436855	6943004	Excellent	Pastoral - Section 3
C099	437449	6941878	Excellent	Pastoral - Section 3
C100	438284	6943934	Good	Pastoral - Section 3
C101	439429	6944655	Good	Pastoral - Section 3
C102	440438	6944438	Good	Pastoral - Section 3
C103	441404	6945003	Poor	Pastoral - Section 3
C104	442411	6945022	Poor	Pastoral - Section 3
C105	443493	6945625	Poor	Pastoral - Section 3
C106	444406	6945099	Poor	Pastoral - Section 3
C107	446374	6946044	Excellent	Pastoral - Section 3
C108	447045	6946613	Excellent	Pastoral - Section 3
C109	448219	6946916	Excellent	Pastoral - Section 3
C110	449183	6946850	Excellent	Pastoral - Section 3
C111	450051	6947310	Excellent	Pastoral - Section 3
C112	452438	6947575	Poor	Pastoral - Section 3
C113	453140	6948023	Good	Pastoral - Section 3
C114	454124	6948060	Poor	Pastoral - Section 3
C115	455603	6948790	Good	Pastoral - Section 3
C116	457050	6948897	Good	Pastoral - Section 3
C117	457454	6949970	Poor	Pastoral - Section 3
C118	458939	6949486	Poor	Pastoral - Section 3
C119	459693	6950208	Good	Pastoral - Section 3
C120	460813	6950182	Good	Pastoral - Section 3
C121	461503	6950828	Good	Pastoral - Section 3
C122	462079	6951746	Good	Pastoral - Section 3
C123	463552	6950794	Excellent	Pastoral - Section 3
C124	464196	6951829	Excellent	Pastoral - Section 3
C125	466438	6952140	Good	Pastoral - Section 3
C126	466938	6952997	Excellent	Pastoral - Section 3
C127	469014	6952960	Excellent	Pastoral - Section 3
C128	470042	6953550	Excellent	Pastoral - Section 3
C129	471080	6953718	Poor	Pastoral - Section 3
C130	471724	6954508	Poor	Pastoral - Section 3
C132	473270	6954663	Poor	Pastoral - Section 3
C133	473906	6955497	Degraded	Pastoral - Section 3
C134	417244	6926574	Poor	Pastoral - Section 3
C135	477894	6957763	Poor	Pastoral - Section 3
C136	478745	6958543	Excellent	Pastoral - Section 3
C137	479666	6958707	Poor	Pastoral - Section 3
C138	476557	6957524	Poor	Pastoral - Section 3
C139	477401	6956604	Poor	Pastoral - Section 3
C140	465831	6951572	Poor	Pastoral - Section 3
C144	444908	6946366	Excellent	Pastoral - Section 3
C145	434802	6939717	Excellent	Pastoral - Section 3
C146	474624	6956687	Poor	Pastoral - Section 3
C147	469543	6954984	Excellent	Pastoral - Section 3
C148	455038	6947905	Poor	Pastoral - Section 3
C149	429576	6940914	Excellent	Pastoral - Section 3



Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
C150	426889	6937682	Good	Pastoral - Section 3
C151	421304	6933756	Excellent	Pastoral - Section 3
C152	420349	6933782	Excellent	Pastoral - Section 3
C153	421962	6930480	Excellent	Pastoral - Section 3
C154	410854	6919592	Good	Pastoral - Section 3
C161	420517	6933453	Excellent	Pastoral - Section 3
C162	421240	6931820	Excellent	Pastoral - Section 3
C163	426466	6936888	Poor	Pastoral - Section 3
C164	435972	6940900	Good	Pastoral - Section 3
C165	419514	6929309	Good	Pastoral - Section 3
C166	419627	6929756	Excellent	Pastoral - Section 3
C167	427706	6938313	Good	Pastoral - Section 3
C168	435621	6940771	Good	Pastoral - Section 3
C169	434888	6940050	Poor	Pastoral - Section 3
C170	435907	6941278	Good	Pastoral - Section 3
C171	470261	6955369	Poor	Pastoral - Section 3
C172	471293	6955541	Good	Pastoral - Section 3
C173	471954	6954907	Good	Pastoral - Section 3
C174	470453	6955429	Degraded	Pastoral - Section 3
C175	435793	6941608	Excellent	Pastoral - Section 3
C176	427245	6937530	Excellent	Pastoral - Section 3
D001	350705	6880739	Poor	Pastoral - Section 4
D002	351130	6881634	Poor	Pastoral - Section 4
D003	351481	6882058	Good	Pastoral - Section 4
D004	352377	6882370	Good	Pastoral - Section 4
D005	352931	6883013	Poor	Pastoral - Section 4
D006	354086	6883296	Poor	Pastoral - Section 4
D007	354851	6883557	Poor	Pastoral - Section 4
D008	356949	6884220	Good	Pastoral - Section 4
D009	356243	6883703	Excellent	Pastoral - Section 4
D010	357672	6884944	Good	Pastoral - Section 4
D011	357052	6885820	Poor	Pastoral - Section 4
D012	358765	6886408	Good	Pastoral - Section 4
D013	359991	6886831	Poor	Pastoral - Section 4
D014	360782	6887017	Good	Pastoral - Section 4
D015	361582	6887100	Poor	Pastoral - Section 4
D016	362561	6887521	Poor	Pastoral - Section 4
D017	364085	6887363	Poor	Pastoral - Section 4
D018	365063	6886627	Good	Pastoral - Section 4
D019	365031	6885358	Poor	Pastoral - Section 4
D020	365855	6885748	Poor	Pastoral - Section 4
D021	367659	6885860	Poor	Pastoral - Section 4
D022	368891	6885454	Poor	Pastoral - Section 4
D023	369798	6885356	Degraded	Pastoral - Section 4
D024	370855	6884982	Poor	Pastoral - Section 4
D025	371401	6885021	Good	Pastoral - Section 4
D026	372317	6885516	Poor	Pastoral - Section 4
D027	373712	6885567	Poor	Pastoral - Section 4

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
D028	374375	6886473	Poor	Pastoral - Section 4
D029	374888	6887319	Good	Pastoral - Section 4
D030	376263	6887657	Degraded	Pastoral - Section 4
D031	376054	6888717	Poor	Pastoral - Section 4
D032	377114	6889338	Poor	Pastoral - Section 4
D033	377601	6890135	Poor	Pastoral - Section 4
D034	378024	6891110	Poor	Pastoral - Section 4
D035	379066	6891305	Poor	Pastoral - Section 4
D036	379773	6892155	Good	Pastoral - Section 4
D037	378869	6893865	Good	Pastoral - Section 4
D038	378544	6893420	Poor	Pastoral - Section 4
D039	380026	6893615	Poor	Pastoral - Section 4
D040	380252	6895581	Poor	Pastoral - Section 4
D041	378963	6896917	Good	Pastoral - Section 4
D042	379550	6896816	Good	Pastoral - Section 4
D043	379256	6898493	Poor	Pastoral - Section 4
D044	380748	6900185	Poor	Pastoral - Section 4
D045	381174	6901039	Good	Pastoral - Section 4
D046	382005	6901787	Good	Pastoral - Section 4
D047	383449	6902832	Good	Pastoral - Section 4
D048	384654	6905352	Good	Pastoral - Section 4
D049	387033	6907607	Poor	Pastoral - Section 4
D050	386460	6909645	Poor	Pastoral - Section 4
D051	389238	6910815	Good	Pastoral - Section 4
D052	390441	6911728	Good	Pastoral - Section 4
D053	392193	6913458	Good	Pastoral - Section 4
D054	393798	6911602	Poor	Pastoral - Section 4
D055	394809	6913296	Poor	Pastoral - Section 4
D056	397090	6915129	Poor	Pastoral - Section 4
D057	398369	6914719	Good	Pastoral - Section 4
D058	399197	6915904	Poor	Pastoral - Section 4
D059	399872	6916944	Good	Pastoral - Section 4
D060	401926	6916528	Good	Pastoral - Section 4
D061	403324	6917763	Good	Pastoral - Section 4
D062	405179	6918078	Good	Pastoral - Section 4
D063	405290	6919117	Poor	Pastoral - Section 4
D064	407432	6918612	Good	Pastoral - Section 4
D065	408620	6920149	Poor	Pastoral - Section 4
D066	408807	6919653	Poor	Pastoral - Section 4
D141	391995	6914498	Poor	Pastoral - Section 4
D142	377660	6897023	Good	Pastoral - Section 4
D143	381023	6895339	Good	Pastoral - Section 4
D155	397410	6914261	Poor	Pastoral - Section 4
D156	388295	6906357	Poor	Pastoral - Section 4
D157	383140	6905164	Degraded	Pastoral - Section 4
D158	379128	6899752	Poor	Pastoral - Section 4
D159	378842	6894673	Poor	Pastoral - Section 4
D160	353957	6884500	Good	Pastoral - Section 4



Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
E001	348863	6879730	Good	Freehold - Section 5
E002	349070	6877970	Good	Freehold - Section 5
E003	350172	6875474	Excellent	Freehold - Section 5
E004	347437	6873988	Pristine	Freehold - Section 5
E005	344379	6872209	Good	Freehold - Section 5
E006	346924	6871086	Excellent	Freehold - Section 5
E007	346998	6871740	Good	Freehold - Section 5
E008	269903	6828559	Excellent	Freehold - Section 5
E009	344015	6864790	Good	Freehold - Section 5
E010	340755	6865301	Excellent	Freehold - Section 5
E011	338542	6864318	Pristine	Freehold - Section 5
E012	339258	6861814	Excellent	Freehold - Section 5
E013	339038	6859684	Excellent	Freehold - Section 5
E014	339512	6858888	Good	Freehold - Section 5
E015	340220	6858393	Good	Freehold - Section 5
E016	338846	6854926	Excellent	Freehold - Section 5
E017	336016	6854856	Poor	Freehold - Section 5
E018	336922	6853007	Good	Freehold - Section 5
E019	337070	6850564	Good	Freehold - Section 5
E020	339874	6854424	Excellent	Freehold - Section 5
E021	331816	6848590	Pristine	Freehold - Section 5
E022	271336	6828999	Excellent	Freehold - Section 5
E023	333528	6846894	Poor	Freehold - Section 5
E024	330368	6845833	Excellent	Freehold - Section 5
E025	330479	6843627	Excellent	Freehold - Section 5
E026	327832	6842650	Excellent	Freehold - Section 5
E027	325220	6841600	Excellent	Freehold - Section 5
E028	323153	6843583	Good	Freehold - Section 5
E029	320964	6841681	Poor	Freehold - Section 5
E030	318256	6842259	Good	Freehold - Section 5
E031	317276	6841071	Good	Freehold - Section 5
E032	315773	6838776	Good	Freehold - Section 5
E033	313490	6839249	Poor	Freehold - Section 5
E034	317731	6838606	Excellent	Freehold - Section 5
E035	311468	6837216	Good	Freehold - Section 5
E036	309907	6835524	Good	Freehold - Section 5
E037	307674	6835105	Good	Freehold - Section 5
E038	307321	6833125	Poor	Freehold - Section 5
E039	270004	6831628	Poor	Freehold - Section 5
E040	299059	6835338	Degraded	Freehold - Section 5
E041	298316	6833644	Poor	Freehold - Section 5
E042	297859	6832563	Good	Freehold - Section 5
E043	299146	6831858	Poor	Freehold - Section 5
E044	297863	6830919	Poor	Freehold - Section 5
E045	295656	6831303	Degraded	Freehold - Section 5
E046	293444	6829620	Good	Freehold - Section 5
E047	294958	6829207	Poor	Freehold - Section 5
E048	291479	6828916	Poor	Freehold - Section 5



Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
E049	289031	6827990	Poor	Freehold - Section 5
E050	288547	6828109	Good	Freehold - Section 5
E051	288334	6828940	Poor	Freehold - Section 5
E052	286288	6828127	Good	Freehold - Section 5
E053	284811	6826143	Degraded	Freehold - Section 5
E054	273277	6829473	Excellent	Freehold - Section 5
E055	280471	6827961	Excellent	Freehold - Section 5
E056	279837	6826448	Poor	Freehold - Section 5
E057	278029	6826648	Degraded	Freehold - Section 5
E058	275596	6827377	Good	Freehold - Section 5
E059	273106	6829269	Pristine	Freehold - Section 5
E060	339911	6860912	Good	Freehold - Section 5
E061	271825	6829195	Good	Freehold - Section 5
E062	273105	6831350	Excellent	Freehold - Section 5
E063	271084	6832089	Good	Freehold - Section 5
E064	270733	6832982	Excellent	Freehold - Section 5
E065	268775	6834645	Pristine	Freehold - Section 5
E066	269038	6835734	Excellent	Freehold - Section 5
E067	274056	6830340	Poor	Freehold - Section 5
E068	269939	6832284	Good	Freehold - Section 5
E069	332367	6843249	Good	Freehold - Section 5
E070	332835	6842109	Poor	Freehold - Section 5
E071	335045	6841430	Poor	Freehold - Section 5
E073	333750	6838344	Good	Freehold - Section 5
E074	334446	6837401	Excellent	Freehold - Section 5
E075	336850	6835884	Good	Freehold - Section 5
E076	335545	6835037	Poor	Freehold - Section 5
E077	336866	6835106	Excellent	Freehold - Section 5
E078	337706	6833284	Poor	Freehold - Section 5
E079	339912	6833476	Excellent	Freehold - Section 5
E080	343388	6833212	Excellent	Freehold - Section 5
E081	342958	6833541	Excellent	Freehold - Section 5
E082	344757	6835484	Excellent	Freehold - Section 5
E083	345233	6836086	Good	Freehold - Section 5
E084	350344	6876733	Excellent	Freehold - Section 5
E085	346029	6875832	Good	Freehold - Section 5
E086	345407	6866054	Good	Freehold - Section 5
E087	341425	6863069	Poor	Freehold - Section 5
E088	341221	6860406	Poor	Freehold - Section 5
E089	341860	6859099	Excellent	Freehold - Section 5
E090	319404	6839923	Excellent	Freehold - Section 5
E091	282948	6827051	Good	Freehold - Section 5
E092	279195	6827641	Excellent	Freehold - Section 5
E093	275639	6829162	Good	Freehold - Section 5
E094	271467	6831441	Excellent	Freehold - Section 5
E095	271600	6829687	Excellent	Freehold - Section 5
E096	271415	6831013	Good	Freehold - Section 5
E097	269277	6834552	Excellent	Freehold - Section 5

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
E098	335172	6836157	Excellent	Freehold - Section 5
E099	338535	6832390	Poor	Freehold - Section 5
E101	337755	6836034	Good	Freehold - Section 5
E102	344656	6837264	Excellent	Freehold - Section 5
E103	330947	6844706	Good	Freehold - Section 5
E104	336387	6838125	Excellent	Freehold - Section 5
E105	339612	6832756	Good	Freehold - Section 5
E106	344237	6836322	Excellent	Freehold - Section 5
E107	340242	6832514	Poor	Freehold - Section 5
E108	351053	6879187	Pristine	Freehold - Section 5
E109	349918	6876480	Good	Freehold - Section 5
E110	344452	6873473	Excellent	Freehold - Section 5
E111	342658	6863996	Poor	Freehold - Section 5
E112	340687	6862976	Good	Freehold - Section 5
E113	338802	6860879	Excellent	Freehold - Section 5
E114	339750	6856915	Good	Freehold - Section 5
E115	338822	6856273	Excellent	Freehold - Section 5
E116	337861	6855257	Good	Freehold - Section 5
E117	330455	6849086	Excellent	Freehold - Section 5
E119	326872	6842528	Excellent	Freehold - Section 5
E120	323227	6841113	Good	Freehold - Section 5
E121	322125	6841256	Good	Freehold - Section 5
E122	315393	6840582	Good	Freehold - Section 5
E123	310907	6836455	Good	Freehold - Section 5
E124	299030	6831534	Poor	Freehold - Section 5
E125	298423	6834415	Poor	Freehold - Section 5
E126	297010	6830803	Excellent	Freehold - Section 5
E127	294133	6829695	Poor	Freehold - Section 5
E128	290629	6829123	Poor	Freehold - Section 5
E129	286683	6827051	Poor	Freehold - Section 5
E130	284276	6827837	Good	Freehold - Section 5

**Table D.2 – Quadrat Locations and Vegetation Condition of the Additional Quadrats from Weld Range**

Quadrat	Coordinates (WGS84)		Vegetation Condition	Section Surveyed
	Easting (mE)	Northing (mN)		
BWR176	579697	7029433	Good	Pastoral - Section 2
BWR183	559418	7018409	Poor	Pastoral - Section 2
BWR37	578433	7029011	Good	Pastoral - Section 2
BWR46	583721	7029312	Poor	Pastoral - Section 2
BWR59	555937	7016482	Good	Pastoral - Section 2
BWR63	558753	7019308	Good	Pastoral - Section 2
BWR76	558871	7016000	Good	Pastoral - Section 2
BWR91	585672	7033112	Good	Pastoral - Section 2
BWR94	587028	7035053	Good	Pastoral - Section 2

(ecologia, 2009a in preparation)

**APPENDIX E            NATIONAL VEGETATION INFORMATION SYSTEM  
VEGETATION CLASSIFICATION**

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**Table E.1 – Structural Formation Classes Used For Vegetation Classification**

Height Range (m)	Tree	Shrub	Mallee	Grass			
>30	tall	-	-	-			
10-30	mid	-	tall	-			
<10	low	-	mid	-			
<3	-	-	low	-			
>2	-	tall	-	tall			
1-2	-	mid	-	tall			
0.5-1	-	low	-	mid			
<0.5	-	low	-	low			
Growth Form	Height (m)	Structural Formation Classes					
Foliage cover % (cover #)		70-100% (5)	30-70% (4)	10-30% (3)	<10% (2)	0-5% (1)	≈0% (N)
Tree	<10,10-30, >30	closed forest	open forest	woodland	isolated clumps of trees	isolated trees	isolated clumps of trees
Tree mallee	<3, <10, 10-30	closed mallee forest	open mallee forest	mallee woodland	isolated clumps of mallee trees	isolated mallee trees	isolated clumps of mallee trees
Shrub	<1,1-2,>2	closed shrubland	shrubland	open shrubland	isolated clumps of shrubs	isolated shrubs	isolated clumps of shrubs
Mallee shrub	<3, <10, 10-30	closed mallee shrubland	mallee shrubland	open mallee shrubland	isolated clumps of mallee shrubs	isolated mallee shrubs	isolated clumps of mallee shrubs
Heath shrub	<1,1-2,>2	closed heathland	heathland	open heathland	isolated clumps of heath shrubs	isolated heath shrubs	isolated clumps of heath shrubs
Chenopod shrub	<1,1-2,>2	closed chenopod shrubland	chenopod shrubland	open chenopod shrubland	isolated clumps of chenopod shrubs	isolated chenopod shrubs	isolated clumps of chenopod shrubs
Samphire shrub	<0.5,>0.5	closed samphire shrubland	samphire shrubland	open samphire shrubland	isolated clumps of samphire shrubs	isolated samphire shrubs	isolated clumps of samphire shrubs
Hummock grass	<2,>2	closed hummock grassland	hummock grassland	open hummock grassland	isolated clumps of hummock grasses	isolated hummock grasses	isolated clumps of hummock grasses
Tussock grass	<0.5,>0.5	closed tussock grassland	tussock grassland	open tussock grassland	isolated clumps of tussock grasses	isolated tussock grasses	isolated clumps of tussock grasses
Sedge	<0.5,>0.5	closed sedgeland	sedgeland	open sedgeland	isolated clumps of sedges	isolated sedges	isolated clumps of sedges
Rush	<0.5,>0.5	closed rushland	rushland	open rushland	isolated clumps of rushes	isolated rushes	isolated clumps of rushes

Source: Department of Environment and Heritage, 2003.

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**APPENDIX F            QUADRAT INFORMATION (INCLUDED  
ELECTRONICALLY)**

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**The following information for each site is provided electronically:**

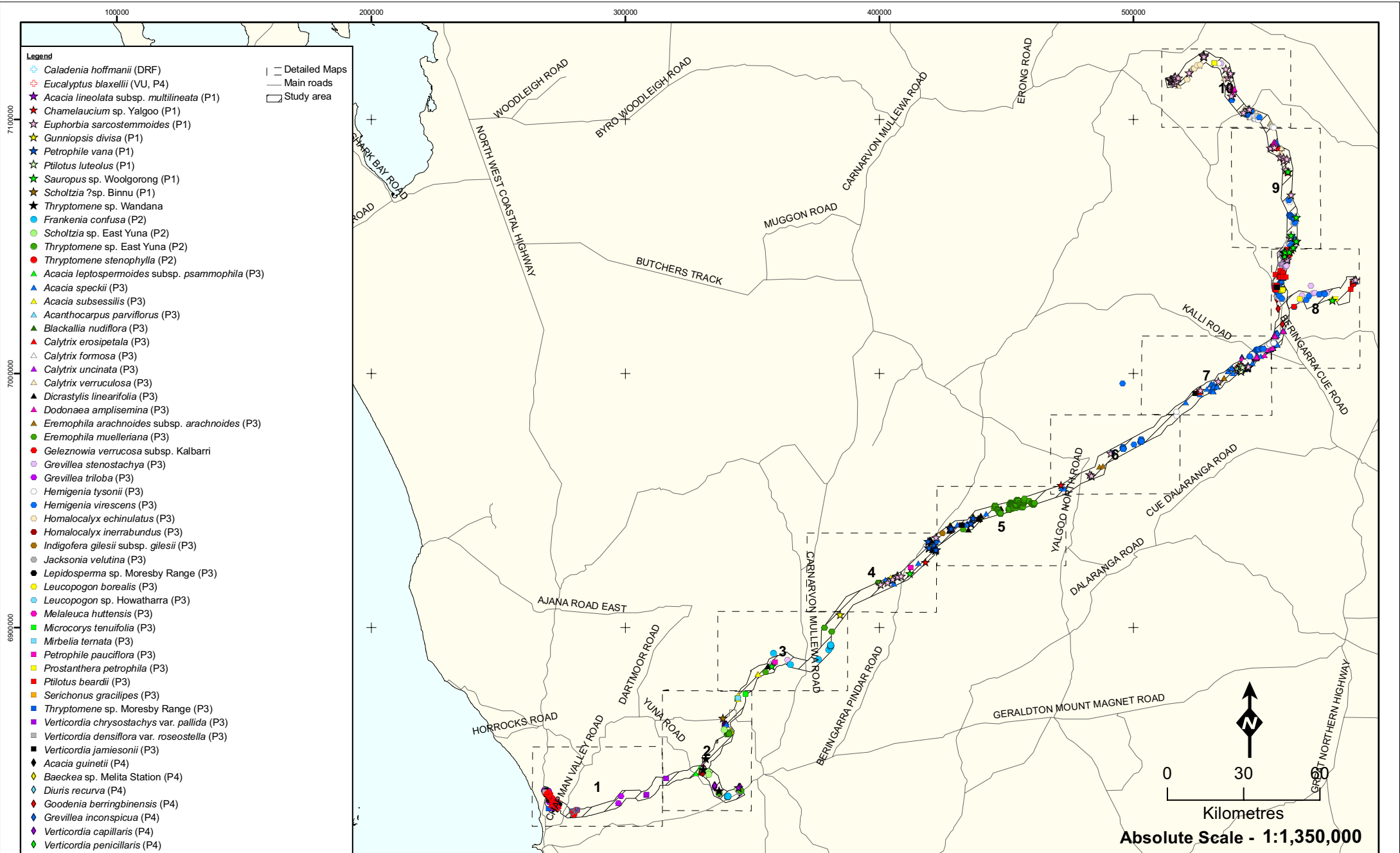
1. Location (the co-ordinates represent the centre of the site);
2. Date surveyed;
3. Quadrat measurements;
4. Habitat: topography, soils, rock type and abundance;
5. Vegetation community description;
6. Species list including height and foliage projective cover;
7. Vegetation condition;
8. Estimated fire age; and
9. Photograph

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**APPENDIX G            DRF AND PRIORITY FLORA LOCATIONS AND MAPS  
AND SPECIES OF INTEREST LOCATIONS**

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- Legend**
- ⊕ *Caladenia hoffmanii* (DRF)
  - ⊕ *Eucalyptus blaxellii* (VU, P4)
  - ★ *Acacia lineolata* subsp. *multilineata* (P1)
  - ★ *Chamaelaucium* sp. *Yalgoo* (P1)
  - ★ *Euphorbia sarcostemmoides* (P1)
  - ★ *Gunniopsis divisa* (P1)
  - ★ *Petrophile vana* (P1)
  - ★ *Ptilotus luteolus* (P1)
  - ★ *Sauropus* sp. *Woolgorong* (P1)
  - ★ *Scholtzia* ?sp. *Binnu* (P1)
  - ★ *Thryptomene* sp. *Wandana*
  - *Frankenia confusa* (P2)
  - *Scholtzia* sp. *East Yuna* (P2)
  - *Thryptomene* sp. *East Yuna* (P2)
  - *Thryptomene stenophylla* (P2)
  - ▲ *Acacia leptospermoides* subsp. *psammophila* (P3)
  - ▲ *Acacia speckii* (P3)
  - ▲ *Acacia subsessilis* (P3)
  - ▲ *Acanthocarpus parviflorus* (P3)
  - ▲ *Blackallia nudiflora* (P3)
  - ▲ *Calytrix erosipetala* (P3)
  - ▲ *Calytrix formosa* (P3)
  - ▲ *Calytrix uncinata* (P3)
  - ▲ *Calytrix verruculosa* (P3)
  - ▲ *Dicrastylis linearifolia* (P3)
  - ▲ *Dodonaea amplisemina* (P3)
  - ▲ *Eremophila arachnoides* subsp. *arachnoides* (P3)
  - ▲ *Eremophila muelleriana* (P3)
  - *Geleznovia verrucosa* subsp. *Kalbarri*
  - *Grevillea stenostachya* (P3)
  - *Grevillea triloba* (P3)
  - *Hemigenia tysonii* (P3)
  - *Hemigenia virescens* (P3)
  - *Homalocalyx echinulatus* (P3)
  - *Homalocalyx inerrabundus* (P3)
  - *Indigofera gilesii* subsp. *gilesii* (P3)
  - *Jacksonia velutina* (P3)
  - *Lepidosperma* sp. *Moresby Range* (P3)
  - *Leucopogon borealis* (P3)
  - *Leucopogon* sp. *Howatharra* (P3)
  - *Melaleuca huttensis* (P3)
  - *Microcorys tenuifolia* (P3)
  - *Mirbelia ternata* (P3)
  - *Petrophile pauciflora* (P3)
  - *Prostanthera petrophila* (P3)
  - *Ptilotus beardii* (P3)
  - *Serichonchus gracilipes* (P3)
  - *Thryptomene* sp. *Moresby Range* (P3)
  - *Verticordia chrysostachys* var. *pallida* (P3)
  - *Verticordia densiflora* var. *roseostella* (P3)
  - *Verticordia jamiesonii* (P3)
  - ◆ *Acacia guinetii* (P4)
  - ◆ *Baeckea* sp. *Melita Station* (P4)
  - ◆ *Diuris recurva* (P4)
  - ◆ *Goodenia berringbinensis* (P4)
  - ◆ *Grevillea inconspicua* (P4)
  - ◆ *Verticordia capillaris* (P4)
  - ◆ *Verticordia penicillaris* (P4)
- Detailed Maps  
 — Main roads  
 □ Study area

**Figure:**  
Project ID: 1131

**Drawn:** AH  
Date: 03/05/10

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A092

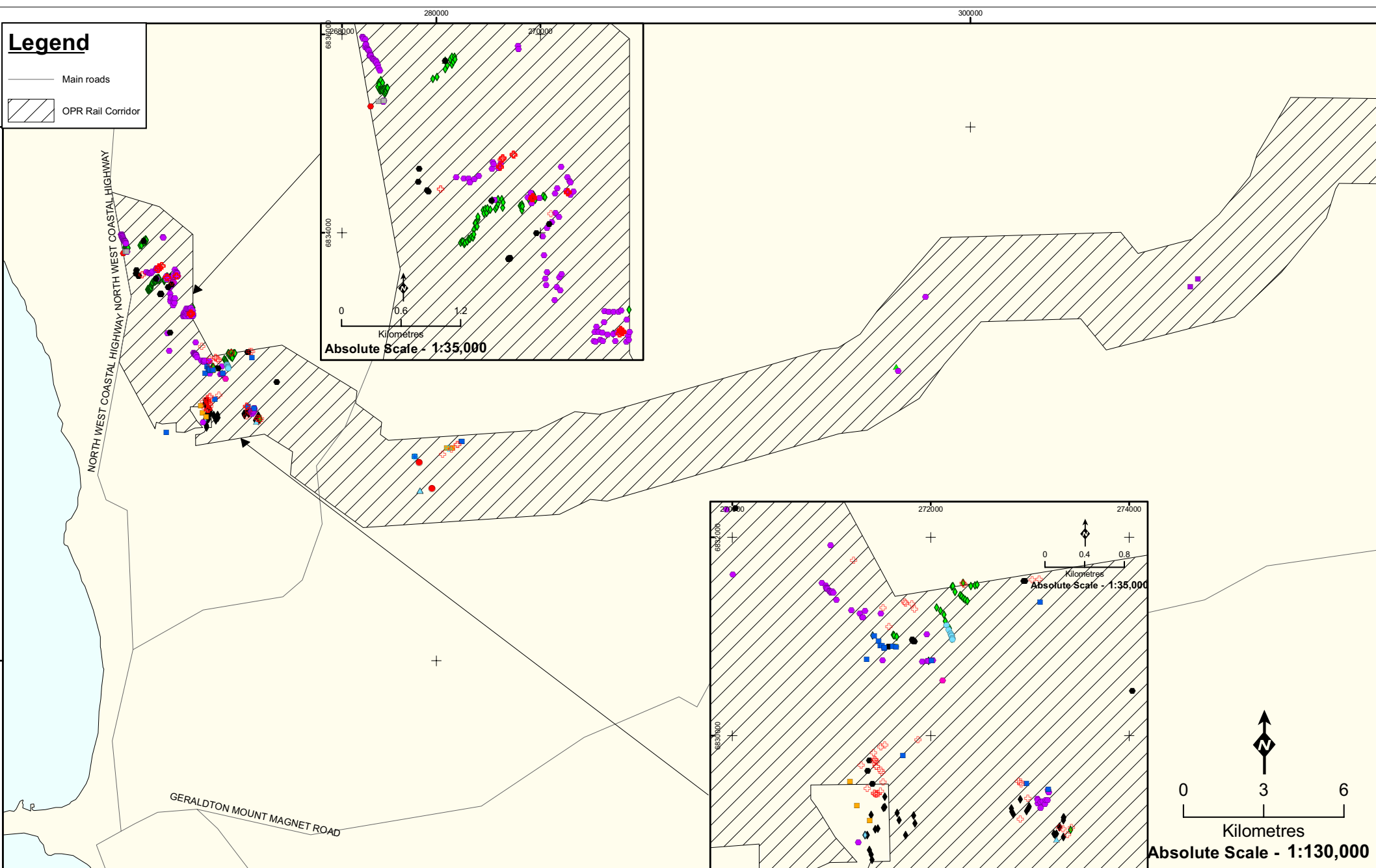
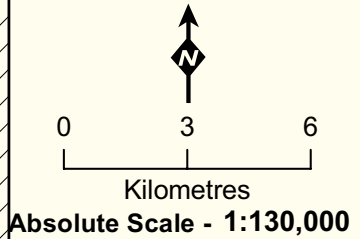
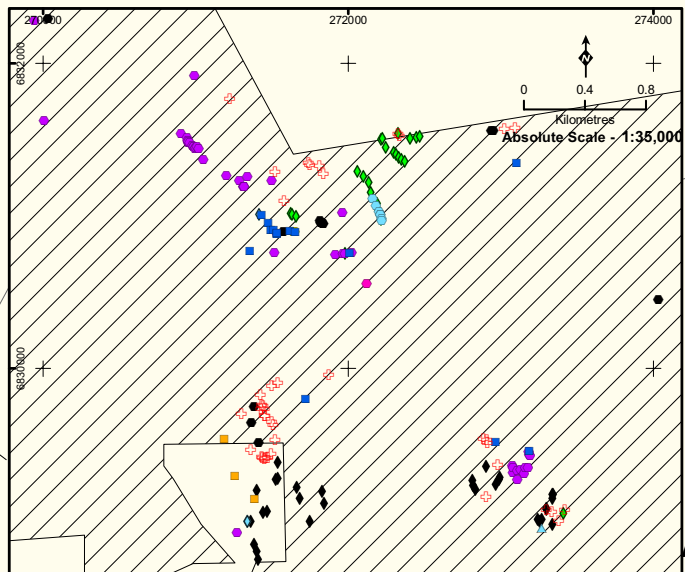
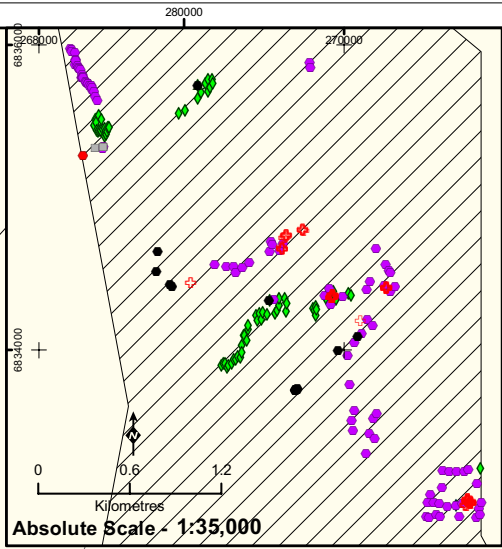
**A3**



**DRF and Priority  
Flora Locations  
(Overview)**

**Legend**

- Main roads
- OPR Rail Corridor



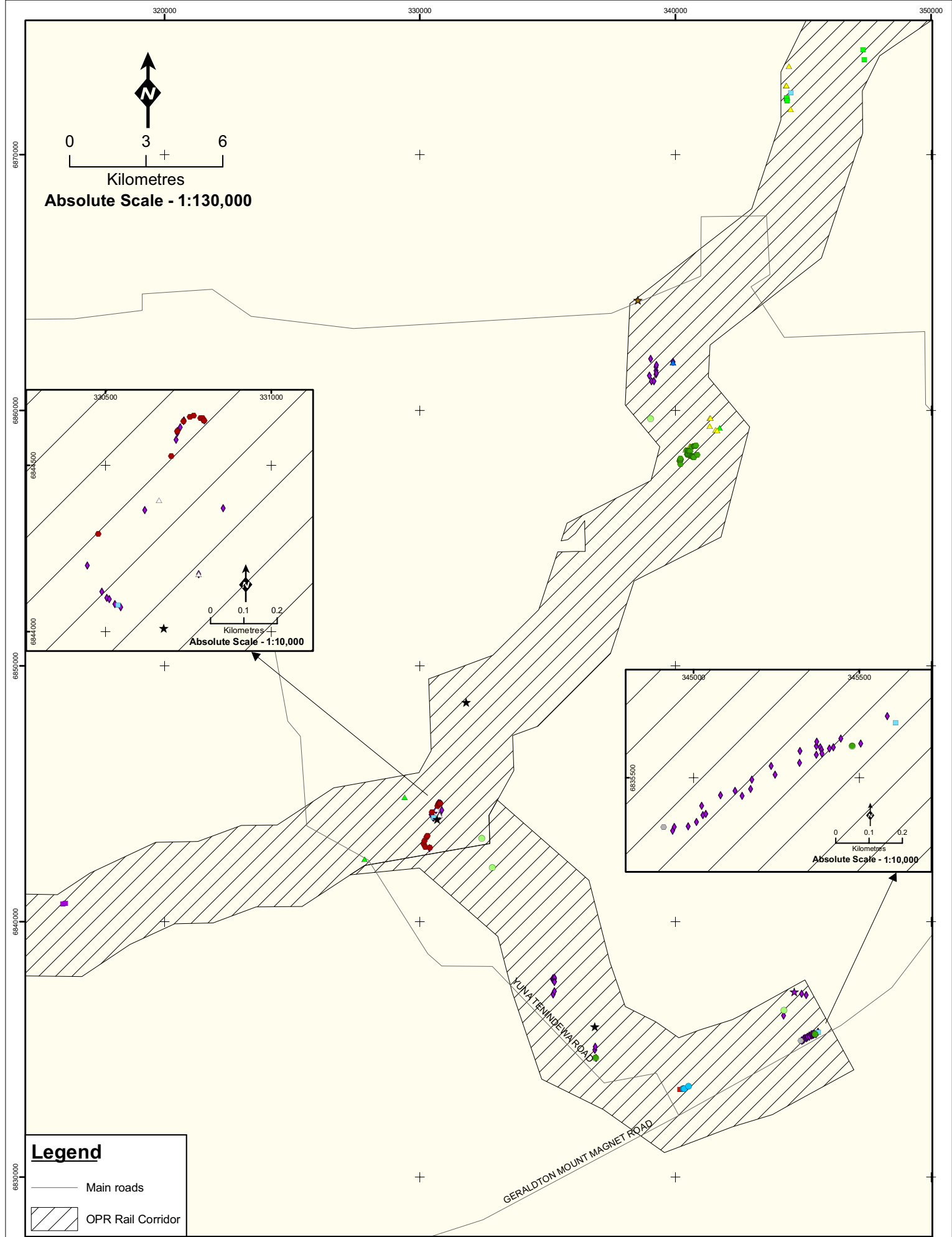
**DRF and Priority  
Flora Locations  
(Map 1)**

Figure:  
Project ID: 1131

Drawn: AH  
Date: 03/05/2010

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A093



Kilometres  
**Absolute Scale - 1:130,000**

Kilometres  
**Absolute Scale - 1:10,000**

Kilometres  
**Absolute Scale - 1:10,000**

**Legend**

- Main roads
- ▨ OPR Rail Corridor



**DRF and Priority  
 Flora Locations  
 (Map 2)**

**Figure:**  
 Project ID: 1131

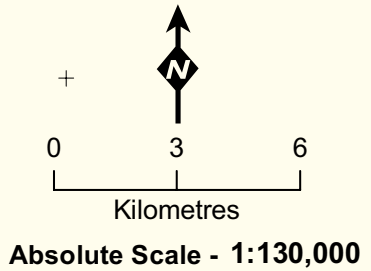
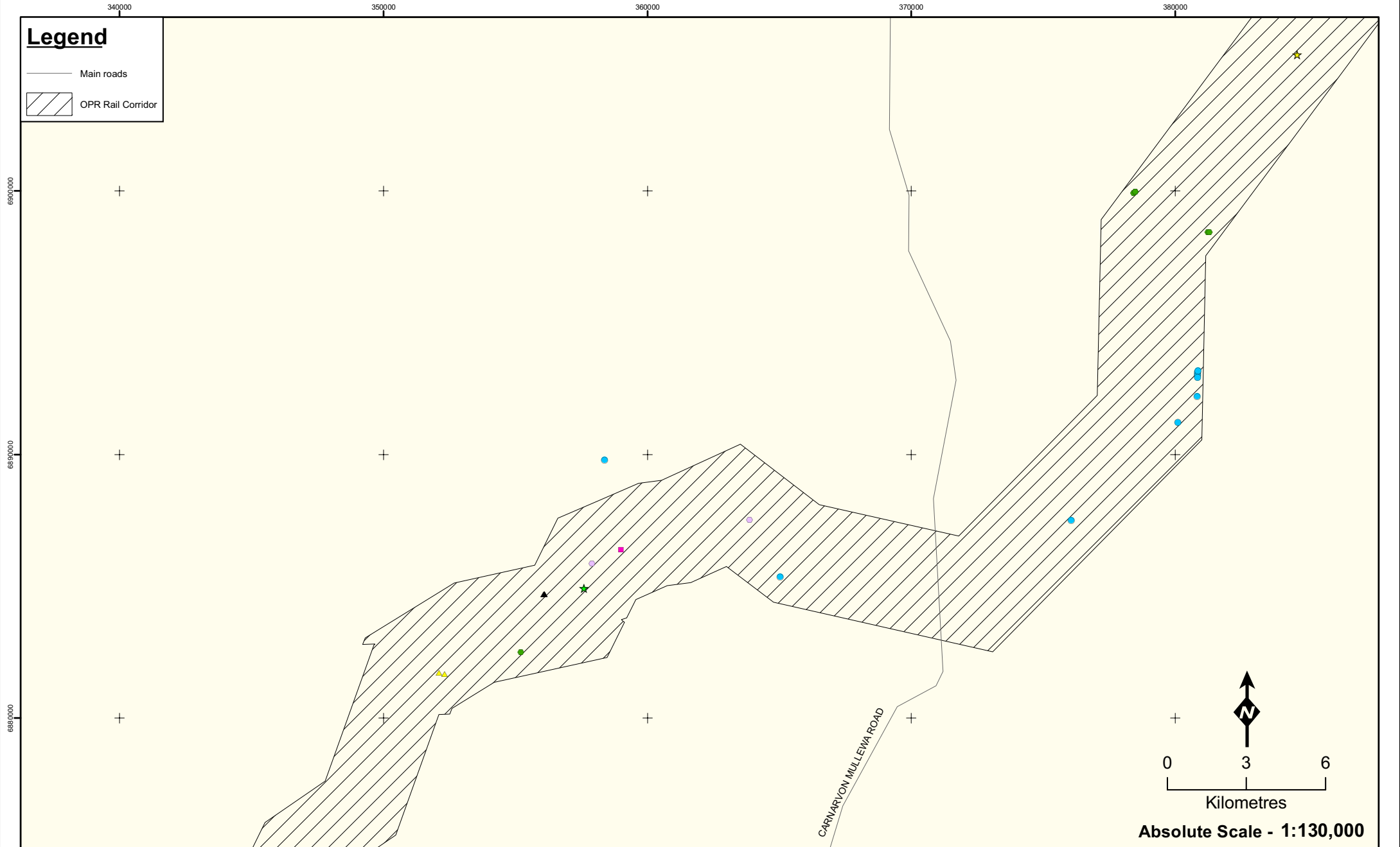
**Drawn: AH**  
 Date: 03/05/10

Coordinate System  
 Name: GDA 1994 MGA Zone 50  
 Projection: Transverse Mercator  
 Datum: GDA 1994

Unique Map ID: A094

**Legend**

- Main roads
- OPR Rail Corridor



**DRF and Priority  
Flora Locations  
(Map 3)**

**Figure:**  
Project ID: 1131

*Coordinate System*  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

**Drawn: AH**  
Date: 03/05/2010

Unique Map ID: A095

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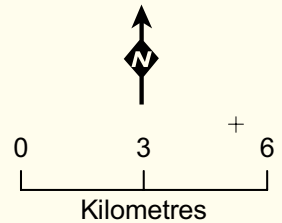
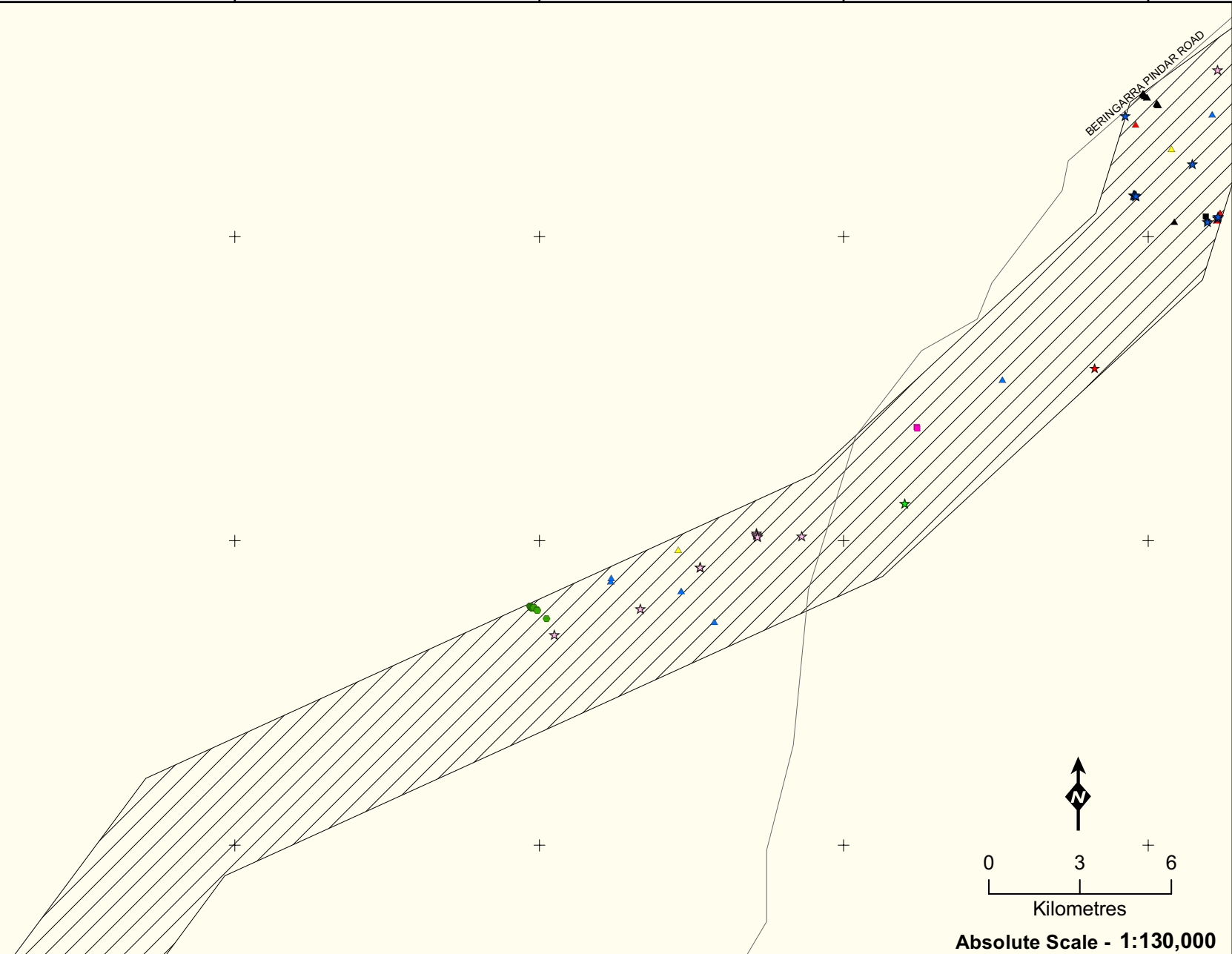
6890000 6892000 6894000

# Legend

- Main roads
- OPR Rail Corridor

CARNARVON MULLEWA ROAD

BERINGARRA PINDAR ROAD



**Absolute Scale - 1:130,000**



## DRF and Priority Flora Locations (Map 4)

Figure:  
Project ID: 1131

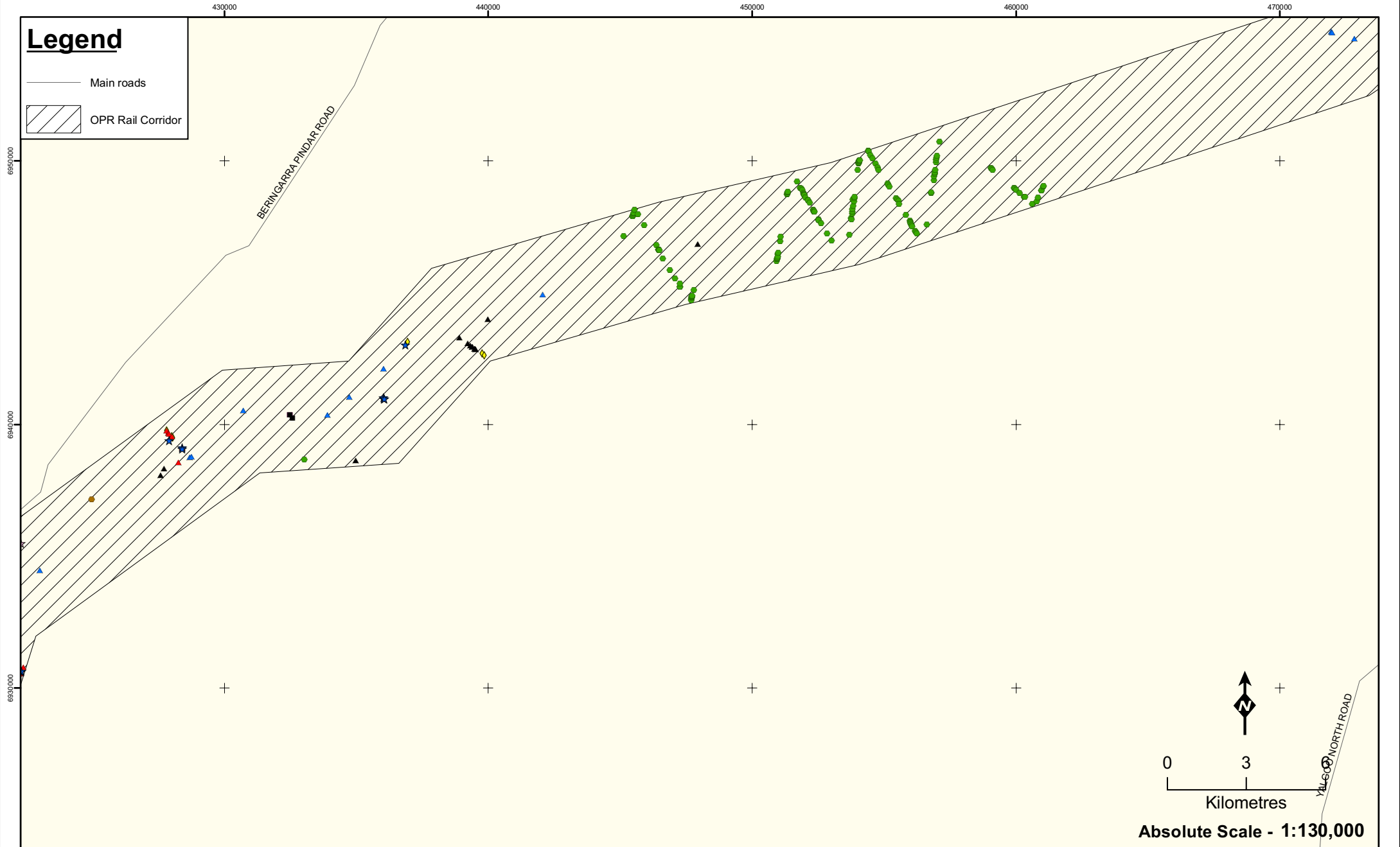
Drawn: AH  
Date: 03/05/2010

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A096

# Legend

- Main roads
- OPR Rail Corridor



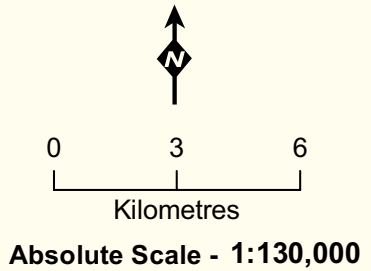
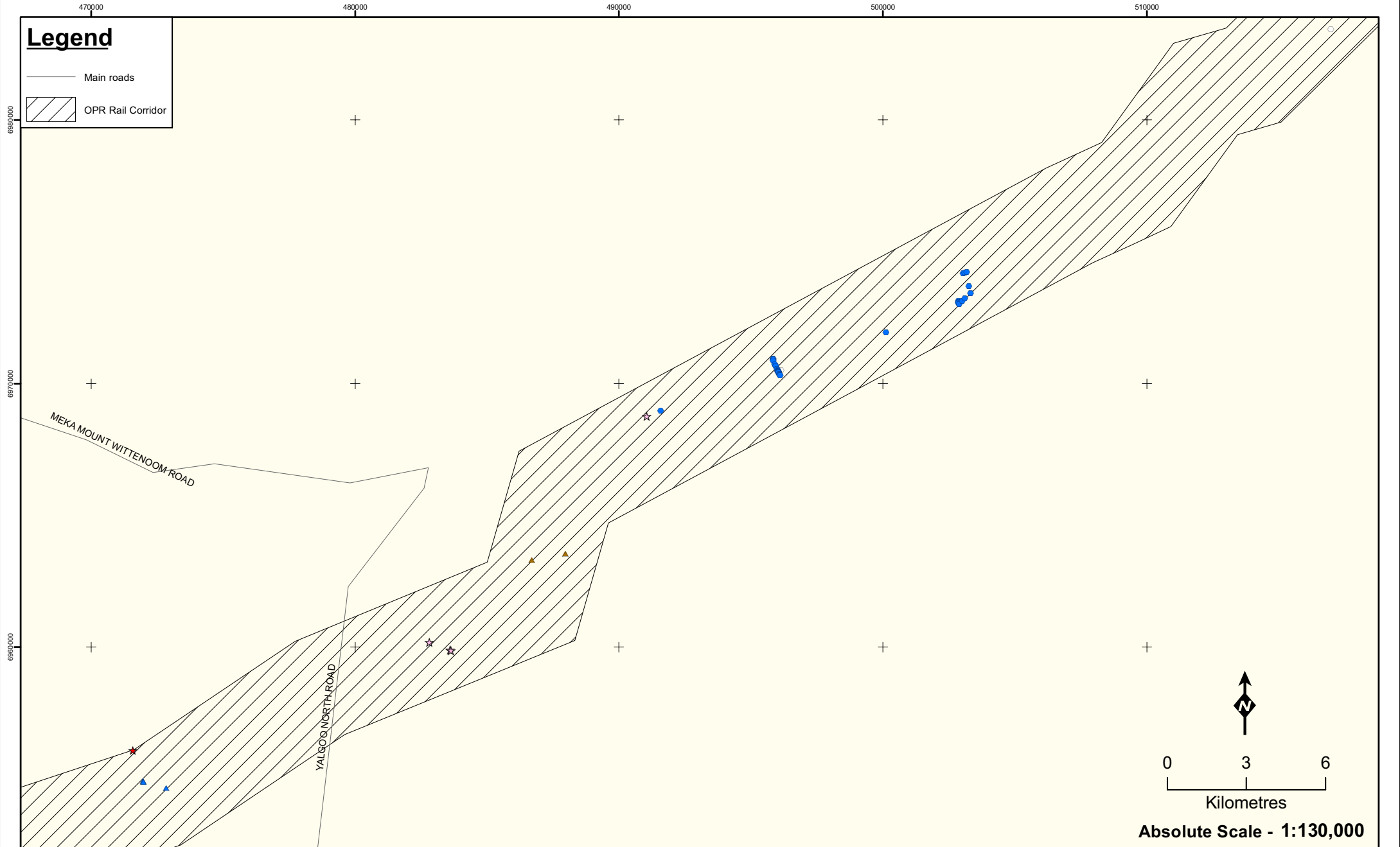
## DRF and Priority Flora Locations (Map 5)

Figure:  
Project ID: 1131  
  
Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Drawn: AH  
Date: 03/05/2010  
  
Unique Map ID: A097

**Legend**

- Main roads
- OPR Rail Corridor



**DRF and Priority  
Flora Locations  
(Map 6)**

**Figure:**  
Project ID: 1131

*Coordinate System*  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

**Drawn: AH**  
Date: 03/05/2010

Unique Map ID: A098

510000 520000 530000 540000 550000

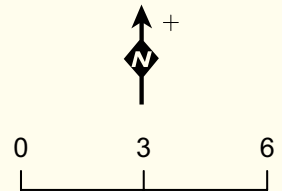
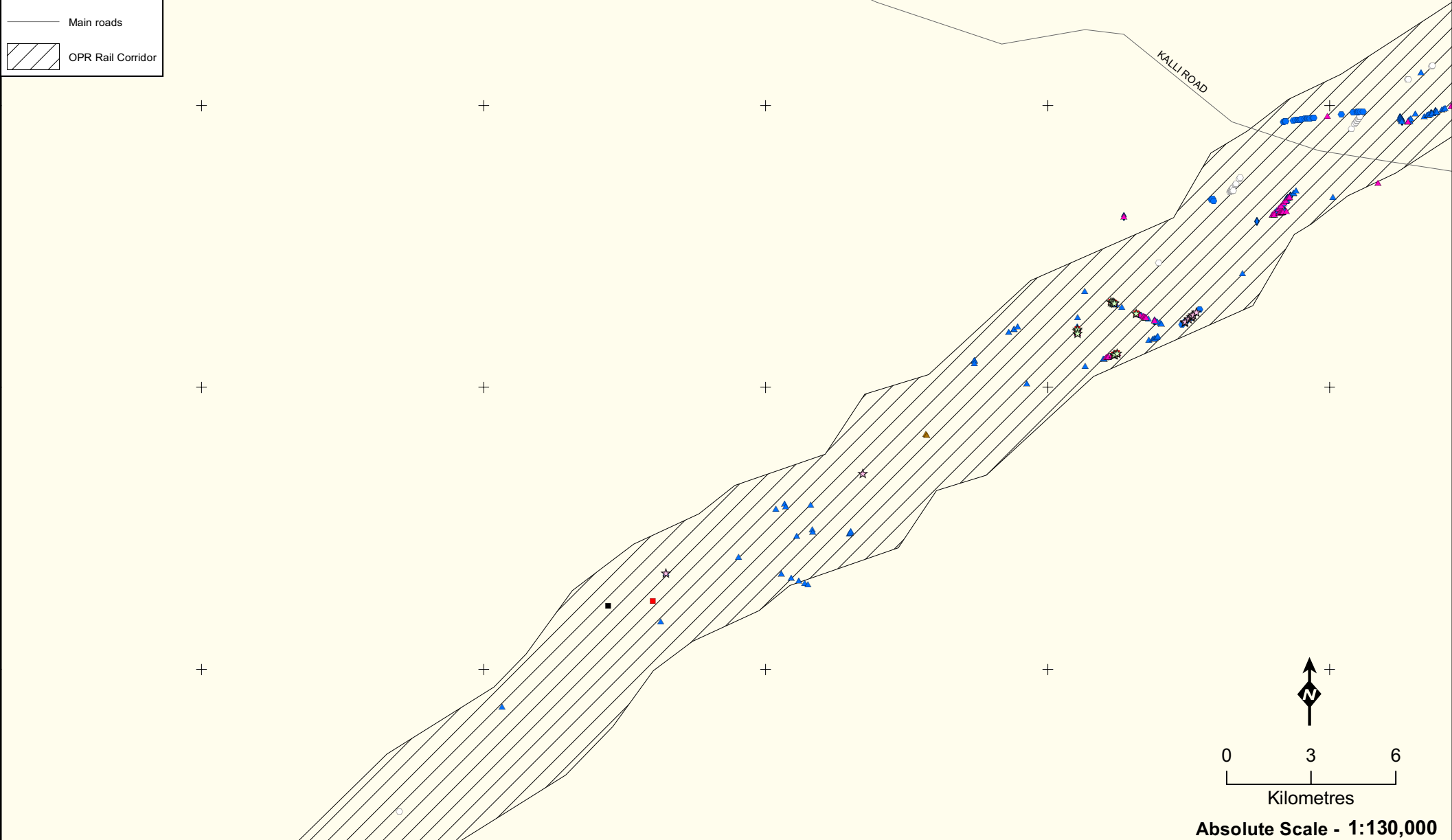
7010000

7000000

6990000

# Legend

- Main roads
- OPR Rail Corridor



**Absolute Scale - 1:130,000**



## DRF and Priority Flora Locations (Map 7)

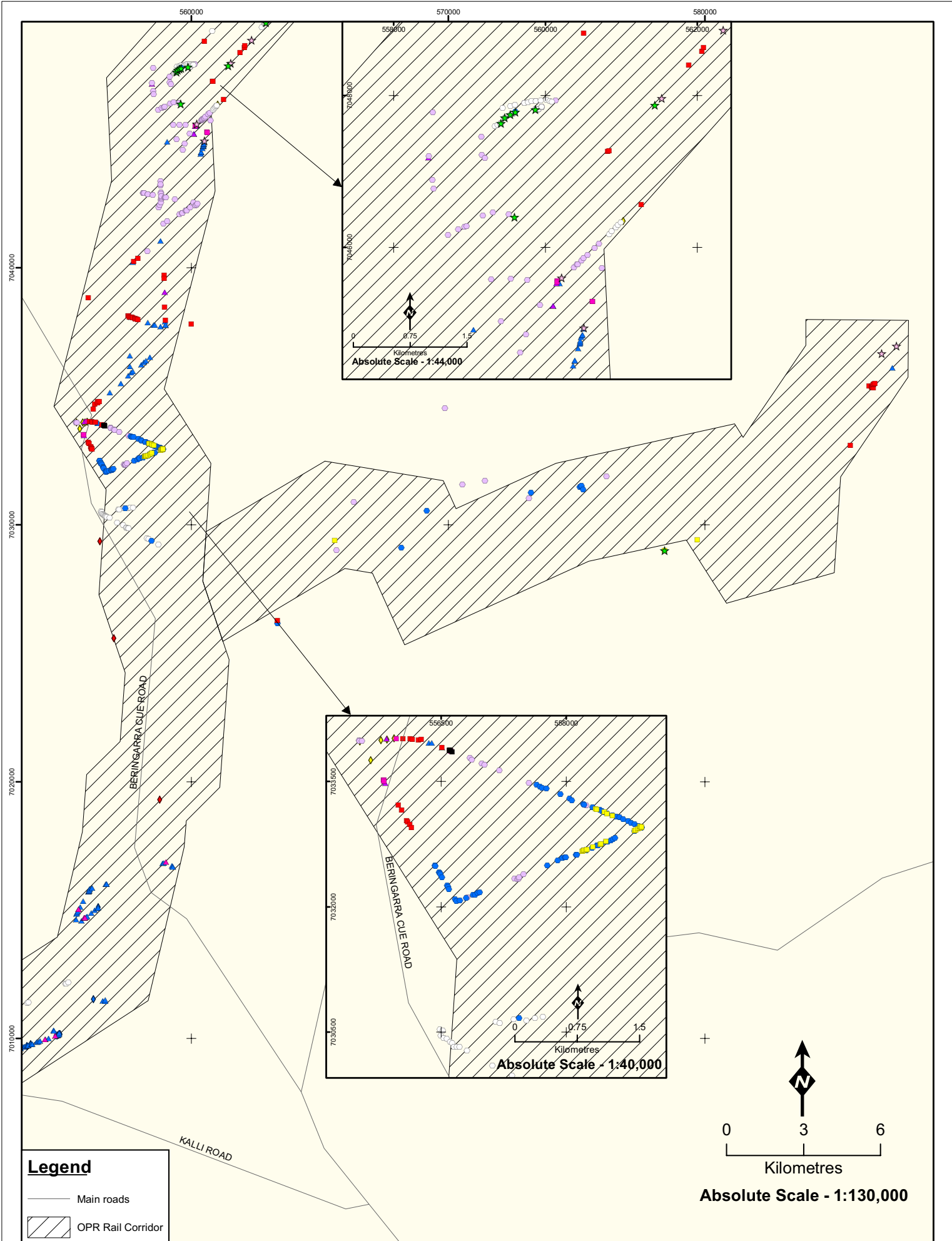
Figure:  
Project ID: 1131

Drawn: AH  
Date: 03/05/2010



Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A099





**Legend**

-  Main roads
-  OPR Rail Corridor



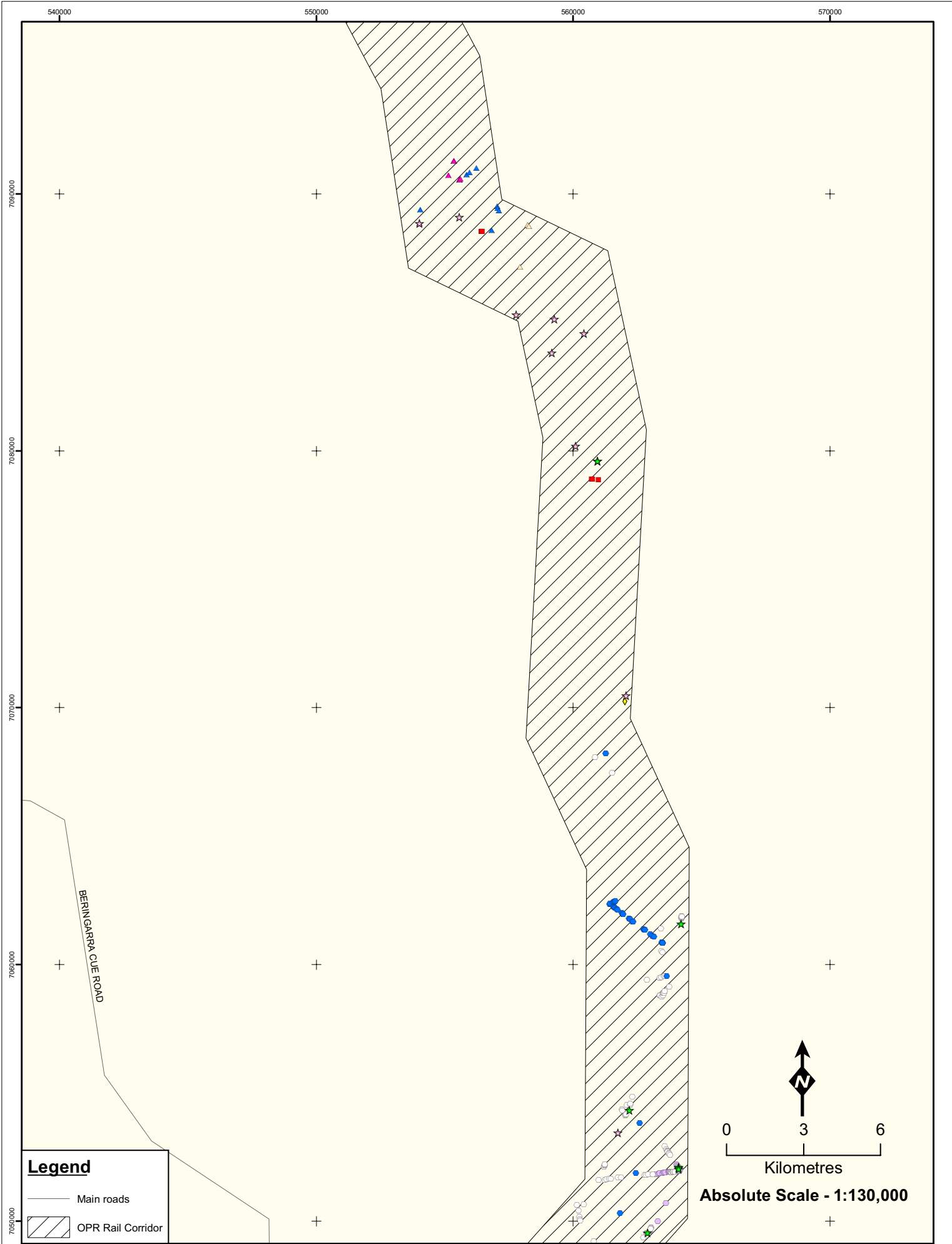
**DRF and Priority  
Flora Locations  
(Map 8)**

**Figure:**  
Project ID: 1131

**Drawn: AH**  
Date: 03/05/10

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A100



**Legend**

- Main roads
- OPR Rail Corridor

0 3 6  
Kilometres  
**Absolute Scale - 1:130,000**



**DRF and Priority  
Flora Locations  
(Map 9)**

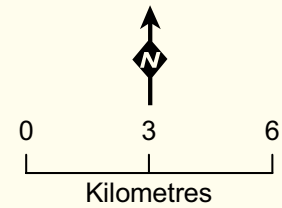
<b>Figure:</b> Project ID: 1131	<b>Drawn:</b> AH Date: 03/05/10
<small>Coordinate System Name: GDA 1994 MGA Zone 50 Projection: Transverse Mercator Datum: GDA 1994</small>	<small>Unique Map ID: A101</small>

**A3**

520000 530000 540000 550000 560000

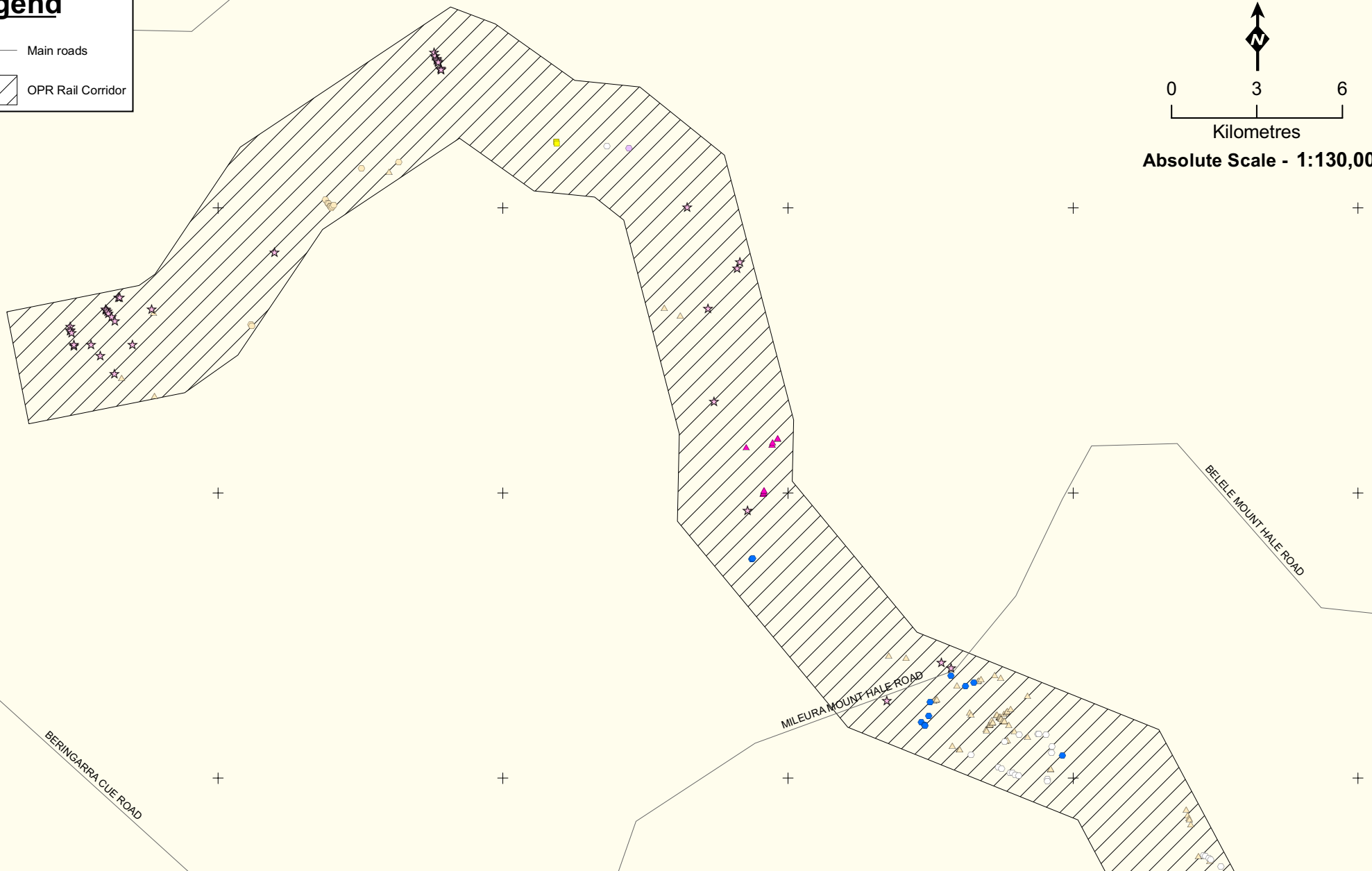
# Legend

- Main roads
- OPR Rail Corridor



**Absolute Scale - 1:130,000**

7120000  
7110000  
7100000



## DRF and Priority Flora Locations (Map 10)

Figure:  
Project ID: 1131

Drawn: AH  
Date: 03/05/2010

Coordinate System  
Name: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator  
Datum: GDA 1994

Unique Map ID: A102

**Table G.1 – DRF and Priority Flora Locations Recorded in the Study Area**

P Level	Species	Zone	Easting	Northing	Plant Counts
Endangered, DRF	<i>Caladenia hoffmanii</i>	50J	279195	6827641	5
Endangered, DRF	<i>Caladenia hoffmanii</i>	50J	280471	6827961	10
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	268990	6834442	2
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	268995	6834445	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269592	6834662	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269592	6834675	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269593	6834673	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269594	6834658	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269595	6834669	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269596	6834666	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269596	6834666	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269596	6834670	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269605	6834741	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269607	6834741	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269614	6834754	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269617	6834750	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269617	6834755	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269618	6834757	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269620	6834751	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269621	6834757	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269725	6834788	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269727	6834797	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269728	6834785	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269729	6834788	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269730	6834792	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269739	6834783	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269911	6834348	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269913	6834349	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269915	6834349	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269915	6834350	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269917	6834351	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269920	6834351	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269920	6834359	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269920	6834360	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269922	6834349	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269922	6834352	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269922	6834353	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269923	6834348	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269923	6834357	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269924	6834361	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269924	6834362	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269925	6834348	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269925	6834350	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269925	6834358	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269926	6834356	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269927	6834354	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269927	6834362	1

P Level	Species	Zone	Easting	Northing	Plant Counts
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	269929	6834356	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270107	6834198	4
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270271	6834410	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270272	6834407	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270273	6834415	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270275	6834408	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270276	6834407	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270276	6834409	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270276	6834409	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270277	6834407	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270277	6834411	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270278	6834408	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270280	6834413	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270281	6834411	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270791	6832981	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270792	6832985	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270797	6832986	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270802	6832976	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270804	6832981	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270804	6833019	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270805	6833014	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270806	6833015	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270806	6833016	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270807	6833015	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270808	6833006	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270808	6833007	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270808	6833019	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270809	6833003	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270809	6833021	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270811	6833024	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270812	6833008	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270812	6833019	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270812	6833022	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270816	6833008	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270822	6832999	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270824	6832999	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270824	6832999	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270824	6833001	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270825	6832997	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270825	6833004	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270827	6833000	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270827	6833003	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270828	6832998	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270828	6832998	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270828	6833007	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270829	6832997	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270829	6832998	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270829	6832999	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270830	6832997	1

P Level	Species	Zone	Easting	Northing	Plant Counts
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270830	6833002	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270832	6832998	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	270834	6833000	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271220	6831769	21
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271296	6829706	5
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271361	6829465	5
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271424	6829830	2
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271428	6829736	30
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271431	6829421	7
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271433	6829760	10
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271435	6829417	7
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271442	6829756	5
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271449	6829409	3
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271450	6829693	5
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271450	6829736	5
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271452	6829690	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271457	6829411	6
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271470	6829414	6
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271495	6829439	20
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271497	6829649	10
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271497	6829886	3
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271508	6829629	20
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271518	6829533	3
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271521	6831293	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271538	6829908	3
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271576	6831099	36
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271737	6831352	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271748	6831337	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271810	6831329	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271838	6831279	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	271872	6829959	1
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	272323	6831545	11
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	272334	6831524	3
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	272887	6829536	10
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	272901	6829161	12
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	272908	6829533	20
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	272912	6829517	15
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	272978	6829368	2
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	273025	6831573	4
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	273094	6831584	7
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	273299	6829074	2
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	273335	6829061	2
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	273381	6829003	6
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	273418	6829071	3
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	280232	6827737	4
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	280570	6827928	4
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	280788	6828091	5
Vulnerable, Priority 4	<i>Eucalyptus blaxellii</i>	50J	280819	6828112	7
Priority 1	<i>Acacia lineolata</i> subsp. <i>multilineata</i>	50J	344656	6837264	5

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 1	<i>Chamelaucium</i> sp. Yalgoo	50J	418256	6925679	2
Priority 1	<i>Chamelaucium</i> sp. Yalgoo	50J	471577	6956066	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	400496	6916914	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	403324	6917763	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	405290	6919117	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	405290	6919117	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	407134	6920239	20
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	407142	6920212	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	407176	6920154	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	407178	6920127	3
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	408620	6920149	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	422282	6935472	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	482802	6960189	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	483604	6959882	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	483636	6959865	5
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	491057	6968769	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	514806	7115748	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	514810	7115832	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	514820	7115712	3
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	514870	7115634	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	514938	7115174	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	514939	7115204	3
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	515543	7115232	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	515874	7114825	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516055	7116445	54
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516077	7116431	44
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516113	7116390	3
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516158	7116319	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516275	7116180	13
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516361	7114210	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516377	7116031	4
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516503	7116858	4
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516552	7116866	6
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	516993	7115209	5
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	517668	7116456	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	521978	7118465	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	526465	6993409	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527580	7125481	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527621	7125353	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527673	7125247	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527679	7125206	4
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527706	7125153	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527729	7125120	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527820	7124922	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527828	7124887	4
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	527829	7124858	3
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	533454	6996946	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	536466	7120030	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	537188	7116481	1

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	537414	7113226	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	538225	7117893	4
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	538323	7118123	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	538575	7109388	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	543477	7102711	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	544855	7002307	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	544884	7002335	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	545004	7002433	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	545096	7002514	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	545121	7002525	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	545164	7002581	3
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	545273	7002670	2
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	545390	7104054	4
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	545740	7103867	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	554016	7088866	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	555567	7089116	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	557790	7085304	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	559169	7083818	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	559273	7085130	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	560092	7080191	6
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	560210	7045607	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	560430	7084591	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	560507	7044942	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	560947	7079595	10
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	561530	7047968	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	561742	7053460	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	562064	7070480	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	562342	7048872	8
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	586893	7036674	1
Priority 1	<i>Euphorbia sarcostemmoides</i>	50J	587459	7036969	1
Priority 1	<i>Gunniopsis divisa</i>	50J	384633	6905172	1000
Priority 1	<i>Petrophile vana</i>	50J	419241	6933964	1
Priority 1	<i>Petrophile vana</i>	50J	419535	6931382	22
Priority 1	<i>Petrophile vana</i>	50J	419561	6931366	17
Priority 1	<i>Petrophile vana</i>	50J	419601	6931351	16
Priority 1	<i>Petrophile vana</i>	50J	419617	6931337	1
Priority 1	<i>Petrophile vana</i>	50J	421468	6932388	1
Priority 1	<i>Petrophile vana</i>	50J	421962	6930480	10
Priority 1	<i>Petrophile vana</i>	50J	422288	6930622	22
Priority 1	<i>Petrophile vana</i>	50J	422302	6930643	17
Priority 1	<i>Petrophile vana</i>	50J	427904	6939399	10
Priority 1	<i>Petrophile vana</i>	50J	428392	6939108	14
Priority 1	<i>Petrophile vana</i>	50J	428404	6939087	6
Priority 1	<i>Petrophile vana</i>	50J	436029	6941004	6
Priority 1	<i>Petrophile vana</i>	50J	436039	6940978	13
Priority 1	<i>Petrophile vana</i>	50J	436055	6940956	6
Priority 1	<i>Petrophile vana</i>	50J	436855	6943004	1
Priority 1	<i>Sauropus sp. Woolgorong</i>	50J	357595	6884942	3
Priority 1	<i>Sauropus sp. Woolgorong</i>	50J	412008	6921229	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 1	Sauropus sp. Woolgorong	50J	559415	7047642	2
Priority 1	Sauropus sp. Woolgorong	50J	559463	7047715	2
Priority 1	Sauropus sp. Woolgorong	50J	559533	7047750	1
Priority 1	Sauropus sp. Woolgorong	50J	559591	7046399	1
Priority 1	Sauropus sp. Woolgorong	50J	559602	7047793	5
Priority 1	Sauropus sp. Woolgorong	50J	559866	7047825	1
Priority 1	Sauropus sp. Woolgorong	50J	560947	7079595	4
Priority 1	Sauropus sp. Woolgorong	50J	561442	7047879	4
Priority 1	Sauropus sp. Woolgorong	50J	562189	7054328	1
Priority 1	Sauropus sp. Woolgorong	50J	562899	7049553	1
Priority 1	Sauropus sp. Woolgorong	50J	564102	7052096	4
Priority 1	Sauropus sp. Woolgorong	50J	564107	7052081	6
Priority 1	Sauropus sp. Woolgorong	50J	564115	7052055	1
Priority 1	Sauropus sp. Woolgorong	50J	564205	7061598	6
Priority 1	Sauropus sp. Woolgorong	50J	578433	7029011	5
Priority 1	<i>Scholtzia</i> ?sp. Binnu	50J	338542	6864318	10
Priority 2	<i>Frankenia confusa</i>	50J	340302	6833461	1
Priority 2	<i>Frankenia confusa</i>	50J	340315	6833463	2
Priority 2	<i>Frankenia confusa</i>	50J	340357	6833451	3
Priority 2	<i>Frankenia confusa</i>	50J	340520	6833556	1
Priority 2	<i>Frankenia confusa</i>	50J	358371	6889796	1
Priority 2	<i>Frankenia confusa</i>	50J	365031	6885358	1
Priority 2	<i>Frankenia confusa</i>	50J	376055	6887495	1
Priority 2	<i>Frankenia confusa</i>	50J	380100	6891207	2
Priority 2	<i>Frankenia confusa</i>	50J	380840	6892198	1
Priority 2	<i>Frankenia confusa</i>	50J	380849	6893055	100
Priority 2	<i>Frankenia confusa</i>	50J	380852	6893127	26
Priority 2	<i>Frankenia confusa</i>	50J	380853	6892994	12
Priority 2	<i>Frankenia confusa</i>	50J	380855	6892914	32
Priority 2	<i>Frankenia confusa</i>	50J	380862	6893173	62
Priority 2	<i>Scholtzia</i> sp. East Yuna	50J	332422	6843266	5
Priority 2	<i>Scholtzia</i> sp. East Yuna	50J	332835	6842109	5
Priority 2	<i>Scholtzia</i> sp. East Yuna	50J	339038	6859684	5
Priority 2	<i>Scholtzia</i> sp. East Yuna	50J	344243	6836537	10
Priority 2	<i>Thryptomene</i> sp. East Yuna	50J	336886	6834665	2
Priority 2	<i>Thryptomene</i> sp. East Yuna	50J	345478	6835596	1
Priority 2	<i>Thryptomene stenophylla</i>	50J	279356	6827436	1
Priority 2	<i>Thryptomene stenophylla</i>	50J	279837	6826448	5
Priority 3	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	50J	297228	6831006	5
Priority 3	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	50J	327834	6842447	1
Priority 3	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	50J	329402	6844871	5
Priority 3	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	50J	341733	6859321	1
Priority 3	<i>Acacia speckii</i>	50J	339900	6861878	6
Priority 3	<i>Acacia speckii</i>	50J	339902	6861861	2
Priority 3	<i>Acacia speckii</i>	50J	402350	6918653	4
Priority 3	<i>Acacia speckii</i>	50J	402364	6918771	2

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Acacia speckii</i>	50J	404664	6918354	1
Priority 3	<i>Acacia speckii</i>	50J	405755	6917341	2
Priority 3	<i>Acacia speckii</i>	50J	415223	6925297	10
Priority 3	<i>Acacia speckii</i>	50J	422106	6934022	1
Priority 3	<i>Acacia speckii</i>	50J	422990	6934455	10
Priority 3	<i>Acacia speckii</i>	50J	428676	6938745	10
Priority 3	<i>Acacia speckii</i>	50J	428751	6938774	10
Priority 3	<i>Acacia speckii</i>	50J	430706	6940535	10
Priority 3	<i>Acacia speckii</i>	50J	433891	6940357	10
Priority 3	<i>Acacia speckii</i>	50J	434730	6941042	2
Priority 3	<i>Acacia speckii</i>	50J	436032	6942117	1
Priority 3	<i>Acacia speckii</i>	50J	442054	6944923	10
Priority 3	<i>Acacia speckii</i>	50J	471954	6954907	10
Priority 3	<i>Acacia speckii</i>	50J	471978	6954875	1
Priority 3	<i>Acacia speckii</i>	50J	472826	6954642	10
Priority 3	<i>Acacia speckii</i>	50J	520657	6988665	1
Priority 3	<i>Acacia speckii</i>	50J	526275	6991696	10
Priority 3	<i>Acacia speckii</i>	50J	526465	6993409	10
Priority 3	<i>Acacia speckii</i>	50J	529046	6993987	1
Priority 3	<i>Acacia speckii</i>	50J	530366	6995695	1
Priority 3	<i>Acacia speckii</i>	50J	530554	6993388	3
Priority 3	<i>Acacia speckii</i>	50J	530681	6995862	1
Priority 3	<i>Acacia speckii</i>	50J	530716	6995769	1
Priority 3	<i>Acacia speckii</i>	50J	530913	6993244	3
Priority 3	<i>Acacia speckii</i>	50J	531109	6994737	1
Priority 3	<i>Acacia speckii</i>	50J	531171	6993139	1
Priority 3	<i>Acacia speckii</i>	50J	531380	6993061	1
Priority 3	<i>Acacia speckii</i>	50J	531493	6993014	1
Priority 3	<i>Acacia speckii</i>	50J	531601	6995840	1
Priority 3	<i>Acacia speckii</i>	50J	531648	6994963	2
Priority 3	<i>Acacia speckii</i>	50J	531667	6994880	1
Priority 3	<i>Acacia speckii</i>	50J	532978	6994808	3
Priority 3	<i>Acacia speckii</i>	50J	532997	6994853	3
Priority 3	<i>Acacia speckii</i>	50J	533015	6994900	2
Priority 3	<i>Acacia speckii</i>	50J	537390	7000945	2
Priority 3	<i>Acacia speckii</i>	50J	537391	7000976	1
Priority 3	<i>Acacia speckii</i>	50J	537394	7000956	2
Priority 3	<i>Acacia speckii</i>	50J	537404	7000853	2
Priority 3	<i>Acacia speckii</i>	50J	538615	7001965	10
Priority 3	<i>Acacia speckii</i>	50J	538796	7002065	10
Priority 3	<i>Acacia speckii</i>	50J	538826	7002078	10
Priority 3	<i>Acacia speckii</i>	50J	538928	7002163	10
Priority 3	<i>Acacia speckii</i>	50J	539271	7000146	5
Priority 3	<i>Acacia speckii</i>	50J	541054	7002170	1
Priority 3	<i>Acacia speckii</i>	50J	541059	7002077	1
Priority 3	<i>Acacia speckii</i>	50J	541072	7002488	3
Priority 3	<i>Acacia speckii</i>	50J	541320	7003410	1
Priority 3	<i>Acacia speckii</i>	50J	541333	7000761	1
Priority 3	<i>Acacia speckii</i>	50J	541976	7001030	1

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Acacia speckii</i>	50J	542004	7001025	3
Priority 3	<i>Acacia speckii</i>	50J	542117	7001074	2
Priority 3	<i>Acacia speckii</i>	50J	542131	7001080	4
Priority 3	<i>Acacia speckii</i>	50J	542162	7001097	3
Priority 3	<i>Acacia speckii</i>	50J	542254	7003032	3
Priority 3	<i>Acacia speckii</i>	50J	542315	7003009	3
Priority 3	<i>Acacia speckii</i>	50J	542382	7001173	1
Priority 3	<i>Acacia speckii</i>	50J	542393	7002973	2
Priority 3	<i>Acacia speckii</i>	50J	542435	7002936	4
Priority 3	<i>Acacia speckii</i>	50J	542629	7002854	1
Priority 3	<i>Acacia speckii</i>	50J	543268	7002589	1
Priority 3	<i>Acacia speckii</i>	50J	543312	7002561	3
Priority 3	<i>Acacia speckii</i>	50J	543334	7002556	2
Priority 3	<i>Acacia speckii</i>	50J	543412	7002527	1
Priority 3	<i>Acacia speckii</i>	50J	543462	7002497	4
Priority 3	<i>Acacia speckii</i>	50J	543483	7002483	2
Priority 3	<i>Acacia speckii</i>	50J	543494	7002475	1
Priority 3	<i>Acacia speckii</i>	50J	543581	7002442	2
Priority 3	<i>Acacia speckii</i>	50J	543592	7001685	3
Priority 3	<i>Acacia speckii</i>	50J	543719	7001716	6
Priority 3	<i>Acacia speckii</i>	50J	543766	7001735	3
Priority 3	<i>Acacia speckii</i>	50J	543783	7002370	1
Priority 3	<i>Acacia speckii</i>	50J	543800	7001752	4
Priority 3	<i>Acacia speckii</i>	50J	543842	7002347	2
Priority 3	<i>Acacia speckii</i>	50J	543862	7002335	2
Priority 3	<i>Acacia speckii</i>	50J	543865	7001791	4
Priority 3	<i>Acacia speckii</i>	50J	543891	7002321	2
Priority 3	<i>Acacia speckii</i>	50J	543907	7001808	4
Priority 3	<i>Acacia speckii</i>	50J	543998	7002278	1
Priority 3	<i>Acacia speckii</i>	50J	544039	7002257	3
Priority 3	<i>Acacia speckii</i>	50J	546906	7004046	1
Priority 3	<i>Acacia speckii</i>	50J	547971	7006132	1
Priority 3	<i>Acacia speckii</i>	50J	548031	7006125	1
Priority 3	<i>Acacia speckii</i>	50J	548065	7006226	1
Priority 3	<i>Acacia speckii</i>	50J	548113	7006275	1
Priority 3	<i>Acacia speckii</i>	50J	548202	7006359	3
Priority 3	<i>Acacia speckii</i>	50J	548247	7006411	1
Priority 3	<i>Acacia speckii</i>	50J	548315	7006476	1
Priority 3	<i>Acacia speckii</i>	50J	548354	7006528	1
Priority 3	<i>Acacia speckii</i>	50J	548383	7006548	1
Priority 3	<i>Acacia speckii</i>	50J	548444	7006611	1
Priority 3	<i>Acacia speckii</i>	50J	548462	7006634	1
Priority 3	<i>Acacia speckii</i>	50J	548479	7006658	2
Priority 3	<i>Acacia speckii</i>	50J	548563	7006742	2
Priority 3	<i>Acacia speckii</i>	50J	548711	7006883	2
Priority 3	<i>Acacia speckii</i>	50J	548729	7006902	1
Priority 3	<i>Acacia speckii</i>	50J	548806	7006991	1
Priority 3	<i>Acacia speckii</i>	50J	550109	7006760	1
Priority 3	<i>Acacia speckii</i>	50J	552489	7009579	9

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Acacia speckii</i>	50J	552497	7009564	4
Priority 3	<i>Acacia speckii</i>	50J	552507	7009551	1
Priority 3	<i>Acacia speckii</i>	50J	552531	7009512	2
Priority 3	<i>Acacia speckii</i>	50J	552543	7009500	1
Priority 3	<i>Acacia speckii</i>	50J	552562	7009464	1
Priority 3	<i>Acacia speckii</i>	50J	552567	7009450	1
Priority 3	<i>Acacia speckii</i>	50J	552770	7009424	1
Priority 3	<i>Acacia speckii</i>	50J	552784	7009473	1
Priority 3	<i>Acacia speckii</i>	50J	552831	7009512	1
Priority 3	<i>Acacia speckii</i>	50J	552835	7009444	2
Priority 3	<i>Acacia speckii</i>	50J	552868	7009541	2
Priority 3	<i>Acacia speckii</i>	50J	553044	7009711	1
Priority 3	<i>Acacia speckii</i>	50J	553230	7011183	1
Priority 3	<i>Acacia speckii</i>	50J	553354	7009631	1
Priority 3	<i>Acacia speckii</i>	50J	553447	7009666	8
Priority 3	<i>Acacia speckii</i>	50J	553485	7009677	1
Priority 3	<i>Acacia speckii</i>	50J	553501	7009686	2
Priority 3	<i>Acacia speckii</i>	50J	553573	7009702	4
Priority 3	<i>Acacia speckii</i>	50J	553628	7009725	2
Priority 3	<i>Acacia speckii</i>	50J	553639	7009731	2
Priority 3	<i>Acacia speckii</i>	50J	553770	7009766	1
Priority 3	<i>Acacia speckii</i>	50J	553803	7009789	3
Priority 3	<i>Acacia speckii</i>	50J	553973	7009855	2
Priority 3	<i>Acacia speckii</i>	50J	554042	7009879	2
Priority 3	<i>Acacia speckii</i>	50J	554045	7089397	2
Priority 3	<i>Acacia speckii</i>	50J	554098	7009906	1
Priority 3	<i>Acacia speckii</i>	50J	554320	7009968	1
Priority 3	<i>Acacia speckii</i>	50J	554428	7010000	3
Priority 3	<i>Acacia speckii</i>	50J	554628	7010324	1
Priority 3	<i>Acacia speckii</i>	50J	554641	7010308	1
Priority 3	<i>Acacia speckii</i>	50J	554795	7010132	3
Priority 3	<i>Acacia speckii</i>	50J	554831	7010151	1
Priority 3	<i>Acacia speckii</i>	50J	554845	7010161	1
Priority 3	<i>Acacia speckii</i>	50J	554849	7010210	2
Priority 3	<i>Acacia speckii</i>	50J	555507	7014632	1
Priority 3	<i>Acacia speckii</i>	50J	555517	7014863	2
Priority 3	<i>Acacia speckii</i>	50J	555539	7014892	2
Priority 3	<i>Acacia speckii</i>	50J	555567	7014953	4
Priority 3	<i>Acacia speckii</i>	50J	555672	7015116	1
Priority 3	<i>Acacia speckii</i>	50J	555714	7014587	1
Priority 3	<i>Acacia speckii</i>	50J	555784	7015347	1
Priority 3	<i>Acacia speckii</i>	50J	555842	7090772	1
Priority 3	<i>Acacia speckii</i>	50J	555844	7014702	1
Priority 3	<i>Acacia speckii</i>	50J	555901	7014731	1
Priority 3	<i>Acacia speckii</i>	50J	555931	7014754	2
Priority 3	<i>Acacia speckii</i>	50J	555974	7090839	2
Priority 3	<i>Acacia speckii</i>	50J	555994	7015714	2
Priority 3	<i>Acacia speckii</i>	50J	555999	7015736	1
Priority 3	<i>Acacia speckii</i>	50J	556017	7015750	7

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Acacia speckii</i>	50J	556018	7015766	1
Priority 3	<i>Acacia speckii</i>	50J	556034	7015825	1
Priority 3	<i>Acacia speckii</i>	50J	556035	7015815	8
Priority 3	<i>Acacia speckii</i>	50J	556097	7014893	1
Priority 3	<i>Acacia speckii</i>	50J	556114	7015863	3
Priority 3	<i>Acacia speckii</i>	50J	556134	7015866	1
Priority 3	<i>Acacia speckii</i>	50J	556228	7091012	1
Priority 3	<i>Acacia speckii</i>	50J	556242	7015006	1
Priority 3	<i>Acacia speckii</i>	50J	556333	7015076	1
Priority 3	<i>Acacia speckii</i>	50J	556348	7033966	2
Priority 3	<i>Acacia speckii</i>	50J	556374	7015105	1
Priority 3	<i>Acacia speckii</i>	50J	556384	7033964	1
Priority 3	<i>Acacia speckii</i>	50J	556545	7011479	2
Priority 3	<i>Acacia speckii</i>	50J	556642	7011458	3
Priority 3	<i>Acacia speckii</i>	50J	556645	7011506	1
Priority 3	<i>Acacia speckii</i>	50J	556664	7016019	2
Priority 3	<i>Acacia speckii</i>	50J	556690	7016022	1
Priority 3	<i>Acacia speckii</i>	50J	556698	7016028	1
Priority 3	<i>Acacia speckii</i>	50J	556827	7035156	1
Priority 3	<i>Acacia speckii</i>	50J	556832	7088577	1
Priority 3	<i>Acacia speckii</i>	50J	557034	7089525	1
Priority 3	<i>Acacia speckii</i>	50J	557058	7089468	2
Priority 3	<i>Acacia speckii</i>	50J	557109	7089355	1
Priority 3	<i>Acacia speckii</i>	50J	557253	7035524	1
Priority 3	<i>Acacia speckii</i>	50J	557537	7035816	1
Priority 3	<i>Acacia speckii</i>	50J	557603	7036172	3
Priority 3	<i>Acacia speckii</i>	50J	557603	7036596	1
Priority 3	<i>Acacia speckii</i>	50J	557649	7038087	1
Priority 3	<i>Acacia speckii</i>	50J	557655	7035930	2
Priority 3	<i>Acacia speckii</i>	50J	557720	7035988	5
Priority 3	<i>Acacia speckii</i>	50J	557722	7040229	1
Priority 3	<i>Acacia speckii</i>	50J	558054	7036230	4
Priority 3	<i>Acacia speckii</i>	50J	558155	7036330	6
Priority 3	<i>Acacia speckii</i>	50J	558236	7036402	1
Priority 3	<i>Acacia speckii</i>	50J	558296	7037874	1
Priority 3	<i>Acacia speckii</i>	50J	558388	7036527	6
Priority 3	<i>Acacia speckii</i>	50J	558523	7037780	1
Priority 3	<i>Acacia speckii</i>	50J	558584	7037779	1
Priority 3	<i>Acacia speckii</i>	50J	558786	7041045	1
Priority 3	<i>Acacia speckii</i>	50J	558787	7037712	2
Priority 3	<i>Acacia speckii</i>	50J	558879	7016828	3
Priority 3	<i>Acacia speckii</i>	50J	558932	7016846	1
Priority 3	<i>Acacia speckii</i>	50J	558979	7037910	1
Priority 3	<i>Acacia speckii</i>	50J	558992	7037765	2
Priority 3	<i>Acacia speckii</i>	50J	558993	7037804	1
Priority 3	<i>Acacia speckii</i>	50J	559050	7044915	5
Priority 3	<i>Acacia speckii</i>	50J	559232	7016724	2
Priority 3	<i>Acacia speckii</i>	50J	559272	7016687	4
Priority 3	<i>Acacia speckii</i>	50J	559278	7016674	1

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Acacia speckii</i>	50J	560098	7045231	7
Priority 3	<i>Acacia speckii</i>	50J	560184	7045528	2
Priority 3	<i>Acacia speckii</i>	50J	560361	7044441	1
Priority 3	<i>Acacia speckii</i>	50J	560384	7044504	1
Priority 3	<i>Acacia speckii</i>	50J	560387	7044516	1
Priority 3	<i>Acacia speckii</i>	50J	560433	7044672	1
Priority 3	<i>Acacia speckii</i>	50J	560454	7044734	1
Priority 3	<i>Acacia speckii</i>	50J	560457	7044743	1
Priority 3	<i>Acacia speckii</i>	50J	560458	7044753	1
Priority 3	<i>Acacia speckii</i>	50J	560460	7044770	1
Priority 3	<i>Acacia speckii</i>	50J	560472	7044815	2
Priority 3	<i>Acacia speckii</i>	50J	560481	7044839	1
Priority 3	<i>Acacia speckii</i>	50J	560484	7044852	1
Priority 3	<i>Acacia speckii</i>	50J	560496	7044928	1
Priority 3	<i>Acacia speckii</i>	50J	587300	7036109	1
Priority 3	<i>Acacia subsessilis</i>	50J	340409	6858458	1
Priority 3	<i>Acacia subsessilis</i>	50J	340561	6858618	1
Priority 3	<i>Acacia subsessilis</i>	50J	341346	6859388	1
Priority 3	<i>Acacia subsessilis</i>	50J	341350	6859696	2
Priority 3	<i>Acacia subsessilis</i>	50J	341369	6859697	3
Priority 3	<i>Acacia subsessilis</i>	50J	341573	6859241	1
Priority 3	<i>Acacia subsessilis</i>	50J	341635	6859213	1
Priority 3	<i>Acacia subsessilis</i>	50J	344338	6872710	1
Priority 3	<i>Acacia subsessilis</i>	50J	344345	6872714	2
Priority 3	<i>Acacia subsessilis</i>	50J	344364	6872241	1
Priority 3	<i>Acacia subsessilis</i>	50J	344369	6872260	3
Priority 3	<i>Acacia subsessilis</i>	50J	344452	6873473	10
Priority 3	<i>Acacia subsessilis</i>	50J	344520	6871791	6
Priority 3	<i>Acacia subsessilis</i>	50J	352103	6881720	2
Priority 3	<i>Acacia subsessilis</i>	50J	352316	6881670	1
Priority 3	<i>Acacia subsessilis</i>	50J	404565	6919707	1
Priority 3	<i>Acacia subsessilis</i>	50J	420772	6932875	1
Priority 3	<i>Acanthocarpus parviflorus</i>	50J	273269	6828950	1
Priority 3	<i>Acanthocarpus parviflorus</i>	50J	279396	6826363	2
Priority 3	<i>Acanthocarpus parviflorus</i>	50J	279396	6826364	5
Priority 3	<i>Acanthocarpus parviflorus</i>	50J	279397	6826365	5
Priority 3	<i>Acanthocarpus parviflorus</i>	50J	279397	6826370	1
Priority 3	<i>Acanthocarpus parviflorus</i>	50J	279400	6826377	1
Priority 3	<i>Blackallia nudiflora</i>	50J	269038	6835734	22
Priority 3	<i>Calytrix erosipetala</i>	50J	419595	6933687	18
Priority 3	<i>Calytrix erosipetala</i>	50J	422260	6930543	2
Priority 3	<i>Calytrix erosipetala</i>	50J	422362	6930791	32
Priority 3	<i>Calytrix erosipetala</i>	50J	427800	6939755	6
Priority 3	<i>Calytrix erosipetala</i>	50J	427866	6939669	1
Priority 3	<i>Calytrix erosipetala</i>	50J	427904	6939635	7
Priority 3	<i>Calytrix erosipetala</i>	50J	427996	6939542	6
Priority 3	<i>Calytrix erosipetala</i>	50J	428254	6938554	2
Priority 3	<i>Calytrix erosipetala</i>	50J	428392	6939108	2
Priority 3	<i>Calytrix erosipetala</i>	50J	428404	6939087	3

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Calytrix formosa</i>	50J	330661	6844396	2
Priority 3	<i>Calytrix formosa</i>	50J	330781	6844173	1
Priority 3	<i>Calytrix uncinata</i>	50J	555826	7033484	6
Priority 3	<i>Calytrix uncinata</i>	50J	555842	7034010	2
Priority 3	<i>Calytrix uncinata</i>	50J	558458	7047181	2
Priority 3	<i>Calytrix uncinata</i>	50J	558961	7039075	3
Priority 3	<i>Calytrix uncinata</i>	50J	560098	7045231	3
Priority 3	<i>Calytrix uncinata</i>	50J	560146	7045526	2
Priority 3	<i>Calytrix verruculosa</i>	50J	516618	7114044	7
Priority 3	<i>Calytrix verruculosa</i>	50J	517731	7116337	3
Priority 3	<i>Calytrix verruculosa</i>	50J	517765	7113416	11
Priority 3	<i>Calytrix verruculosa</i>	50J	526002	7121268	1
Priority 3	<i>Calytrix verruculosa</i>	50J	535660	7116499	10
Priority 3	<i>Calytrix verruculosa</i>	50J	536213	7116224	2
Priority 3	<i>Calytrix verruculosa</i>	50J	543540	7104303	1
Priority 3	<i>Calytrix verruculosa</i>	50J	544151	7104217	2
Priority 3	<i>Calytrix verruculosa</i>	50J	545114	7102714	11
Priority 3	<i>Calytrix verruculosa</i>	50J	545188	7102747	43
Priority 3	<i>Calytrix verruculosa</i>	50J	545215	7102757	4
Priority 3	<i>Calytrix verruculosa</i>	50J	545764	7101128	1
Priority 3	<i>Calytrix verruculosa</i>	50J	545924	7103243	4
Priority 3	<i>Calytrix verruculosa</i>	50J	546005	7101006	1
Priority 3	<i>Calytrix verruculosa</i>	50J	546034	7100995	3
Priority 3	<i>Calytrix verruculosa</i>	50J	546375	7102301	10
Priority 3	<i>Calytrix verruculosa</i>	50J	546429	7102237	13
Priority 3	<i>Calytrix verruculosa</i>	50J	546665	7103411	6
Priority 3	<i>Calytrix verruculosa</i>	50J	546694	7103419	2
Priority 3	<i>Calytrix verruculosa</i>	50J	546774	7103464	5
Priority 3	<i>Calytrix verruculosa</i>	50J	546950	7101697	2
Priority 3	<i>Calytrix verruculosa</i>	50J	546965	7101675	2
Priority 3	<i>Calytrix verruculosa</i>	50J	547062	7101849	4
Priority 3	<i>Calytrix verruculosa</i>	50J	547070	7101855	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547079	7101864	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547111	7101886	3
Priority 3	<i>Calytrix verruculosa</i>	50J	547150	7102022	9
Priority 3	<i>Calytrix verruculosa</i>	50J	547162	7101928	7
Priority 3	<i>Calytrix verruculosa</i>	50J	547178	7101946	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547254	7103602	13
Priority 3	<i>Calytrix verruculosa</i>	50J	547303	7102205	2
Priority 3	<i>Calytrix verruculosa</i>	50J	547336	7102235	10
Priority 3	<i>Calytrix verruculosa</i>	50J	547414	7102108	2
Priority 3	<i>Calytrix verruculosa</i>	50J	547420	7102141	5
Priority 3	<i>Calytrix verruculosa</i>	50J	547424	7102119	31
Priority 3	<i>Calytrix verruculosa</i>	50J	547438	7102124	20
Priority 3	<i>Calytrix verruculosa</i>	50J	547444	7102148	18
Priority 3	<i>Calytrix verruculosa</i>	50J	547463	7102092	20
Priority 3	<i>Calytrix verruculosa</i>	50J	547473	7103522	3
Priority 3	<i>Calytrix verruculosa</i>	50J	547475	7102071	5
Priority 3	<i>Calytrix verruculosa</i>	50J	547539	7101993	30

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Calytrix verruculosa</i>	50J	547581	7101994	2
Priority 3	<i>Calytrix verruculosa</i>	50J	547589	7102252	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547595	7101966	2
Priority 3	<i>Calytrix verruculosa</i>	50J	547595	7101991	5
Priority 3	<i>Calytrix verruculosa</i>	50J	547650	7101293	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547660	7102299	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547683	7102327	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547701	7101315	2
Priority 3	<i>Calytrix verruculosa</i>	50J	547701	7102339	5
Priority 3	<i>Calytrix verruculosa</i>	50J	547751	7101854	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547812	7102423	1
Priority 3	<i>Calytrix verruculosa</i>	50J	547946	7101638	1
Priority 3	<i>Calytrix verruculosa</i>	50J	548411	7101460	3
Priority 3	<i>Calytrix verruculosa</i>	50J	548415	7102892	26
Priority 3	<i>Calytrix verruculosa</i>	50J	549210	7100291	4
Priority 3	<i>Calytrix verruculosa</i>	50J	549216	7100321	5
Priority 3	<i>Calytrix verruculosa</i>	50J	553976	7098892	1
Priority 3	<i>Calytrix verruculosa</i>	50J	554031	7098698	200
Priority 3	<i>Calytrix verruculosa</i>	50J	554069	7098597	100
Priority 3	<i>Calytrix verruculosa</i>	50J	554084	7098550	15
Priority 3	<i>Calytrix verruculosa</i>	50J	554140	7098365	7
Priority 3	<i>Calytrix verruculosa</i>	50J	554404	7097264	2
Priority 3	<i>Calytrix verruculosa</i>	50J	554623	7097263	1
Priority 3	<i>Calytrix verruculosa</i>	50J	554801	7097096	1
Priority 3	<i>Calytrix verruculosa</i>	50J	557936	7087169	1
Priority 3	<i>Calytrix verruculosa</i>	50J	558221	7088812	4
Priority 3	<i>Calytrix verruculosa</i>	50J	558270	7088745	137
Priority 3	<i>Dicrastylis linearifolia</i>	50J	356065	6884695	4
Priority 3	<i>Dicrastylis linearifolia</i>	50J	356088	6884709	13
Priority 3	<i>Dicrastylis linearifolia</i>	50J	356094	6884710	2
Priority 3	<i>Dicrastylis linearifolia</i>	50J	419830	6934697	10
Priority 3	<i>Dicrastylis linearifolia</i>	50J	419848	6934691	5
Priority 3	<i>Dicrastylis linearifolia</i>	50J	419857	6934684	2
Priority 3	<i>Dicrastylis linearifolia</i>	50J	419860	6934663	7
Priority 3	<i>Dicrastylis linearifolia</i>	50J	419882	6934619	2
Priority 3	<i>Dicrastylis linearifolia</i>	50J	419965	6934587	10
Priority 3	<i>Dicrastylis linearifolia</i>	50J	419977	6934586	25
Priority 3	<i>Dicrastylis linearifolia</i>	50J	420294	6934381	7
Priority 3	<i>Dicrastylis linearifolia</i>	50J	420296	6934368	16
Priority 3	<i>Dicrastylis linearifolia</i>	50J	420307	6934330	50
Priority 3	<i>Dicrastylis linearifolia</i>	50J	420339	6934319	2
Priority 3	<i>Dicrastylis linearifolia</i>	50J	420869	6930481	1
Priority 3	<i>Dicrastylis linearifolia</i>	50J	427565	6938067	7
Priority 3	<i>Dicrastylis linearifolia</i>	50J	427706	6938313	2
Priority 3	<i>Dicrastylis linearifolia</i>	50J	434968	6938635	10
Priority 3	<i>Dicrastylis linearifolia</i>	50J	438897	6943288	16
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439217	6943074	1
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439322	6942997	14
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439373	6942948	9





P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439393	6942944	22
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439481	6942863	8
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439500	6942858	4
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439517	6942853	17
Priority 3	<i>Dicrastylis linearifolia</i>	50J	439979	6943979	6
Priority 3	<i>Dicrastylis linearifolia</i>	50J	447936	6946841	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	538531	7111613	10
Priority 3	<i>Dodonaea amplisemina</i>	50J	539130	7109962	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	539135	7110001	6
Priority 3	<i>Dodonaea amplisemina</i>	50J	539140	7110018	6
Priority 3	<i>Dodonaea amplisemina</i>	50J	539152	7110074	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	539154	7110093	4
Priority 3	<i>Dodonaea amplisemina</i>	50J	539436	7111692	5
Priority 3	<i>Dodonaea amplisemina</i>	50J	539436	7111701	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	539458	7111780	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	539635	7111914	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	539638	7111929	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	541054	7002006	10
Priority 3	<i>Dodonaea amplisemina</i>	50J	541057	7002068	4
Priority 3	<i>Dodonaea amplisemina</i>	50J	541059	7002027	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	541061	7001939	7
Priority 3	<i>Dodonaea amplisemina</i>	50J	541062	7001922	8
Priority 3	<i>Dodonaea amplisemina</i>	50J	541062	7002090	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	542076	7001054	4
Priority 3	<i>Dodonaea amplisemina</i>	50J	542117	7001074	4
Priority 3	<i>Dodonaea amplisemina</i>	50J	542142	7001087	6
Priority 3	<i>Dodonaea amplisemina</i>	50J	542162	7001097	7
Priority 3	<i>Dodonaea amplisemina</i>	50J	542254	7003032	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	542279	7001138	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	542281	7003026	7
Priority 3	<i>Dodonaea amplisemina</i>	50J	542293	7001150	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	542342	7002999	8
Priority 3	<i>Dodonaea amplisemina</i>	50J	542366	7002985	5
Priority 3	<i>Dodonaea amplisemina</i>	50J	542382	7001173	23
Priority 3	<i>Dodonaea amplisemina</i>	50J	542404	7001187	31
Priority 3	<i>Dodonaea amplisemina</i>	50J	542420	7001196	18
Priority 3	<i>Dodonaea amplisemina</i>	50J	542436	7001206	22
Priority 3	<i>Dodonaea amplisemina</i>	50J	542452	7001207	22
Priority 3	<i>Dodonaea amplisemina</i>	50J	542470	7001210	13
Priority 3	<i>Dodonaea amplisemina</i>	50J	542485	7001217	9
Priority 3	<i>Dodonaea amplisemina</i>	50J	542697	7006054	10
Priority 3	<i>Dodonaea amplisemina</i>	50J	543153	7002631	5
Priority 3	<i>Dodonaea amplisemina</i>	50J	543179	7002618	6
Priority 3	<i>Dodonaea amplisemina</i>	50J	543199	7002610	8
Priority 3	<i>Dodonaea amplisemina</i>	50J	543225	7002605	25
Priority 3	<i>Dodonaea amplisemina</i>	50J	543268	7002589	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	543384	7002534	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	543412	7002527	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	543446	7002509	2



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Dodonaea amplisemina</i>	50J	543462	7002497	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	543483	7002483	5
Priority 3	<i>Dodonaea amplisemina</i>	50J	543494	7002475	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	543783	7002370	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	547971	7006132	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	548018	7006124	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	548031	7006190	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	548031	7006125	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	548179	7006331	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	548200	7006186	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	548202	7006359	5
Priority 3	<i>Dodonaea amplisemina</i>	50J	548208	7006193	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	548234	7006211	5
Priority 3	<i>Dodonaea amplisemina</i>	50J	548247	7006411	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	548276	7006223	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	548283	7006454	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	548292	7006223	6
Priority 3	<i>Dodonaea amplisemina</i>	50J	548323	7006226	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	548337	7006233	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	548352	7006230	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	548383	7006548	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	548389	7006554	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	548452	7006615	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	548463	7006266	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	548543	7006731	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	548580	7006747	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	549911	7009620	5
Priority 3	<i>Dodonaea amplisemina</i>	50J	551712	7007242	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	552770	7009424	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	554016	7088866	9
Priority 3	<i>Dodonaea amplisemina</i>	50J	554309	7009968	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	554695	7010102	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	555140	7090735	13
Priority 3	<i>Dodonaea amplisemina</i>	50J	555353	7091290	10
Priority 3	<i>Dodonaea amplisemina</i>	50J	555353	7091290	10
Priority 3	<i>Dodonaea amplisemina</i>	50J	555573	7090569	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	555577	7090572	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	555607	7015044	3
Priority 3	<i>Dodonaea amplisemina</i>	50J	555608	7015038	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	555609	7090596	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	555821	7014686	1
Priority 3	<i>Dodonaea amplisemina</i>	50J	555832	7014692	2
Priority 3	<i>Dodonaea amplisemina</i>	50J	555844	7014702	7
Priority 3	<i>Dodonaea amplisemina</i>	50J	555856	7014709	6
Priority 3	<i>Dodonaea amplisemina</i>	50J	556507	7033907	6
Priority 3	<i>Dodonaea amplisemina</i>	50J	559004	7016868	2
Priority 3	<i>Eremophila arachnoides subsp. arachnoides</i>	50J	486696	6963310	1
Priority 3	<i>Eremophila arachnoides subsp.</i>	50J	487957	6963554	2

P Level	Species	Zone	Easting	Northing	Plant Counts
	<i>arachnoides</i>				
Priority 3	<i>Eremophila arachnoides</i> subsp. <i>arachnoides</i>	50J	535680	6998342	5
Priority 3	<i>Eremophila arachnoides</i> subsp. <i>arachnoides</i>	50J	535708	6998310	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340178	6858011	8
Priority 3	<i>Eremophila muelleriana</i>	50J	340184	6858039	7
Priority 3	<i>Eremophila muelleriana</i>	50J	340198	6858076	15
Priority 3	<i>Eremophila muelleriana</i>	50J	340200	6857907	1
Priority 3	<i>Eremophila muelleriana</i>	50J	340202	6858094	3
Priority 3	<i>Eremophila muelleriana</i>	50J	340203	6858086	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340206	6858108	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340433	6858438	1
Priority 3	<i>Eremophila muelleriana</i>	50J	340460	6858300	28
Priority 3	<i>Eremophila muelleriana</i>	50J	340470	6858289	10
Priority 3	<i>Eremophila muelleriana</i>	50J	340486	6858280	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340493	6858430	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340504	6858276	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340506	6858432	1
Priority 3	<i>Eremophila muelleriana</i>	50J	340516	6858428	10
Priority 3	<i>Eremophila muelleriana</i>	50J	340519	6858273	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340540	6858419	10
Priority 3	<i>Eremophila muelleriana</i>	50J	340557	6858416	15
Priority 3	<i>Eremophila muelleriana</i>	50J	340561	6858254	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340575	6858415	10
Priority 3	<i>Eremophila muelleriana</i>	50J	340590	6858242	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340610	6858235	1
Priority 3	<i>Eremophila muelleriana</i>	50J	340626	6858224	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340647	6858591	1
Priority 3	<i>Eremophila muelleriana</i>	50J	340661	6858209	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340669	6858206	3
Priority 3	<i>Eremophila muelleriana</i>	50J	340685	6858199	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340694	6858195	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340705	6858190	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340713	6858184	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340724	6858610	1
Priority 3	<i>Eremophila muelleriana</i>	50J	340725	6858181	3
Priority 3	<i>Eremophila muelleriana</i>	50J	340754	6858613	9
Priority 3	<i>Eremophila muelleriana</i>	50J	340767	6858617	2
Priority 3	<i>Eremophila muelleriana</i>	50J	340788	6858618	5
Priority 3	<i>Eremophila muelleriana</i>	50J	340816	6858623	1
Priority 3	<i>Eremophila muelleriana</i>	50J	340869	6858273	3
Priority 3	<i>Eremophila muelleriana</i>	50J	355202	6882505	1
Priority 3	<i>Eremophila muelleriana</i>	50J	378422	6899914	1
Priority 3	<i>Eremophila muelleriana</i>	50J	378492	6899981	2
Priority 3	<i>Eremophila muelleriana</i>	50J	378494	6899986	1
Priority 3	<i>Eremophila muelleriana</i>	50J	381251	6898448	1
Priority 3	<i>Eremophila muelleriana</i>	50J	381301	6898444	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399694	6917855	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Eremophila muelleriana</i>	50J	399706	6917843	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399724	6917834	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399730	6917824	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399737	6917814	3
Priority 3	<i>Eremophila muelleriana</i>	50J	399739	6917805	2
Priority 3	<i>Eremophila muelleriana</i>	50J	399776	6917784	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399780	6917789	3
Priority 3	<i>Eremophila muelleriana</i>	50J	399785	6917787	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399806	6917785	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399816	6917798	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399820	6917795	3
Priority 3	<i>Eremophila muelleriana</i>	50J	399918	6917727	1
Priority 3	<i>Eremophila muelleriana</i>	50J	399932	6917711	2
Priority 3	<i>Eremophila muelleriana</i>	50J	400236	6917450	1
Priority 3	<i>Eremophila muelleriana</i>	50J	433021	6938689	1
Priority 3	<i>Eremophila muelleriana</i>	50J	445126	6947153	1
Priority 3	<i>Eremophila muelleriana</i>	50J	445458	6947910	7
Priority 3	<i>Eremophila muelleriana</i>	50J	445472	6947924	4
Priority 3	<i>Eremophila muelleriana</i>	50J	445488	6947948	2
Priority 3	<i>Eremophila muelleriana</i>	50J	445506	6948002	6
Priority 3	<i>Eremophila muelleriana</i>	50J	445515	6948034	2
Priority 3	<i>Eremophila muelleriana</i>	50J	445541	6948155	3
Priority 3	<i>Eremophila muelleriana</i>	50J	445665	6947989	2
Priority 3	<i>Eremophila muelleriana</i>	50J	445897	6947574	1
Priority 3	<i>Eremophila muelleriana</i>	50J	446368	6946807	11
Priority 3	<i>Eremophila muelleriana</i>	50J	446445	6946652	3
Priority 3	<i>Eremophila muelleriana</i>	50J	446457	6946638	6
Priority 3	<i>Eremophila muelleriana</i>	50J	446472	6946624	3
Priority 3	<i>Eremophila muelleriana</i>	50J	446479	6946615	8
Priority 3	<i>Eremophila muelleriana</i>	50J	446611	6946300	1
Priority 3	<i>Eremophila muelleriana</i>	50J	446878	6945867	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447075	6945555	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447252	6945246	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447259	6945219	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447265	6945336	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447690	6944758	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447692	6944731	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447699	6944835	2
Priority 3	<i>Eremophila muelleriana</i>	50J	447701	6944848	2
Priority 3	<i>Eremophila muelleriana</i>	50J	447704	6944857	1
Priority 3	<i>Eremophila muelleriana</i>	50J	447714	6944873	2
Priority 3	<i>Eremophila muelleriana</i>	50J	447784	6945102	3
Priority 3	<i>Eremophila muelleriana</i>	50J	450917	6946209	6
Priority 3	<i>Eremophila muelleriana</i>	50J	450949	6946273	4
Priority 3	<i>Eremophila muelleriana</i>	50J	450956	6946293	11
Priority 3	<i>Eremophila muelleriana</i>	50J	450961	6946315	6
Priority 3	<i>Eremophila muelleriana</i>	50J	450968	6946456	7
Priority 3	<i>Eremophila muelleriana</i>	50J	450970	6946363	5
Priority 3	<i>Eremophila muelleriana</i>	50J	450983	6946520	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Eremophila muelleriana</i>	50J	451051	6946957	2
Priority 3	<i>Eremophila muelleriana</i>	50J	451068	6947130	3
Priority 3	<i>Eremophila muelleriana</i>	50J	451323	6948728	1
Priority 3	<i>Eremophila muelleriana</i>	50J	451330	6948756	6
Priority 3	<i>Eremophila muelleriana</i>	50J	451342	6948807	3
Priority 3	<i>Eremophila muelleriana</i>	50J	451348	6948826	3
Priority 3	<i>Eremophila muelleriana</i>	50J	451700	6949217	1
Priority 3	<i>Eremophila muelleriana</i>	50J	451821	6948984	1
Priority 3	<i>Eremophila muelleriana</i>	50J	451859	6948953	1
Priority 3	<i>Eremophila muelleriana</i>	50J	451898	6948913	2
Priority 3	<i>Eremophila muelleriana</i>	50J	451944	6948786	4
Priority 3	<i>Eremophila muelleriana</i>	50J	451962	6948749	2
Priority 3	<i>Eremophila muelleriana</i>	50J	451963	6948729	3
Priority 3	<i>Eremophila muelleriana</i>	50J	451963	6948744	1
Priority 3	<i>Eremophila muelleriana</i>	50J	451978	6948711	1
Priority 3	<i>Eremophila muelleriana</i>	50J	452017	6948613	2
Priority 3	<i>Eremophila muelleriana</i>	50J	452108	6948515	3
Priority 3	<i>Eremophila muelleriana</i>	50J	452112	6948511	1
Priority 3	<i>Eremophila muelleriana</i>	50J	452179	6948404	1
Priority 3	<i>Eremophila muelleriana</i>	50J	452317	6948142	2
Priority 3	<i>Eremophila muelleriana</i>	50J	452332	6948107	3
Priority 3	<i>Eremophila muelleriana</i>	50J	452341	6948080	1
Priority 3	<i>Eremophila muelleriana</i>	50J	452343	6948075	1
Priority 3	<i>Eremophila muelleriana</i>	50J	452356	6948063	1
Priority 3	<i>Eremophila muelleriana</i>	50J	452504	6947779	3
Priority 3	<i>Eremophila muelleriana</i>	50J	452513	6947764	5
Priority 3	<i>Eremophila muelleriana</i>	50J	452517	6947749	2
Priority 3	<i>Eremophila muelleriana</i>	50J	452612	6947628	1
Priority 3	<i>Eremophila muelleriana</i>	50J	452847	6947258	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453000	6946983	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453675	6947188	10
Priority 3	<i>Eremophila muelleriana</i>	50J	453755	6947830	2
Priority 3	<i>Eremophila muelleriana</i>	50J	453764	6947777	2
Priority 3	<i>Eremophila muelleriana</i>	50J	453792	6948022	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453794	6948076	2
Priority 3	<i>Eremophila muelleriana</i>	50J	453803	6948175	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453811	6948550	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453836	6948294	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453858	6948470	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453878	6948598	1
Priority 3	<i>Eremophila muelleriana</i>	50J	453885	6948619	4
Priority 3	<i>Eremophila muelleriana</i>	50J	453994	6949674	1
Priority 3	<i>Eremophila muelleriana</i>	50J	454037	6949916	1
Priority 3	<i>Eremophila muelleriana</i>	50J	454037	6949938	3
Priority 3	<i>Eremophila muelleriana</i>	50J	454046	6949969	1
Priority 3	<i>Eremophila muelleriana</i>	50J	454046	6950000	1
Priority 3	<i>Eremophila muelleriana</i>	50J	454052	6950005	1
Priority 3	<i>Eremophila muelleriana</i>	50J	454066	6950015	2
Priority 3	<i>Eremophila muelleriana</i>	50J	454084	6950037	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Eremophila muelleriana</i>	50J	454388	6950399	3
Priority 3	<i>Eremophila muelleriana</i>	50J	454405	6950385	2
Priority 3	<i>Eremophila muelleriana</i>	50J	454479	6950221	2
Priority 3	<i>Eremophila muelleriana</i>	50J	454566	6950094	1
Priority 3	<i>Eremophila muelleriana</i>	50J	454670	6949893	1
Priority 3	<i>Eremophila muelleriana</i>	50J	454754	6949754	2
Priority 3	<i>Eremophila muelleriana</i>	50J	454795	6949675	1
Priority 3	<i>Eremophila muelleriana</i>	50J	455135	6949141	1
Priority 3	<i>Eremophila muelleriana</i>	50J	455147	6949106	5
Priority 3	<i>Eremophila muelleriana</i>	50J	455195	6949016	1
Priority 3	<i>Eremophila muelleriana</i>	50J	455447	6948581	5
Priority 3	<i>Eremophila muelleriana</i>	50J	455506	6948525	1
Priority 3	<i>Eremophila muelleriana</i>	50J	455543	6948490	2
Priority 3	<i>Eremophila muelleriana</i>	50J	455564	6948370	4
Priority 3	<i>Eremophila muelleriana</i>	50J	455830	6947962	1
Priority 3	<i>Eremophila muelleriana</i>	50J	455973	6947741	5
Priority 3	<i>Eremophila muelleriana</i>	50J	455995	6947686	3
Priority 3	<i>Eremophila muelleriana</i>	50J	456001	6947672	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456014	6947617	4
Priority 3	<i>Eremophila muelleriana</i>	50J	456038	6947572	5
Priority 3	<i>Eremophila muelleriana</i>	50J	456057	6947526	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456181	6947338	2
Priority 3	<i>Eremophila muelleriana</i>	50J	456217	6947286	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456243	6947238	2
Priority 3	<i>Eremophila muelleriana</i>	50J	456629	6947583	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456789	6948799	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456794	6948807	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456882	6949275	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456893	6949416	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456916	6949516	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456926	6949551	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456940	6949643	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456968	6949941	1
Priority 3	<i>Eremophila muelleriana</i>	50J	456972	6950044	5
Priority 3	<i>Eremophila muelleriana</i>	50J	456983	6950134	2
Priority 3	<i>Eremophila muelleriana</i>	50J	456998	6950188	1
Priority 3	<i>Eremophila muelleriana</i>	50J	457094	6950731	1
Priority 3	<i>Eremophila muelleriana</i>	50J	459049	6949740	1
Priority 3	<i>Eremophila muelleriana</i>	50J	459077	6949709	2
Priority 3	<i>Eremophila muelleriana</i>	50J	459113	6949669	1
Priority 3	<i>Eremophila muelleriana</i>	50J	459923	6948965	2
Priority 3	<i>Eremophila muelleriana</i>	50J	459961	6948938	6
Priority 3	<i>Eremophila muelleriana</i>	50J	460009	6948908	3
Priority 3	<i>Eremophila muelleriana</i>	50J	460138	6948787	2
Priority 3	<i>Eremophila muelleriana</i>	50J	460304	6948648	1
Priority 3	<i>Eremophila muelleriana</i>	50J	460332	6948625	2
Priority 3	<i>Eremophila muelleriana</i>	50J	460614	6948378	2
Priority 3	<i>Eremophila muelleriana</i>	50J	460788	6948460	3
Priority 3	<i>Eremophila muelleriana</i>	50J	460839	6948603	2

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Eremophila muelleriana</i>	50J	460967	6948885	6
Priority 3	<i>Eremophila muelleriana</i>	50J	460973	6948895	4
Priority 3	<i>Eremophila muelleriana</i>	50J	461035	6949016	1
Priority 3	<i>Eremophila muelleriana</i>	50J	461053	6949046	1
Priority 3	<i>Geleznowia verrucosa</i> subsp. Kalbarri	50J	268289	6835279	1
Priority 3	<i>Grevillea stenostachya</i>	50J	357899	6885856	10
Priority 3	<i>Grevillea stenostachya</i>	50J	363875	6887527	10
Priority 3	<i>Grevillea stenostachya</i>	50J	534418	7122121	10
Priority 3	<i>Grevillea stenostachya</i>	50J	555510	7034000	2
Priority 3	<i>Grevillea stenostachya</i>	50J	555514	7033989	1
Priority 3	<i>Grevillea stenostachya</i>	50J	555548	7033992	1
Priority 3	<i>Grevillea stenostachya</i>	50J	556811	7032117	1
Priority 3	<i>Grevillea stenostachya</i>	50J	556843	7033786	1
Priority 3	<i>Grevillea stenostachya</i>	50J	556863	7033761	1
Priority 3	<i>Grevillea stenostachya</i>	50J	556985	7033723	1
Priority 3	<i>Grevillea stenostachya</i>	50J	557013	7033704	1
Priority 3	<i>Grevillea stenostachya</i>	50J	557191	7033638	1
Priority 3	<i>Grevillea stenostachya</i>	50J	557375	7032343	1
Priority 3	<i>Grevillea stenostachya</i>	50J	557412	7032336	1
Priority 3	<i>Grevillea stenostachya</i>	50J	557425	7032342	1
Priority 3	<i>Grevillea stenostachya</i>	50J	557434	7032361	2
Priority 3	<i>Grevillea stenostachya</i>	50J	557481	7032392	1
Priority 3	<i>Grevillea stenostachya</i>	50J	557551	7033488	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558116	7042931	14
Priority 3	<i>Grevillea stenostachya</i>	50J	558141	7042936	5
Priority 3	<i>Grevillea stenostachya</i>	50J	558163	7042918	3
Priority 3	<i>Grevillea stenostachya</i>	50J	558234	7033219	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558289	7040666	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558291	7042872	4
Priority 3	<i>Grevillea stenostachya</i>	50J	558302	7042875	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558459	7047204	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558496	7042845	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558507	7046893	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558510	7047783	5
Priority 3	<i>Grevillea stenostachya</i>	50J	558523	7046777	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558711	7046169	5
Priority 3	<i>Grevillea stenostachya</i>	50J	558728	7042373	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558758	7042480	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558794	7043392	10
Priority 3	<i>Grevillea stenostachya</i>	50J	558795	7043227	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558801	7043264	10
Priority 3	<i>Grevillea stenostachya</i>	50J	558806	7042654	10
Priority 3	<i>Grevillea stenostachya</i>	50J	558806	7042959	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558811	7042901	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558818	7042563	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558819	7042722	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558819	7042774	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558829	7042822	2
Priority 3	<i>Grevillea stenostachya</i>	50J	558847	7046242	3

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Grevillea stenostachya</i>	50J	558910	7041745	1
Priority 3	<i>Grevillea stenostachya</i>	50J	558929	7046275	2
Priority 3	<i>Grevillea stenostachya</i>	50J	558955	7042758	2
Priority 3	<i>Grevillea stenostachya</i>	50J	558960	7046287	5
Priority 3	<i>Grevillea stenostachya</i>	50J	558971	7042765	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559005	7042773	2
Priority 3	<i>Grevillea stenostachya</i>	50J	559053	7041829	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559158	7047465	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559159	7047229	2
Priority 3	<i>Grevillea stenostachya</i>	50J	559173	7046422	2
Priority 3	<i>Grevillea stenostachya</i>	50J	559201	7047181	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559285	7045582	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559305	7046467	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559357	7042681	2
Priority 3	<i>Grevillea stenostachya</i>	50J	559414	7045029	10
Priority 3	<i>Grevillea stenostachya</i>	50J	559463	7047715	3
Priority 3	<i>Grevillea stenostachya</i>	50J	559515	7046443	7
Priority 3	<i>Grevillea stenostachya</i>	50J	559541	7045586	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559545	7042096	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559572	7047768	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559629	7042147	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559650	7042153	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559665	7044613	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559722	7047911	3
Priority 3	<i>Grevillea stenostachya</i>	50J	559743	7044854	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559762	7045573	3
Priority 3	<i>Grevillea stenostachya</i>	50J	559770	7042239	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559797	7042241	3
Priority 3	<i>Grevillea stenostachya</i>	50J	559813	7042245	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559866	7047825	5
Priority 3	<i>Grevillea stenostachya</i>	50J	559872	7047931	2
Priority 3	<i>Grevillea stenostachya</i>	50J	559893	7047822	2
Priority 3	<i>Grevillea stenostachya</i>	50J	559910	7047827	4
Priority 3	<i>Grevillea stenostachya</i>	50J	559926	7045241	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559943	7042350	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559948	7047853	2
Priority 3	<i>Grevillea stenostachya</i>	50J	559952	7047861	1
Priority 3	<i>Grevillea stenostachya</i>	50J	559952	7047861	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560089	7042560	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560136	7047945	6
Priority 3	<i>Grevillea stenostachya</i>	50J	560142	7042437	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560196	7042456	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560231	7042525	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560377	7045741	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560414	7045783	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560426	7045786	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560473	7045828	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560504	7045864	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560551	7045900	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Grevillea stenostachya</i>	50J	560649	7045995	1
Priority 3	<i>Grevillea stenostachya</i>	50J	560707	7046052	2
Priority 3	<i>Grevillea stenostachya</i>	50J	560744	7045734	1
Priority 3	<i>Grevillea stenostachya</i>	50J	562980	7049631	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563039	7049771	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563211	7051842	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563302	7050005	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563335	7051875	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563372	7051882	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563477	7051893	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563531	7051901	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563551	7051903	2
Priority 3	<i>Grevillea stenostachya</i>	50J	563598	7051898	1
Priority 3	<i>Grevillea stenostachya</i>	50J	563620	7050716	2
Priority 3	<i>Grevillea stenostachya</i>	50J	563715	7051917	2
Priority 3	<i>Grevillea stenostachya</i>	50J	563749	7051914	2
Priority 3	<i>Grevillea stenostachya</i>	50J	563768	7051923	7
Priority 3	<i>Grevillea stenostachya</i>	50J	563810	7051929	2
Priority 3	<i>Grevillea stenostachya</i>	50J	563832	7051925	4
Priority 3	<i>Grevillea stenostachya</i>	50J	563856	7051937	6
Priority 3	<i>Grevillea stenostachya</i>	50J	563877	7051939	3
Priority 3	<i>Grevillea stenostachya</i>	50J	563897	7051936	4
Priority 3	<i>Grevillea stenostachya</i>	50J	563943	7051937	2
Priority 3	<i>Grevillea stenostachya</i>	50J	563988	7051947	2
Priority 3	<i>Grevillea stenostachya</i>	50J	564024	7052213	1
Priority 3	<i>Grevillea stenostachya</i>	50J	564055	7052165	1
Priority 3	<i>Grevillea stenostachya</i>	50J	564076	7051960	1
Priority 3	<i>Grevillea stenostachya</i>	50J	564087	7052135	1
Priority 3	<i>Grevillea stenostachya</i>	50J	564094	7052117	1
Priority 3	<i>Grevillea stenostachya</i>	50J	564127	7051962	1
Priority 3	<i>Grevillea stenostachya</i>	50J	564159	7052016	2
Priority 3	<i>Grevillea stenostachya</i>	50J	564160	7051989	2
Priority 3	<i>Grevillea stenostachya</i>	50J	565644	7029011	5
Priority 3	<i>Grevillea stenostachya</i>	50J	566320	7030900	10
Priority 3	<i>Grevillea stenostachya</i>	50J	569879	7034562	10
Priority 3	<i>Grevillea stenostachya</i>	50J	570551	7031575	5
Priority 3	<i>Grevillea stenostachya</i>	50J	571424	7031721	10
Priority 3	<i>Grevillea stenostachya</i>	50J	573144	7031041	5
Priority 3	<i>Grevillea stenostachya</i>	50J	576163	7031879	1
Priority 3	<i>Grevillea triloba</i>	50J	268201	6835982	4
Priority 3	<i>Grevillea triloba</i>	50J	268211	6835969	43
Priority 3	<i>Grevillea triloba</i>	50J	268214	6835962	26
Priority 3	<i>Grevillea triloba</i>	50J	268234	6835952	51
Priority 3	<i>Grevillea triloba</i>	50J	268235	6835875	40
Priority 3	<i>Grevillea triloba</i>	50J	268239	6835909	1
Priority 3	<i>Grevillea triloba</i>	50J	268240	6835904	10
Priority 3	<i>Grevillea triloba</i>	50J	268252	6835868	6
Priority 3	<i>Grevillea triloba</i>	50J	268257	6835857	24
Priority 3	<i>Grevillea triloba</i>	50J	268261	6835846	2

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Grevillea triloba</i>	50J	268269	6835843	8
Priority 3	<i>Grevillea triloba</i>	50J	268280	6835792	26
Priority 3	<i>Grevillea triloba</i>	50J	268283	6835809	1
Priority 3	<i>Grevillea triloba</i>	50J	268284	6835789	42
Priority 3	<i>Grevillea triloba</i>	50J	268286	6835798	81
Priority 3	<i>Grevillea triloba</i>	50J	268288	6835792	184
Priority 3	<i>Grevillea triloba</i>	50J	268307	6835760	6
Priority 3	<i>Grevillea triloba</i>	50J	268309	6835756	13
Priority 3	<i>Grevillea triloba</i>	50J	268317	6835750	7
Priority 3	<i>Grevillea triloba</i>	50J	268318	6835749	48
Priority 3	<i>Grevillea triloba</i>	50J	268329	6835734	6
Priority 3	<i>Grevillea triloba</i>	50J	268342	6835734	13
Priority 3	<i>Grevillea triloba</i>	50J	268346	6835709	22
Priority 3	<i>Grevillea triloba</i>	50J	268347	6835722	14
Priority 3	<i>Grevillea triloba</i>	50J	268359	6835697	13
Priority 3	<i>Grevillea triloba</i>	50J	268368	6835670	66
Priority 3	<i>Grevillea triloba</i>	50J	268383	6835641	2
Priority 3	<i>Grevillea triloba</i>	50J	268415	6835321	8
Priority 3	<i>Grevillea triloba</i>	50J	268422	6835334	6
Priority 3	<i>Grevillea triloba</i>	50J	269150	6834560	29
Priority 3	<i>Grevillea triloba</i>	50J	269226	6834550	55
Priority 3	<i>Grevillea triloba</i>	50J	269277	6834552	6
Priority 3	<i>Grevillea triloba</i>	50J	269288	6834508	30
Priority 3	<i>Grevillea triloba</i>	50J	269333	6834545	60
Priority 3	<i>Grevillea triloba</i>	50J	269379	6834577	120
Priority 3	<i>Grevillea triloba</i>	50J	269511	6834649	300
Priority 3	<i>Grevillea triloba</i>	50J	269518	6834715	1
Priority 3	<i>Grevillea triloba</i>	50J	269528	6834696	3
Priority 3	<i>Grevillea triloba</i>	50J	269537	6834333	9
Priority 3	<i>Grevillea triloba</i>	50J	269576	6834656	80
Priority 3	<i>Grevillea triloba</i>	50J	269599	6834697	3
Priority 3	<i>Grevillea triloba</i>	50J	269773	6835889	15
Priority 3	<i>Grevillea triloba</i>	50J	269779	6835856	23
Priority 3	<i>Grevillea triloba</i>	50J	269872	6834362	11
Priority 3	<i>Grevillea triloba</i>	50J	269902	6834406	12
Priority 3	<i>Grevillea triloba</i>	50J	269910	6834304	15
Priority 3	<i>Grevillea triloba</i>	50J	269939	6832284	10
Priority 3	<i>Grevillea triloba</i>	50J	269990	6834350	1
Priority 3	<i>Grevillea triloba</i>	50J	270003	6831628	9
Priority 3	<i>Grevillea triloba</i>	50J	270024	6833967	12
Priority 3	<i>Grevillea triloba</i>	50J	270035	6833772	3
Priority 3	<i>Grevillea triloba</i>	50J	270051	6833539	9
Priority 3	<i>Grevillea triloba</i>	50J	270059	6833472	8
Priority 3	<i>Grevillea triloba</i>	50J	270066	6833605	1
Priority 3	<i>Grevillea triloba</i>	50J	270067	6834055	26
Priority 3	<i>Grevillea triloba</i>	50J	270115	6834108	11
Priority 3	<i>Grevillea triloba</i>	50J	270143	6833319	6
Priority 3	<i>Grevillea triloba</i>	50J	270147	6834400	4
Priority 3	<i>Grevillea triloba</i>	50J	270151	6834204	15

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Grevillea triloba</i>	50J	270165	6833452	25
Priority 3	<i>Grevillea triloba</i>	50J	270169	6834451	20
Priority 3	<i>Grevillea triloba</i>	50J	270186	6834163	65
Priority 3	<i>Grevillea triloba</i>	50J	270190	6833550	3
Priority 3	<i>Grevillea triloba</i>	50J	270201	6833423	4
Priority 3	<i>Grevillea triloba</i>	50J	270209	6834668	19
Priority 3	<i>Grevillea triloba</i>	50J	270215	6833584	40
Priority 3	<i>Grevillea triloba</i>	50J	270264	6834426	5
Priority 3	<i>Grevillea triloba</i>	50J	270270	6834563	20
Priority 3	<i>Grevillea triloba</i>	50J	270293	6834522	30
Priority 3	<i>Grevillea triloba</i>	50J	270301	6834508	10
Priority 3	<i>Grevillea triloba</i>	50J	270305	6834389	17
Priority 3	<i>Grevillea triloba</i>	50J	270332	6834420	23
Priority 3	<i>Grevillea triloba</i>	50J	270537	6832905	16
Priority 3	<i>Grevillea triloba</i>	50J	270547	6833004	4
Priority 3	<i>Grevillea triloba</i>	50J	270556	6832902	4
Priority 3	<i>Grevillea triloba</i>	50J	270567	6833055	6
Priority 3	<i>Grevillea triloba</i>	50J	270588	6832999	14
Priority 3	<i>Grevillea triloba</i>	50J	270604	6832924	4
Priority 3	<i>Grevillea triloba</i>	50J	270623	6832993	9
Priority 3	<i>Grevillea triloba</i>	50J	270629	6832910	37
Priority 3	<i>Grevillea triloba</i>	50J	270642	6833100	53
Priority 3	<i>Grevillea triloba</i>	50J	270647	6833212	10
Priority 3	<i>Grevillea triloba</i>	50J	270677	6832979	5
Priority 3	<i>Grevillea triloba</i>	50J	270690	6833205	10
Priority 3	<i>Grevillea triloba</i>	50J	270733	6832982	3
Priority 3	<i>Grevillea triloba</i>	50J	270738	6833206	10
Priority 3	<i>Grevillea triloba</i>	50J	270756	6832905	12
Priority 3	<i>Grevillea triloba</i>	50J	270773	6832993	1
Priority 3	<i>Grevillea triloba</i>	50J	270788	6833206	10
Priority 3	<i>Grevillea triloba</i>	50J	270815	6833218	10
Priority 3	<i>Grevillea triloba</i>	50J	270868	6832902	5
Priority 3	<i>Grevillea triloba</i>	50J	270874	6833129	4
Priority 3	<i>Grevillea triloba</i>	50J	270884	6832958	55
Priority 3	<i>Grevillea triloba</i>	50J	270888	6832926	32
Priority 3	<i>Grevillea triloba</i>	50J	270900	6833001	33
Priority 3	<i>Grevillea triloba</i>	50J	270904	6831542	2
Priority 3	<i>Grevillea triloba</i>	50J	270944	6831518	2
Priority 3	<i>Grevillea triloba</i>	50J	270947	6831496	2
Priority 3	<i>Grevillea triloba</i>	50J	270951	6831486	3
Priority 3	<i>Grevillea triloba</i>	50J	270952	6831492	3
Priority 3	<i>Grevillea triloba</i>	50J	270960	6831480	1
Priority 3	<i>Grevillea triloba</i>	50J	270976	6831462	3
Priority 3	<i>Grevillea triloba</i>	50J	270985	6831460	3
Priority 3	<i>Grevillea triloba</i>	50J	270988	6831457	1
Priority 3	<i>Grevillea triloba</i>	50J	270992	6831920	6
Priority 3	<i>Grevillea triloba</i>	50J	270994	6831444	3
Priority 3	<i>Grevillea triloba</i>	50J	271001	6831451	3
Priority 3	<i>Grevillea triloba</i>	50J	271009	6831454	3

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Grevillea triloba</i>	50J	271017	6831444	3
Priority 3	<i>Grevillea triloba</i>	50J	271050	6831369	1
Priority 3	<i>Grevillea triloba</i>	50J	271199	6831267	2
Priority 3	<i>Grevillea triloba</i>	50J	271273	6828928	2
Priority 3	<i>Grevillea triloba</i>	50J	271284	6831235	1
Priority 3	<i>Grevillea triloba</i>	50J	271313	6831191	3
Priority 3	<i>Grevillea triloba</i>	50J	271316	6831191	2
Priority 3	<i>Grevillea triloba</i>	50J	271316	6831196	3
Priority 3	<i>Grevillea triloba</i>	50J	271338	6831262	5
Priority 3	<i>Grevillea triloba</i>	50J	271497	6831230	3
Priority 3	<i>Grevillea triloba</i>	50J	271514	6830761	2
Priority 3	<i>Grevillea triloba</i>	50J	271533	6830888	1
Priority 3	<i>Grevillea triloba</i>	50J	271915	6830746	3
Priority 3	<i>Grevillea triloba</i>	50J	271959	6831027	2
Priority 3	<i>Grevillea triloba</i>	50J	271965	6830755	2
Priority 3	<i>Grevillea triloba</i>	50J	271980	6830755	3
Priority 3	<i>Grevillea triloba</i>	50J	272024	6830765	1
Priority 3	<i>Grevillea triloba</i>	50J	273077	6829366	2
Priority 3	<i>Grevillea triloba</i>	50J	273083	6829318	2
Priority 3	<i>Grevillea triloba</i>	50J	273083	6829352	3
Priority 3	<i>Grevillea triloba</i>	50J	273106	6829269	2
Priority 3	<i>Grevillea triloba</i>	50J	273108	6829331	1
Priority 3	<i>Grevillea triloba</i>	50J	273130	6829337	1
Priority 3	<i>Grevillea triloba</i>	50J	273152	6829313	2
Priority 3	<i>Grevillea triloba</i>	50J	273162	6829351	1
Priority 3	<i>Grevillea triloba</i>	50J	273179	6829350	6
Priority 3	<i>Grevillea triloba</i>	50J	273185	6829458	23
Priority 3	<i>Grevillea triloba</i>	50J	273187	6829434	20
Priority 3	<i>Grevillea triloba</i>	50J	273191	6829431	11
Priority 3	<i>Grevillea triloba</i>	50J	297286	6830866	1
Priority 3	<i>Grevillea triloba</i>	50J	298316	6833644	5
Priority 3	<i>Hemigenia tysonii</i>	50J	496138	6970508	20
Priority 3	<i>Hemigenia tysonii</i>	50J	516985	6983450	1
Priority 3	<i>Hemigenia tysonii</i>	50J	517014	6984947	1
Priority 3	<i>Hemigenia tysonii</i>	50J	533648	7122187	10
Priority 3	<i>Hemigenia tysonii</i>	50J	543943	7004427	2
Priority 3	<i>Hemigenia tysonii</i>	50J	546421	7100810	5
Priority 3	<i>Hemigenia tysonii</i>	50J	546470	7006933	1
Priority 3	<i>Hemigenia tysonii</i>	50J	546475	7006950	40
Priority 3	<i>Hemigenia tysonii</i>	50J	546495	7006975	1
Priority 3	<i>Hemigenia tysonii</i>	50J	546506	7006994	10
Priority 3	<i>Hemigenia tysonii</i>	50J	546520	7006957	100
Priority 3	<i>Hemigenia tysonii</i>	50J	546525	7007014	60
Priority 3	<i>Hemigenia tysonii</i>	50J	546530	7006961	5
Priority 3	<i>Hemigenia tysonii</i>	50J	546549	7006969	2
Priority 3	<i>Hemigenia tysonii</i>	50J	546562	7007063	1
Priority 3	<i>Hemigenia tysonii</i>	50J	546567	7007075	200
Priority 3	<i>Hemigenia tysonii</i>	50J	546578	7006987	10
Priority 3	<i>Hemigenia tysonii</i>	50J	546641	7007183	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia tysonii</i>	50J	546656	7007195	5
Priority 3	<i>Hemigenia tysonii</i>	50J	546679	7007230	15
Priority 3	<i>Hemigenia tysonii</i>	50J	546800	7007396	1
Priority 3	<i>Hemigenia tysonii</i>	50J	546822	7007438	4
Priority 3	<i>Hemigenia tysonii</i>	50J	547381	7100375	5
Priority 3	<i>Hemigenia tysonii</i>	50J	547501	7100337	8
Priority 3	<i>Hemigenia tysonii</i>	50J	547604	7101279	9
Priority 3	<i>Hemigenia tysonii</i>	50J	547805	7100183	29
Priority 3	<i>Hemigenia tysonii</i>	50J	547885	7100161	9
Priority 3	<i>Hemigenia tysonii</i>	50J	547974	7100116	12
Priority 3	<i>Hemigenia tysonii</i>	50J	548099	7100075	130
Priority 3	<i>Hemigenia tysonii</i>	50J	548108	7101526	5
Priority 3	<i>Hemigenia tysonii</i>	50J	548767	7101533	16
Priority 3	<i>Hemigenia tysonii</i>	50J	548804	7101545	52
Priority 3	<i>Hemigenia tysonii</i>	50J	549051	7101514	8
Priority 3	<i>Hemigenia tysonii</i>	50J	549097	7099968	1
Priority 3	<i>Hemigenia tysonii</i>	50J	549106	7099888	5
Priority 3	<i>Hemigenia tysonii</i>	50J	549254	7100893	4
Priority 3	<i>Hemigenia tysonii</i>	50J	549266	7101112	3
Priority 3	<i>Hemigenia tysonii</i>	50J	550769	7009184	10
Priority 3	<i>Hemigenia tysonii</i>	50J	550877	7009333	1
Priority 3	<i>Hemigenia tysonii</i>	50J	550921	7009399	25
Priority 3	<i>Hemigenia tysonii</i>	50J	550954	7009432	10
Priority 3	<i>Hemigenia tysonii</i>	50J	550975	7009465	1
Priority 3	<i>Hemigenia tysonii</i>	50J	551008	7009513	70
Priority 3	<i>Hemigenia tysonii</i>	50J	551016	7009526	1
Priority 3	<i>Hemigenia tysonii</i>	50J	551051	7009574	10
Priority 3	<i>Hemigenia tysonii</i>	50J	551058	7009589	5
Priority 3	<i>Hemigenia tysonii</i>	50J	551070	7009612	18
Priority 3	<i>Hemigenia tysonii</i>	50J	552756	7010913	13
Priority 3	<i>Hemigenia tysonii</i>	50J	552790	7010923	1
Priority 3	<i>Hemigenia tysonii</i>	50J	553611	7011394	3
Priority 3	<i>Hemigenia tysonii</i>	50J	553656	7011415	7
Priority 3	<i>Hemigenia tysonii</i>	50J	554584	7097275	8
Priority 3	<i>Hemigenia tysonii</i>	50J	554648	7097251	4
Priority 3	<i>Hemigenia tysonii</i>	50J	554763	7097181	8
Priority 3	<i>Hemigenia tysonii</i>	50J	554826	7097136	6
Priority 3	<i>Hemigenia tysonii</i>	50J	555100	7012130	15
Priority 3	<i>Hemigenia tysonii</i>	50J	555129	7012158	1
Priority 3	<i>Hemigenia tysonii</i>	50J	555189	7096892	8
Priority 3	<i>Hemigenia tysonii</i>	50J	555216	7012194	3
Priority 3	<i>Hemigenia tysonii</i>	50J	556482	7030536	14
Priority 3	<i>Hemigenia tysonii</i>	50J	556494	7030461	3
Priority 3	<i>Hemigenia tysonii</i>	50J	556516	7030520	6
Priority 3	<i>Hemigenia tysonii</i>	50J	556525	7030434	20
Priority 3	<i>Hemigenia tysonii</i>	50J	556561	7030421	33
Priority 3	<i>Hemigenia tysonii</i>	50J	556604	7030387	1
Priority 3	<i>Hemigenia tysonii</i>	50J	556627	7030367	5
Priority 3	<i>Hemigenia tysonii</i>	50J	556651	7030329	8



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia tysonii</i>	50J	556687	7030328	3
Priority 3	<i>Hemigenia tysonii</i>	50J	556714	7030323	1
Priority 3	<i>Hemigenia tysonii</i>	50J	556806	7030282	1
Priority 3	<i>Hemigenia tysonii</i>	50J	557111	7030099	1
Priority 3	<i>Hemigenia tysonii</i>	50J	557154	7030620	3
Priority 3	<i>Hemigenia tysonii</i>	50J	557197	7030605	4
Priority 3	<i>Hemigenia tysonii</i>	50J	557344	7029979	1
Priority 3	<i>Hemigenia tysonii</i>	50J	557367	7030652	3
Priority 3	<i>Hemigenia tysonii</i>	50J	557461	7029905	4
Priority 3	<i>Hemigenia tysonii</i>	50J	557472	7029885	5
Priority 3	<i>Hemigenia tysonii</i>	50J	557516	7030639	2
Priority 3	<i>Hemigenia tysonii</i>	50J	557519	7029877	4
Priority 3	<i>Hemigenia tysonii</i>	50J	557553	7029872	11
Priority 3	<i>Hemigenia tysonii</i>	50J	557620	7030673	2
Priority 3	<i>Hemigenia tysonii</i>	50J	557715	7030682	4
Priority 3	<i>Hemigenia tysonii</i>	50J	558258	7029474	2
Priority 3	<i>Hemigenia tysonii</i>	50J	558339	7029452	1
Priority 3	<i>Hemigenia tysonii</i>	50J	558706	7029249	3
Priority 3	<i>Hemigenia tysonii</i>	50J	559337	7047600	100
Priority 3	<i>Hemigenia tysonii</i>	50J	559368	7047617	30
Priority 3	<i>Hemigenia tysonii</i>	50J	559401	7047639	30
Priority 3	<i>Hemigenia tysonii</i>	50J	559420	7047647	10
Priority 3	<i>Hemigenia tysonii</i>	50J	559435	7047841	8
Priority 3	<i>Hemigenia tysonii</i>	50J	559463	7047715	10
Priority 3	<i>Hemigenia tysonii</i>	50J	559533	7047750	10
Priority 3	<i>Hemigenia tysonii</i>	50J	559534	7047866	10
Priority 3	<i>Hemigenia tysonii</i>	50J	559561	7047762	10
Priority 3	<i>Hemigenia tysonii</i>	50J	559598	7047885	5
Priority 3	<i>Hemigenia tysonii</i>	50J	559722	7047911	3
Priority 3	<i>Hemigenia tysonii</i>	50J	559768	7047919	16
Priority 3	<i>Hemigenia tysonii</i>	50J	559814	7047931	21
Priority 3	<i>Hemigenia tysonii</i>	50J	559872	7047931	32
Priority 3	<i>Hemigenia tysonii</i>	50J	559910	7047827	6
Priority 3	<i>Hemigenia tysonii</i>	50J	559941	7047944	10
Priority 3	<i>Hemigenia tysonii</i>	50J	559948	7047853	20
Priority 3	<i>Hemigenia tysonii</i>	50J	559952	7047861	20
Priority 3	<i>Hemigenia tysonii</i>	50J	560010	7047946	100
Priority 3	<i>Hemigenia tysonii</i>	50J	560055	7047929	100
Priority 3	<i>Hemigenia tysonii</i>	50J	560086	7047927	20
Priority 3	<i>Hemigenia tysonii</i>	50J	560152	7050647	10
Priority 3	<i>Hemigenia tysonii</i>	50J	560208	7050425	4
Priority 3	<i>Hemigenia tysonii</i>	50J	560247	7050172	1
Priority 3	<i>Hemigenia tysonii</i>	50J	560263	7050082	1
Priority 3	<i>Hemigenia tysonii</i>	50J	560268	7050040	1
Priority 3	<i>Hemigenia tysonii</i>	50J	560410	7050665	1
Priority 3	<i>Hemigenia tysonii</i>	50J	560811	7049232	10
Priority 3	<i>Hemigenia tysonii</i>	50J	560841	7046176	3
Priority 3	<i>Hemigenia tysonii</i>	50J	560858	7068093	2
Priority 3	<i>Hemigenia tysonii</i>	50J	560872	7046213	21

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia tysonii</i>	50J	560929	7046267	42
Priority 3	<i>Hemigenia tysonii</i>	50J	560959	7046298	1
Priority 3	<i>Hemigenia tysonii</i>	50J	560985	7051613	1
Priority 3	<i>Hemigenia tysonii</i>	50J	560998	7046334	1
Priority 3	<i>Hemigenia tysonii</i>	50J	561201	7052127	2
Priority 3	<i>Hemigenia tysonii</i>	50J	561221	7052183	3
Priority 3	<i>Hemigenia tysonii</i>	50J	561233	7052208	5
Priority 3	<i>Hemigenia tysonii</i>	50J	561238	7052221	5
Priority 3	<i>Hemigenia tysonii</i>	50J	561242	7051630	7
Priority 3	<i>Hemigenia tysonii</i>	50J	561276	7068236	11
Priority 3	<i>Hemigenia tysonii</i>	50J	561297	7051647	6
Priority 3	<i>Hemigenia tysonii</i>	50J	561405	7051655	1
Priority 3	<i>Hemigenia tysonii</i>	50J	561465	7051664	3
Priority 3	<i>Hemigenia tysonii</i>	50J	561521	7067472	1
Priority 3	<i>Hemigenia tysonii</i>	50J	561754	7051707	3
Priority 3	<i>Hemigenia tysonii</i>	50J	561856	7051717	2
Priority 3	<i>Hemigenia tysonii</i>	50J	561900	7054371	6
Priority 3	<i>Hemigenia tysonii</i>	50J	561916	7054318	10
Priority 3	<i>Hemigenia tysonii</i>	50J	562034	7054119	69
Priority 3	<i>Hemigenia tysonii</i>	50J	562046	7054147	13
Priority 3	<i>Hemigenia tysonii</i>	50J	562058	7054172	4
Priority 3	<i>Hemigenia tysonii</i>	50J	562092	7054555	2
Priority 3	<i>Hemigenia tysonii</i>	50J	562218	7054553	5
Priority 3	<i>Hemigenia tysonii</i>	50J	562225	7054576	4
Priority 3	<i>Hemigenia tysonii</i>	50J	562315	7054841	2
Priority 3	<i>Hemigenia tysonii</i>	50J	562735	7049380	1
Priority 3	<i>Hemigenia tysonii</i>	50J	562790	7051813	9
Priority 3	<i>Hemigenia tysonii</i>	50J	562842	7051823	5
Priority 3	<i>Hemigenia tysonii</i>	50J	562846	7049539	11
Priority 3	<i>Hemigenia tysonii</i>	50J	562864	7049548	6
Priority 3	<i>Hemigenia tysonii</i>	50J	562866	7059422	1
Priority 3	<i>Hemigenia tysonii</i>	50J	562884	7049548	22
Priority 3	<i>Hemigenia tysonii</i>	50J	562915	7051833	2
Priority 3	<i>Hemigenia tysonii</i>	50J	563016	7049725	11
Priority 3	<i>Hemigenia tysonii</i>	50J	563096	7051842	4
Priority 3	<i>Hemigenia tysonii</i>	50J	563363	7058789	5
Priority 3	<i>Hemigenia tysonii</i>	50J	563365	7059491	50
Priority 3	<i>Hemigenia tysonii</i>	50J	563378	7058792	1
Priority 3	<i>Hemigenia tysonii</i>	50J	563421	7061422	10
Priority 3	<i>Hemigenia tysonii</i>	50J	563429	7059521	3
Priority 3	<i>Hemigenia tysonii</i>	50J	563431	7060525	100
Priority 3	<i>Hemigenia tysonii</i>	50J	563445	7058742	50
Priority 3	<i>Hemigenia tysonii</i>	50J	563463	7060860	1
Priority 3	<i>Hemigenia tysonii</i>	50J	563479	7060478	100
Priority 3	<i>Hemigenia tysonii</i>	50J	563485	7060842	3
Priority 3	<i>Hemigenia tysonii</i>	50J	563497	7058813	300
Priority 3	<i>Hemigenia tysonii</i>	50J	563500	7058909	1
Priority 3	<i>Hemigenia tysonii</i>	50J	563505	7058907	17
Priority 3	<i>Hemigenia tysonii</i>	50J	563513	7058914	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia tysonii</i>	50J	563535	7059571	250
Priority 3	<i>Hemigenia tysonii</i>	50J	563542	7058908	300
Priority 3	<i>Hemigenia tysonii</i>	50J	563556	7052931	5
Priority 3	<i>Hemigenia tysonii</i>	50J	563564	7058974	5
Priority 3	<i>Hemigenia tysonii</i>	50J	563571	7059555	1
Priority 3	<i>Hemigenia tysonii</i>	50J	563624	7052811	8
Priority 3	<i>Hemigenia tysonii</i>	50J	563667	7052768	15
Priority 3	<i>Hemigenia tysonii</i>	50J	563677	7052745	4
Priority 3	<i>Hemigenia tysonii</i>	50J	563684	7052717	2
Priority 3	<i>Hemigenia tysonii</i>	50J	563735	7052661	13
Priority 3	<i>Hemigenia tysonii</i>	50J	563748	7052640	2
Priority 3	<i>Hemigenia tysonii</i>	50J	563749	7059139	1
Priority 3	<i>Hemigenia tysonii</i>	50J	563774	7052595	4
Priority 3	<i>Hemigenia tysonii</i>	50J	563794	7051931	6
Priority 3	<i>Hemigenia tysonii</i>	50J	563810	7051929	5
Priority 3	<i>Hemigenia tysonii</i>	50J	563832	7051925	2
Priority 3	<i>Hemigenia tysonii</i>	50J	563832	7051925	2
Priority 3	<i>Hemigenia tysonii</i>	50J	563877	7051939	4
Priority 3	<i>Hemigenia tysonii</i>	50J	563877	7051939	4
Priority 3	<i>Hemigenia tysonii</i>	50J	563897	7051936	11
Priority 3	<i>Hemigenia tysonii</i>	50J	563897	7051936	11
Priority 3	<i>Hemigenia tysonii</i>	50J	563956	7051945	1
Priority 3	<i>Hemigenia tysonii</i>	50J	563956	7051945	1
Priority 3	<i>Hemigenia tysonii</i>	50J	564087	7052135	326
Priority 3	<i>Hemigenia tysonii</i>	50J	564094	7052117	2
Priority 3	<i>Hemigenia tysonii</i>	50J	564102	7052096	7
Priority 3	<i>Hemigenia tysonii</i>	50J	564107	7052081	9
Priority 3	<i>Hemigenia tysonii</i>	50J	564225	7061798	3
Priority 3	<i>Hemigenia tysonii</i>	50J	564227	7061819	3
Priority 3	<i>Hemigenia tysonii</i>	50J	564227	7061844	1
Priority 3	<i>Hemigenia tysonii</i>	50J	564228	7061893	5
Priority 3	<i>Hemigenia tysonii</i>	50J	564234	7061878	1
Priority 3	<i>Hemigenia virescens</i>	50J	491576	6968976	1
Priority 3	<i>Hemigenia virescens</i>	50J	495711	6996245	22
Priority 3	<i>Hemigenia virescens</i>	50J	495836	6970948	23
Priority 3	<i>Hemigenia virescens</i>	50J	495837	6970911	1
Priority 3	<i>Hemigenia virescens</i>	50J	495846	6970891	20
Priority 3	<i>Hemigenia virescens</i>	50J	495912	6970741	1
Priority 3	<i>Hemigenia virescens</i>	50J	495941	6970679	1
Priority 3	<i>Hemigenia virescens</i>	50J	495946	6970666	1
Priority 3	<i>Hemigenia virescens</i>	50J	495990	6970556	8
Priority 3	<i>Hemigenia virescens</i>	50J	496016	6970512	11
Priority 3	<i>Hemigenia virescens</i>	50J	496021	6970494	10
Priority 3	<i>Hemigenia virescens</i>	50J	496022	6970472	1
Priority 3	<i>Hemigenia virescens</i>	50J	496031	6970467	3
Priority 3	<i>Hemigenia virescens</i>	50J	496039	6970454	1
Priority 3	<i>Hemigenia virescens</i>	50J	496042	6970442	5
Priority 3	<i>Hemigenia virescens</i>	50J	496077	6970355	1
Priority 3	<i>Hemigenia virescens</i>	50J	496092	6970332	5





P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia virescens</i>	50J	496099	6970313	7
Priority 3	<i>Hemigenia virescens</i>	50J	500121	6971954	5
Priority 3	<i>Hemigenia virescens</i>	50J	502851	6973122	5
Priority 3	<i>Hemigenia virescens</i>	50J	502861	6973085	6
Priority 3	<i>Hemigenia virescens</i>	50J	502866	6973055	16
Priority 3	<i>Hemigenia virescens</i>	50J	502887	6973027	11
Priority 3	<i>Hemigenia virescens</i>	50J	503015	6973144	2
Priority 3	<i>Hemigenia virescens</i>	50J	503041	6974178	1
Priority 3	<i>Hemigenia virescens</i>	50J	503105	6973238	4
Priority 3	<i>Hemigenia virescens</i>	50J	503106	6974213	1
Priority 3	<i>Hemigenia virescens</i>	50J	503165	6974241	1
Priority 3	<i>Hemigenia virescens</i>	50J	503263	6973697	5
Priority 3	<i>Hemigenia virescens</i>	50J	503322	6973448	5
Priority 3	<i>Hemigenia virescens</i>	50J	538729	7107683	83
Priority 3	<i>Hemigenia virescens</i>	50J	538763	7107710	20
Priority 3	<i>Hemigenia virescens</i>	50J	544673	7101955	4
Priority 3	<i>Hemigenia virescens</i>	50J	544767	7002232	2
Priority 3	<i>Hemigenia virescens</i>	50J	544792	7101853	1
Priority 3	<i>Hemigenia virescens</i>	50J	544810	7101842	1
Priority 3	<i>Hemigenia virescens</i>	50J	544862	7002318	2
Priority 3	<i>Hemigenia virescens</i>	50J	544873	7002329	5
Priority 3	<i>Hemigenia virescens</i>	50J	544936	7002372	2
Priority 3	<i>Hemigenia virescens</i>	50J	544946	7102168	10
Priority 3	<i>Hemigenia virescens</i>	50J	544996	7102667	3
Priority 3	<i>Hemigenia virescens</i>	50J	545055	7002475	7
Priority 3	<i>Hemigenia virescens</i>	50J	545389	7002775	7
Priority 3	<i>Hemigenia virescens</i>	50J	545713	7103578	10
Priority 3	<i>Hemigenia virescens</i>	50J	545809	7006661	1
Priority 3	<i>Hemigenia virescens</i>	50J	545853	7006695	60
Priority 3	<i>Hemigenia virescens</i>	50J	545892	7006598	4
Priority 3	<i>Hemigenia virescens</i>	50J	546232	7103217	1
Priority 3	<i>Hemigenia virescens</i>	50J	546526	7103348	2
Priority 3	<i>Hemigenia virescens</i>	50J	548358	7009419	1
Priority 3	<i>Hemigenia virescens</i>	50J	548413	7009434	40
Priority 3	<i>Hemigenia virescens</i>	50J	548430	7009434	8
Priority 3	<i>Hemigenia virescens</i>	50J	548447	7009432	5
Priority 3	<i>Hemigenia virescens</i>	50J	548709	7009470	35
Priority 3	<i>Hemigenia virescens</i>	50J	548790	7009480	100
Priority 3	<i>Hemigenia virescens</i>	50J	548882	7009499	1
Priority 3	<i>Hemigenia virescens</i>	50J	548895	7009500	30
Priority 3	<i>Hemigenia virescens</i>	50J	548936	7009496	1
Priority 3	<i>Hemigenia virescens</i>	50J	548963	7009500	5
Priority 3	<i>Hemigenia virescens</i>	50J	548987	7009508	100
Priority 3	<i>Hemigenia virescens</i>	50J	549128	7009526	1
Priority 3	<i>Hemigenia virescens</i>	50J	549182	7009526	3
Priority 3	<i>Hemigenia virescens</i>	50J	549208	7009531	5
Priority 3	<i>Hemigenia virescens</i>	50J	549231	7009536	10
Priority 3	<i>Hemigenia virescens</i>	50J	549265	7009543	5
Priority 3	<i>Hemigenia virescens</i>	50J	549311	7009548	60



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia virescens</i>	50J	549413	7009561	1
Priority 3	<i>Hemigenia virescens</i>	50J	549431	7009557	1
Priority 3	<i>Hemigenia virescens</i>	50J	549624	7100773	200
Priority 3	<i>Hemigenia virescens</i>	50J	550417	7009684	5
Priority 3	<i>Hemigenia virescens</i>	50J	550817	7009753	50
Priority 3	<i>Hemigenia virescens</i>	50J	550973	7009769	1
Priority 3	<i>Hemigenia virescens</i>	50J	550994	7009768	5
Priority 3	<i>Hemigenia virescens</i>	50J	551030	7009773	5
Priority 3	<i>Hemigenia virescens</i>	50J	551096	7009782	10
Priority 3	<i>Hemigenia virescens</i>	50J	551187	7009796	3
Priority 3	<i>Hemigenia virescens</i>	50J	556423	7032501	3
Priority 3	<i>Hemigenia virescens</i>	50J	556427	7032489	80
Priority 3	<i>Hemigenia virescens</i>	50J	556472	7032415	2
Priority 3	<i>Hemigenia virescens</i>	50J	556480	7032403	2
Priority 3	<i>Hemigenia virescens</i>	50J	556488	7032393	1
Priority 3	<i>Hemigenia virescens</i>	50J	556508	7032353	3
Priority 3	<i>Hemigenia virescens</i>	50J	556569	7032258	1
Priority 3	<i>Hemigenia virescens</i>	50J	556576	7032240	2
Priority 3	<i>Hemigenia virescens</i>	50J	556588	7032210	2
Priority 3	<i>Hemigenia virescens</i>	50J	556664	7032095	19
Priority 3	<i>Hemigenia virescens</i>	50J	556678	7032074	2
Priority 3	<i>Hemigenia virescens</i>	50J	556721	7032078	2
Priority 3	<i>Hemigenia virescens</i>	50J	556799	7032110	22
Priority 3	<i>Hemigenia virescens</i>	50J	556880	7032147	2
Priority 3	<i>Hemigenia virescens</i>	50J	556901	7032148	34
Priority 3	<i>Hemigenia virescens</i>	50J	556933	7032165	52
Priority 3	<i>Hemigenia virescens</i>	50J	556958	7032176	12
Priority 3	<i>Hemigenia virescens</i>	50J	557430	7030666	16
Priority 3	<i>Hemigenia virescens</i>	50J	557639	7033459	55
Priority 3	<i>Hemigenia virescens</i>	50J	557680	7033439	2
Priority 3	<i>Hemigenia virescens</i>	50J	557708	7033424	3
Priority 3	<i>Hemigenia virescens</i>	50J	557758	7033420	1
Priority 3	<i>Hemigenia virescens</i>	50J	557766	7032498	7
Priority 3	<i>Hemigenia virescens</i>	50J	557895	7032558	1
Priority 3	<i>Hemigenia virescens</i>	50J	557927	7033348	9
Priority 3	<i>Hemigenia virescens</i>	50J	557950	7032588	18
Priority 3	<i>Hemigenia virescens</i>	50J	557982	7032593	8
Priority 3	<i>Hemigenia virescens</i>	50J	557992	7032598	7
Priority 3	<i>Hemigenia virescens</i>	50J	558034	7033301	2
Priority 3	<i>Hemigenia virescens</i>	50J	558062	7033279	3
Priority 3	<i>Hemigenia virescens</i>	50J	558115	7032623	4
Priority 3	<i>Hemigenia virescens</i>	50J	558124	7032629	178
Priority 3	<i>Hemigenia virescens</i>	50J	558197	7033234	4
Priority 3	<i>Hemigenia virescens</i>	50J	558199	7032672	8
Priority 3	<i>Hemigenia virescens</i>	50J	558208	7032681	12
Priority 3	<i>Hemigenia virescens</i>	50J	558210	7033227	5
Priority 3	<i>Hemigenia virescens</i>	50J	558216	7032680	11
Priority 3	<i>Hemigenia virescens</i>	50J	558233	7032681	3
Priority 3	<i>Hemigenia virescens</i>	50J	558305	7032712	3



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia virescens</i>	50J	558310	7033193	36
Priority 3	<i>Hemigenia virescens</i>	50J	558364	7032737	1
Priority 3	<i>Hemigenia virescens</i>	50J	558375	7032741	12
Priority 3	<i>Hemigenia virescens</i>	50J	558398	7033164	34
Priority 3	<i>Hemigenia virescens</i>	50J	558413	7032756	32
Priority 3	<i>Hemigenia virescens</i>	50J	558424	7033145	17
Priority 3	<i>Hemigenia virescens</i>	50J	558453	7029395	12
Priority 3	<i>Hemigenia virescens</i>	50J	558455	7033137	9
Priority 3	<i>Hemigenia virescens</i>	50J	558471	7032786	2
Priority 3	<i>Hemigenia virescens</i>	50J	558485	7033117	9
Priority 3	<i>Hemigenia virescens</i>	50J	558492	7032788	1
Priority 3	<i>Hemigenia virescens</i>	50J	558530	7032803	11
Priority 3	<i>Hemigenia virescens</i>	50J	558551	7033095	57
Priority 3	<i>Hemigenia virescens</i>	50J	558553	7032809	1
Priority 3	<i>Hemigenia virescens</i>	50J	558580	7032824	152
Priority 3	<i>Hemigenia virescens</i>	50J	558597	7033079	17
Priority 3	<i>Hemigenia virescens</i>	50J	558634	7033075	15
Priority 3	<i>Hemigenia virescens</i>	50J	558677	7033048	22
Priority 3	<i>Hemigenia virescens</i>	50J	558740	7033028	60
Priority 3	<i>Hemigenia virescens</i>	50J	558771	7033004	12
Priority 3	<i>Hemigenia virescens</i>	50J	558812	7032995	19
Priority 3	<i>Hemigenia virescens</i>	50J	558815	7032914	24
Priority 3	<i>Hemigenia virescens</i>	50J	558857	7032971	36
Priority 3	<i>Hemigenia virescens</i>	50J	558893	7032947	3
Priority 3	<i>Hemigenia virescens</i>	50J	558901	7032958	1
Priority 3	<i>Hemigenia virescens</i>	50J	559602	7047793	10
Priority 3	<i>Hemigenia virescens</i>	50J	561273	7068219	10
Priority 3	<i>Hemigenia virescens</i>	50J	561411	7062354	6
Priority 3	<i>Hemigenia virescens</i>	50J	561430	7062374	1
Priority 3	<i>Hemigenia virescens</i>	50J	561548	7062428	4
Priority 3	<i>Hemigenia virescens</i>	50J	561567	7062262	25
Priority 3	<i>Hemigenia virescens</i>	50J	561591	7062453	19
Priority 3	<i>Hemigenia virescens</i>	50J	561595	7062234	19
Priority 3	<i>Hemigenia virescens</i>	50J	561619	7062465	7
Priority 3	<i>Hemigenia virescens</i>	50J	561626	7062209	8
Priority 3	<i>Hemigenia virescens</i>	50J	561646	7062468	2
Priority 3	<i>Hemigenia virescens</i>	50J	561701	7062164	27
Priority 3	<i>Hemigenia virescens</i>	50J	561735	7062129	1
Priority 3	<i>Hemigenia virescens</i>	50J	561823	7050330	20
Priority 3	<i>Hemigenia virescens</i>	50J	561895	7062017	79
Priority 3	<i>Hemigenia virescens</i>	50J	561924	7061985	10
Priority 3	<i>Hemigenia virescens</i>	50J	561944	7061966	4
Priority 3	<i>Hemigenia virescens</i>	50J	562183	7061796	1
Priority 3	<i>Hemigenia virescens</i>	50J	562229	7061757	14
Priority 3	<i>Hemigenia virescens</i>	50J	562313	7061676	60
Priority 3	<i>Hemigenia virescens</i>	50J	562337	7061660	4
Priority 3	<i>Hemigenia virescens</i>	50J	562434	7051886	5
Priority 3	<i>Hemigenia virescens</i>	50J	562595	7053842	20
Priority 3	<i>Hemigenia virescens</i>	50J	562733	7061386	5



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Hemigenia virescens</i>	50J	562777	7061356	4
Priority 3	<i>Hemigenia virescens</i>	50J	562799	7061345	5
Priority 3	<i>Hemigenia virescens</i>	50J	563001	7061189	5
Priority 3	<i>Hemigenia virescens</i>	50J	563091	7061127	3
Priority 3	<i>Hemigenia virescens</i>	50J	563154	7061086	9
Priority 3	<i>Hemigenia virescens</i>	50J	563359	7026175	30
Priority 3	<i>Hemigenia virescens</i>	50J	563455	7060865	22
Priority 3	<i>Hemigenia virescens</i>	50J	563477	7060852	69
Priority 3	<i>Hemigenia virescens</i>	50J	563485	7060842	12
Priority 3	<i>Hemigenia virescens</i>	50J	563486	7060831	1
Priority 3	<i>Hemigenia virescens</i>	50J	563645	7059543	4
Priority 3	<i>Hemigenia virescens</i>	50J	568182	7029128	20
Priority 3	<i>Hemigenia virescens</i>	50J	569170	7030568	5
Priority 3	<i>Hemigenia virescens</i>	50J	573236	7031277	5
Priority 3	<i>Hemigenia virescens</i>	50J	575128	7031482	2000
Priority 3	<i>Hemigenia virescens</i>	50J	575169	7031507	62
Priority 3	<i>Hemigenia virescens</i>	50J	575188	7031523	49
Priority 3	<i>Hemigenia virescens</i>	50J	575254	7031373	100
Priority 3	<i>Homalocalyx echinulatus</i>	50J	521160	7115917	4
Priority 3	<i>Homalocalyx echinulatus</i>	50J	521193	7115870	4
Priority 3	<i>Homalocalyx echinulatus</i>	50J	523759	7120291	2
Priority 3	<i>Homalocalyx echinulatus</i>	50J	523853	7120174	1
Priority 3	<i>Homalocalyx echinulatus</i>	50J	523878	7120152	8
Priority 3	<i>Homalocalyx echinulatus</i>	50J	523923	7120081	56
Priority 3	<i>Homalocalyx echinulatus</i>	50J	523946	7120054	1
Priority 3	<i>Homalocalyx echinulatus</i>	50J	523952	7120049	1
Priority 3	<i>Homalocalyx echinulatus</i>	50J	523973	7120018	4
Priority 3	<i>Homalocalyx echinulatus</i>	50J	524018	7120044	77
Priority 3	<i>Homalocalyx echinulatus</i>	50J	524067	7120108	22
Priority 3	<i>Homalocalyx echinulatus</i>	50J	525041	7121413	1
Priority 3	<i>Homalocalyx echinulatus</i>	50J	526344	7121620	6
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330145	6843049	2
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330177	6843171	6
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330205	6842930	1
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330253	6843312	6
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330289	6843362	3
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330390	6842905	1
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330478	6844295	6
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330698	6844529	2
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330716	6844604	12
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330735	6844635	8
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330754	6844648	41
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330765	6844651	9
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330786	6844643	28
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330792	6844645	8
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330796	6844637	15
Priority 3	<i>Homalocalyx inerrabundus</i>	50J	330797	6844636	3
Priority 3	<i>Indigofera gilesii</i> subsp. <i>gilesii</i>	50J	424965	6937152	1
Priority 3	<i>Jacksonia velutina</i>	50J	344910	6835353	1

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	268770	6834517	6
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	268775	6834645	3
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	268857	6834432	8
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	268869	6834420	7
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269038	6835734	20
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269505	6834327	2
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269678	6833736	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269681	6833738	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269682	6833742	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269683	6833743	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269686	6833743	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269692	6833753	7
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269693	6833744	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	269961	6833999	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	270032	6832294	2
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	270090	6834091	8
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271366	6829643	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271381	6829753	3
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271414	6829515	1
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271572	6830899	3
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271815	6830968	7
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271818	6830960	3
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271825	6830957	7
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271832	6830951	6
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	271835	6830953	3
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	272937	6831561	11
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	272950	6831562	4
Priority 3	<i>Lepidosperma</i> sp. Moresby Range	50J	274035	6830455	20
Priority 3	<i>Leucopogon borealis</i>	50J	271638	6830898	8
Priority 3	<i>Leucopogon borealis</i>	50J	271647	6830900	2
Priority 3	<i>Leucopogon</i> sp. Howatharra	50J	272160	6831115	3
Priority 3	<i>Leucopogon</i> sp. Howatharra	50J	272183	6831070	1
Priority 3	<i>Leucopogon</i> sp. Howatharra	50J	272199	6831033	2
Priority 3	<i>Leucopogon</i> sp. Howatharra	50J	272209	6831010	17
Priority 3	<i>Leucopogon</i> sp. Howatharra	50J	272209	6831010	2
Priority 3	<i>Leucopogon</i> sp. Howatharra	50J	272218	6830989	13
Priority 3	<i>Leucopogon</i> sp. Howatharra	50J	272220	6830969	14
Priority 3	<i>Melaleuca huttensis</i>	50J	272121	6830559	5
Priority 3	<i>Microcorys tenuifolia</i>	50J	344359	6872186	1
Priority 3	<i>Microcorys tenuifolia</i>	50J	344359	6872236	1
Priority 3	<i>Microcorys tenuifolia</i>	50J	344375	6872125	1
Priority 3	<i>Microcorys tenuifolia</i>	50J	347354	6874113	1
Priority 3	<i>Microcorys tenuifolia</i>	50J	347397	6873727	1
Priority 3	<i>Mirbelia ternata</i>	50J	330538	6844080	1
Priority 3	<i>Mirbelia ternata</i>	50J	344523	6872438	1
Priority 3	<i>Mirbelia ternata</i>	50J	345609	6835667	1
Priority 3	<i>Petrophile pauciflora</i>	50J	359006	6886386	3
Priority 3	<i>Petrophile pauciflora</i>	50J	412416	6923731	3
Priority 3	<i>Petrophile pauciflora</i>	50J	412428	6923703	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Petrophile pauciflora</i>	50J	432479	6940358	2
Priority 3	<i>Petrophile pauciflora</i>	50J	432484	6940367	1
Priority 3	<i>Petrophile pauciflora</i>	50J	555804	7033522	4
Priority 3	<i>Petrophile pauciflora</i>	50J	555809	7033515	8
Priority 3	<i>Petrophile pauciflora</i>	50J	555812	7033507	2
Priority 3	<i>Petrophile pauciflora</i>	50J	555956	7034011	5
Priority 3	<i>Petrophile pauciflora</i>	50J	556599	7033873	1
Priority 3	<i>Petrophile pauciflora</i>	50J	556607	7033867	7
Priority 3	<i>Petrophile pauciflora</i>	50J	556616	7033861	1
Priority 3	<i>Petrophile pauciflora</i>	50J	560157	7045560	3
Priority 3	<i>Petrophile pauciflora</i>	50J	560159	7045550	1
Priority 3	<i>Petrophile pauciflora</i>	50J	560618	7045290	10
Priority 3	<i>Petrophile pauciflora</i>	50J	560619	7045287	12
Priority 3	<i>Prostanthera petrophila</i>	50J	531869	7122328	1
Priority 3	<i>Prostanthera petrophila</i>	50J	531870	7122321	8
Priority 3	<i>Prostanthera petrophila</i>	50J	531886	7122245	2
Priority 3	<i>Prostanthera petrophila</i>	50J	558190	7032668	13
Priority 3	<i>Prostanthera petrophila</i>	50J	558199	7032672	9
Priority 3	<i>Prostanthera petrophila</i>	50J	558208	7032681	5
Priority 3	<i>Prostanthera petrophila</i>	50J	558227	7032681	2
Priority 3	<i>Prostanthera petrophila</i>	50J	558245	7032684	10
Priority 3	<i>Prostanthera petrophila</i>	50J	558318	7032715	6
Priority 3	<i>Prostanthera petrophila</i>	50J	558345	7033175	5
Priority 3	<i>Prostanthera petrophila</i>	50J	558363	7033168	1
Priority 3	<i>Prostanthera petrophila</i>	50J	558400	7032750	2
Priority 3	<i>Prostanthera petrophila</i>	50J	558413	7032756	11
Priority 3	<i>Prostanthera petrophila</i>	50J	558455	7033137	2
Priority 3	<i>Prostanthera petrophila</i>	50J	558471	7032786	1
Priority 3	<i>Prostanthera petrophila</i>	50J	558485	7033117	4
Priority 3	<i>Prostanthera petrophila</i>	50J	558551	7033095	1
Priority 3	<i>Prostanthera petrophila</i>	50J	558815	7032914	5
Priority 3	<i>Prostanthera petrophila</i>	50J	558829	7032919	4
Priority 3	<i>Prostanthera petrophila</i>	50J	558854	7032933	3
Priority 3	<i>Prostanthera petrophila</i>	50J	558875	7032943	4
Priority 3	<i>Prostanthera petrophila</i>	50J	558881	7032970	3
Priority 3	<i>Prostanthera petrophila</i>	50J	558893	7032947	16
Priority 3	<i>Prostanthera petrophila</i>	50J	558901	7032958	11
Priority 3	<i>Prostanthera petrophila</i>	50J	565577	7029392	10
Priority 3	<i>Prostanthera petrophila</i>	50J	578433	7029011	5
Priority 3	<i>Prostanthera petrophila</i>	50J	579697	7029433	10
Priority 3	<i>Ptilotus beardii</i>	50J	340191	6833446	1
Priority 3	<i>Ptilotus beardii</i>	50J	526009	6992411	10
Priority 3	<i>Ptilotus beardii</i>	50J	541054	7002006	2
Priority 3	<i>Ptilotus beardii</i>	50J	541057	7002057	20
Priority 3	<i>Ptilotus beardii</i>	50J	541061	7001939	1
Priority 3	<i>Ptilotus beardii</i>	50J	542254	7003032	48
Priority 3	<i>Ptilotus beardii</i>	50J	542299	7003019	81
Priority 3	<i>Ptilotus beardii</i>	50J	542342	7002999	22
Priority 3	<i>Ptilotus beardii</i>	50J	542351	7001169	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Ptilotus beardii</i>	50J	542366	7002985	64
Priority 3	<i>Ptilotus beardii</i>	50J	542382	7001173	1
Priority 3	<i>Ptilotus beardii</i>	50J	542464	7001210	9
Priority 3	<i>Ptilotus beardii</i>	50J	543153	7002631	56
Priority 3	<i>Ptilotus beardii</i>	50J	555984	7033222	1
Priority 3	<i>Ptilotus beardii</i>	50J	555994	7038855	3
Priority 3	<i>Ptilotus beardii</i>	50J	556022	7033158	246
Priority 3	<i>Ptilotus beardii</i>	50J	556041	7034009	13
Priority 3	<i>Ptilotus beardii</i>	50J	556086	7033037	15
Priority 3	<i>Ptilotus beardii</i>	50J	556097	7033012	24
Priority 3	<i>Ptilotus beardii</i>	50J	556121	7032983	92
Priority 3	<i>Ptilotus beardii</i>	50J	556124	7034008	6
Priority 3	<i>Ptilotus beardii</i>	50J	556143	7032949	10
Priority 3	<i>Ptilotus beardii</i>	50J	556151	7034005	26
Priority 3	<i>Ptilotus beardii</i>	50J	556185	7034510	200
Priority 3	<i>Ptilotus beardii</i>	50J	556230	7034002	1
Priority 3	<i>Ptilotus beardii</i>	50J	556230	7034692	200
Priority 3	<i>Ptilotus beardii</i>	50J	556259	7034006	59
Priority 3	<i>Ptilotus beardii</i>	50J	556348	7034802	271
Priority 3	<i>Ptilotus beardii</i>	50J	556354	7034763	92
Priority 3	<i>Ptilotus beardii</i>	50J	556408	7034817	56
Priority 3	<i>Ptilotus beardii</i>	50J	556432	7088535	100
Priority 3	<i>Ptilotus beardii</i>	50J	556445	7088542	100
Priority 3	<i>Ptilotus beardii</i>	50J	556458	7088552	75
Priority 3	<i>Ptilotus beardii</i>	50J	556507	7033907	3
Priority 3	<i>Ptilotus beardii</i>	50J	557539	7038128	1
Priority 3	<i>Ptilotus beardii</i>	50J	557563	7038121	19
Priority 3	<i>Ptilotus beardii</i>	50J	557593	7038100	18
Priority 3	<i>Ptilotus beardii</i>	50J	557632	7038094	1
Priority 3	<i>Ptilotus beardii</i>	50J	557694	7038072	26
Priority 3	<i>Ptilotus beardii</i>	50J	557728	7038062	28
Priority 3	<i>Ptilotus beardii</i>	50J	557757	7040256	13
Priority 3	<i>Ptilotus beardii</i>	50J	557795	7038040	43
Priority 3	<i>Ptilotus beardii</i>	50J	557821	7038034	73
Priority 3	<i>Ptilotus beardii</i>	50J	557874	7038011	104
Priority 3	<i>Ptilotus beardii</i>	50J	557915	7040388	13
Priority 3	<i>Ptilotus beardii</i>	50J	557926	7037996	11
Priority 3	<i>Ptilotus beardii</i>	50J	558944	7039726	4
Priority 3	<i>Ptilotus beardii</i>	50J	558948	7039590	18
Priority 3	<i>Ptilotus beardii</i>	50J	558957	7038484	3
Priority 3	<i>Ptilotus beardii</i>	50J	558994	7037969	47
Priority 3	<i>Ptilotus beardii</i>	50J	559997	7037819	20
Priority 3	<i>Ptilotus beardii</i>	50J	560505	7048826	1
Priority 3	<i>Ptilotus beardii</i>	50J	560719	7078903	62
Priority 3	<i>Ptilotus beardii</i>	50J	560759	7078904	2
Priority 3	<i>Ptilotus beardii</i>	50J	560822	7047267	10
Priority 3	<i>Ptilotus beardii</i>	50J	560838	7047278	6
Priority 3	<i>Ptilotus beardii</i>	50J	560989	7078872	9
Priority 3	<i>Ptilotus beardii</i>	50J	561262	7046565	16

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Ptilotus beardii</i>	50J	561893	7048408	1
Priority 3	<i>Ptilotus beardii</i>	50J	562062	7048586	50
Priority 3	<i>Ptilotus beardii</i>	50J	562085	7048641	7
Priority 3	<i>Ptilotus beardii</i>	50J	563358	7026277	10
Priority 3	<i>Ptilotus beardii</i>	50J	585672	7033112	20
Priority 3	<i>Ptilotus beardii</i>	50J	586386	7035416	11
Priority 3	<i>Ptilotus beardii</i>	50J	586493	7035366	38
Priority 3	<i>Ptilotus beardii</i>	50J	586500	7035425	1
Priority 3	<i>Ptilotus beardii</i>	50J	586524	7035353	21
Priority 3	<i>Ptilotus beardii</i>	50J	586555	7035332	110
Priority 3	<i>Ptilotus beardii</i>	50J	586563	7035474	42
Priority 3	<i>Ptilotus beardii</i>	50J	586579	7035489	48
Priority 3	<i>Ptilotus beardii</i>	50J	586617	7035520	31
Priority 3	<i>Ptilotus luteolus</i>	50J	541054	7002006	2
Priority 3	<i>Ptilotus luteolus</i>	50J	541057	7002057	20
Priority 3	<i>Ptilotus luteolus</i>	50J	541061	7001939	1
Priority 3	<i>Ptilotus luteolus</i>	50J	542254	7003032	48
Priority 3	<i>Ptilotus luteolus</i>	50J	542299	7003019	81
Priority 3	<i>Ptilotus luteolus</i>	50J	542342	7002999	22
Priority 3	<i>Ptilotus luteolus</i>	50J	542351	7001169	1
Priority 3	<i>Ptilotus luteolus</i>	50J	542366	7002985	64
Priority 3	<i>Ptilotus luteolus</i>	50J	542382	7001173	1
Priority 3	<i>Ptilotus luteolus</i>	50J	542464	7001210	9
Priority 3	<i>Ptilotus luteolus</i>	50J	543153	7002631	56
Priority 3	<i>Serichonus gracilipes</i>	50J	271188	6829537	1
Priority 3	<i>Serichonus gracilipes</i>	50J	271259	6829299	4
Priority 3	<i>Serichonus gracilipes</i>	50J	271387	6829147	1
Priority 3	<i>Serichonus gracilipes</i>	50J	279195	6827641	5
Priority 3	<i>Serichonus gracilipes</i>	50J	280399	6827977	5
Priority 3	<i>Serichonus gracilipes</i>	50J	280603	6827981	3
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	269903	6828559	5
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271354	6830771	5
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271429	6831011	6
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271476	6830953	32
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271494	6830908	2
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271510	6830909	13
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271533	6830880	1
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271533	6830888	16
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271619	6830903	1
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271654	6830895	1
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	271719	6829800	10
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	272008	6830758	1
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	272964	6829522	6
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	273105	6831350	40
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	273186	6829458	10
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	279195	6827641	5
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	280943	6828198	100
Priority 3	<i>Thryptomene</i> sp. Moresby Range	50J	280968	6828229	100
Priority 3	<i>Thryptomene</i> sp. Wandana	50J	330675	6844010	10



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 3	<i>Thryptomene</i> sp. Wandana	50J	331816	6848590	20
Priority 3	<i>Thryptomene</i> sp. Wandana	50J	336850	6835884	20
Priority 3	<i>Verticordia chrysostachys</i> var. <i>pallida</i>	50J	308246	6834024	1
Priority 3	<i>Verticordia chrysostachys</i> var. <i>pallida</i>	50J	308526	6834301	1
Priority 3	<i>Verticordia chrysostachys</i> var. <i>pallida</i>	50J	316023	6840691	2
Priority 3	<i>Verticordia chrysostachys</i> var. <i>pallida</i>	50J	316125	6840709	1
Priority 3	<i>Verticordia densiflora</i> var. <i>roseostella</i>	50J	268368	6835327	1
Priority 3	<i>Verticordia densiflora</i> var. <i>roseostella</i>	50J	268419	6835331	5
Priority 3	<i>Verticordia densiflora</i> var. <i>roseostella</i>	50J	268422	6835333	1
Priority 3	<i>Verticordia jamiesonii</i>	50J	421910	6930655	10
Priority 3	<i>Verticordia jamiesonii</i>	50J	421962	6930480	1
Priority 3	<i>Verticordia jamiesonii</i>	50J	432478	6940356	2
Priority 3	<i>Verticordia jamiesonii</i>	50J	432583	6940236	1
Priority 3	<i>Verticordia jamiesonii</i>	50J	524418	6992258	10
Priority 3	<i>Verticordia jamiesonii</i>	50J	556598	7033877	1
Priority 3	<i>Verticordia jamiesonii</i>	50J	556599	7033873	2
Priority 3	<i>Verticordia jamiesonii</i>	50J	556607	7033867	1
Priority 3	<i>Verticordia jamiesonii</i>	50J	556628	7033858	2
Priority 4	<i>Acacia guinetii</i>	50J	271336	6828999	10
Priority 4	<i>Acacia guinetii</i>	50J	271362	6828997	1
Priority 4	<i>Acacia guinetii</i>	50J	271381	6828842	3
Priority 4	<i>Acacia guinetii</i>	50J	271399	6829200	40
Priority 4	<i>Acacia guinetii</i>	50J	271402	6828805	6
Priority 4	<i>Acacia guinetii</i>	50J	271408	6828747	3
Priority 4	<i>Acacia guinetii</i>	50J	271442	6829056	1
Priority 4	<i>Acacia guinetii</i>	50J	271466	6829062	1
Priority 4	<i>Acacia guinetii</i>	50J	271523	6829269	11
Priority 4	<i>Acacia guinetii</i>	50J	271538	6829382	1
Priority 4	<i>Acacia guinetii</i>	50J	271539	6829281	1
Priority 4	<i>Acacia guinetii</i>	50J	271661	6829219	1
Priority 4	<i>Acacia guinetii</i>	50J	271678	6829147	1
Priority 4	<i>Acacia guinetii</i>	50J	271748	6828997	1
Priority 4	<i>Acacia guinetii</i>	50J	271825	6829195	5
Priority 4	<i>Acacia guinetii</i>	50J	271840	6829114	1
Priority 4	<i>Acacia guinetii</i>	50J	272814	6829266	2
Priority 4	<i>Acacia guinetii</i>	50J	272820	6829233	1
Priority 4	<i>Acacia guinetii</i>	50J	272833	6829208	1
Priority 4	<i>Acacia guinetii</i>	50J	272903	6829360	1
Priority 4	<i>Acacia guinetii</i>	50J	272966	6829240	1
Priority 4	<i>Acacia guinetii</i>	50J	272987	6829275	2
Priority 4	<i>Acacia guinetii</i>	50J	272992	6829282	4
Priority 4	<i>Acacia guinetii</i>	50J	273239	6829012	1
Priority 4	<i>Acacia guinetii</i>	50J	273255	6828997	1
Priority 4	<i>Acacia guinetii</i>	50J	273267	6829011	1
Priority 4	<i>Acacia guinetii</i>	50J	273299	6829076	1
Priority 4	<i>Acacia guinetii</i>	50J	273299	6829083	1
Priority 4	<i>Acacia guinetii</i>	50J	273337	6829152	1
Priority 4	<i>Acacia guinetii</i>	50J	273338	6828976	5
Priority 4	<i>Acacia guinetii</i>	50J	273340	6829178	3

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 4	<i>Acacia guinetii</i>	50J	273342	6829176	1
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	427800	6939755	1
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	427996	6939542	6
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	428025	6939503	12
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	436940	6943136	2
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	439753	6942691	36
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	439844	6942625	3
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	555520	7033978	4
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	555653	7033755	1
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	555777	7034001	2
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	555847	7034007	4
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	555935	7034020	2
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	561023	7046352	1
Priority 4	<i>Baeckea</i> sp. Melita Station	50J	562017	7070252	1
Priority 4	<i>Diuris recurva</i>	50J	270733	6832982	5
Priority 4	<i>Diuris recurva</i>	50J	271336	6828999	3
Priority 4	<i>Diuris recurva</i>	50J	271415	6831013	5
Priority 4	<i>Goodenia berringbinensis</i>	50J	556432	7029355	10
Priority 4	<i>Goodenia berringbinensis</i>	50J	556977	7025586	10
Priority 4	<i>Goodenia berringbinensis</i>	50J	558753	7019308	20
Priority 4	<i>Grevillea inconspicua</i>	50J	542697	7006054	10
Priority 4	<i>Grevillea inconspicua</i>	50J	543787	7002369	1
Priority 4	<i>Grevillea inconspicua</i>	50J	547429	7005884	10
Priority 4	<i>Grevillea inconspicua</i>	50J	548414	7006260	1
Priority 4	<i>Grevillea inconspicua</i>	50J	548471	7006648	3
Priority 4	<i>Grevillea inconspicua</i>	50J	548517	7006711	2
Priority 4	<i>Grevillea inconspicua</i>	50J	548591	7006774	2
Priority 4	<i>Grevillea inconspicua</i>	50J	548609	7006793	4
Priority 4	<i>Grevillea inconspicua</i>	50J	552497	7009564	3
Priority 4	<i>Grevillea inconspicua</i>	50J	552515	7009529	3
Priority 4	<i>Grevillea inconspicua</i>	50J	552531	7009512	2
Priority 4	<i>Grevillea inconspicua</i>	50J	552543	7009500	1
Priority 4	<i>Grevillea inconspicua</i>	50J	552556	7009466	2
Priority 4	<i>Grevillea inconspicua</i>	50J	552562	7009464	1
Priority 4	<i>Grevillea inconspicua</i>	50J	552567	7009450	9
Priority 4	<i>Grevillea inconspicua</i>	50J	552576	7009433	1
Priority 4	<i>Grevillea inconspicua</i>	50J	553598	7009710	2
Priority 4	<i>Grevillea inconspicua</i>	50J	553747	7009772	1
Priority 4	<i>Grevillea inconspicua</i>	50J	554737	7010117	1
Priority 4	<i>Grevillea inconspicua</i>	50J	554784	7010134	3
Priority 4	<i>Grevillea inconspicua</i>	50J	554831	7010151	1
Priority 4	<i>Grevillea inconspicua</i>	50J	554845	7010161	6
Priority 4	<i>Grevillea inconspicua</i>	50J	554861	7010168	3
Priority 4	<i>Grevillea inconspicua</i>	50J	554872	7010166	2
Priority 4	<i>Grevillea inconspicua</i>	50J	556191	7011534	1
Priority 4	<i>Grevillea inconspicua</i>	50J	556374	7015105	1
Priority 4	<i>Verticordia capillaris</i>	50J	330384	6842894	2
Priority 4	<i>Verticordia capillaris</i>	50J	330445	6844199	1
Priority 4	<i>Verticordia capillaris</i>	50J	330488	6844121	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 4	<i>Verticordia capillaris</i>	50J	330503	6844102	2
Priority 4	<i>Verticordia capillaris</i>	50J	330511	6844098	1
Priority 4	<i>Verticordia capillaris</i>	50J	330527	6844084	1
Priority 4	<i>Verticordia capillaris</i>	50J	330546	6844073	1
Priority 4	<i>Verticordia capillaris</i>	50J	330618	6844366	1
Priority 4	<i>Verticordia capillaris</i>	50J	330712	6844579	2
Priority 4	<i>Verticordia capillaris</i>	50J	330716	6844599	1
Priority 4	<i>Verticordia capillaris</i>	50J	330716	6844604	2
Priority 4	<i>Verticordia capillaris</i>	50J	330725	6844616	1
Priority 4	<i>Verticordia capillaris</i>	50J	330735	6844634	1
Priority 4	<i>Verticordia capillaris</i>	50J	330736	6844636	2
Priority 4	<i>Verticordia capillaris</i>	50J	330781	6844173	1
Priority 4	<i>Verticordia capillaris</i>	50J	330797	6844636	1
Priority 4	<i>Verticordia capillaris</i>	50J	330854	6844372	1
Priority 4	<i>Verticordia capillaris</i>	50J	335206	6837763	3
Priority 4	<i>Verticordia capillaris</i>	50J	335207	6837751	3
Priority 4	<i>Verticordia capillaris</i>	50J	335208	6837738	1
Priority 4	<i>Verticordia capillaris</i>	50J	335208	6837778	1
Priority 4	<i>Verticordia capillaris</i>	50J	335213	6837170	1
Priority 4	<i>Verticordia capillaris</i>	50J	335217	6837159	2
Priority 4	<i>Verticordia capillaris</i>	50J	335257	6837271	3
Priority 4	<i>Verticordia capillaris</i>	50J	335260	6837760	1
Priority 4	<i>Verticordia capillaris</i>	50J	335263	6837661	3
Priority 4	<i>Verticordia capillaris</i>	50J	335265	6837806	1
Priority 4	<i>Verticordia capillaris</i>	50J	335269	6837648	4
Priority 4	<i>Verticordia capillaris</i>	50J	336856	6834984	2
Priority 4	<i>Verticordia capillaris</i>	50J	336866	6835106	10
Priority 4	<i>Verticordia capillaris</i>	50J	336893	6834669	1
Priority 4	<i>Verticordia capillaris</i>	50J	338974	6861346	2
Priority 4	<i>Verticordia capillaris</i>	50J	339026	6862004	5
Priority 4	<i>Verticordia capillaris</i>	50J	339064	6861154	2
Priority 4	<i>Verticordia capillaris</i>	50J	339162	6861151	1
Priority 4	<i>Verticordia capillaris</i>	50J	339248	6861409	1
Priority 4	<i>Verticordia capillaris</i>	50J	339249	6861560	1
Priority 4	<i>Verticordia capillaris</i>	50J	339250	6861693	1
Priority 4	<i>Verticordia capillaris</i>	50J	339254	6861786	1
Priority 4	<i>Verticordia capillaris</i>	50J	339262	6861473	1
Priority 4	<i>Verticordia capillaris</i>	50J	339906	6861896	6
Priority 4	<i>Verticordia capillaris</i>	50J	344237	6836322	10
Priority 4	<i>Verticordia capillaris</i>	50J	344936	6835341	3
Priority 4	<i>Verticordia capillaris</i>	50J	344940	6837167	1
Priority 4	<i>Verticordia capillaris</i>	50J	344942	6835353	1
Priority 4	<i>Verticordia capillaris</i>	50J	344984	6835355	8
Priority 4	<i>Verticordia capillaris</i>	50J	345009	6835367	2
Priority 4	<i>Verticordia capillaris</i>	50J	345024	6835417	6
Priority 4	<i>Verticordia capillaris</i>	50J	345028	6835389	3
Priority 4	<i>Verticordia capillaris</i>	50J	345037	6835391	3
Priority 4	<i>Verticordia capillaris</i>	50J	345081	6835448	11
Priority 4	<i>Verticordia capillaris</i>	50J	345122	6837139	1



P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 4	<i>Verticordia capillaris</i>	50J	345125	6835461	9
Priority 4	<i>Verticordia capillaris</i>	50J	345146	6835447	14
Priority 4	<i>Verticordia capillaris</i>	50J	345171	6835467	9
Priority 4	<i>Verticordia capillaris</i>	50J	345175	6835495	2
Priority 4	<i>Verticordia capillaris</i>	50J	345234	6835536	3
Priority 4	<i>Verticordia capillaris</i>	50J	345245	6835510	1
Priority 4	<i>Verticordia capillaris</i>	50J	345319	6835546	3
Priority 4	<i>Verticordia capillaris</i>	50J	345320	6835581	7
Priority 4	<i>Verticordia capillaris</i>	50J	345370	6835570	3
Priority 4	<i>Verticordia capillaris</i>	50J	345370	6835596	6
Priority 4	<i>Verticordia capillaris</i>	50J	345371	6835609	1
Priority 4	<i>Verticordia capillaris</i>	50J	345381	6835593	1
Priority 4	<i>Verticordia capillaris</i>	50J	345385	6835586	1
Priority 4	<i>Verticordia capillaris</i>	50J	345386	6835574	1
Priority 4	<i>Verticordia capillaris</i>	50J	345409	6835588	1
Priority 4	<i>Verticordia capillaris</i>	50J	345421	6835594	2
Priority 4	<i>Verticordia capillaris</i>	50J	345443	6835619	2
Priority 4	<i>Verticordia capillaris</i>	50J	345503	6835604	17
Priority 4	<i>Verticordia capillaris</i>	50J	345583	6835686	4
Priority 4	<i>Verticordia penicillaris</i>	50J	268357	6835479	4
Priority 4	<i>Verticordia penicillaris</i>	50J	268367	6835511	18
Priority 4	<i>Verticordia penicillaris</i>	50J	268370	6835516	42
Priority 4	<i>Verticordia penicillaris</i>	50J	268371	6835519	25
Priority 4	<i>Verticordia penicillaris</i>	50J	268372	6835495	20
Priority 4	<i>Verticordia penicillaris</i>	50J	268377	6835442	4
Priority 4	<i>Verticordia penicillaris</i>	50J	268384	6835438	12
Priority 4	<i>Verticordia penicillaris</i>	50J	268389	6835546	16
Priority 4	<i>Verticordia penicillaris</i>	50J	268392	6835442	27
Priority 4	<i>Verticordia penicillaris</i>	50J	268401	6835442	30
Priority 4	<i>Verticordia penicillaris</i>	50J	268405	6835442	10
Priority 4	<i>Verticordia penicillaris</i>	50J	268406	6835518	80
Priority 4	<i>Verticordia penicillaris</i>	50J	268416	6835446	5
Priority 4	<i>Verticordia penicillaris</i>	50J	268430	6835405	16
Priority 4	<i>Verticordia penicillaris</i>	50J	268432	6835456	27
Priority 4	<i>Verticordia penicillaris</i>	50J	268436	6835420	1
Priority 4	<i>Verticordia penicillaris</i>	50J	268436	6835438	11
Priority 4	<i>Verticordia penicillaris</i>	50J	268437	6835414	14
Priority 4	<i>Verticordia penicillaris</i>	50J	268444	6835431	10
Priority 4	<i>Verticordia penicillaris</i>	50J	268447	6835465	10
Priority 4	<i>Verticordia penicillaris</i>	50J	268452	6835458	30
Priority 4	<i>Verticordia penicillaris</i>	50J	268458	6835466	3
Priority 4	<i>Verticordia penicillaris</i>	50J	268917	6835554	127
Priority 4	<i>Verticordia penicillaris</i>	50J	268955	6835570	54
Priority 4	<i>Verticordia penicillaris</i>	50J	269038	6835734	10
Priority 4	<i>Verticordia penicillaris</i>	50J	269039	6835653	13
Priority 4	<i>Verticordia penicillaris</i>	50J	269061	6835692	10
Priority 4	<i>Verticordia penicillaris</i>	50J	269088	6835749	75
Priority 4	<i>Verticordia penicillaris</i>	50J	269104	6835695	65
Priority 4	<i>Verticordia penicillaris</i>	50J	269104	6835781	55

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 4	<i>Verticordia penicillaris</i>	50J	269120	6835721	85
Priority 4	<i>Verticordia penicillaris</i>	50J	269132	6835779	25
Priority 4	<i>Verticordia penicillaris</i>	50J	269139	6835751	36
Priority 4	<i>Verticordia penicillaris</i>	50J	269194	6833900	37
Priority 4	<i>Verticordia penicillaris</i>	50J	269209	6833910	7
Priority 4	<i>Verticordia penicillaris</i>	50J	269218	6833914	8
Priority 4	<i>Verticordia penicillaris</i>	50J	269230	6833887	42
Priority 4	<i>Verticordia penicillaris</i>	50J	269238	6833902	36
Priority 4	<i>Verticordia penicillaris</i>	50J	269261	6833913	8
Priority 4	<i>Verticordia penicillaris</i>	50J	269277	6833941	31
Priority 4	<i>Verticordia penicillaris</i>	50J	269288	6833941	5
Priority 4	<i>Verticordia penicillaris</i>	50J	269301	6833961	33
Priority 4	<i>Verticordia penicillaris</i>	50J	269319	6833951	76
Priority 4	<i>Verticordia penicillaris</i>	50J	269327	6834032	71
Priority 4	<i>Verticordia penicillaris</i>	50J	269330	6833988	1
Priority 4	<i>Verticordia penicillaris</i>	50J	269343	6834094	27
Priority 4	<i>Verticordia penicillaris</i>	50J	269348	6834100	12
Priority 4	<i>Verticordia penicillaris</i>	50J	269359	6834062	12
Priority 4	<i>Verticordia penicillaris</i>	50J	269367	6834136	7
Priority 4	<i>Verticordia penicillaris</i>	50J	269368	6834165	16
Priority 4	<i>Verticordia penicillaris</i>	50J	269421	6834227	9
Priority 4	<i>Verticordia penicillaris</i>	50J	269429	6834198	19
Priority 4	<i>Verticordia penicillaris</i>	50J	269446	6834241	28
Priority 4	<i>Verticordia penicillaris</i>	50J	269457	6834201	7
Priority 4	<i>Verticordia penicillaris</i>	50J	269465	6834245	27
Priority 4	<i>Verticordia penicillaris</i>	50J	269492	6834234	31
Priority 4	<i>Verticordia penicillaris</i>	50J	269509	6834324	6
Priority 4	<i>Verticordia penicillaris</i>	50J	269545	6834240	27
Priority 4	<i>Verticordia penicillaris</i>	50J	269558	6834264	48
Priority 4	<i>Verticordia penicillaris</i>	50J	269572	6834293	31
Priority 4	<i>Verticordia penicillaris</i>	50J	269575	6834339	3
Priority 4	<i>Verticordia penicillaris</i>	50J	269610	6834343	17
Priority 4	<i>Verticordia penicillaris</i>	50J	269618	6834255	9
Priority 4	<i>Verticordia penicillaris</i>	50J	269623	6834307	14
Priority 4	<i>Verticordia penicillaris</i>	50J	269796	6834278	23
Priority 4	<i>Verticordia penicillaris</i>	50J	269806	6834257	79
Priority 4	<i>Verticordia penicillaris</i>	50J	269812	6834227	8
Priority 4	<i>Verticordia penicillaris</i>	50J	269814	6834284	35
Priority 4	<i>Verticordia penicillaris</i>	50J	269817	6834267	9
Priority 4	<i>Verticordia penicillaris</i>	50J	269878	6834343	6
Priority 4	<i>Verticordia penicillaris</i>	50J	269898	6834388	49
Priority 4	<i>Verticordia penicillaris</i>	50J	269901	6834306	3
Priority 4	<i>Verticordia penicillaris</i>	50J	269909	6834371	19
Priority 4	<i>Verticordia penicillaris</i>	50J	269916	6834321	34
Priority 4	<i>Verticordia penicillaris</i>	50J	269928	6834389	66
Priority 4	<i>Verticordia penicillaris</i>	50J	269945	6834333	103
Priority 4	<i>Verticordia penicillaris</i>	50J	270029	6834370	23
Priority 4	<i>Verticordia penicillaris</i>	50J	270043	6834360	7
Priority 4	<i>Verticordia penicillaris</i>	50J	270895	6833220	71

P Level	Species	Zone	Easting	Northing	Plant Counts
Priority 4	<i>Verticordia penicillaris</i>	50J	271624	6831018	8
Priority 4	<i>Verticordia penicillaris</i>	50J	271631	6831013	9
Priority 4	<i>Verticordia penicillaris</i>	50J	271660	6831002	26
Priority 4	<i>Verticordia penicillaris</i>	50J	271980	6830755	52
Priority 4	<i>Verticordia penicillaris</i>	50J	272058	6831296	6
Priority 4	<i>Verticordia penicillaris</i>	50J	272100	6831258	16
Priority 4	<i>Verticordia penicillaris</i>	50J	272133	6831218	14
Priority 4	<i>Verticordia penicillaris</i>	50J	272149	6831156	26
Priority 4	<i>Verticordia penicillaris</i>	50J	272186	6831087	6
Priority 4	<i>Verticordia penicillaris</i>	50J	272196	6831041	1
Priority 4	<i>Verticordia penicillaris</i>	50J	272213	6831502	6
Priority 4	<i>Verticordia penicillaris</i>	50J	272215	6830978	23
Priority 4	<i>Verticordia penicillaris</i>	50J	272218	6830989	2
Priority 4	<i>Verticordia penicillaris</i>	50J	272224	6831507	3
Priority 4	<i>Verticordia penicillaris</i>	50J	272245	6831454	12
Priority 4	<i>Verticordia penicillaris</i>	50J	272298	6831417	38
Priority 4	<i>Verticordia penicillaris</i>	50J	272313	6831405	14
Priority 4	<i>Verticordia penicillaris</i>	50J	272323	6831545	16
Priority 4	<i>Verticordia penicillaris</i>	50J	272329	6831390	32
Priority 4	<i>Verticordia penicillaris</i>	50J	272349	6831375	26
Priority 4	<i>Verticordia penicillaris</i>	50J	272368	6831363	13
Priority 4	<i>Verticordia penicillaris</i>	50J	272407	6831510	3
Priority 4	<i>Verticordia penicillaris</i>	50J	272447	6831518	18
Priority 4	<i>Verticordia penicillaris</i>	50J	272469	6831523	27
Priority 4	<i>Verticordia penicillaris</i>	50J	273409	6829053	1

Table G.2 – Species of Interest Locations

Taxa	Coordinates (WGS84)		Cover (%) or No. Plants
	Easting (mE)	Northing (mN)	
<i>Acacia aff. incongesta</i>	271579	6829539	5 plants
	271193	6831641	1 plant
<i>Acacia aff. rhodophloia</i>	538593	7111726	10 - 30 %
	539502	7111112	10 - 30 %
	530217	6994493	2 - 10 %
	531577	6996987	10 - 30 %
	532795	6996844	10 - 30 %
	533454	6996946	10 - 30 %
	508002	6977608	< 2 %
	538921	7002163	< 2 %
	527416	6992457	10 - 30 %
	537093	7001153	10 - 30 %
	505602	6976403	< 2 %
	509121	6978643	30 - 70 %
	474624	6956687	< 2 %
	427644	6938587	10 - 30 %
	436032	6942117	2 - 10 %
	412346	6921935	30 - 70 %
	447045	6946613	2 - 10 %
	435891	6941630	2 - 10 %
	435793	6941608	10 - 30 %
	351999	6882249	< 2 %
	354851	6883557	< 2 %
	417262	6925874	1 plant
	436899	6939317	3 plants
	436879	6939362	1 plant
	436838	6939448	8 plants
	436734	6939647	14 plants
	436680	6939740	12 plants
	436632	6939866	16 plants
	435753	6941555	16 plants
	435715	6941630	22 plants
	435695	6941676	12 plants
	435650	6941775	32 plants
	436154	6942965	6 plants
436343	6942666	1 plant	
437775	6941890	7 plants	
437736	6941947	13 plants	
436703	6943490	16 plants	
436680	6943535	12 plants	
436656	6943576	11 plants	
436517	6943776	9 plants	
436452	6943843	3 plants	
436446	6943856	2 plants	
436361	6944010	6 plants	
436519	6944263	6 plants	
436620	6944291	11 plants	
<i>Eremophila aff. forrestii</i>	400247	6917432	1 plant
<i>Philothea sp. nov (aff. tubiflora)</i>	559588	7044473	2 - 10 %
	559840	7045124	< 2 %

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## **APPENDIX H            VEGETATION COMMUNITIES RECORDED IN THE STUDY AREA – DETAILED INFORMATION**

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Table H.1 – Vegetation Communities of the Project Area




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Gh1	<p>Isolated <i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> low mallee trees, over <i>Melaleuca megacephala</i> and <i>Hakea pycnoneura</i> closed mid shrubland, over <i>Hibbertia hypericoides</i>, <i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>, <i>Gastrolobium plicatum</i>, <i>Gastrolobium triangulare</i> sparse low shrubland, over <i>Lepidosperma tenue</i> open sedgeland.</p> <p>Area of Gh1 mapped in the survey area = 129 ha (0.1%).</p>	<p><b>Habitat</b> Rocky mesa midslopes and ridgetops of the Moresby Range</p> <p><b>Soil – Landscape System</b> Moresby</p> <p><b>Vegetation Condition</b> Excellent</p>	E8, E61, E62, E94, E95	<p><i>Eucalyptus blaxellii</i> (DRF) <i>Lepidosperma</i> sp. Moresby Range (P1) <i>Leucopogon borealis</i> (P2) <i>Leucopogon</i> sp. Howatharra (P2) <i>Thryptomene stenophylla</i> (P2) <i>Grevillea triloba</i> (P3) <i>Serichonus gracilipes</i> (P3) <i>Thryptomene</i> sp. Moresby Range (P3) <i>Acacia guinetii</i> (P4) <i>Diuris recurva</i> (P4) <i>Verticordia penicillaris</i> (P4)</p>	<p><i>Mirbelia depressa</i> <i>Neurachne alopecuroidea</i> <i>Polianthion wichurae</i> <i>Scholtzia ciliata</i> <i>Verticordia chrysanthella</i></p> <p>Species richness = 19.2 ± 5.85 (n = 5)</p>	
Gh2	Mixed <i>Acacia</i> spp. and <i>Melaleuca</i> spp. sparse to open tall shrubs, over <i>Verticordia chrysanthella</i> and <i>Gastrolobium plicatum</i> low shrubland (3 sub-units)				Combined species richness = 38.4 ± 8.41 (n = 9)	Area of Gh2 mapped in the survey area = 586 ha (0.3%)
Gh2/a	<p>Isolated <i>Acacia congesta</i> subsp. <i>congesta</i>, <i>Acacia ulicina</i> and <i>Acacia tetragonophylla</i> tall shrubs, over <i>Verticordia chrysanthella</i> low shrubland, with isolated <i>Gastrolobium plicatum</i> and <i>Scholtzia ciliata</i> low shrubs, over <i>Lepidosperma tenue</i> and <i>Caesia micrantha</i> sparse sedgeland.</p>	<p><b>Habitat</b> Rocky mesa footslopes and midslopes of the Moresby Range</p> <p><b>Soil – Landscape System</b> Moresby</p> <p><b>Vegetation Condition</b> Excellent</p>	E64, E68, E96	<p><i>Caladenia hoffmanii</i> (DRF) <i>Eucalyptus blaxellii</i> (DRF) <i>Lepidosperma</i> sp. Moresby Range (P1) <i>Acanthocarpus parviflorus</i> (P3) <i>Blackallia nudiflora</i> (P3) <i>Grevillea triloba</i> (P3) <i>Serichonus gracilipes</i> (P3) <i>Thryptomene</i> sp. Moresby Range (P3) <i>Acacia guinetii</i> (P4) <i>Diuris recurva</i> (P4) <i>Verticordia penicillaris</i> (P4)</p>	<p><i>Borya sphaerocephala</i> <i>Conostylis stylioides</i> <i>Dioscorea hastifolia</i> <i>Grevillea excelsior</i> <i>Melaleuca megacephala</i></p> <p>Species richness = 41.7 ± 7.77 (n = 3)</p>	
Gh2/b	<p><i>Melaleuca megacephala</i> and <i>Melaleuca radula</i> (+/-<i>Allocasuarina campestris</i>) sparse tall shrubland, over <i>Hibbertia hypericoides</i>, <i>Grevillea excelsior</i>, <i>Verticordia chrysanthella</i> and <i>Gastrolobium plicatum</i> low shrubland, over <i>Lepidosperma tenue</i> sedgeland.</p>	<p><b>Habitat</b> Rocky mesa footslopes and midslopes of the Moresby Range</p> <p><b>Soil – Landscape System</b> Moresby</p> <p><b>Vegetation Condition</b> Good</p>	E22, E54, E63, E65, E92, E97	See Gh2/a	<p><i>Acacia congesta</i> subsp. <i>congesta</i> <i>Acacia ulicina</i> <i>Allocasuarina campestris</i> <i>Astroloma serratifolium</i> <i>Cheilanthes adiantoides</i> <i>Dampiera spicigera</i></p> <p>Species richness = 31.3 ± 4.6 (n = 6)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Gh2/c	<i>Melaleuca radula</i> and <i>Acacia congesta</i> subsp. <i>congesta</i> open mid shrubland, over <i>Gastrolobium plicatum</i> , <i>Verticordia chrysanthella</i> and <i>Verticordia penicillaris</i> open low shrubland, over mixed sparse sedgeland.	<b>Habitat</b> Rocky mesa footslopes and midslopes of the Moresby Range <b>Soil – Landscape System</b> Moresby <b>Vegetation Condition</b> Good	E66	See Gh2/a	<i>Conostylis stylidioides</i> <i>Grevillea excelsior</i> <i>Lepidosperma tenue</i> <i>Melaleuca megacephala</i> Species richness = 55 (n = 1)	
Gh3	<i>Allocasuarina campestris</i> closed tall to mid shrubland, over <i>Lepidosperma tenue</i> sparse sedgeland.  Area of Gh3 mapped in the survey area = 88 ha (<0.1%).	<b>Habitat</b> Rocky bare areas of the lower hill slopes of the Moresby Range <b>Soil – Landscape System</b> Moresby <b>Vegetation Condition</b> Good	E55, E59	<i>Caladenia hoffmanii</i> (DRF) <i>Eucalyptus blaxellii</i> (DRF) <i>Grevillea triloba</i> (P3) <i>Serichonus gracilipes</i> (P3) <i>Thryptomene</i> sp. Moresby Range (P3) <i>Acacia guinetii</i> (P4)	<i>Astroloma xerophyllum</i> <i>Melaleuca megacephala</i> <i>Neurachne alopecuroidea</i> Species richness = 9 ± 2.82 (n = 2)	
Gy1	<i>Eucalyptus</i> spp., <i>Xylomelum angustifolium</i> , <i>Actinostrobos arenarius</i> and <i>Banksia</i> spp. sparse to open low woodland, over mixed Myrtaceae spp. open low to mid shrubland (3 sub-units)				Combined species richness = 38.4 ± 8.41 (n = 9)	Area of Gy1 mapped in the survey area = 489 ha (0.2%)
Gy1/a	<i>Xylomelum angustifolium</i> (+/- <i>Banksia prionotes</i> , <i>Actinostrobos arenarius</i> ) open low woodland, over <i>Calothamnus glaber</i> (+/- <i>Allocasuarina campestris</i> ) open mid to tall shrubland, over <i>Acanthocarpus</i> sp. Ajana (C.A. Gardner 8596), <i>Hibbertia conspicua</i> and <i>Petrophile conifera</i> sparse low shrubland, over <i>Edeiocolea monostachya</i> sparse sedgeland and <i>Austrostipa elegantissima</i> tussock grassland.	<b>Habitat</b> Yellow sand plains <b>Soil – Landscape System</b> Eradu <b>Vegetation Condition</b> Good	E32, E35, E36, E37, E123, E125	<i>Verticordia chrysostachys</i> var. <i>pallida</i> (P3)	<i>Hakea recurva</i> subsp. <i>recurva</i> <i>Lechenaultia linarioides</i> <i>Melaleuca filifolia</i> <i>Pityrodia oldfieldii</i> Species richness = 21 ± 3.57 (n = 6)	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Gy1/b	<i>Eucalyptus eudesmioides</i> sparse low mallee woodland, over <i>Allocasuarina campestris</i> open mid shrubland, over <i>Ecdeiocolea monostachya</i> sparse sedgeland.	<b>Habitat</b> Yellow sand plains <b>Soil – Landscape System</b> Eradu <b>Vegetation Condition</b> Poor	E43, E124	See Gy1/a	<i>Acacia murrayana</i> <i>Acacia tetragonophylla</i> <i>Comesperma integerrimum</i> <i>Desmodcladus lateriticus</i>  Species richness = 15.5 ± 6.36 (n = 2)	
Gy1/c	<i>Eucalyptus jucunda</i> (+/- <i>Eucalyptus oldfieldii</i> ) sparse low mallee woodland and <i>Actinostrobos arenarius</i> and <i>Banksia prionotes</i> sparse low woodland, over <i>Allocasuarina campestris</i> and <i>Melaleuca ryeae</i> open mid shrubland, over <i>Ecdeiocolea monostachya</i> open sedgeland.	<b>Habitat</b> Yellow sand plains <b>Soil – Landscape System</b> Eradu <b>Vegetation Condition</b> Poor	E11, E31, E38, E122, E24	See Gy1/a	<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i> <i>Hakea bucculenta</i> <i>Melaleuca ryeae</i> <i>Triodia danthonioides</i>  Species richness = 18 ± 7.31 (n = 5)	
Gy2	Mixed <i>Eucalyptus</i> spp. open low woodland, over <i>Acacia</i> spp. and <i>Melaleuca</i> spp. sparse mid shrub land (2 sub-units)				Combined species richness = 21.3 ± 5.91 (n =19)	Area of Gy2 mapped in the survey area = 1755 ha (0.8%)
Gy2/a	<i>Eucalyptus jucunda</i> open low mallee woodland, over <i>Calothamnus glaber</i> open mid shrubland, over mixed Myrtaceae sparse low shrubland, over <i>Triodia danthonioides</i> sparse hummock grassland and <i>Ecdeiocolea monostachya</i> sedgeland	<b>Habitat</b> Yellow sand plains <b>Soil – Landscape System</b> Binnu <b>Vegetation Condition</b> Excellent	E12, E82, E83, E101, E104, E106	<i>Acacia lineolata</i> subsp. <i>multilineata</i> (P1) <i>Mirbelia ternata</i> (P1) <i>Scholtzia</i> sp. Binnu (P1) <i>Thryptomene ninghanensis</i> (P1) <i>Frankenia confusa</i> (P2) <i>Homalocalyx inerrabundus</i> (P2) <i>Scholtzia</i> sp. East Yuna (P2) <i>Thryptomene</i> sp. East Yuna (P2) <i>Acacia leptospermoides</i> subsp. <i>psammophila</i> (P3) <i>Acacia speckii</i> (P3) <i>Calytrix formosa</i> (P3) <i>Grevillea asparagoides</i> (P3) <i>Jacksonia velutina</i> (P4) <i>Verticordia capillaris</i> (P4)	<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i> <i>Bonamia rosea</i> <i>Conospermum stoechadis</i> <i>Hibbertia conspicua</i> <i>Lawrencella davenportii</i> <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i> <i>Melaleuca fillifolia</i> <i>Petrophile confifera</i> <i>Thysanotus manglesianus</i> <i>Waitzia acuminata</i> var. <i>acuminata</i>  Species richness = 21.2 ± 6.85 (n = 6)	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Gy2/b	Mixed <i>Eucalyptus</i> spp. sparse low woodland (including <i>Eucalyptus eudesmioides</i> , <i>Eucalyptus horistes</i> and <i>Eucalyptus jucunda</i> , <i>Eucalyptus oldfieldii</i> and <i>Eucalyptus pyriformis</i> ), over <i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i> , <i>Acacia stereophylla</i> var. <i>stereophylla</i> , <i>Melaleuca filifolia</i> and <i>Melaleuca cordata</i> (+/- <i>Allocasuarina campestris</i> ), over mixed Myrtaceae spp. low shrubland, over <i>Monachather paradoxus</i> tussock grassland, <i>Triodia danthonioides</i> sparse hummock grassland and <i>Ecdeiocolea monostachya</i> sedgeland.	<b>Habitat</b> Yellow sand plains <b>Soil – Landscape System</b> Binnu <b>Vegetation Condition</b> Excellent	E14, E18, E19, E20, E21, E23, E69, E71, E77, E79, E103, E113, E117	See Gy2/a	<i>Allocasuarina campestris</i> <i>Austrostipa elegantissima</i> <i>Baeckea pentagonantha</i> <i>Calothamnus oldfieldii</i> <i>Comesperma scoparium</i> <i>Cyperus gymnocaulos</i> <i>Dianella revoluta</i> var. <i>divaricata</i> <i>Lawrencella davenportii</i> <i>Melaleuca cordata</i> <i>Melaleuca filifolia</i> <i>Platysace effusa</i> <i>Waitzia acuminata</i> var. <i>acuminata</i>  Species richness = 21.3 ± 5.76 (n = 13)	
Gp1	<i>Acacia tetragonophylla</i> and <i>Hakea recurva</i> subsp. <i>recurva</i> (+/- <i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> , <i>Acacia acuminata</i> and <i>Acacia burkittii</i> ) low woodland, over <i>Ptilotus obovatus</i> sparse low shrubland, over * <i>Avena fatua</i> and * <i>Bromus diandrus</i> tussock grassland.  Area of Gp1 mapped in the survey area = 924 ha (0.4 %).	<b>Habitat</b> Red sand plains <b>Soil – Landscape System</b> Casuarina, Dartmoor, Greenough Moresby, Mt Horner, Northampton, Sugarloaf <b>Vegetation Condition</b> Poor	E2, E34, E44, E45, E47, E50, E51, E53, E56, E121, E127, E128, E129	<i>Lepidosperma</i> sp. Moresby Range (P1) <i>Thryptomene stenophylla</i> (P2) <i>Acanthocarpus parviflorus</i> (P2) <i>Grevillea triloba</i> (P3)	<i>Borya sphaerocephala</i> <i>Cheilanthes adiantoides</i> <i>Chenopodium gaudichaudianum</i> <i>Enchylaena tomentosa</i> <i>Hakea preissii</i> <i>Hibbertia potentilliflora</i> <i>Rhagodia eremaea</i>  Species richness = 17.9 ± 5.57 (n = 12)	
Gp2	<i>Melaleuca adnata</i> sparse low woodland, over <i>Calothamnus quadrifidus</i> and <i>Acacia acuminata</i> open tall to mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland, over <i>Amphipogon caricinus</i> var. <i>caricinus</i> open tussock grassland.  Area of Gp2 mapped in the survey area = 39 ha (<0.1 %).	<b>Habitat</b> Red sand plains <b>Soil – Landscape System</b> Binnu <b>Vegetation Condition</b> Excellent	E25	No conservation significant taxa recorded	<i>Acacia acuminata</i> <i>Baeckea megafloa</i> <i>Comesperma volubile</i> <i>Eucalyptus obtusiflora</i> subsp. <i>obtusiflora</i>  Species richness = 30 (n = 1)	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Gf1	<p>Isolated <i>Hakea preissii</i> tall shrubs, over <i>Tecticornia indica</i> subsp. <i>bidens</i> and <i>Atriplex amnicola</i> (+/- <i>Tecticornia lepidosperma</i>, <i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i> and <i>Frankenia setosa</i>) low chenopod shrubland, over *<i>Avena fatua</i> and <i>Eragrostis dielsii</i> sparse tussock grassland.</p> <p>Area of Gf1 mapped in the survey area = 753 ha (0.3%).</p>	<p><b>Habitat</b> Floodplain / saline flats</p> <p><b>Soil – Landscape System</b> Dartmoor</p> <p><b>Vegetation Condition</b> Good</p>	E42, E73, E74, E78, E80, E81, E98, E99, E105	<i>Frankenia confusa</i> (P2) <i>Ptilotus beardii</i> (P3)	<p><i>Didymanthus roei</i> <i>Enchylaena tomentosa</i> <i>Frankenia pauciflora</i> <i>Gunniopsis quadrifida</i> <i>Sclerolaena diacantha</i></p> <p>Species richness = 15.6 ± 6.65 (n = 9)</p>	
Gf2	<p><i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> open low woodland, over <i>Acacia acuminata</i> and <i>Acacia burkittii</i> sparse tall shrubland, over <i>Acacia tetragonophylla</i> and <i>Enchylaena tomentosa</i> sparse mid shrubland, over <i>Acacia andrewsii</i> and <i>Ptilotus obovatus</i> sparse low shrubland.</p> <p>Area of Gf2 mapped in the survey area = 2292 ha (1.0 %).</p>	<p><b>Habitat</b> Floodplains</p> <p><b>Soil – Landscape System</b> Dartmoor</p> <p><b>Vegetation Condition</b> Good</p>	E6, E10, E17, E27, E28, E30, E33, E40, E41, E84, E87, E88, E90, E107, E111, E116, E120, E126	<p><i>Acacia leptospermoides</i> subsp. <i>psammophila</i> (P3) <i>Acacia subsessilis</i> (P3) <i>Eremophila muelleriana</i> (P3) <i>Grevillea triloba</i> (P3) <i>Thryptomene</i> sp. Moresby Range (P3) <i>Acacia guinetii</i> (P4) <i>Verticordia penicillaris</i> (P4)</p>	<p><i>Atriplex amnicola</i> <i>Chenopodium gaudichaudianum</i> <i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i> <i>Exocarpos aphyllus</i> <i>Hakea recurva</i> subsp. <i>recurva</i> <i>Rhagodia drummondii</i> <i>Scaevola spinescens</i> <i>Solanum orbiculatum</i></p> <p>Species richness = 24.6 ± 6.23 (n = 18)</p>	
Gc1	<p><i>Eucalyptus camaldulensis</i> var. <i>obtusata</i> mid to low woodland (+/- <i>Casuarina obesa</i> and <i>Melaleuca raphiophylla</i>) isolated to open tall shrubland, over <i>Atriplex amnicola</i> and <i>Chenopodium gaudichaudianum</i> sparse low shrubland, over <i>Cyperus gymnocaulos</i> sparse sedgeland and *<i>Avena fatua</i> and *<i>Bromus diandrus</i> tussock grassland.</p> <p>Area of Gc1 mapped in the survey area = 996 ha (0.4 %).</p>	<p><b>Habitat</b> Sandy creek lines</p> <p><b>Soil – Landscape System</b> Greenough</p> <p><b>Vegetation Condition</b> Poor</p>	E15, E39, E46, E48, E49, E52, E57, E58, E91, E93, E115, E130	<i>Melaleuca huttensis</i> (P1) <i>Grevillea triloba</i> (P3)	<p><i>Acacia saligna</i> subsp. <i>lindleyi</i> <i>Enchylaena tomentosa</i> <i>Pimelea microcephala</i> subsp. <i>microcephala</i></p> <p>Species richness = 11.5 ± 3.15 (n = 12)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Gc2	<i>Grevillea</i> spp., <i>Acacia</i> spp. and <i>Melaleuca</i> spp. tall shrubland. Area of Gc2 mapped in the survey area = 13 ha (<0.1%).	<b>Habitat</b> Creek lines <b>Soil – Landscape System</b> Northampton <b>Vegetation Condition</b> N/A	No quadrats in current survey	<i>Geleznowia verrucosa</i> subsp. <i>Kalbarri</i> (P3) <i>Grevillea triloba</i> (P3) <i>Verticordia densiflora</i> var. <i>roseostella</i> (P3) <i>Verticordia penicillaris</i> (P4)	N/A	
Yh1	<i>Allocasuarina dielsiana</i> sparse mid woodland, over <i>Acacia quadrimarginea</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland. Area of Yh1 mapped in the survey area = 928 ha (0.4%).	<b>Habitat</b> Rocky hill slopes <b>Land System</b> Tallering <b>Vegetation Condition</b> Good	D160	No conservation significant taxa recorded	Species richness = 8 (n = 1)	
Yh2	<i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over isolated <i>Thryptomene decussata</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> and <i>Sida ectogama</i> mid shrubs, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Aristida contorta</i> sparse tussock grassland. Area of Yh2 mapped in the survey area = 58 ha (<0.1%).	<b>Habitat</b> Low gravelly hills and plains <b>Land System</b> Nerramyne <b>Vegetation Condition</b> Good	D34, D37	No conservation significant taxa recorded	<i>Acacia grasbyi</i> <i>Acacia tetragonophylla</i> <i>Solanum ellipticum</i> Species richness = 13 ± 2 (n = 2)	






#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yh3	<p>Isolated <i>Acacia aneura</i>, <i>Acacia ramulosa</i> var. <i>linophylla</i>, <i>Acacia quadrimarginea</i> and <i>Acacia grasbyi</i> low trees, over <i>Thryptomene costata</i> and <i>Thryptomene decussata</i> open mid to low shrubland, over <i>Aristida contorta</i> open tussock grassland.</p> <p>Area of Yh3 mapped in the survey area = 112 ha (&lt;0.1%).</p>	<p><b>Habitat</b> Low gravelly hills and plains</p> <p><b>Land System</b> Challenge, Gabanintha</p> <p><b>Vegetation Condition</b> Good</p>	C76, C90, C93, D61, D63	<i>Euphorbia sarcostemmoides</i> (P1)	<p><i>Ptilotus obovatus</i> <i>Ptilotus schwartzii</i> <i>Hemigenia</i> sp. Yalgoo <i>Sida ectogama</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Mirbelia rhagadiooides</i> <i>Solanum lasiophyllum</i></p> <p>Species richness = 16 ± 5 (n = 5)</p>	
Yy1	<i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia ramulosa</i> var. <i>ramulosa</i> open tall shrubland. (2 sub-units)				Combined species richness = 11.5 ± 3.04 (n =13)	Area of Yy1 mapped in the survey area = 4923 ha (2.2%)
Yy1/a	<p><i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia ramulosa</i> var. <i>ramulosa</i> (+/- <i>Hakea recurva</i> subsp. <i>arida</i>) open tall shrubland, over <i>Eremophila forrestii</i> subsp. <i>forrestii</i> or <i>Eremophila hughesii</i> subsp. <i>hughesii</i> sparse mid shrubland, over <i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32) open low shrubland, over isolated <i>Monachather paradoxus</i> and <i>Eriachne helmsii</i> tussock grasses.</p>	<p><b>Habitat</b> Yellow sand plains</p> <p><b>Land System</b> Kalli</p> <p><b>Vegetation Condition</b> Good</p>	C77, C89, C100, C102, C113, C154, C161, C165, C167, C168, C176, D49	<p><i>Petrophile vana</i> (P1) <i>Acacia subsessilis</i> (P3) <i>Calytrix erosipetala</i> (P3) <i>Dicrastylis linearifolia</i> (P3)</p>	<p><i>Acacia daviesioides</i> <i>Eremophila clarkei</i> <i>Rhagodia eremaea</i> <i>Solanum lasiophyllum</i> <i>Thyridolepis multiculmis</i></p> <p>Species richness = 11.7 ± 3.14 (n = 12)</p>	
Yy1/b	<p>Isolated <i>Acacia aneura</i> var. <i>aneura</i> low trees, over <i>Acacia ramulosa</i> var. <i>ramulosa</i> sparse tall shrubs, over <i>Aluta aspera</i> subsp. <i>hesperia</i> mid shrubland, over <i>Aluta aspera</i> subsp. <i>hesperia</i> and <i>Hemigenia</i> sp. Yalgoo (A.M. Ashby 2624) open low shrubland, over <i>Monachather paradoxus</i> sparse tussock grassland.</p>	<p><b>Habitat</b> Yellow sand plains</p> <p><b>Land System</b> Kalli</p> <p><b>Vegetation Condition</b> Excellent</p>	C166	See Yy1/a	<p><i>Acacia prainii</i> <i>Eremophila forrestii</i></p> <p>Species richness = 10 (n = 1)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yp1	<i>Acacia coolgardiensis</i> tall shrubland to low woodland, over isolated <i>Eremophila forrestii</i> subsp. <i>hastieana</i> mid to low shrubs. Area of Yp1 mapped in the survey area = 231 ha (0.1%).	<b>Habitat</b> Red sandy-clay and hardpan plains <b>Land System</b> Nerramyne <b>Vegetation Condition</b> Good	D5, D26, E9, E89	<i>Acacia leptospermoides</i> subsp. <i>psammophila</i> (P3)	Species richness = 8.5 ± 3 (n = 4)	
Yp2	<i>Acacia ramulosa</i> var. <i>linophylla</i> (+/- <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia tetragonophylla</i> ) tall to mid shrubland, over <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> sparse low shrubland. Area of Yp2 mapped in the survey area = 5164 ha (2.3%).	<b>Habitat</b> Red sandy-clay and hardpan plains <b>Land System</b> Tindalarra , Tallering, Nerramyne <b>Vegetation Condition</b> Good	D4, D10, D11, D15, D16, D17, D18, D21, D41, D159, E1, E16, E60	<i>Mirbelia ternata</i> (P1) <i>Sauropus</i> sp. Woolgorong (P1) <i>Acacia subsessilis</i> (P3) <i>Dicrastylis linearifolia</i> (P3) <i>Grevillea stenostachya</i> (P3)	<i>Acacia acuminata</i> <i>Acacia grasbyi</i> <i>Aristida contorta</i> <i>Eriachne helmsii</i> <i>Ptilotus obovatus</i> <i>Solanum ellipticum</i> Species richness = 10.6 ± 7.5 (n = 13)	
Yp3	Mixed <i>Eucalyptus</i> spp. low woodland, over sparse <i>Acacia</i> spp. mid shrubland. (2 sub-units)				Combined species richness = 22.2 ± 8.89 (n = 11)	Area of Yp3 mapped in the survey area = 1078 ha (0.5%).
Yp3/a	Mixed <i>Eucalyptus</i> spp. low mallee woodland ( <i>Eucalyptus obtusiflora</i> subsp. <i>obtusiflora</i> , <i>Eucalyptus horistes</i> , <i>Eucalyptus eudesmioides</i> and <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> ), over <i>Acacia effusifolia</i> and <i>Melaleuca adnata</i> sparse tall shrubland, over <i>Acacia roycei</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> and mixed chenopod open low shrubland, over <i>Monachather paradoxus</i> open tussock grassland.	<b>Habitat</b> Red sandy-clay and hardpan plains <b>Soil – Landscape and Land Systems</b> Joseph <b>Vegetation Condition</b> Good -excellent	E4, E5, E13, E26, E70, E85, E102, E108, E110, E119	<i>Scholtzia</i> sp. East Yuna (P2) <i>Acacia subsessilis</i> (P3) <i>Microcorys tenuifolia</i> (P3)	<i>Acacia acutaria</i> <i>Austrostipa elegantissima</i> <i>Crassula colorata</i> var. <i>acuminata</i> <i>Dianella revoluta</i> var. <i>divaricata</i> <i>Eradium cygnorum</i> <i>Lawrencella davenportii</i> <i>Ptilotus obovatus</i> <i>Rhagodia drummondii</i> <i>Rhodanthe steriliscens</i> <i>Scaevola spinescens</i> <i>Solanum lasiophyllum</i> <i>Waitzia acuminata</i> var. <i>acuminata</i> Species richness = 23.9 ± 8.56 (n = 9)	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yp3/b	<i>Acacia stereophylla</i> var. <i>stereophylla</i> open tall shrubland, over <i>Malleostemon tuberculatus</i> mid shrubland, over <i>Enekbatus sessilis</i> open low shrubland, over <i>Amphipogon caricinus</i> var. <i>caricinus</i> open tussock grassland.	<b>Habitat</b> Red sandy-clay and hardpan plains <b>Soil – Landscape and Land Systems</b> Joseph <b>Vegetation Condition</b> Good	D1, E75	See Yp3/a	<i>Mirbelia depressa</i> <i>Hakea invaginata</i> <i>Lawrencella davenportii</i> <i>Micromyrtus racemosa</i>  Species richness = 14.5 ± 7.78 (n = 2)	
Yp4	<i>Eucalyptus kochii</i> subsp. <i>amaryssia</i> open mid woodland, over isolated <i>Acacia ramulosa</i> var. <i>ramulosa</i> tall shrubs, over isolated <i>Acacia andrewsii</i> , <i>Ptilotus obovatus</i> and <i>Maireana</i> spp. low shrubs, over isolated <i>Eriachne helmsii</i> tussock grasses.  Area of Yp4 mapped in the survey area = 851 ha (0.4%).	<b>Habitat</b> Red sandy-clay and hardpan plains <b>Land System</b> Pindar <b>Vegetation Condition</b> Poor	D2	<i>Acacia subsessilis</i> (P3)	<i>Rhagodia eremaea</i> <i>Scaevola spinescens</i>  Species richness = 9 (n=1)	
Yp5	<i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia grasbyi</i> , <i>Acacia burkittii</i> and <i>Acacia aneura</i> open tall shrubland. (3 sub-units)				Combined species richness = 12.3 ± 4.03 (n =539)	Area of Yp5 mapped in the survey area = 28,448 ha (12.6%).
Yp5/a	<i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia grasbyi</i> (+/- <i>Acacia burkittii</i> ) open tall shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.	<b>Habitat</b> Red sandy-clay and hardpan plains <b>Land System</b> Nerramyne, Tindalarra, Yanganoo <b>Vegetation Condition</b> Poor-good	C69, C71, C72, C73, C74, C75, C82, C84, C86, C87, C103, C116, C148, C149, C150, D28, D32, D33, D35, D43, D44, D45, D46, D60	<i>Chamelaucium</i> sp. Yalgoo (P1) <i>Euphorbia sarcostemmoides</i> (P1) <i>Gunniopsis divisa</i> (P1) <i>Acacia speckii</i> (P3) <i>Acacia subsessilis</i> (P3) <i>Eremophila muelleriana</i> (P3) <i>Baeckea</i> sp. Melita Station (P3)	<i>Abutilon oxycarpum</i> subsp. <i>prostratum</i> <i>Eragrostis dielsii</i> <i>Eremophila clarkei</i> <i>Grevillea deflexa</i> <i>Hakea preissii</i> <i>Rhagodia eremaea</i> <i>Sida ectogama</i> <i>Solanum lasiophyllum</i>  Species richness = 11.9 ± 4.15 (n = 24)	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yp5/b	<i>Acacia grasbyi</i> , <i>Acacia aneura</i> var. <i>conifera</i> and <i>Acacia burkittii</i> open low woodland, over isolated <i>Ptilotus obovatus</i> low shrubs, over <i>Aristida contorta</i> open tussock grassland.	<p><b>Habitat</b> Red sandy-clay and hardpan plains</p> <p><b>Land System</b> Nerramyne, Tindalarra, Yanganoo</p> <p><b>Vegetation Condition</b> Good</p>	BRW28, C80, C81, C83, C105, C115, C118, C120, C121, C134, C144, C151, C152, C171, D48, D51, D52, D54, D55, D56	See Yp5/a	<p><i>Acacia ramulosa</i> var. <i>linophylla</i> <i>Acacia tetragonophylla</i> <i>Eremophila forrestii</i> subsp. <i>forrestii</i> <i>Grevillea deflexa</i> <i>Hakea preissii</i> <i>Hakea recurva</i> subsp. <i>arida</i> <i>Monachather paradoxus</i> <i>Rhagodia eremaea</i> <i>Senna</i> sp. Austin (A. Strid 20210) <i>Sida ectogama</i></p> <p>Species richness = 12.1 ± 4.02 (n = 20)</p>	
Yp5/c	<i>Acacia eremaea</i> , <i>Acacia burkittii</i> , <i>Acacia grasbyi</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> open low woodland, over isolated <i>Ptilotus obovatus</i> low shrubs, over <i>Aristida contorta</i> open tussock grassland.	<p><b>Habitat</b> Red sandy-clay and hardpan plains</p> <p><b>Land System</b> Nerramyne, Tindalarra, Yanganoo</p> <p><b>Vegetation Condition</b> Good</p>	C99, C107, C109, C110, C111, C119, C130, C172, D62	See Yp5/a	<p><i>Acacia tetragonophylla</i> <i>Eremophila clarkei</i> <i>Eremophila forrestii</i> subsp. <i>forrestii</i> <i>Hakea preissii</i> <i>Senna</i> sp. Austin (A. Strid 20210) <i>Sida ectogama</i> <i>Solanum lasiophyllum</i></p> <p>Species richness = 13.8 ± 3.86 (n = 9)</p>	
Yp6	<i>Acacia burkittii</i> , <i>Acacia quadrimarginea</i> , <i>Acacia aneura</i> (+/- <i>Acacia</i> aff. <i>rhodophloia</i> ) over isolated <i>Hakea preissii</i> and <i>Senna</i> spp. mid shrubs, over <i>Ptilotus obovatus</i> and <i>Acacia scleroclada</i> sparse low shrubland, over <i>Cymbopogon ambiguus</i> and <i>Aristida contorta</i> open tussock grassland.  Area of Yp6 mapped in the survey area = 4005 ha (1.8%).	<p><b>Habitat</b> Red sandy-clay plains, with outcropping granite boulders and slabs</p> <p><b>Land System</b> Challenge</p> <p><b>Vegetation Condition</b> Good</p>	C67, C91, C92, C95, C96, C97, C104, C128, C146, C173, C175	<p><i>Petrophile vana</i> (P1) <i>Sauropus</i> sp. Woolgorong (P1) <i>Acacia speckii</i> (P3) <i>Eremophila muelleriana</i> (P3) <i>Petrophile pauciflora</i> (P3) <i>Verticordia jamiesonii</i> (P3)</p>	<p><i>Acacia grasbyi</i> <i>Acacia ramulosa</i> var. <i>linophylla</i> <i>Acacia tetragonophylla</i> <i>Sclerolaena diacantha</i> <i>Senna glaucifolia</i> <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260) <i>Solanum lasiophyllum</i></p> <p>Species richness = 15.4 ± 7.02 (n = 11)</p>	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yf1	<p><i>Acacia burkittii</i> and <i>Acacia grasbyi</i> and (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i>) sparse tall shrubland over <i>Acacia tetragonophylla</i> sparse tall to mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.</p> <p>Area of Yf1 mapped in the survey area = 5460 ha (2.4%).</p>	<p><b>Habitat</b> Red sandy-clay floodplains</p> <p><b>Land System</b> Tindalarra</p> <p><b>Vegetation Condition</b> Poor</p>	B43, D6, D7, D9, D12, D14, D20, D22, D23, D24, D25, D27, D29, D31, D42	<p><i>Frankenia confusa</i> (P2)</p> <p><i>Eremophila arachnoides</i> subsp. <i>arachnoides</i> (P3)</p> <p><i>Petrophile pauciflora</i> (P3)</p>	<p><i>Acacia acuminata</i> <i>Acacia eremaea</i> <i>Borya sphaerocephala</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Hakea preissii</i> <i>Maireana triptera</i> <i>Sclerolaena densiflora</i> <i>Sclerolaena eurotioides</i></p> <p>Species richness = 11.1 ± 2.59 (n =15)</p>	
Yf2	<p>Isolated <i>Acacia synchronicia</i> tall shrubs, over isolated <i>Senna</i> sp. Meekatharra (E. Bailey 1-26), <i>Acacia synchronicia</i>, <i>Acacia tetragonophylla</i> and <i>Eremophila galeata</i> mid shrubs, over <i>Aristida contorta</i> tussock grassland.</p> <p>Area of Yf2 mapped in the survey area = 856 ha (0.4%).</p>	<p><b>Habitat</b> Hard clay pans</p> <p><b>Land System</b> Tindalarra, Ero</p> <p><b>Vegetation Condition</b> Degraded - poor</p>	C106, C135, C139, C174	No conservation significant taxa recorded	<p><i>Acacia eremaea</i> <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> <i>Hakea preissii</i> <i>Senna</i> sp. Meekatharra (E. Bailey 1-26)</p> <p>Species richness = 10.2 ± 0.95 (n = 4)</p>	
Yf3	<p><i>Acacia victoriae</i> sparse tall shrubland, over <i>Atriplex bunburyana</i> open mid shrubland, over <i>Atriplex bunburyana</i> sparse low shrubland, over <i>Aristida contorta</i> and <i>Eragrostis dielsii</i> sparse tussock grassland.</p> <p>Area of Yf3 mapped in the survey area = 403 ha (0.2%).</p>	<p><b>Habitat</b> Red sandy-clay floodplains</p> <p><b>Land System</b> Beringarra</p> <p><b>Vegetation Condition</b> Poor</p>	B15	No conservation significant taxa recorded	<p><i>Eragrostis dielsii</i> <i>Eremophila pterocarpa</i> subsp. <i>pterocarpa</i> <i>Maireana platycarpa</i></p> <p>Species richness = 7 (n = 4)</p>	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yf4	<i>Tecticornia disarticulata</i> , <i>Rhagodia eremaea</i> , <i>Frankenia laxiflora</i> , <i>Sclerolaena cuneata</i> and <i>Cratystylis subspinescens</i> low shrubland. Area of Yf4 mapped in the survey area = 63 ha (<0.1%).	<b>Habitat</b> Floodplains <b>Land System</b> Yewin <b>Vegetation Condition</b> Good	D36	No conservation significant taxa recorded	<i>Hakea preissii</i> Species richness = 6 (n = 1)	
Yf5	<i>Acacia eremaea</i> sparse tall shrubland, over mixed <i>chenopod</i> spp. low shrubland. (4 sub-units)				Combined species richness = 11.7 ± 4.03 (n = 25)	Area of Yf5 mapped in the survey area = 8049 ha (3.6%).
Yf5/a	<i>Acacia eremaea</i> and <i>Acacia grasbyi</i> sparse tall shrubland, over <i>Ptilotus obovatus</i> , <i>Maireana pyramidata</i> , <i>Maireana triptera</i> and <i>Maireana convexa</i> open low shrubland.	<b>Habitat</b> Red sandy-clay floodplains <b>Land System</b> Yewin, Tindalarra <b>Vegetation Condition</b> Poor	C94, C169, D64, D30, D38, D39, D40, D53, D66, D141, D143, D155, D158	<i>Petrophile vana</i> (P1) <i>Frankenia confusa</i> (P2) <i>Calytrix erosipetala</i> (P3) <i>Eremophila muelleriana</i> (P3) <i>Petrophile pauciflora</i> (P3) <i>Verticordia jamiesonii</i> (P3) <i>Baeckea</i> sp. Melita Station (P4)	<i>Acacia burkittii</i> <i>Acacia tetragonophylla</i> <i>Aristida contorta</i> <i>Atriplex bunburyana</i> <i>Eragrostis dielsii</i> <i>Maireana georgei</i> <i>Rhagodia eremaea</i> <i>Sclerolaena eurotioides</i> <i>Senna</i> sp. Austin (A. Strid 20210) Species richness = 10 ± 2.24 (n =13)	
Yf5/b	<i>Acacia eremaea</i> and <i>Acacia tetragonophylla</i> (+/- <i>Acacia grasbyi</i> ) open tall shrubland, over <i>Senna</i> spp. sparse mid shrubland, over <i>Aristida contorta</i> and <i>Eragrostis pergracilis</i> tussock grassland.	<b>Habitat</b> Red sandy-clay floodplains <b>Land System</b> Yewin, Tindalarra <b>Vegetation Condition</b> Good	C114, C122, C123, C140, C162, D47, D57	See Yf5/a	<i>Acacia aneura</i> <i>Ptilotus obovatus</i> <i>Senna</i> sp. Austin (A. Strid 20210) Species richness = 13.1 ± 2.73 (n = 7)	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yf5/c	<i>Acacia eremaea</i> and <i>Acacia aneura</i> sparse to open tall shrubland, over <i>Ptilotus obovatus</i> , <i>Frankenia setosa</i> , <i>Senna</i> sp. Austin (A. Strid 20210), <i>Micromyrtus sulphurea</i> , <i>Dodonaea microzyga</i> var. <i>acrolobata</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> and <i>Maireana glomerifolia</i> sparse low shrubland.	<p><b>Habitat</b> Red sandy-clay floodplains</p> <p><b>Land System</b> Yewin, Tindalarra</p> <p><b>Vegetation Condition</b> Good</p>	C145, C170, D58	See Yf5/a	<p><i>Acacia tetragonophylla</i> <i>Ptilotus schwartzii</i> var. <i>schwartzii</i></p> <p>Species richness = 16.3 ± 8.39 (n = 3)</p>	
Yf5/d	<i>Acacia masliniana</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over <i>Acacia masliniana</i> and <i>Cratystylis subspinescens</i> sparse mid shrubland, over <i>Atriplex bunburyana</i> , <i>Tecticornia disarticulata</i> and <i>Cratystylis subspinescens</i> open low shrubland, over isolated <i>Eragrostis dielsii</i> tussock grasses.	<p><b>Habitat</b> Red sandy-clay floodplains and plains</p> <p><b>Land System</b> Yewin, Tindalarra</p> <p><b>Vegetation Condition</b> Poor - good</p>	D142, D156	See Yf5/a	<p><i>Eremophila youngii</i> subsp. <i>youngii</i> <i>Maireana pyramidata</i></p> <p>Species richness = 10.5 ± 4.95 (n = 2)</p>	
Yc1	<i>Casuarina obesa</i> open to sparse low forest, over <i>Duboisia hopwoodii</i> sparse tall shrubland, over <i>Atriplex amnicola</i> , <i>Tecticornia indica</i> subsp. <i>bidens</i> and <i>Tecticornia lepidosperma</i> open low chenopod shrubland, over <i>*Hordeum glaucum</i> and <i>*Avena fatua</i> tussock grassland.  Area of Yc1 mapped in the survey area = 532 ha (0.2%).	<p><b>Habitat</b> Sandy creeklines</p> <p><b>Land System</b> Tindalarra</p> <p><b>Vegetation Condition</b> Poor</p>	D13, D19, E3, E7, E29, E86, E67, E76, E112	<i>Frankenia confusa</i> (P2)	<p><i>*Arctotheca calendula</i> <i>*Avena fatua</i> <i>Cynodon dactylon</i> <i>Cyperus gymnocaulis</i> <i>Duboisia hopwoodii</i> <i>Eradium cygnorum</i> <i>*Medicago truncatula</i> <i>Melaleuca eleuterostachya</i> <i>Pluchea rubelliflora</i> <i>Sclerolaena diacantha</i> <i>*Sisymbrium erysimoides</i> <i>*Sonchus oleraceus</i> <i>Tecticornia disarticulata</i></p> <p>Species richness = 17.9 ± 8.23 (n = 9)</p>	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Yc2	<p><i>Acacia burkittii</i> (+/<i>Acacia acuminata</i>) mid woodland, over <i>Acacia burkittii</i>, <i>Hakea preissii</i> and <i>Acacia tetragonophylla</i> low woodland to sparse tall shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Cyperus bifax</i> sparse sedgeland, over <i>Monachather paradoxus</i> and *<i>Setaria verticillata</i> tussock grassland.</p> <p>Area of Yc2 mapped in the survey area = 2712 ha (1.2%).</p>	<p><b>Habitat</b> Sandy creeklines and minor channels</p> <p><b>Land System</b> Tindalarra, Yanganoo, Ero</p> <p><b>Vegetation Condition</b> Poor</p>	C70, C79, C85, C112, C117, C138, C163, D3, D8, D50, D59, D65, D157, E109, E114	<p><i>Petrophile vana</i> (P1) <i>Frankenia confusa</i> (P2) <i>Eremophila muelleriana</i> (P3) <i>Indigofera gilesii</i> subsp. <i>gilesii</i> (P3)</p>	<p><i>Abutilon oxycarpum</i> subsp. <i>prostratum</i> <i>Acacia ramulosa</i> var. <i>linophylla</i> <i>Aristida contorta</i> <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> <i>Eragrostis pergracilis</i> <i>Hakea preissii</i> <i>Hakea recurva</i> <i>Lawrencella rosea</i> <i>Rhagodia latifolia</i> subsp. <i>latifolia</i> <i>Senna</i> sp. Austin (A. Strid 20210) <i>Solanum lasiophyllum</i></p> <p>Species richness = 19.3 ± 5.87 (n = 15)</p>	
Mh1	<p><i>Acacia rhodophloia</i>, <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> open tall shrubland, over <i>Eriachne aristidea</i> sparse tussock grassland.</p> <p>Area of Mh1 mapped in the survey area = 384 ha (0.2%).</p>	<p><b>Habitat</b> Minor channels on hill slopes at Jack Hills</p> <p><b>Land System</b> Weld</p> <p><b>Vegetation Condition</b> Excellent</p>	A130, A132, AJ1, AJ21	No conservation significant taxa recorded	<p><i>Aristida contorta</i> <i>Corchorus crozophorifolius</i> <i>Eremophila margarethae</i> <i>Eriachne pulchella</i> subsp. <i>pulchella</i> <i>Goodenia tenuiloba</i> <i>Mirbelia rhagadioides</i> <i>Ptilotus obovatus</i> <i>Solanum lasiophyllum</i></p> <p>Species richness = 12 ± 4.24 (n = 4)</p>	
Mh2	Sparse <i>Acacia aneura</i> and/or <i>Acacia rhodophloia</i> low woodland, over <i>Ptilotus obovatus</i> sparse low shrubland. (2 sub-units)				Combined species richness = 8.2 ± 1.92 (n = 5)	Area of Mh2 mapped in the survey area = 225 ha (0.1%).
Mh2/a	Isolated <i>Acacia aneura</i> low trees, over <i>Ptilotus obovatus</i> open low shrubland, over isolated <i>Eriachne mucronata</i> tussock grasses.	<p><b>Habitat</b> BIF upper hill slopes and ridgetops at Jack Hills</p> <p><b>Land System</b> Weld</p> <p><b>Vegetation Condition</b> Good</p>	A125	No conservation significant taxa recorded	<p><i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> <i>Corchorus crozophorifolius</i></p> <p>Species richness = 6 (n = 1)</p>	






#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mh2/ b	Isolated <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> low trees, over <i>Acacia rhodophloia</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> ) open tall shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Eriachne mucronata</i> sparse tussock grassland.	<b>Habitat</b> BIF upper hill slopes and ridgetops at Jack Hills <b>Land System</b> Weld <b>Vegetation Condition</b> Good	A123, A124, A126, A138	No conservation significant taxa recorded	<i>Dodonaea petiolaris</i> <i>Goodenia tenuiloba</i> <i>Grevillea nematophylla</i> subsp. <i>supraplana</i> <i>Sida cardiophylla</i>  Species richness = 8.75 ± 1.71 (n = 4)	
Mh3	Isolated <i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> ) low trees, over isolated <i>Aristida contorta</i> tussock grasses.  Area of Mh3 mapped in the survey area = 3632 ha (1.6%).	<b>Habitat</b> Lower BIF footslopes and plains at Jack Hills <b>Land System</b> Weld, Yameedie <b>Vegetation Condition</b> Good	A131, A133, A134, A136, AJ6, AJ41, AJ43	<i>Euphorbia sarcostemmoides</i> (P1) <i>Calytrix verruculosa</i> (P3) <i>Homalocalyx echinulatus</i> (P3)	<i>Acacia tetragonophylla</i> <i>Eragrostis cumingii</i> <i>Eriachne aristidea</i> <i>Ptilotus obovatus</i>  Species richness = 15 ± 5.29 (n = 7)	
Mh4	<i>Acacia aneura</i> and <i>Acacia citrinoviridis</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over <i>Sida cardiophylla</i> and <i>Ptilotus obovatus</i> open low shrubland, over isolated <i>Monachather paradoxus</i> tussock grasses.  Area of Mh4 mapped in the survey area = 426 ha (0.2%).	<b>Habitat</b> Low quartzite hill slopes at Jack Hills <b>Land System</b> Weld <b>Vegetation Condition</b> Good	A120	<i>Prostanthera petrophila</i> (P3)	<i>Eragrostis eriopoda</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Goodenia tenuiloba</i> <i>Ptilotus schwartzii</i> var. <i>schwartzii</i>  Species richness = 12 (n = 12)	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mh5	<i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> ) sparse to open low woodland, over mixed <i>Eremophila</i> spp. mid shrubland (2 sub-units)				Combined species richness = $9.4 \pm 2.7$ (n = 5)	Area of Mh5 mapped in the survey area = 4298 ha (1.9%).
Mh5/a	Isolated <i>Acacia pruinocarpa</i> low trees, over <i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia aneura</i> open tall shrubland, over isolated <i>Eremophila forrestii</i> and <i>Eremophila georgei</i> mid shrubs, over <i>Ptilotus obovatus</i> and <i>Ptilotus schwartzii</i> sparse low shrubland.	<p><b>Habitat</b> BIF footslope and midslopes at Weld Range</p> <p><b>Land System</b> Weld, Yameedie</p> <p><b>Vegetation Condition</b> Poor</p>	BWR183, BO32	<p><i>Hemigenia virescens</i> (P3)</p> <p><i>Prostanthera petrophila</i> (P3)</p>	<p><i>Acacia pruinocarpa</i></p> <p><i>Aristida contorta</i></p> <p><i>Eremophila latrobei</i> subsp. <i>latrobei</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = <math>6.5 \pm 0.7</math> (n = 2)</p>	
Mh5/b	<i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> ) open tall to mid shrubland, over <i>Eremophila forrestii</i> open low shrubland, over isolated <i>Eragrostis eriopoda</i> tussock grasses	<p><b>Habitat</b> BIF footslope and midslopes at Weld Range</p> <p><b>Land System</b> Weld, Yameedie</p> <p><b>Vegetation Condition</b> Good</p>	B103, BO40, BW14	See Mh5/a	<p><i>Eremophila glutinosa</i></p> <p><i>Maireana platycarpa</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = <math>11.3 \pm 0.58</math> (n = 3)</p>	
Mh6	Isolated <i>Acacia pruinocarpa</i> low trees, over <i>Acacia aneura</i> sparse tall shrubland, over <i>Thryptomene decussata</i> (+/- <i>Prostanthera petrophila</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Philotheca brucei</i> subsp. <i>brucei</i> ) mid shrubland, over <i>Ptilotus obovatus</i> low shrubland, over <i>Eriachne mucronata</i> and <i>Cymbopogon ambiguus</i> sparse tussock grassland.  Area of Mh6 mapped in the survey area = 71 ha (<0.1%).	<p><b>Habitat</b> BIF upper slopes and ridgetops at Weld Range</p> <p><b>Land System</b> Weld</p> <p><b>Vegetation Condition</b> Good</p>	BWR37, BWR176	<p><i>Sauropus</i> sp. Woolgorong (P1)</p> <p><i>Prostanthera petrophila</i> (P3)</p>	<p><i>Dodonaea viscosa</i> subsp. <i>spatulata</i></p> <p><i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)</p> <p>Species richness = <math>13 \pm 4.24</math> (n = 2)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mh7	<p><i>Acacia</i> sp. Weld Range (A. Markey &amp; S. Dillon 2994) and <i>Acacia aneura</i> open tall shrubland, over <i>Eremophila macmillaniana</i> and <i>Senna artemisioides</i> subsp. <i>helmsii</i>, open mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland.</p> <p>Area of Mh7 mapped in the survey area = 94 ha (&lt;0.1%).</p>	<p><b>Habitat</b> Low rocky hill slopes at Weld Range</p> <p><b>Land System</b> Yarrameedie</p> <p><b>Vegetation Condition</b> Good</p>	BWR94	No conservation significant taxa recorded	<p><i>Cheilanthes lasiophylla</i> <i>Enneapogon caeruleus</i> <i>Eremophila forrestii</i> <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> <i>Indigofera monophylla</i> <i>Senna glaucifolia</i></p> <p>Species richness = 17 (n =1)</p>	
Mh8	<p><i>Acacia aneura</i> open low woodland, over <i>Eremophila macmillaniana</i> open mid shrubland, over <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260) scattered low shrubs, over <i>Aristida contorta</i> open tussock grassland.</p> <p>Area of Mh8 mapped in the survey area = 750 ha (0.3%).</p>	<p><b>Habitat</b> BIF mid slopes at Weld Range</p> <p><b>Land System</b> Weld</p> <p><b>Vegetation Condition</b> Good</p>	BWR76	<p><i>Acacia speckii</i> (P3) <i>Dodonaea amplisemina</i> (P3) <i>Grevillea inconspicua</i> (P4)</p>	<p><i>Abutilon otocarpum</i> <i>Calytrix desolata</i> <i>Eremophila glutinosa</i> <i>Psyrax latifolia</i> <i>Ptilotus obovatus</i> <i>Senna artemisioides</i> subsp. <i>helmsii</i></p> <p>Species richness = 14 (n = 1)</p>	
Mh9	<p><i>Acacia aneura</i> open low woodland, over <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> and <i>Eremophila spathulata</i> sparse mid shrubland, over <i>Eremophila latrobei</i> subsp. <i>latrobei</i> sparse low shrubland, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> sparse tussock grassland.</p> <p>Area of Mh9 mapped in the survey area = 115 ha (0.1%).</p>	<p><b>Habitat</b> Low quartzite hill slopes</p> <p><b>Land System</b> Mindura</p> <p><b>Vegetation Condition</b> Good</p>	A68	<p><i>Acacia speckii</i> (P3) <i>Ptilotus beardii</i> (P3)</p>	<p><i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> <i>Eremophila exilifolia</i> <i>Maireana thesioides</i> <i>Spartothamnella teucriflora</i></p> <p>Species richness = 9 (n = 1)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mh10	<i>Acacia</i> spp., sparse tall shrubland, over <i>Eremophila</i> spp. sparse mid shrubland (2 sub-units)				Combined species richness = 12.8 ± 4.2 (n = 6)	Area of Mh10 mapped in the survey area = 29 ha (<0.1%).
Mh10 /a	Isolated <i>Acacia ramulosa</i> var. <i>linophylla</i> low trees, over isolated <i>Acacia demissa</i> tall shrubs, over <i>Acacia</i> aff. <i>rhodophloia</i> open mid shrubland, over isolated <i>Eremophila glutinosa</i> and <i>Senna artemisioides</i> subsp. <i>helmsii</i> low shrubs, over isolated <i>Aristida contorta</i> tussock grasses.	<b>Habitat</b> Rocky granite ridgetops <b>Land System</b> Millrose, Mindura <b>Vegetation Condition</b> Excellent	A61, A102, A103	<i>Euphorbia sarcostemmoides</i> (P1) <i>Acacia speckii</i> (P3)	<i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Ptilotus obovatus</i> <i>Solanum lasiophyllum</i>  Species richness = 13 ± 3 (n = 3)	
Mh10 /b	<i>Acacia aneura</i> open low woodland (+/- <i>Acacia kempeana</i> ) over <i>Eremophila galeata</i> sparse low shrubland, over <i>Cymbopogon ambiguus</i> and <i>Digitaria brownii</i> sparse tussock grassland.	<b>Habitat</b> Rocky granite ridgetops <b>Land System</b> Millrose, Mindura <b>Vegetation Condition</b> Excellent	A70, A143, A146,	See Mh10/a	<i>Abutilon leucopetalum</i> <i>Boerhavia coccinea</i> <i>Digitaria brownii</i> <i>Eremophila forrestii</i> <i>Gnephosis tenuissima</i> <i>Solanum lasiophyllum</i> <i>Tripogon loliiiformis</i>  Species richness = 12.7 ± 5.77 (n = 3)	
Mh11	<i>Acacia</i> aff. <i>rhodophloia</i> open tall shrubland, over <i>Dodonaea petiolaris</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> , <i>Pluchea dentex</i> , <i>Stemodia viscosa</i> , <i>Solanum lasiophyllum</i> and <i>Hibiscus coatesii</i> sparse low shrubland, over <i>Aristida contorta</i> and <i>Cymbopogon ambiguus</i> tussock grassland.  Area of Mh11 mapped in the survey area = 746 ha (0.3%).	<b>Habitat</b> Base of a granite outcrops <b>Land System</b> Norie, Challenge <b>Vegetation Condition</b> Good	B20, B37, B40, B61, B67, B69, B70, B73, C68	<i>Euphorbia sarcostemmoides</i> (P1)	<i>Abutilon oxycarpum</i> <i>Acacia</i> sp. Weld Range (A. Markey & S. Dillon 2994) <i>Acacia tetragonophylla</i> <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> <i>Eremophila exilifolia</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> <i>Solanum ellipticum</i>  Species richness = 18.1 ± 3.22 (n = 9)	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mh12	<p><i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over isolated <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> low shrubs, over <i>Cymbopogon ambiguus</i>, sparse tussock grassland.</p> <p>Area of Mh12 mapped in the survey area = 1094 ha (0.5%).</p>	<p><b>Habitat</b> Granite outcrops and plains</p> <p><b>Land System</b> Norie, Challenge</p> <p><b>Vegetation Condition</b> Poor</p>	B6, B19, B38	No conservation significant taxa recorded	<p><i>Aristida contorta</i> <i>Solanum lasiophyllum</i></p> <p>Species richness = 8.3 ± 0.58 (n = 3)</p>	
Mh13	<p><i>Acacia</i> sp. Weld Range (A. Markey &amp; S. Dillon 2994) sparse mid shrubland, over <i>Dodonaea pachyneura</i> and <i>Philotheca</i> aff. <i>tubiflora</i> sparse low shrubland, over isolated <i>Eragrostis</i> sp. tussock grasses.</p> <p>Area of Mh13 mapped in the survey area = 526 ha (0.2%).</p>	<p><b>Habitat</b> Lateritic breakaways</p> <p><b>Land System</b> Sherwood</p> <p><b>Vegetation Condition</b> Good</p>	A12	<p><i>Acacia speckii</i> (P3) <i>Calytrix uncinata</i> (P3) <i>Grevillea stenostachya</i> (P3) <i>Petrophile pauciflora</i> (P3) <i>Baeckea</i> sp. Melita Station (P4)</p>	<p><i>Eremophila glutinosa</i> <i>Eremophila margarethae</i> <i>Mirbelia rhagadioides</i> <i>Ptilotus obovatus</i> <i>Sida ectogama</i> <i>Stylidium induratum</i></p> <p>Species richness = 11 (n = 1)</p>	
Mh14	<p>Isolated <i>Acacia aneura</i> low trees, over <i>Thryptomene decussata</i> sparse mid to low shrubland, over isolated <i>Monachather paradoxus</i> tussock grasses.</p> <p>Area of Mh14 mapped in the survey area = 159 ha (0.1%).</p>	<p><b>Habitat</b> Low gravelly rises</p> <p><b>Land System</b> Millrose</p> <p><b>Vegetation Condition</b> Good</p>	A34	<p><i>Sauropus</i> sp. Woolgorong (P1) <i>Hemigenia tysonii</i> (P3) <i>Hemigenia virescens</i> (P3)</p>	<p><i>Acacia kempeana</i> <i>Eremophila compacta</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Maireana villosa</i> <i>Mirbelia rhagadioides</i> <i>Ptilotus obovatus</i> <i>Senna glaucifolia</i></p> <p>Species richness = 12 (n = 1)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mh15	<i>Acacia aneura</i> open low woodland, over <i>Sida</i> spp. and <i>Ptilotus obovatus</i> sparse low shrubland (2 sub-units)				Combined species richness = 13.5 ± 3.0 (n = 4)	Area of Mh15 mapped in the survey area = 1813 ha (0.8%).
Mh15 /a	Isolated <i>Acacia aneura</i> low trees, over isolated <i>Acacia demissa</i> tall shrubs, over <i>Eremophila exilifolia</i> , <i>Eremophila macmillaniana</i> and <i>Dodonaea amplisemina</i> sparse low shrubland.	<b>Habitat</b> Low ironstone hill slopes <b>Land System</b> Wiluna, Gabanintha <b>Vegetation Condition</b> Good	B82	<i>Dodonaea amplisemina</i> (P3) <i>Grevillea inconspicua</i> (P4)	<i>Acacia tetragonophylla</i> <i>Indigofera monophylla</i> <i>Sclerolaena densiflora</i> <i>Senna artemisioides</i> subsp. <i>helmsii</i> <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260) <i>Tribulus suberosus</i>  Species richness = 7 (n = 17)	
Mh15 /b	<i>Acacia aneura</i> low woodland, over <i>Ptilotus obovatus</i> , <i>Sida ectogama</i> and <i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32) sparse low shrubland.	<b>Habitat</b> Low ironstone hill slopes <b>Land System</b> Wiluna, Gabanintha <b>Vegetation Condition</b> Good	B60, B76, B77	See Mh15/a	<i>Acacia pruinocarpa</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Maireana platycarpa</i> <i>Solanum lasiophyllum</i>  Species richness = 12.3 ± 2.31 (n = 3)	
Mh16	<i>Acacia aneura</i> open low woodland, over <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over <i>Maireana triptera</i> and <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.  Area of Mh16 mapped in the survey area = 718 ha (0.3%).	<b>Habitat</b> Low ironstone footslopes <b>Land System</b> Gabanintha <b>Vegetation Condition</b> Good	B83, B036	No conservation significant taxa recorded	<i>Enneapogon caeruleus</i> <i>Eremophila fraseri</i> <i>Eremophila georgei</i> <i>Hakea preissii</i> <i>Rhagodia eremaea</i> <i>Solanum lasiophyllum</i>  Species richness = 14 ± 2.83 (n = 2)	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mh17	<p><i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> open tall shrubland, over <i>Aluta aspera</i> subsp. <i>hesperia</i> or <i>Eremophila forrestii</i> open mid shrubland, over <i>Monachather paradoxus</i> sparse tussock grassland.</p> <p>Area of Mh17 mapped in the survey area = 1876 ha (0.8%).</p>	<p><b>Habitat</b> Low gravelly rises</p> <p><b>Land System</b> Challenge, Norie</p> <p><b>Vegetation Condition</b> Good</p>	C101, C108	<p><i>Dicrastylis linearifolia</i> (P3) <i>Eremophila muelleriana</i> (P3)</p>	<p><i>Eremophila latrobei</i> subsp. <i>latrobei</i></p> <p>Species richness = 18.5 ± 7.78 (n = 2)</p>	
Mh18	<i>Acacia</i> spp. sparse tall shrubland, over <i>Eremophila latrobei</i> subsp. <i>latrobei</i> and mixed Myrtaceae spp. open low shrubland (2 sub-units)				Combined species richness = 12.2 ± 5.12 (n = 5)	Area of Mh15 mapped in the survey area = 102 ha (<0.1%).
Mh18 /a	<p>Isolated <i>Acacia aulacophylla</i> tall shrubs, over <i>Thryptomene costata</i> and <i>Eremophila latrobei</i> subsp. <i>latrobei</i> sparse mid shrubland, over <i>Thryptomene costata</i>, <i>Philothea sericea</i>, <i>Micromyrtus racemosa</i> var. <i>prochytes</i> and <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> sparse low shrubland, over <i>Tripogon loliiformis</i> sparse tussock grassland.</p>	<p><b>Habitat</b> Lateritic and calcrete breakaways</p> <p><b>Land System</b> Challenge, Waguin, Norie</p> <p><b>Vegetation Condition</b> Excellent</p>	C98, C153, C164	<p><i>Petrophile vana</i>(P1) <i>Calytrix erosipetala</i> (P3) <i>Verticordia jamiesonii</i> (P3) <i>Baeckea</i> sp. Melita Station (P4)</p>	<p><i>Grevillea sarissa</i> subsp. <i>sarissa</i> <i>Hakea recurva</i> subsp. <i>arida</i> <i>Hemigenia</i> sp. Yalgoo (A.M. Ashby 2624) <i>Ptilotus obovatus</i> <i>Stylidium longibracteatum</i> <i>Thryptomene decussata</i></p> <p>Species richness = 14 ± 4.58 (n = 3)</p>	
Mh18 /b	<p><i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over <i>Eremophila clarkei</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> and <i>Eremophila latrobei</i> subsp. <i>latrobei</i> open low shrubland.</p>	<p><b>Habitat</b> Lateritic and calcrete breakaways</p> <p><b>Land System</b> Challenge, Waguin, Norie</p> <p><b>Vegetation Condition</b> Poor</p>	C88	See Mh18/a	<p><i>Acacia aulacophylla</i> <i>Philothea sericea</i></p> <p>Species richness = 7 (n = 1)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mr1	<p><i>Acacia aneura</i> (+/-<i>Acacia ramulosa</i> var. <i>linophylla</i>) sparse low woodland, over <i>Eremophila compacta</i> subsp. <i>compacta</i> mid shrubland, over <i>Mirbelia rhagodioides</i> and (+/- <i>Hemigenia virescens</i>) sparse low shrubland, over <i>Aristida holathera</i> var. <i>holathera</i> and <i>Eriachne aristidea</i> tussock grassland.</p> <p>Area of Mr1 mapped in the survey area = 7239 ha (3.2%).</p>	<p><b>Habitat</b> Red sand plains</p> <p><b>Land System</b> Belele, Flood</p> <p><b>Vegetation Condition</b> Good</p>	A87, A90, A140, A141, A127, A128, A137, AJ5, AJ23, AJ42, AJ45, BRW43, BRW48, BW3, BW13, BW17, BW18, BW19, BW21, BW23	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Calytrix verruculosa</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Hemigenia virescens</i> (P3)</p>	<p><i>Acacia tetragonophylla</i> <i>Aristida contorta</i> <i>Eragrostis eriopoda</i> <i>Eremophila foliosissima</i> <i>Eremophila forrestii</i> <i>Eremophila hughesii</i> subsp. <i>hughesii</i> <i>Eriachne helmsii</i> <i>Monachather paradoxus</i> <i>Ptilotus obovatus</i> <i>Senna artemisioides</i> subsp. <i>helmsii</i> <i>Solanum lasiophyllum</i></p> <p>Species richness = 13.6 ± 4.48 (n = 20)</p>	
Mr2	<p><i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> open tall shrubland, over <i>Eremophila forrestii</i> (+/- <i>Eremophila simulans</i> subsp. <i>simulans</i>) open mid shrubland, over <i>Eriachne helmsii</i> and <i>Monachather paradoxus</i> open tussock grassland.</p> <p>Area of Mr2 mapped in the survey area = 10,661 ha (4.7%).</p>	<p><b>Habitat</b> Red sand plains</p> <p><b>Land System</b> Kalli</p> <p><b>Vegetation Condition</b> Good - excellent</p>	A8, A10, A11, A16, A18, A20, A21, A22, A23, A24, A31, A32, A41, A148, B96, B98, BW6, BW9, BW10	<p><i>Sauropus</i> sp. Woolgorong (P1)</p> <p><i>Grevillea stenostachya</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Hemigenia virescens</i> (P3)</p> <p><i>Prostanthera petrophila</i> (P3)</p> <p><i>Verticordia jamiesonii</i> (P3)</p> <p><i>Baeckea</i> sp. Melita Station (P4)</p>	<p><i>Acacia murrayana</i> <i>Acacia pruinocarpa</i> <i>Acacia tetragonophylla</i> <i>Eragrostis eriopoda</i> <i>Eremophila compacta</i> <i>Hibiscus burtonii</i> <i>Ptilotus obovatus</i> <i>Ptilotus schwartzii</i> <i>Rhagodia eremaea</i> <i>Solanum lasiophyllum</i> <i>Thyridolepis multiculmis</i></p> <p>Species richness = 14.2 ± 4.63 (n = 19)</p>	
Mr3	<p><i>Acacia aneura</i> open tall shrubland, over <i>Eremophila forrestii</i> (+/- <i>Eremophila</i> and <i>Senna</i> spp.) open mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland, over <i>Monachather paradoxus</i> open tussock grassland.</p> <p>Area of Mr3 mapped in the survey area = 2487 ha (1.1%).</p>	<p><b>Habitat</b> Red sand plains</p> <p><b>Land System</b> Yandil</p> <p><b>Vegetation Condition</b> Good</p>	A27, A28, A29, A30, A40	<p><i>Grevillea stenostachya</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p>	<p><i>Acacia pruinocarpa</i> <i>Aristida contorta</i> <i>Eragrostis eriopoda</i> <i>Eremophila compacta</i> <i>Maireana tomentosa</i> <i>Senna artemisioides</i> subsp. <i>helmsii</i> <i>Solanum lasiophyllum</i></p> <p>Species richness = 15.2 ± 1.92 (n = 5)</p>	



#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mp1	<i>Eremophila spathulata</i> and/or <i>Eremophila macmillaniana</i> sparse mid shrubland (2 sub-units)				Combined species richness = 9.9 ± 3.32 (n = 23)	Area of Mp1 mapped in the survey area = 10,634 ha (4.7%).
Mp1/a	Isolated <i>Acacia aneura</i> low trees, over <i>Eremophila spathulata</i> (+/- <i>Eremophila macmillaniana</i> ) sparse mid shrubland, over isolated <i>Senna artemisioides</i> subsp. <i>helmsii</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) low shrubs, over <i>Aristida contorta</i> sparse tussock grassland.	<p><b>Habitat</b> Stony quartzite plains on hardpan</p> <p><b>Land System</b> Koonmarra</p> <p><b>Vegetation Condition</b> Good</p>	A46, A48, A52, A60, A62, A63, A65, A66, A69, A75, A83, A84, A92, A93, A100, A104, A106, A111, A112, A114, A116, A117	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Calytrix verruculosa</i> (P3)</p> <p><i>Dodonaea amplisemina</i> (P3)</p> <p><i>Grevillea stenostachya</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Hemigenia virescens</i> (P3)</p>	<p><i>Acacia tetragonophylla</i></p> <p><i>Eriachne pulchella</i> subsp. <i>pulchella</i></p> <p><i>Ptilotus obovatus</i></p> <p><i>Senna glaucifolia</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 10.1 ± 3.22 (n = 22)</p>	
Mp1/b	Isolated <i>Acacia victoriae</i> mid shrubs, over <i>Maireana triptera</i> low shrubland, over isolated <i>Aristida contorta</i> tussock grasses.	<p><b>Habitat</b> Stony quartzite plains on hardpan</p> <p><b>Land System</b> Koonmarra</p> <p><b>Vegetation Condition</b> Good</p>	A49	See Mp1/a	<p><i>Sclerolaena densiflora</i></p> <p><i>Senna</i> sp. Meekatharra (E. Bailey 1-26)</p> <p>Species richness = 5 (n = 1)</p>	
Mp2	<i>Acacia aneura</i> sparse low woodland, over <i>Eremophila fraseri</i> (+/- <i>Eremophila macmillaniana</i> ) and <i>Senna artemisioides</i> subsp. <i>helmsii</i> open mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Aristida contorta</i> sparse tussock grassland.  Area of Mp2 mapped in the survey area = 7562 ha (3.4%).	<p><b>Habitat</b> Hardpan plains</p> <p><b>Land System</b> Koonmarra, Yandil</p> <p><b>Vegetation Condition</b> Good</p>	A26, A36, A38, A64, A77, A81, A82, A85, A86, A88, A89, A94, A96, A97, A98, A99, A105, A108, A109, A110, A129, A139, A142, A145, A147	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Calytrix verruculosa</i> (P3)</p> <p><i>Dodonaea amplisemina</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Hemigenia virescens</i> (P3)</p> <p><i>Baeckea</i> sp. Melita Station (P4)</p>	<p><i>Acacia tetragonophylla</i></p> <p><i>Eragrostis pergracilis</i></p> <p><i>Euphorbia drummondii</i></p> <p><i>Senna glaucifolia</i></p> <p><i>Solanum lasiophyllum</i></p> <p><i>Spartothamnella teucriflora</i></p> <p>Species richness = 12.6 ± 5.53 (n = 25)</p>	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mp3	<p>Isolated <i>Acacia aneura</i> low trees, over open <i>Senna artemisioides</i> subsp. <i>helmsii</i>, <i>Senna glaucifolia</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.</p> <p>Area of Mp3 mapped in the survey area = 2771 ha (1.2%).</p>	<p><b>Habitat</b> Hardpan plains</p> <p><b>Land System</b> Yandil, Ero</p> <p><b>Vegetation Condition</b> Good</p>	A43, A45, A51, A53, A57, A59, A79	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Sauropus</i> sp. Woolgorong (P1)</p>	<p><i>Acacia kempeana</i></p> <p><i>Acacia tetragonophylla</i></p> <p><i>Eremophila fraseri</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 10.1 ± 3.34 (n = 7)</p>	
Mp4	<p>Isolated <i>Acacia pruinocarpa</i> low trees, over <i>Acacia aneura</i> and <i>Acacia craspedocarpa</i> x <i>aneura</i> sparse tall shrubland, over isolated <i>Eremophila fraseri</i> mid shrubs, over <i>Ptilotus obovatus</i> sparse low shrubland.</p> <p>Area of Mp4 mapped in the survey area = 2783 ha (1.2%).</p>	<p><b>Habitat</b> Hardpan plains</p> <p><b>Land System</b> Yandil</p> <p><b>Vegetation Condition</b> Excellent</p>	A35, A37, A39, A42	<p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Hemigenia virescens</i> (P3)</p> <p><i>Ptilotus beardii</i> (P3)</p>	<p><i>Acacia tetragonophylla</i></p> <p><i>Eremophila compacta</i></p> <p><i>Eremophila latrobei</i> subsp. <i>latrobei</i></p> <p><i>Ptilotus schwartzii</i></p> <p><i>Senna glaucifolia</i></p> <p>Species richness = 12.7 ± 2.5 (n = 4)</p>	
Mp5	<p><i>Acacia aneura</i> open low woodland, over isolated <i>Acacia demissa</i> tall shrubs, over <i>Senna artemisioides</i> subsp. <i>helmsii</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland.</p> <p>Area of Mp5 mapped in the survey area = 4103 ha (1.8%).</p>	<p><b>Habitat</b> Hardpan plains with outcropping granite boulders</p> <p><b>Land System</b> Sherwood, Yandil, Mindura</p> <p><b>Vegetation Condition</b> Good</p>	A14, A47, A71, A72, A150	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Sauropus</i> sp. Woolgorong (P1)</p> <p><i>Acacia speckii</i> (P3)</p> <p><i>Calytrix verruculosa</i> (P3)</p> <p><i>Dodonaea amplisemina</i> (P3)</p> <p><i>Grevillea stenostachya</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Ptilotus beardii</i> (P3)</p>	<p><i>Acacia tetragonophylla</i></p> <p><i>Cymbopogon ambiguus</i></p> <p><i>Eremophila latrobei</i> subsp. <i>latrobei</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 11.4 ± 3.78 (n = 5)</p>	




#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mp6	Isolated <i>Acacia aneura</i> low trees, over <i>Ptilotus obovatus</i> and mixed <i>Maireana</i> spp. low shrubland. (3 sub-units)				Combined species richness = 11.8 ± 4.13 (n = 13)	Area of Mp6 mapped in the survey area = 4070 ha (1.8%).
Mp6/a	Isolated <i>Acacia aneura</i> low trees, over <i>Ptilotus obovatus</i> and <i>Maireana carnososa</i> open low shrubland.	<p><b>Habitat</b> White-orange hardpans</p> <p><b>Land System</b> Sherwood, Cunyu</p> <p><b>Vegetation Condition</b> Good</p>	A1, A3, A5, A7, A9, A13, A15, A149, BW8, BWR91	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Acacia speckii</i> (P3)</p> <p><i>Calytrix uncinata</i> (P3)</p> <p><i>Dodonaea amplisemina</i> (P3)</p> <p><i>Grevillea stenostachya</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Petrophile pauciflora</i> (P3)</p> <p><i>Ptilotus beardii</i> (P3)</p> <p><i>Verticordia jamiesonii</i> (P3)</p>	<p><i>Acacia craspedocarpa</i></p> <p><i>Acacia grasbyi</i></p> <p><i>Acacia tetragonophylla</i></p> <p><i>Eremophila latrobei</i> subsp. <i>latrobei</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 13.2 ± 3.49 (n = 10)</p>	
Mp6/b	<i>Sclerolaena densiflora</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.	<p><b>Habitat</b> White-orange hardpans</p> <p><b>Land System</b> Sherwood, Cunyu</p> <p><b>Vegetation Condition</b> Excellent</p>	A6	See Mp6/a	<p><i>Atriplex bunburyana</i></p> <p><i>Eragrostis dielsii</i></p> <p><i>Podolepis capillaris</i></p> <p><i>Senna</i> sp. Meekatharra x <i>artemisioides</i> subsp. x <i>sturtii</i></p> <p>Species richness = 6 (n = 1)</p>	
Mp6/c	<i>Maireana glomerifolia</i> open low shrubland, over isolated <i>Aristida contorta</i> tussock grasses.	<p><b>Habitat</b> White-orange hardpans</p> <p><b>Land System</b> Sherwood, Cunyu</p> <p><b>Vegetation Condition</b> Good</p>	A25, B97	See Mp6/a	<p><i>Frankenia laxiflora</i></p> <p><i>Maireana carnososa</i></p> <p><i>Maireana triptera</i></p> <p><i>Ptilotus obovatus</i></p> <p><i>Sclerolaena densiflora</i></p> <p><i>Senna</i> sp. Austin (A. Strid 20210)</p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 7.5 ± 2.12 (n = 2)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mp7	<p><i>Acacia aneura</i> sparse low woodland, over <i>Acacia craspedocarpa</i> tall shrubland, over <i>Acacia tetragonophylla</i> sparse mid shrubland, over <i>Eremophila punicea</i>, <i>Solanum lasiophyllum</i> and <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.</p> <p>Area of Mp7 mapped in the survey area = 6315 ha (2.8%).</p>	<p><b>Habitat</b> White-orange clay pans</p> <p><b>Land System</b> Yanganoo, Millex</p> <p><b>Vegetation Condition</b> Poor - good</p>	B23, B50, B51, B53, B81, B85, B91, B92, B94, B95, BR66, BR70, BR73, BW2, BW4, BW5, BW7, BW11, BW12	<p><i>Eremophila shonae</i> subsp. <i>diffusa</i> (P3)</p> <p><i>Grevillea stenostachya</i> (P3)</p> <p><i>Hemigenia tysonii</i> (P3)</p> <p><i>Hemigenia virescens</i> (P3)</p> <p><i>Goodenia berringbinensis</i> (P4)</p>	<p><i>Enchylaena tomentosa</i> var. <i>tomentosa</i></p> <p><i>Eremophila forrestii</i></p> <p><i>Eremophila fraseri</i></p> <p><i>Rhagodia eremaea</i></p> <p><i>Sclerolaena densiflora</i></p> <p><i>Solanum lasiophyllum</i></p> <p><i>Spartothamnella teucriffloa</i></p> <p>Species richness = 11.9 ± 3.01 (n = 19)</p>	
Mp8	<p><i>Acacia aneura</i> isolated low trees to open woodland, (+/- <i>Acacia tetragonophylla</i>, <i>Acacia craspedocarpa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i>) tall shrubs, over <i>Eremophila fraseri</i>, <i>Ptilotus obovatus</i> and <i>Solanum lasiophyllum</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.</p> <p>Area of Mp8 mapped in the survey area = 4914 ha (2.2%).</p>	<p><b>Habitat</b> Red-orange hardpan plains</p> <p><b>Land System</b> Jundee, Yandil, Violet</p> <p><b>Vegetation Condition</b> Good</p>	B86, B102, BO30, BW20, BW22	No conservation significant taxa recorded	<p><i>Eremophila latrobei</i> subsp. <i>latrobei</i></p> <p><i>Monachather paradoxus</i></p> <p><i>Psyrax suaveolens</i></p> <p><i>Ptilotus schwartzii</i></p> <p><i>Senna artemisioides</i> subsp. <i>helmsii</i></p> <p>Species richness = 12 ± 3.46 (n = 5)</p>	
Mp9	<p>Isolated <i>Acacia aneura</i> and <i>Eremophila platycalyx</i> low trees, over <i>Eremophila fraseri</i> subsp. <i>fraseri</i>, <i>Eremophila platycalyx</i>, <i>Senna artemisioides</i> subsp. <i>helmsii</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) open mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.</p> <p>Area of Mp9 mapped in the survey area = 9900 ha (4.4%).</p>	<p><b>Habitat</b> Red-orange hardpan plains</p> <p><b>Land System</b> Challenge, Millex, Yandil</p> <p><b>Vegetation Condition</b> Poor</p>	B39, B49, B52, B55, B57, B59, B62, B63, B64, B68, B71	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Acacia specki</i> (P3)i</p> <p><i>Ptilotus beardii</i> (P3)</p>	<p><i>Acacia craspedocarpa</i></p> <p><i>Acacia tetragonophylla</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 11.5 ± 1.81 (n = 11)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mp10	<p><i>Aristida holathera</i> var. <i>holathera</i>, <i>Eragrostis cumingii</i>, <i>Eriachne flaccida</i>, <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Eragrostis setifolia</i> tussock grassland, over <i>Bulbostylis barbata</i> and <i>Fimbristylis dichotoma</i> sedgeland.</p> <p>Area of Mp10 mapped in the survey area = 92 ha (&lt;0.1%).</p>	<p><b>Habitat</b> Shallow soils on granite outcrops</p> <p><b>Land System</b> Norie</p> <p><b>Vegetation Condition</b> Excellent</p>	B36	No conservation significant taxa recorded	<p><i>Cymbopogon ambiguus</i> <i>Eragrostis pergracilis</i> <i>Gnephosis tenuissima</i> <i>Phyllanthus erwinii</i> <i>Sida fibulifera</i> <i>Stackhousia muricata</i></p> <p>Species richness = 16 (n = 1)</p>	
Mp11	<p><i>Acacia aneura</i> sparse to open low woodland, over <i>Eremophila forrestii</i>, <i>Eremophila fraseri</i> and <i>Senna</i> spp. sparse mid shrubland, over <i>Aristida contorta</i> tussock grassland.</p> <p>Area of Mp11 mapped in the survey area = 13,342 ha (5.9%).</p>	<p><b>Habitat</b> Red-orange hardpan plains</p> <p><b>Land System</b> Yandil</p> <p><b>Vegetation Condition</b> Poor</p>	B1, B4, B7, B8, B14, B17, B24, B26, B29, B32, B33, B34, B41, B44, B45, B46, B47, B48, BR63, BR86, BR88, BM40, BM82, C124, C125, C126, C127, C133, C137	<p><i>Euphorbia sarcostemmoides</i> (P1) <i>Hemigenia tysonii</i> (P3) <i>Hemigenia virescens</i> (P3)</p>	<p><i>Acacia tetragonophylla</i> <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> <i>Eriachne pulchella</i> subsp. <i>pulchella</i> <i>Grevillea deflexa</i> <i>Hakea recurva</i> subsp. <i>recurva</i> <i>Monachather paradoxus</i> <i>Ptilotus obovatus</i></p> <p>Species richness = 9.7 ± 3.94 (n =29X)</p>	
Mp12	<p><i>Acacia aneura</i> low woodland, over <i>Acacia aneura</i> x <i>craspedocarpa</i> and <i>Acacia tetragonophylla</i> open tall shrubland, over isolated <i>Eremophila forrestii</i> and <i>Eremophila fraseri</i> mid shrubs, over <i>Aristida contorta</i> and <i>Eragrostis dielsii</i> open tussock grassland.</p> <p>Area of Mp12 mapped in the survey area = 4573 ha (2.0%).</p>	<p><b>Habitat</b> Red-orange hardpan plains</p> <p><b>Land System</b> Yandil</p> <p><b>Vegetation Condition</b> Poor</p>	B2, B3, B5, B9, B10, B11, B12, B16, B18, B21, B22, B27, B28, B31, B35, BM102, BM103, BR111, BR126, C136, C147	<i>Euphorbia sarcostemmoides</i> (P1)	<p><i>Acacia craspedocarpa</i> <i>Acacia ramulosa</i> var. <i>linophylla</i> <i>Grevillea deflexa</i> <i>Hakea recurva</i> <i>Ptilotus obovatus</i></p> <p>Species richness = 9.3 ± 3.02 (n = 21)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mf1	<i>Melaleuca stereophloia</i> open to closed mid shrubland, over mixed <i>Chenopod</i> spp. low shrubland (3 sub-units)				Combined species richness = 11.4 ± 6.39 (n = 8)	Area of Mf1 mapped in the survey area = 529 ha (0.2%).
Mf1/a	<i>Acacia craspedocarpa</i> sparse tall shrubland, over <i>Acacia tetragonophylla</i> sparse mid shrubland, over <i>Melaleuca stereophloia</i> and <i>Ptilotus obovatus</i> open low shrubland.	<p><b>Habitat</b> Floodplain bordering dry salt lakes</p> <p><b>Land System</b> Mileura</p> <p><b>Vegetation Condition</b> Good</p>	B90, B93, B100, BWR63, C132	<i>Goodenia berringbinensis</i> (P4)	<p><i>Acacia aneura</i> <i>Grevillea nematophylla</i> subsp. <i>supraplana</i> <i>Grevillea striata</i></p> <p>Species richness = 13.4 ± 7.31 (n = 5)</p>	
Mf1/b	<i>Cratystylis subspinescens</i> and <i>Melaleuca stereophloia</i> open to closed mid shrubland, over <i>Atriplex bunburyana</i> , <i>Frankenia laxiflora</i> and <i>Frankenia cinerea</i> open low shrubland, over <i>Eragrostis pergracilis</i> open tussock grassland.	<p><b>Habitat</b> Floodplain bordering dry salt lakes</p> <p><b>Land System</b> Mileura</p> <p><b>Vegetation Condition</b> Excellent</p>	B101, BR123	See Mf1/a	<p><i>Atriplex semilunaris</i> <i>Eragrostis pergracilis</i> <i>Lawrenzia densiflora</i> <i>Maireana georgei</i> <i>Tecticornia arborea</i></p> <p>Species richness = 9.5 ± 2.1 (n = 2)</p>	
Mf1/c	Isolated <i>Lawrenzia densiflora</i> mid shrubs, over <i>Zygophyllum aurantiacum</i> , <i>Lycium australe</i> and <i>Lawrenzia densiflora</i> open low shrubland, over isolated <i>Enneapogon cylindricus</i> and <i>Eragrostis falcata</i> tussock grasses.	<p><b>Habitat</b> Floodplain bordering dry salt lakes</p> <p><b>Land System</b> Mileura</p> <p><b>Vegetation Condition</b> Poor</p>	B99	See Mf1/a	Species richness = 5 (n = 1)	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mf2	<i>Eucalyptus striatocalyx</i> subsp. <i>striatocalyx</i> and <i>Eucalyptus trivalva</i> open mid to low forest, over <i>Maireana georgei</i> , <i>Frankenia laxiflora</i> and <i>Atriplex bunburyana</i> sparse low shrubland.  Area of Mf2 mapped in the survey area = 20 ha (<0.1%).	<b>Habitat</b> Depression areas bordering dry salt lakes  <b>Land System</b> Mileura  <b>Vegetation Condition</b> Poor	BW1	No conservation significant taxa recorded	<i>Acacia victoriae</i> <i>Cratystylis subspinescens</i> <i>Dissocarpus paradoxus</i> <i>Lycium australe</i> <i>Melaleuca stereophloia</i> <i>Zygophyllum aurantiacum</i>  Species richness = 12 (n = 1)	
Mf3	<i>Tecticornia pruinosa</i> low shrubland, over <i>Fimbristylis dichotoma</i> and <i>Eragrostis pergracilis</i> open tussock grassland.  Area of Mf3 mapped in the survey area = 568 ha (0.3%).	<b>Habitat</b> Dry salt lake beds  <b>Land System</b> Mileura  <b>Vegetation Condition</b> Good	B88, B89	No conservation significant taxa recorded	Species richness = 3.5 ± 0.71 (n = 2)	
Mc1	<i>Casuarina pauper</i> sparse low woodland, over <i>Tecticornia</i> spp. low shrubland (2 sub-units)				Combined species richness = 12.5 ± 3.32 (n = 4)	Area of Mc1 mapped in the survey area = 263 ha (0.1%).
Mc1/a	+/- <i>Casuarina pauper</i> sparse low woodland, over <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> (+/- <i>Hakea recurva</i> subsp. <i>recurva</i> ) sparse to open tall shrubland, over <i>Atriplex bunburyana</i> and <i>Scaevola spinescens</i> (+/- <i>Tecticornia</i> spp.) open low shrubland, over <i>Eragrostis dielsii</i> sparse tussock grassland.	<b>Habitat</b> Sandy creeklines  <b>Land System</b> Beringarra  <b>Vegetation Condition</b> Poor	B13, BR135, C129	No conservation significant taxa recorded	<i>Acacia synchronicia</i> <i>Eragrostis pergracilis</i> <i>Maireana platycarpa</i> <i>Tecticornia disarticulata</i> <i>Tecticornia halocnemoides</i> subsp. <i>catenulata</i> <i>Tecticornia pruinosa</i>  Species richness = 12.7 ± 4.04 (n = 3)	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mc1/b	Isolated <i>Casuarina pauper</i> low trees, over <i>Tecticornia pruinosa</i> and <i>Samolus repens</i> var. <i>floribundus</i> open low shrubland, over <i>Eragrostis dielsii</i> sparse tussock grassland.	<b>Habitat</b> Sandy creeklines <b>Land System</b> Beringarra <b>Vegetation Condition</b> Poor	BR134	No conservation significant taxa recorded	<i>Acacia tysonii</i> <i>Atriplex bunburyana</i> <i>Eremophila pterocarpa</i> subsp. <i>pterocarpa</i> <i>Maireana georgei</i> <i>Tecticornia halocnemoides</i> subsp. <i>catenulata</i> <i>Tecticornia disarticulata</i>  Species richness = 12 (n = 1)	
Mc2	<i>Eucalyptus victrix</i> open mid woodland, over <i>Acacia burkittii</i> and <i>Acacia aneura</i> sparse low woodland, over <i>Acacia burkittii</i> and <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> open mid shrubland, over <i>Cyperus bifax</i> sparse sedgeland and <i>Eriachne helmsii</i> and <i>Themeda triandra</i> sparse tussock grassland.  Area of Mc2 mapped in the survey area = 326 ha (0.1%).	<b>Habitat</b> Sandy creeklines <b>Land System</b> Koonmarra <b>Vegetation Condition</b> Good	A56, A58, A78	<i>Euphorbia sarcostemmoides</i> (P1) <i>Acacia speckii</i> (P3)	<i>Acacia tetragonophylla</i> <i>Duperreya commixta</i> <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> <i>Grevillea deflexa</i> <i>Pluchea dentex</i> <i>Trichodesma zeylanicum</i>  Species richness = 22.7 ± 2.31 (n = 3)	
Mc3	<i>Eucalyptus victrix</i> and <i>Acacia cyperophylla</i> var. <i>cyperophylla</i> closed low to mid woodland (2 sub-units)				Combined species richness = 28.5 ± 12.01 (n =29)	Area of Mc3 mapped in the survey area = 424 ha (0.2%).
Mc3/a	<i>Acacia cyperophylla</i> var. <i>cyperophylla</i> and <i>Eucalyptus victrix</i> open mid forest, over <i>Pluchea dentex</i> sparse low shrubland, over <i>Eriachne aristidea</i> and <i>Aristida holathera</i> var. <i>holathera</i> sparse tussock grassland.	<b>Habitat</b> Creeklines at Jack Hills <b>Land System</b> Weld, Flood <b>Vegetation Condition</b> Good	A121	No conservation significant taxa recorded	<i>Digitaria brownii</i> <i>Eriachne pulchella</i> subsp. <i>pulchella</i> <i>Melaleuca stereophloia</i> <i>Trichodesma zeylanicum</i>  Species richness = 20 (n = 1)	



#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mc3/b	<i>Eucalyptus victrix</i> open mid forest, over <i>Eremophila fraseri</i> and <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> open mid shrubland, over <i>Ptilotus obovatus</i> low shrubland, over * <i>Setaria verticillata</i> and <i>Eragrostis eriopoda</i> tussock grassland.	<p><b>Habitat</b> Depression area in the creeklines at Jack Hills</p> <p><b>Land System</b> Weld, Flood</p> <p><b>Vegetation Condition</b> Good</p>	A122	No conservation significant taxa recorded	<p><i>Abutilon malvifolium</i> <i>Corchorus crozophorifolius</i> <i>Digitaria brownii</i> <i>Glycine canescens</i> <i>Pulchella dentex</i> <i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/199) <i>Stemodia viscosa</i> <i>Trichodesma zeylanicum</i></p> <p>Species richness = 37 (n = 1)</p>	
Mc4	<i>Acacia aneura</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> open to closed low woodland, over mixed <i>Eremophila</i> spp. open mid shrubland, over <i>Ptilotus</i> spp. sparse low shrubland (2 sub-units)				Combined species richness = 15.8 ± 5.07 (n = 9)	Area of Mc4 mapped in the survey area = 1094 ha (0.5%).
Mc4/a	Isolated <i>Acacia pruinocarpa</i> low trees, over <i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia aneura</i> (+/- <i>Acacia craspedocarpa</i> ) open tall shrubland, over <i>Eremophila forrestii</i> , <i>Eremophila georgei</i> , <i>Eremophila fraseri</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland.	<p><b>Habitat</b> Minor creeklines and channels at Weld Range</p> <p><b>Land System</b> Weld, Jundee</p> <p><b>Vegetation Condition</b> Good</p>	B78, B79, B80, B84, BO33, BR122, BWR59	No conservation significant taxa recorded	<p><i>Acacia tetragonophylla</i> <i>Cymbopogon ambiguus</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Monachather paradoxus</i> <i>Solanum lasiophyllum</i> <i>Spartothamnella teucriflora</i></p> <p>Species richness = 17.1 ± 4.63 (n = 7)</p>	
Mc4/b	Mixed <i>Acacia</i> spp. sparse low woodland to tall shrubland, over <i>Solanum lasiophyllum</i> and <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> tussock grassland.	<p><b>Habitat</b> Minor channels at Weld Range</p> <p><b>Land System</b> Weld, Jundee</p> <p><b>Vegetation Condition</b> Poor</p>	A2, BWR46	No conservation significant taxa recorded	<p><i>Abutilon oxycarpum</i> <i>Acacia aneura</i> <i>Acacia craspedocarpa</i> <i>Acacia tetragonophylla</i> <i>Eremophila galeata</i></p> <p>Species richness = 11 ± 4.24 (n = 2)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mc5	<i>Acacia aneura</i> and <i>Acacia tetragonophylla</i> (+/- <i>Acacia kempeana</i> ) low woodland (4 sub-units)				Combined species richness = 17.6 ± 5.75 (n =22)	Area of Mc5 mapped in the survey area = 3141 ha (1.4%).
Mc5/a	<i>Acacia aneura</i> low woodland, over isolated <i>Acacia tetragonophylla</i> tall shrubs, over isolated <i>Eremophila fraseri/galeata</i> (+/- <i>Senna</i> spp.) mid shrubs, over <i>Aristida contorta</i> and <i>Eragrostis pergracilis</i> open tussock grassland.	<p><b>Habitat</b> Minor drainage channels</p> <p><b>Land System</b> Sherwood, Yanganoo, Ero, Koonmarra, Mindura, Yandil, Belele</p> <p><b>Vegetation Condition</b> Poor - good</p>	A44, A76, A80, A91, A101, A118, A135	<p><i>Euphorbia sarcostemmoides</i> (P1)</p> <p><i>Acacia speckii</i> (P3)</p> <p><i>Calytrix verruculosa</i> (P3)</p> <p><i>Ptilotus beardii</i> (P3)</p>	<p><i>Acacia pruinocarpa</i></p> <p><i>Chrysopogon fallax</i></p> <p><i>Digitaria brownii</i></p> <p><i>Spartothamnella teucriflora</i></p> <p>Species richness = 14.4 ± 6.92 (n = 7)</p>	
Mc5/b	<i>Acacia aneura</i> and <i>Acacia kempeana</i> tall shrubland, over <i>Eremophila fraseri</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Bulbostylis barbata</i> open sedgeland, over <i>Aristida contorta</i> , <i>Eriachne aristidea</i> , <i>Eragrostis cumingii</i> , <i>Chrysopogon fallax</i> and <i>Eragrostis pergracilis</i> tussock grassland.	<p><b>Habitat</b> Minor drainage channels</p> <p><b>Land System</b> Sherwood, Yanganoo, Ero, Koonmarra, Mindura, Yandil, Belele</p> <p><b>Vegetation Condition</b> Good</p>	A67, A73, A95, A107, A113, A115, A119	See Mc5/a	<p><i>Abutilon oxycarpum</i></p> <p><i>Acacia tetragonophylla</i></p> <p><i>Phyllanthus erwinii</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 19 ± 4.28 (n = 7)</p>	
Mc5/c	<i>Acacia aneura</i> low woodland, (+/- <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> and <i>Acacia tetragonophylla</i> ) open tall shrubland), over <i>Aristida contorta</i> sparse tussock grassland.	<p><b>Habitat</b> Minor drainage channels</p> <p><b>Land System</b> Sherwood, Yanganoo, Ero, Koonmarra, Mindura, Yandil, Belele</p> <p><b>Vegetation Condition</b> Good</p>	A4, A17, A19, A50, A54, A55, A144	See Mc5/a	<p><i>Abutilon oxycarpum</i></p> <p><i>Acacia ramulosa</i> var. <i>linophylla</i></p> <p><i>Digitaria brownii</i></p> <p><i>Eremophila georgei</i></p> <p><i>Ptilotus obovatus</i></p> <p><i>Senna artemisioides</i> subsp. <i>helmsii</i></p> <p><i>Solanum lasiophyllum</i></p> <p>Species richness = 18 ± 4.51 (n = 7)</p>	

#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mc5/d	<i>Hakea lorea</i> subsp. <i>lorea</i> mid woodland, over <i>Acacia ramulosa</i> var. <i>ramulosa</i> open low forest, over <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia kempeana</i> open tall shrubland, over <i>Eremophila forrestii</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> and <i>Eremophila forrestii</i> sparse low shrubland.	<p><b>Habitat</b> Minor drainage channels</p> <p><b>Land System</b> Sherwood, Yanganoo, Ero, Koonmarra, Mindura, Yandil, Belele</p> <p><b>Vegetation Condition</b> Good</p>	A33	See Mc5/a	<p><i>Acacia tetragonophylla</i> <i>Digitaria brownii</i> <i>Eremophila galeata</i> <i>Hibiscus burtonii</i> <i>Psyrax rigidula</i> <i>Sida fibulifera</i> <i>Spartothamnella teucriflora</i> <i>Tripogon loliiformis</i></p> <p>Species richness = 27 (n = 1)</p>	
Mc6	Mixed <i>Acacia aneura</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia tetragonophylla</i> low woodland (2 sub-units)				Combined species richness = 15.3 ± 6.77 (n = 6)	Area of Mc6 mapped in the survey area = 891 ha (0.4%).
Mc6/a	<i>Acacia ramulosa</i> var. <i>ramulosa</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia tetragonophylla</i> open tall to mid shrubland, over <i>Abutilon leucopetalum</i> open low shrubland, over <i>Austrostipa trichophylla</i> open tussock grassland.	<p><b>Habitat</b> Minor drainage channels</p> <p><b>Land System</b> Yanganoo, Challenge, Ero</p> <p><b>Vegetation Condition</b> Good</p>	B74	No conservation significant taxa recorded	<p><i>Abutilon leucopetalum</i> <i>Abutilon oxycarpum</i> <i>Acacia demissa</i> <i>Cymbopogon ambiguus</i> <i>Eremophila georgei</i> <i>Maireana triptera</i> <i>Trichodesma zeylanicum</i></p> <p>Species richness = 27 (n = 1)</p>	
Mc6/b	<i>Acacia aneura</i> low woodland, over <i>Acacia craspedocarpa</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over sparse <i>Ptilotus obovatus</i> low shrubland, over isolated <i>Aristida contorta</i> and <i>Eragrostis leptocarpa</i> tussock grasses.	<p><b>Habitat</b> Minor drainage channels</p> <p><b>Land System</b> Yanganoo, Challenge, Ero</p> <p><b>Vegetation Condition</b> Good</p>	B54, B58, B65, B66, B75	No conservation significant taxa recorded	<p><i>Hakea recurva</i> subsp. <i>recurva</i> <i>Hakea lorea</i> subsp. <i>lorea</i></p> <p>Species richness = 13 ± 4.06 (n = 5)</p>	

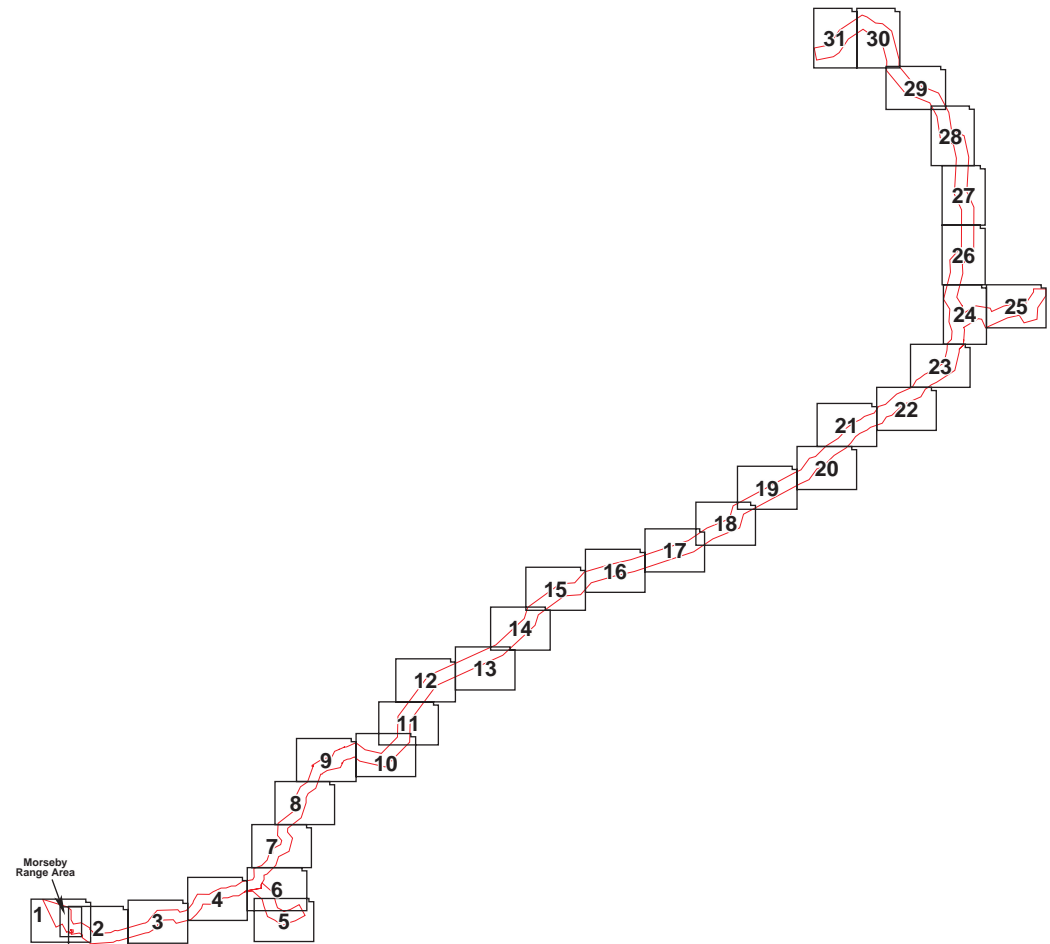
#	Vegetation Community and Area in Project	Habitat, Land System and Average Vegetation Condition	Quadrats Surveyed	Conservation Significant Flora Recorded	Associated Species and Species Richness	Photograph
Mc7	<p><i>Acacia ramulosa</i> var. <i>ramulosa</i> open low woodland, over <i>Acacia burkittii</i> and <i>Acacia craspedocarpa</i> x <i>aneura</i> sparse low woodland, over <i>Acacia tetragonophylla</i> sparse mid shrubland, over <i>Monachather paradoxus</i>, <i>Eragrostis leptocarpa</i> and <i>Eriachne flaccida</i> sparse tussock grassland.</p> <p>Area of Mc7 mapped in the survey area = 43 ha (&lt;0.1%).</p>	<p><b>Habitat</b> Minor creekline and channels</p> <p><b>Land System</b> Yanganoo</p> <p><b>Vegetation Condition</b> Good</p>	BR20	No conservation significant taxa recorded	<p><i>Centipeda thespidioides</i></p> <p>Species richness = 9 (n = 1)</p>	
Mc8	<p><i>Acacia acuminata</i> and <i>Acacia aneura</i> open low woodland (+/- <i>Casuarina pauper</i>), over <i>Acacia acuminata</i>, <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i>, <i>Callistemon phoeniceus</i> and <i>Senna artemisioides</i> subsp. x <i>artemisioides</i> open tall to mid shrubland, over <i>Cyperus</i> spp. sparse sedgeland.</p> <p>Area of Mc8 mapped in the survey area = 455 ha (0.2%).</p>	<p><b>Habitat</b> Minor creeklines and channels</p> <p><b>Land System</b> Yanganoo, Ero</p> <p><b>Vegetation Condition</b> Excellent</p>	B30, B42, B72	No conservation significant taxa recorded	<p><i>Acacia tetragonophylla</i> <i>Callistemon phoeniceus</i> <i>Duperreya commixta</i> <i>Eremophila fraseri</i></p> <p>Species richness = 12.3 ± 1.15 (n = 3)</p>	

**APPENDIX I            VEGETATION COMMUNITY MAPPING OF THE STUDY  
                                         AREA**

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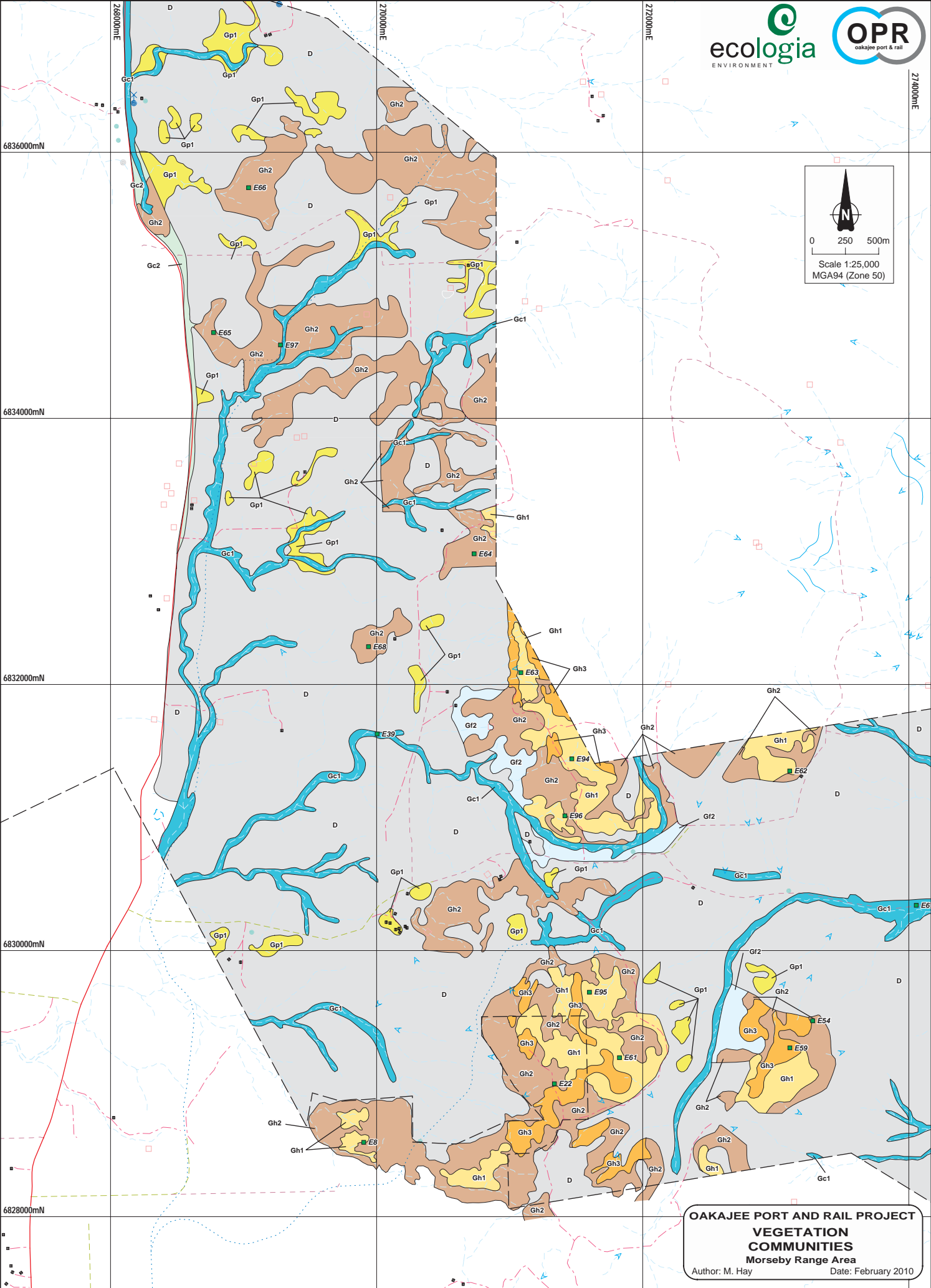
**LEGEND**

- Gh1** Isolated *Eucalyptus loxophleba* subsp. *loxophleba* low mallee trees, over *Melaleuca megacephala* and *Hakea pycnoneura* closed mid shrubland, over *Hibbertia hypericoides*, *Acacia lasiocarpa* var. *lasiocarpa*, *Gastrolobium plicatum*, *Gastrolobium triangulare* sparse low shrubland, over *Lepidosperma tenue* open sedgeland.
- Gh2** Mixed *Acacia* spp. and *Melaleuca* spp. sparse to open tall shrubs, over *Verticordia chrysanthella* and *Gastrolobium plicatum* low shrubland.
- Gh3** *Allocasuarina campestris* closed tall to mid shrubland, over *Lepidosperma tenue* sparse sedgeland.
- Gy1** *Eucalyptus* spp., *Xylomelum angustifolium*, *Actinostrobus arenarius* and *Banksia* spp. sparse to open low woodland, over mixed Myrtaceae spp. open low to mid shrubland.
- Gy2** Mixed *Eucalyptus* spp. open low woodland, over *Acacia* spp. and *Melaleuca* spp. sparse mid shrubland.
- Gp1** *Acacia tetragonophylla* and *Hakea recurva* subsp. *recurva* (+/- *Eucalyptus loxophleba* subsp. *Loxophleba*, *Acacia acuminata* and *Acacia burkittii*) low woodland, over *Ptilotus obovatus* sparse low shrubland, over \* *Avena fatua* and \* *Bromus diandrus* tussock grassland.
- Gp2** *Melaleuca adnata* sparse low woodland, over *Calothamnus quadrifidus* and *Acacia acuminata* open tall to mid shrubland, over *Ptilotus obovatus* open low shrubland, over *Amphipogon carcinus* var. *carcinus* open tussock grassland.
- Gf1** Isolated *Hakea preissii* tall shrubs, over *Tecticornia indica* subsp. *bidens* and *Atriplex amnicola* (+/- *Tecticornia lepidosperma*, *Tecticornia pergranulata* subsp. *pergranulata* and *Frankenia setosa*) low Chenopod shrubland, over \* *Avena fatua* and *Eragrostis dielsii* sparse tussock grassland.
- Gf2** *Eucalyptus loxophleba* subsp. *loxophleba* open low woodland, over *Acacia acuminata* and *Acacia burkittii* sparse tall shrubland, over *Acacia tetragonophylla* and *Enchylaena tomentosa* sparse mid shrubland, over *Acacia andrewsii* and *Ptilotus obovatus* sparse low shrubland.
- Gc1** *Eucalyptus camaldulensis* var. *obtusa* mid to low woodland (+/- *Casuarina obesa* and *Melaleuca raphiophylla*) isolated to open tall shrubland, over *Atriplex amnicola* and *Chenopodium gaudichaudianum* sparse low shrubland, over *Cyperus gymnocaulos* sparse sedgeland and \* *Avena fatua* and \* *Bromus diandrus* tussock grassland.
- Gc2** *Grevillea* spp., *Acacia* spp. and *Melaleuca* spp. tall shrubland.
- Yh1** *Allocasuarina dielsiana* sparse mid woodland, over *Acacia quadrimarginea* and *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over *Ptilotus obovatus* sparse low shrubland.
- Yh2** *Acacia ramulosa* var. *linophylla* sparse tall shrubland, over isolated *Thryptomene decussata*, *Eremophila latrobei* subsp. *latrobei* and *Sida ectogama* mid shrubs, over *Eriachne pulchella* subsp. *pulchella* and *Aristida contorta* sparse tussock grassland.
- Yh3** Isolated *Acacia aneura*, *Acacia ramulosa* var. *linophylla*, *Acacia quadrimarginea* and *Acacia grasbyi* low trees, over *Thryptomene costata* and *Thryptomene decussata* open mid to low shrubland, over *Aristida contorta* open tussock grassland.
- Yy1** *Acacia ramulosa* var. *linophylla* and *Acacia ramulosa* var. *ramulosa* open tall shrubland.
- Yp1** *Acacia coolgardiensis* tall shrubland to low woodland, over isolated *Eremophila forrestii* mid to low shrubs.
- Yp2** *Acacia ramulosa* var. *linophylla* (+/- *Acacia ramulosa* var. *ramulosa* and *Acacia tetragonophylla*) tall to mid shrubland, over *Enchylaena tomentosa* var. *tomentosa* sparse low shrubland.
- Yp3** Mixed *Eucalyptus* spp. low woodland, over sparse *Acacia* spp. mid shrubland.
- Yp4** *Eucalyptus kochii* subsp. *amaryssia* open mid woodland, over isolated *Acacia ramulosa* var. *ramulosa* tall shrubs, over isolated *Acacia andrewsii*, *Ptilotus obovatus* and *Maireana* spp. low shrubs, over isolated *Eriachne helmisii* tussock grasses.
- Yp5** *Acacia ramulosa* var. *linophylla*, *Acacia grasbyi*, *Acacia burkittii* and *Acacia aneura* open tall shrubland.
- Yp6** *Acacia burkittii*, *Acacia quadrimarginea*, *Acacia aneura* (+/- *Acacia* aff. *rhodophloia*) over isolated *Hakea preissii* and *Senna* spp. mid shrubs, over *Ptilotus obovatus* and *Acacia scleroclada* sparse low shrubland, over *Cymbopogon ambiguus* and *Aristida contorta* open tussock grassland.
- Yf1** *Acacia burkittii* and *Acacia grasbyi* and (+/- *Acacia ramulosa* var. *linophylla*) sparse tall shrubland over *Acacia tetragonophylla* sparse tall to mid shrubland, over *Aristida contorta* sparse tussock grassland.
- Yf2** Isolated *Acacia synchronicia* tall shrubs, over isolated *Senna* sp. Meekatharra (E. Bailey 1-26), *Acacia synchronicia*, *Acacia tetragonophylla* and *Eremophila galeata* mid shrubs, over *Aristida contorta* tussock grassland.
- Yf3** *Acacia victoriae* sparse tall shrubland, over *Atriplex bunburyana* open mid shrubland, over *Atriplex bunburyana* sparse low shrubland, over *Aristida contorta* and *Eragrostis dielsii* sparse tussock grassland.
- Yf4** *Tecticornia disarticulata*, *Rhagodia eremaea*, *Frankenia laxiflora*, *Sclerolaena cuneata* and *Cratystylis subspinescens* low shrubland.
- Yf5** *Acacia eremaea* sparse tall shrubland, over mixed Chenopod spp. low shrubland.

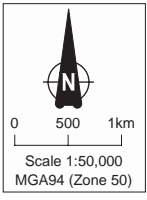


- |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Yc1</b> <i>Casuarina obesa</i> open to sparse low forest, over <i>Duboisia hopwoodii</i> sparse tall shrubland, over <i>Atriplex amnicola</i> , <i>Tecticornia indica</i> subsp. <i>bidens</i> and <i>Tecticornia lepidosperma</i> open low Chenopod shrubland, over * <i>Hordeum glaucum</i> and * <i>Avena fatua</i> tussock grassland.                                                                                                                            |    | <b>Mp1</b> <i>Eremophila spathulata</i> and/or <i>Eremophila macmillaniana</i> sparse mid shrubland.                                                                                                                                                                                                                                                                                                                |
|    | <b>Yc2</b> <i>Acacia burkittii</i> (+/- <i>Acacia acuminata</i> ) mid woodland, over <i>Acacia burkittii</i> , <i>Hakea preissii</i> and <i>Acacia tetragonophylla</i> low woodland to sparse tall shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Cyperus bifax</i> sparse sedgeland, over <i>Monachather paradoxus</i> and * <i>Setaria verticillata</i> tussock grassland.                                                                    |    | <b>Mp2</b> <i>Acacia aneura</i> sparse low woodland, over <i>Eremophila fraseri</i> (+/- <i>Eremophila macmillaniana</i> ) and <i>Senna artemisioides</i> subsp. <i>helmsii</i> open mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Aristida contorta</i> sparse tussock grassland.                                               |
|    | <b>Mh1</b> <i>Acacia rhodophloia</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> open tall shrubland, over <i>Eriachne aristidea</i> sparse tussock grassland.                                                                                                                                                                                                                                          |    | <b>Mp3</b> Isolated <i>Acacia aneura</i> low trees, over open <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glaucifolia</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.                                                                                              |
|    | <b>Mh2</b> Sparse <i>Acacia aneura</i> and/or <i>Acacia rhodophloia</i> low woodland, over <i>Ptilotus obovatus</i> sparse low shrubland.                                                                                                                                                                                                                                                                                                                               |    | <b>Mp4</b> Isolated <i>Acacia pruinocarpa</i> low trees, over <i>Acacia aneura</i> and <i>Acacia craspedocarpa</i> x <i>aneura</i> sparse tall shrubland, over isolated <i>Eremophila fraseri</i> mid shrubs, over <i>Ptilotus obovatus</i> sparse low shrubland.                                                                                                                                                   |
|    | <b>Mh3</b> Isolated <i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> ) low trees, over isolated <i>Aristida contorta</i> tussock grasses.                                                                                                                                                                                                                                            |    | <b>Mp5</b> <i>Acacia aneura</i> open low woodland, over isolated <i>Acacia demissa</i> tall shrubs, over <i>Senna artemisioides</i> subsp. <i>helmsii</i> sparse mid shrubland, over <i>Ptilotus obovatus</i> sparse low shrubland.                                                                                                                                                                                 |
|    | <b>Mh4</b> <i>Acacia aneura</i> and <i>Acacia citrinoviridis</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> sparse tall shrubland, over <i>Sida cardiophylla</i> and <i>Ptilotus obovatus</i> open low shrubland, over isolated <i>Monachather paradoxus</i> tussock grasses.                                                                                                                                                                |    | <b>Mp6</b> Isolated <i>Acacia aneura</i> low trees, over <i>Ptilotus obovatus</i> and mixed <i>Maireana</i> spp. low shrubland.                                                                                                                                                                                                                                                                                     |
|    | <b>Mh5</b> <i>Acacia aneura</i> (+/- <i>Acacia ramulosa</i> var. <i>linophylla</i> ) sparse to open low woodland, over mixed <i>Eremophila</i> spp. mid shrubland.                                                                                                                                                                                                                                                                                                      |    | <b>Mp7</b> <i>Acacia aneura</i> sparse low woodland, over <i>Acacia craspedocarpa</i> tall shrubland, over <i>Acacia tetragonophylla</i> sparse mid shrubland, over <i>Eremophila punicea</i> , <i>Solanum lasiophyllum</i> and <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland.                                                                              |
|    | <b>Mh6</b> Isolated <i>Acacia pruinocarpa</i> low trees, over <i>Acacia aneura</i> sparse tall shrubland, over <i>Thryptomene decussata</i> (+/- <i>Prostanthera petrophila</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> and <i>Philothea brucei</i> subsp. <i>brucei</i> ) mid shrubland, over <i>Ptilotus obovatus</i> low shrubland, over <i>Eriachne mucronata</i> and <i>Cymbopogon ambiguus</i> sparse tussock grassland. |    | <b>Mp8</b> <i>Acacia aneura</i> isolated low trees to open woodland, (+/- <i>Acacia tetragonophylla</i> , <i>Acacia craspedocarpa</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> ) tall shrubs, over <i>Eremophila fraseri</i> , <i>Ptilotus obovatus</i> and <i>Solanum lasiophyllum</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.                                        |
|    | <b>Mh7</b> <i>Acacia</i> sp. Weld Range (A. Markey & S. Dillon 2994) and <i>Acacia aneura</i> open tall shrubland, over <i>Eremophila macmillaniana</i> and mixed <i>Senna</i> spp. open mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland.                                                                                                                                                                                                               |    | <b>Mp9</b> Isolated <i>Acacia aneura</i> and <i>Eremophila platycalyx</i> low trees, over <i>Eremophila fraseri</i> subsp. <i>fraseri</i> , <i>Eremophila platycalyx</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) open mid shrubland, over <i>Eremophila alternifolia</i> sparse low shrubland, over <i>Aristida contorta</i> sparse tussock grassland. |
|    | <b>Mh8</b> <i>Acacia aneura</i> open low woodland, over <i>Eremophila macmillaniana</i> open mid shrubland, over <i>Sida atrovirens</i> scattered low shrubs, over <i>Aristida contorta</i> open tussock grassland.                                                                                                                                                                                                                                                     |    | <b>Mp10</b> <i>Aristida holathera</i> var. <i>holathera</i> , <i>Eragrostis cumingii</i> , <i>Eriachne flaccida</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> and <i>Eragrostis setifolia</i> tussock grassland, over <i>Bulbostylis barbata</i> and <i>Fimbristylis dichotoma</i> sedgeland.                                                                                                             |
|    | <b>Mh9</b> <i>Acacia aneura</i> open low woodland, over <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> and <i>Eremophila spathulata</i> sparse mid shrubland, over <i>Eremophila latrobei</i> subsp. <i>latrobei</i> sparse low shrubland, over <i>Eriachne pulchella</i> subsp. <i>pulchella</i> sparse tussock grassland.                                                                                                                                 |    | <b>Mp11</b> <i>Acacia aneura</i> sparse to open low woodland, over <i>Eremophila forrestii</i> , <i>Eremophila fraseri</i> and <i>Senna</i> spp. sparse mid shrubland, over <i>Aristida contorta</i> tussock grassland.                                                                                                                                                                                             |
|    | <b>Mh10</b> <i>Acacia</i> spp., sparse tall shrubland, over <i>Eremophila</i> spp. sparse mid shrubland.                                                                                                                                                                                                                                                                                                                                                                |    | <b>Mp12</b> <i>Acacia aneura</i> low woodland, over <i>Acacia aneura</i> x <i>craspedocarpa</i> and <i>Acacia tetragonophylla</i> open tall shrubland, over isolated <i>Eremophila forrestii</i> and <i>Eremophila fraseri</i> mid shrubs, over <i>Aristida contorta</i> and <i>Eragrostis dielsii</i> open tussock grassland.                                                                                      |
|    | <b>Mh11</b> <i>Acacia</i> aff. <i>rhodophloia</i> open tall shrubland, over <i>Dodonaea petiolaris</i> sparse mid shrubland, over <i>Pluchea dentex</i> , <i>Stemodia viscosa</i> , <i>Solanum lasiophyllum</i> and <i>Hibiscus coatesii</i> sparse low shrubland, over <i>Aristida contorta</i> and <i>Cymbopogon ambiguus</i> tussock grassland.                                                                                                                      |    | <b>Mf1</b> <i>Melaleuca stereophloia</i> open to closed mid shrubland, over mixed Chenopod spp. low shrubland.                                                                                                                                                                                                                                                                                                      |
|    | <b>Mh12</b> <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over isolated <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> low shrubs, over <i>Cymbopogon ambiguus</i> sparse tussock grassland.                                                                                                                                                                                                          |    | <b>Mf2</b> <i>Eucalyptus striatocalyx</i> subsp. <i>striatocalyx</i> and <i>Eucalyptus trivalva</i> open mid to low forest, over <i>Maireana georgei</i> , <i>Frankenia laxiflora</i> and <i>Atriplex bunburyana</i> sparse low shrubland.                                                                                                                                                                          |
|    | <b>Mh13</b> <i>Acacia</i> sp. Weld Range (A. Markey & S. Dillon 2994) sparse mid shrubland, over <i>Dodonaea pachyneura</i> and <i>Philothea</i> aff. <i>tubiflora</i> sparse low shrubland, over isolated <i>Eragrostis</i> sp. tussock grasses.                                                                                                                                                                                                                       |    | <b>Mf3</b> <i>Tecticornia pruinosa</i> low shrubland, over <i>Fimbristylis dichotoma</i> and <i>Eragrostis pergracilis</i> open tussock grassland.                                                                                                                                                                                                                                                                  |
|    | <b>Mh14</b> Isolated <i>Acacia aneura</i> low trees, over <i>Thryptomene decussata</i> sparse mid to low shrubland, over isolated <i>Monachather paradoxus</i> tussock grasses.                                                                                                                                                                                                                                                                                         |   | <b>Mc1</b> <i>Casuarina pauper</i> sparse low woodland, over <i>Tecticornia</i> spp. low shrubland.                                                                                                                                                                                                                                                                                                                 |
|  | <b>Mh15</b> <i>Acacia aneura</i> open low woodland, over <i>Sida</i> spp. and <i>Ptilotus obovatus</i> sparse low shrubland.                                                                                                                                                                                                                                                                                                                                            |  | <b>Mc2</b> <i>Eucalyptus vitrix</i> open mid woodland, over <i>Acacia burkittii</i> and <i>Acacia aneura</i> sparse low woodland, over <i>Acacia burkittii</i> and <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> open mid shrubland, over <i>Cyperus bifax</i> sparse sedgeland and <i>Eriachne helmsii</i> sparse tussock grassland.                                                                             |
|  | <b>Mh16</b> <i>Acacia aneura</i> open low woodland, over <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland, over <i>Maireana triptera</i> and <i>Ptilotus obovatus</i> sparse low shrubland, over <i>Aristida contorta</i> open tussock grassland.                                                                                                                                                                                     |  | <b>Mc3</b> <i>Eucalyptus vitrix</i> and <i>Acacia cyperophylla</i> var. <i>cyperophylla</i> closed low to mid woodland.                                                                                                                                                                                                                                                                                             |
|  | <b>Mh17</b> <i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> open tall shrubland, over <i>Aluta aspera</i> subsp. <i>hesperia</i> and <i>Eremophila forrestii</i> open mid shrubland, over <i>Monachather paradoxus</i> sparse tussock grassland.                                                                                                                                                                             |  | <b>Mc4</b> <i>Acacia aneura</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> open to closed low woodland, over mixed <i>Eremophila</i> spp. open mid shrubland, over <i>Ptilotus</i> spp. sparse low shrubland.                                                                                                                                                                                                |
|  | <b>Mh18</b> <i>Acacia</i> spp. sparse tall shrubland, over <i>Eremophila latrobei</i> subsp. <i>latrobei</i> and mixed Myrtaceae spp. open low shrubland.                                                                                                                                                                                                                                                                                                               |  | <b>Mc5</b> <i>Acacia aneura</i> and <i>Acacia tetragonophylla</i> (+/- <i>Acacia kempeana</i> ) low woodland.                                                                                                                                                                                                                                                                                                       |
|  | <b>Mr1</b> <i>Acacia aneura</i> sparse low woodland, over <i>Eremophila compacta</i> subsp. <i>compacta</i> mid shrubland, over <i>Mirbella rhagodioides</i> and (+/- <i>Hemigenia virescens</i> ) sparse low shrubland, over <i>Aristida holathera</i> var. <i>holathera</i> , <i>Eriachne aristidea</i> and <i>Eragrostis desertorum</i> tussock grassland.                                                                                                           |  | <b>Mc6</b> Mixed <i>Acacia aneura</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia tetragonophylla</i> low woodland.                                                                                                                                                                                                                                                                                 |
|  | <b>Mr2</b> <i>Acacia aneura</i> open low woodland, over <i>Acacia ramulosa</i> var. <i>linophylla</i> open tall shrubland, over <i>Eremophila forrestii</i> (+/- <i>Eremophila simulans</i> subsp. <i>simulans</i> ) open mid shrubland, over <i>Eriachne helmsii</i> and <i>Monachather paradoxus</i> open tussock grassland.                                                                                                                                          |  | <b>Mc7</b> <i>Acacia ramulosa</i> var. <i>ramulosa</i> open low woodland, over <i>Acacia burkittii</i> and <i>Acacia craspedocarpa</i> x <i>aneura</i> sparse low woodland, over <i>Acacia tetragonophylla</i> sparse mid shrubland, over <i>Monachather paradoxus</i> , <i>Eragrostis leptocarpa</i> and <i>Eriachne flaccida</i> sparse tussock grassland.                                                        |
|  | <b>Mr3</b> <i>Acacia aneura</i> open tall shrubland, over <i>Eremophila forrestii</i> (+/- <i>Eremophila fraseri</i> and <i>Senna</i> spp.) open mid shrubland, over <i>Ptilotus obovatus</i> open low shrubland, over <i>Monachather paradoxus</i> open tussock grassland.                                                                                                                                                                                             |  | <b>Mc8</b> <i>Acacia acuminata</i> and <i>Acacia aneura</i> open low woodland (+/- <i>Casuarina pauper</i> ), over <i>Acacia acuminata</i> , <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> , <i>Callistemon phoeniceus</i> and <i>Senna artemisioides</i> subsp. <i>x artemisioides</i> open tall to mid shrubland, over <i>Cyperus</i> spp. sparse sedgeland.                                         |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | <b>D</b> Disturbed area no native vegetation                                                                                                                                                                                                                                                                                                                                                                        |





**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Morseby Range Area  
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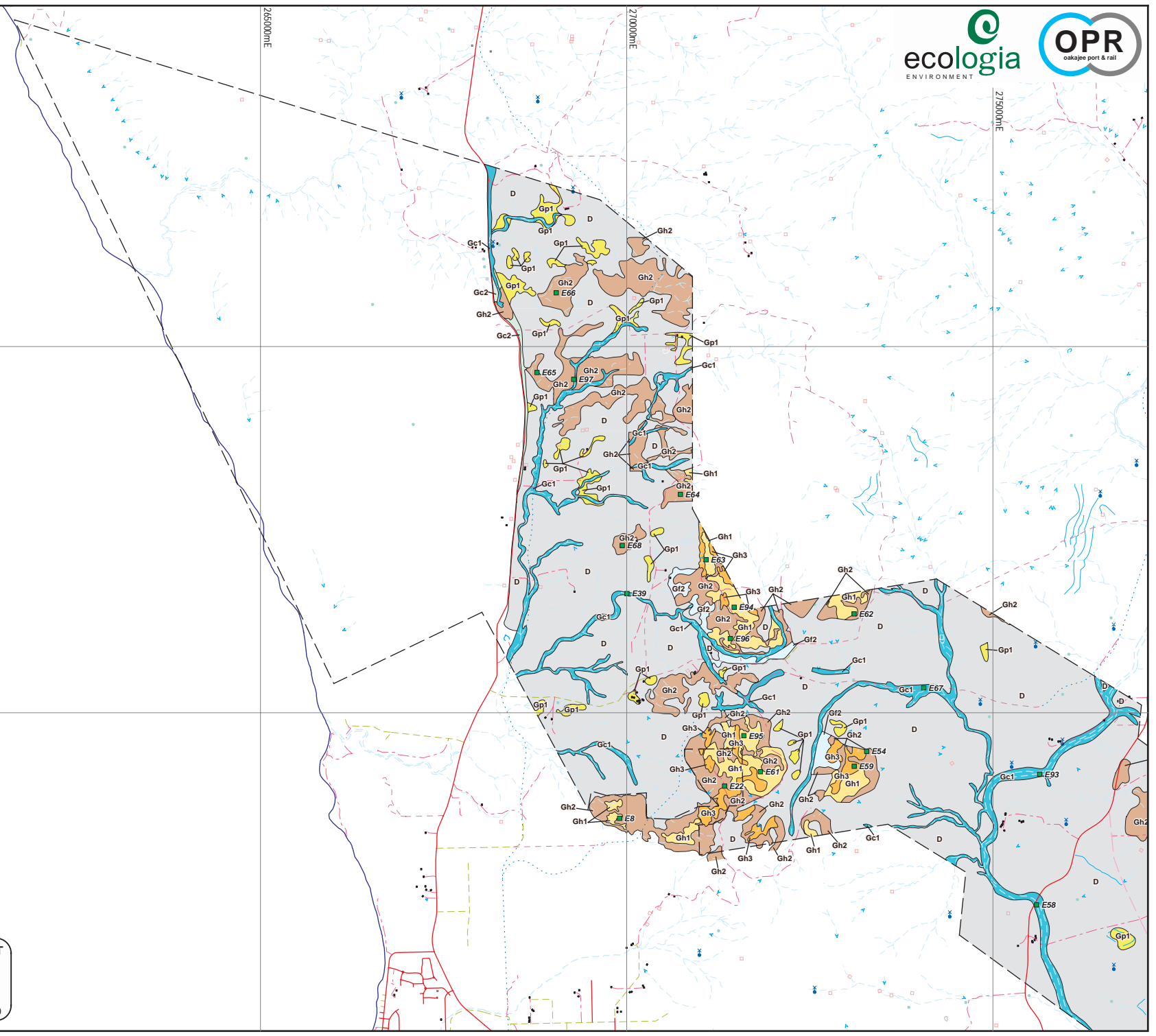
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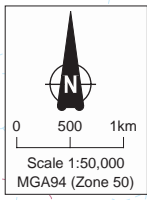
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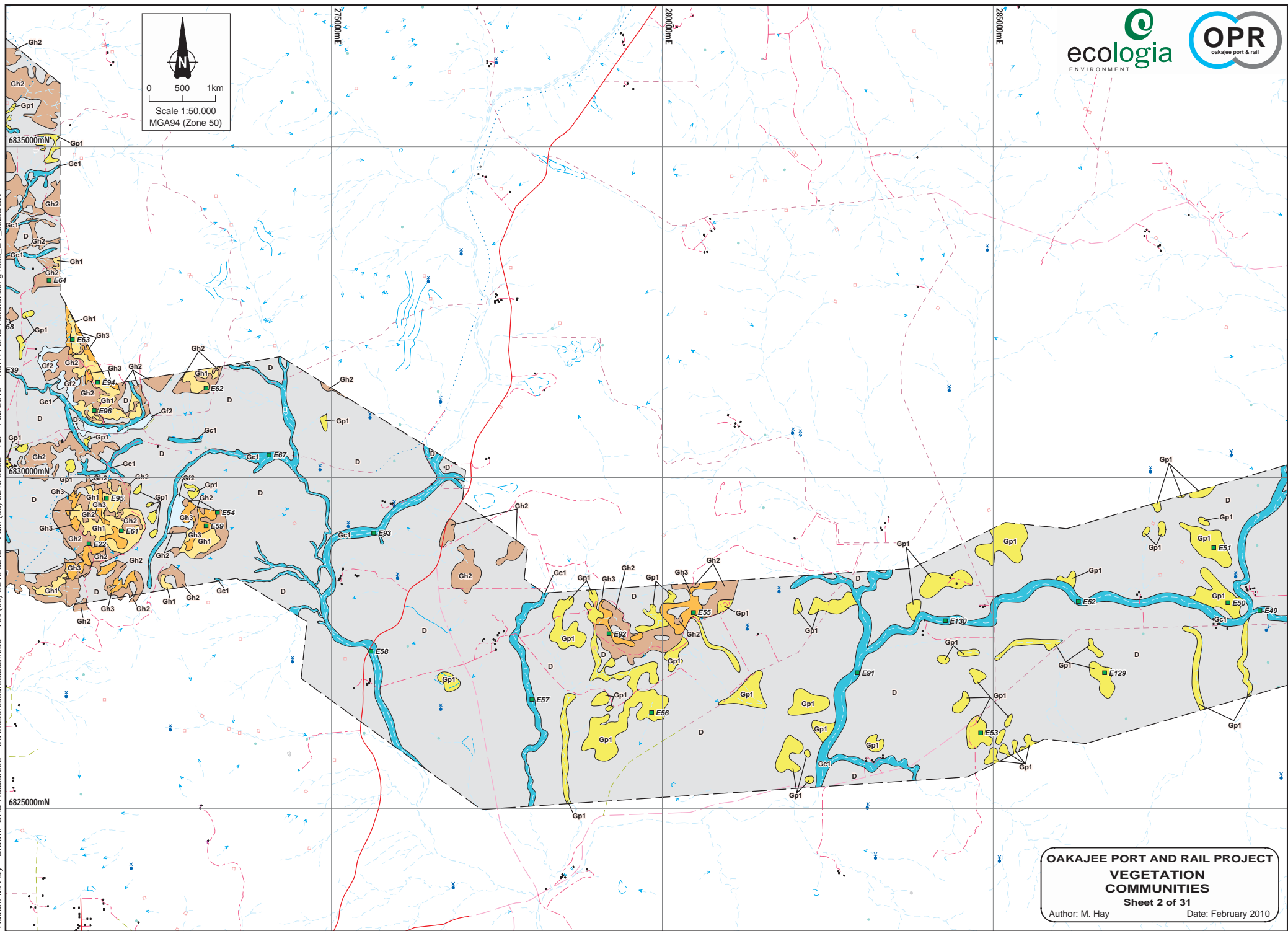
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**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
 Sheet 1 of 31  
 Author: M. Hay      Date: February 2010

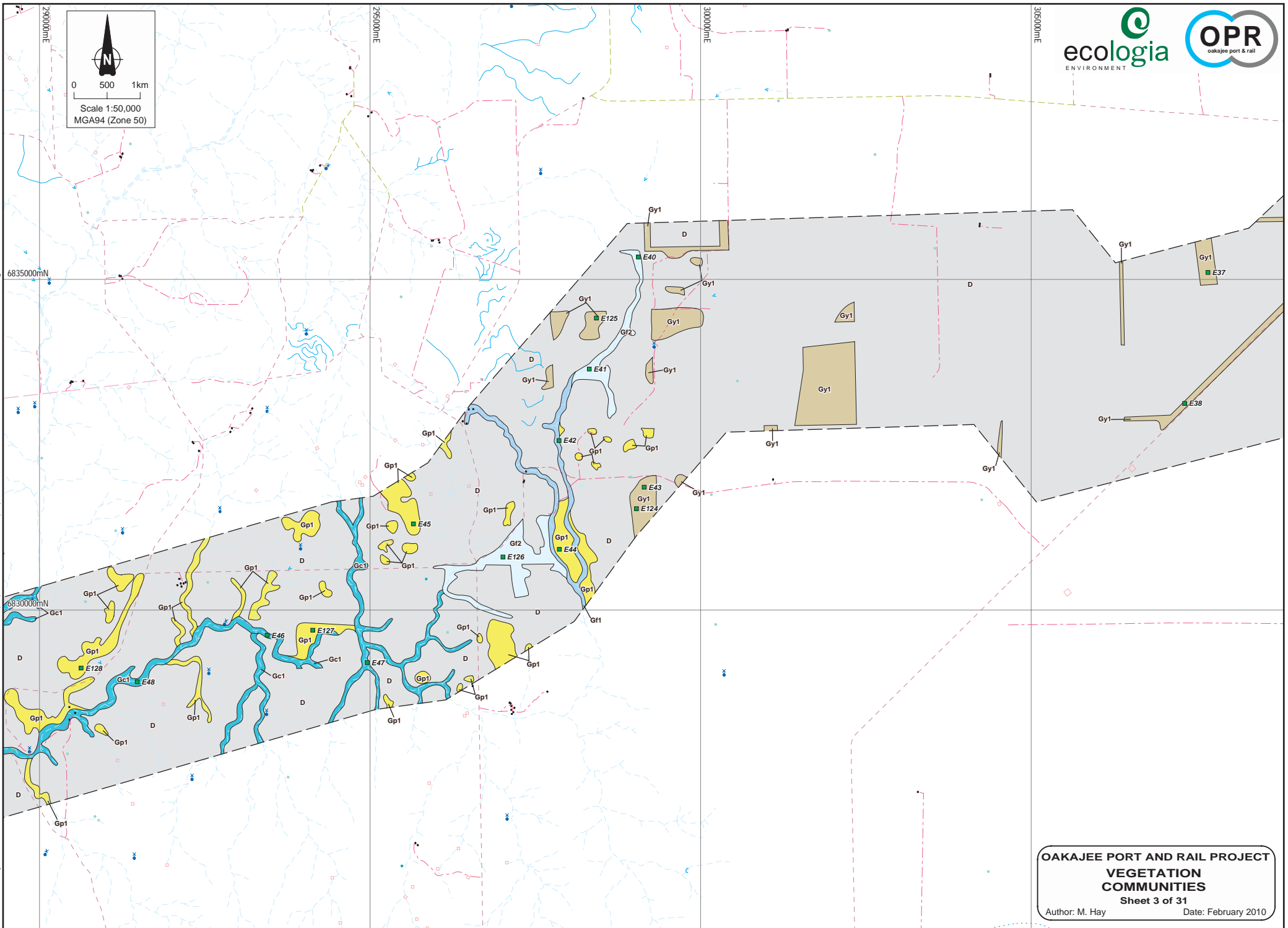
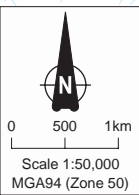




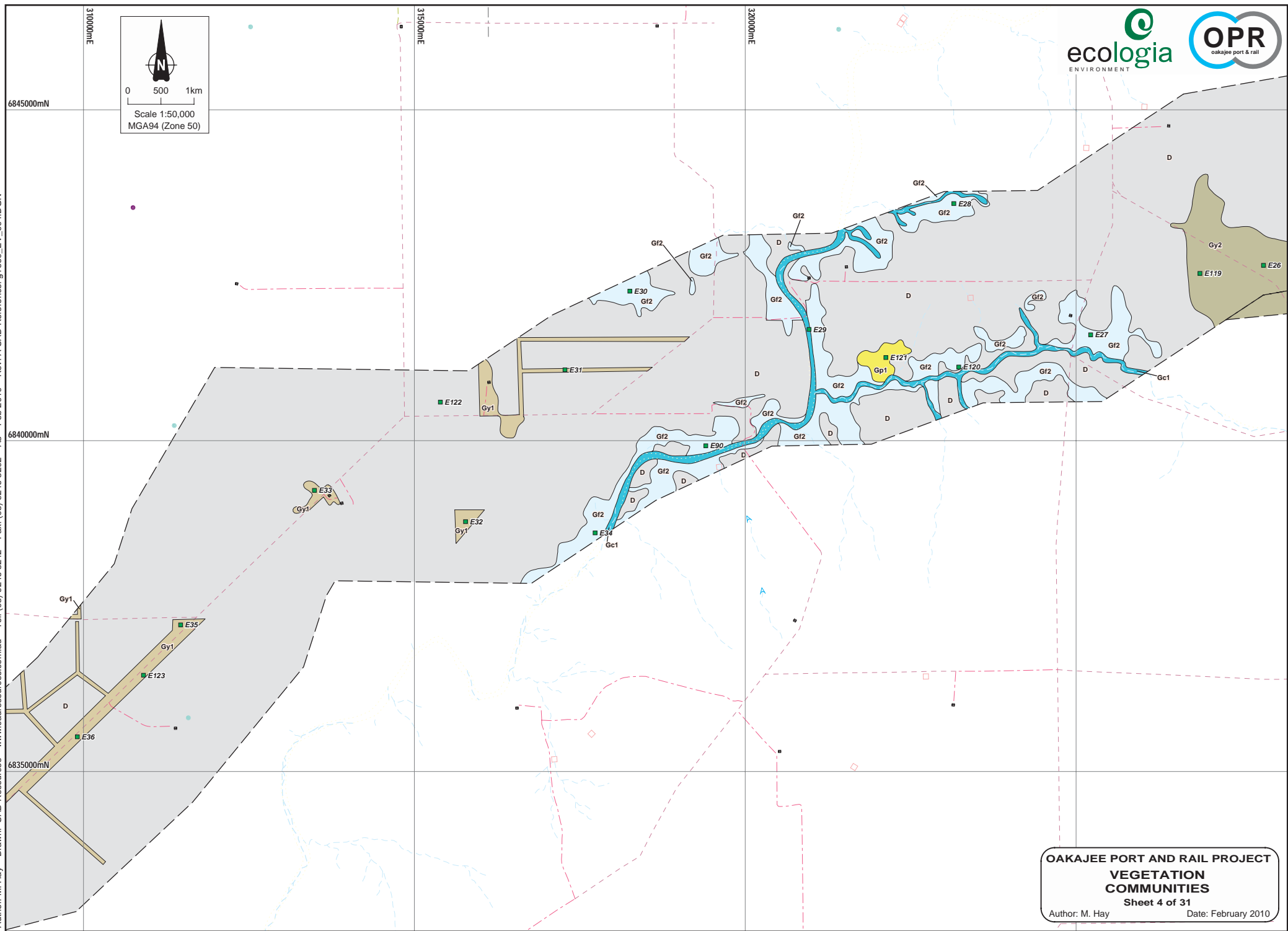
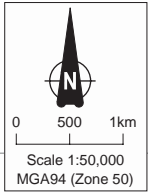
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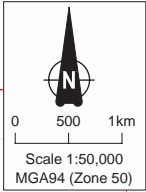


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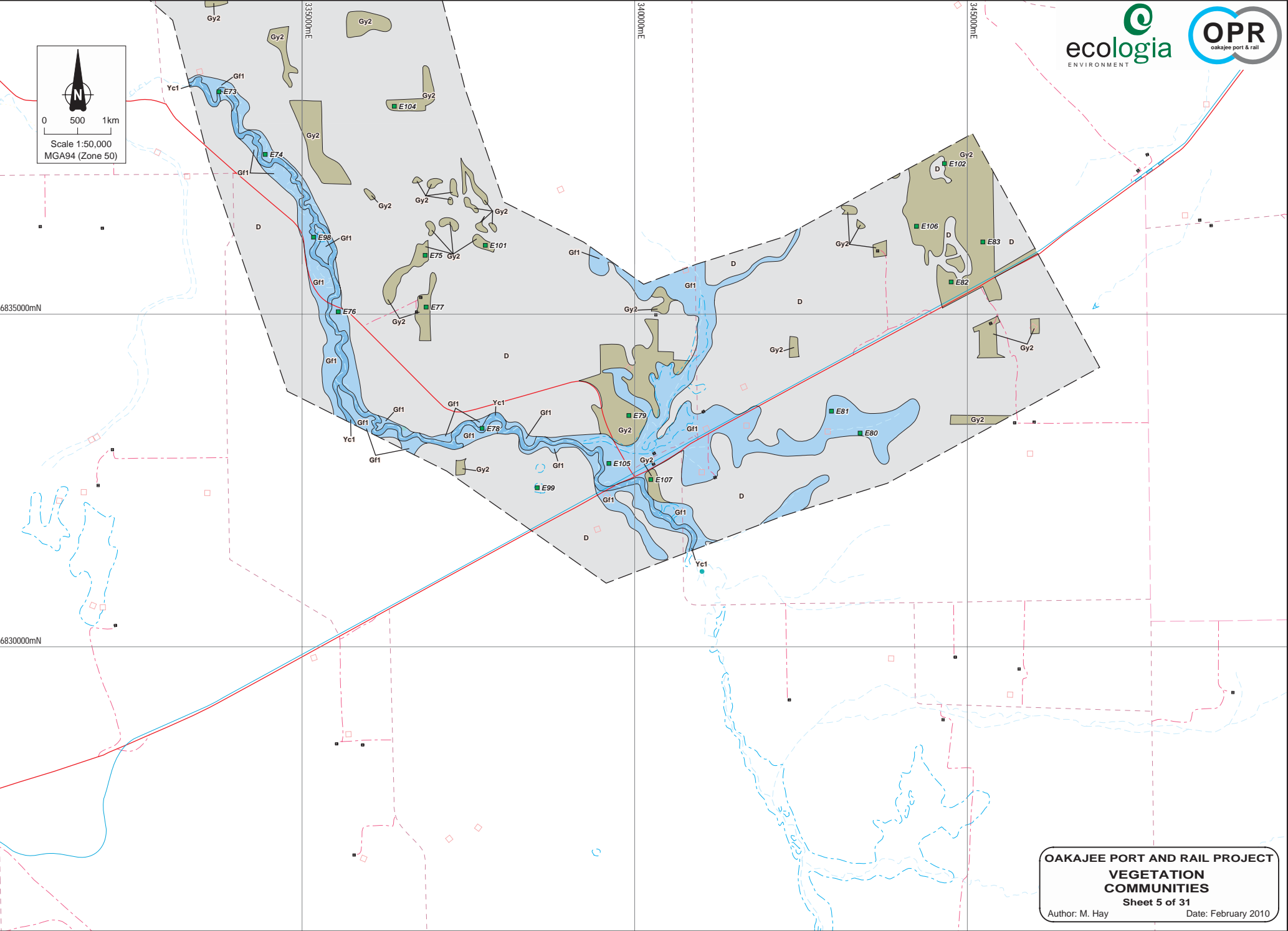


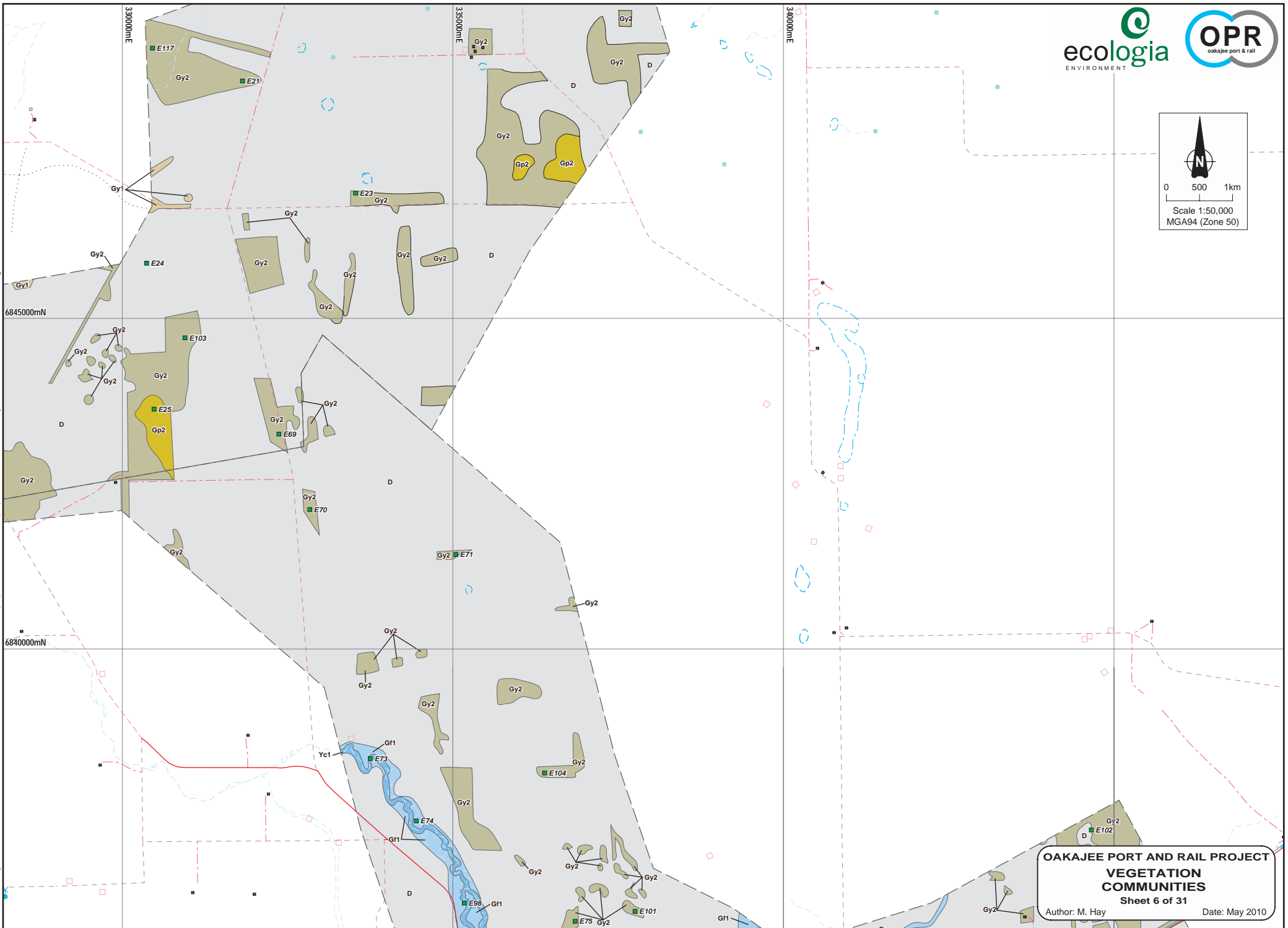
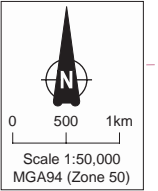
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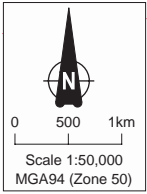




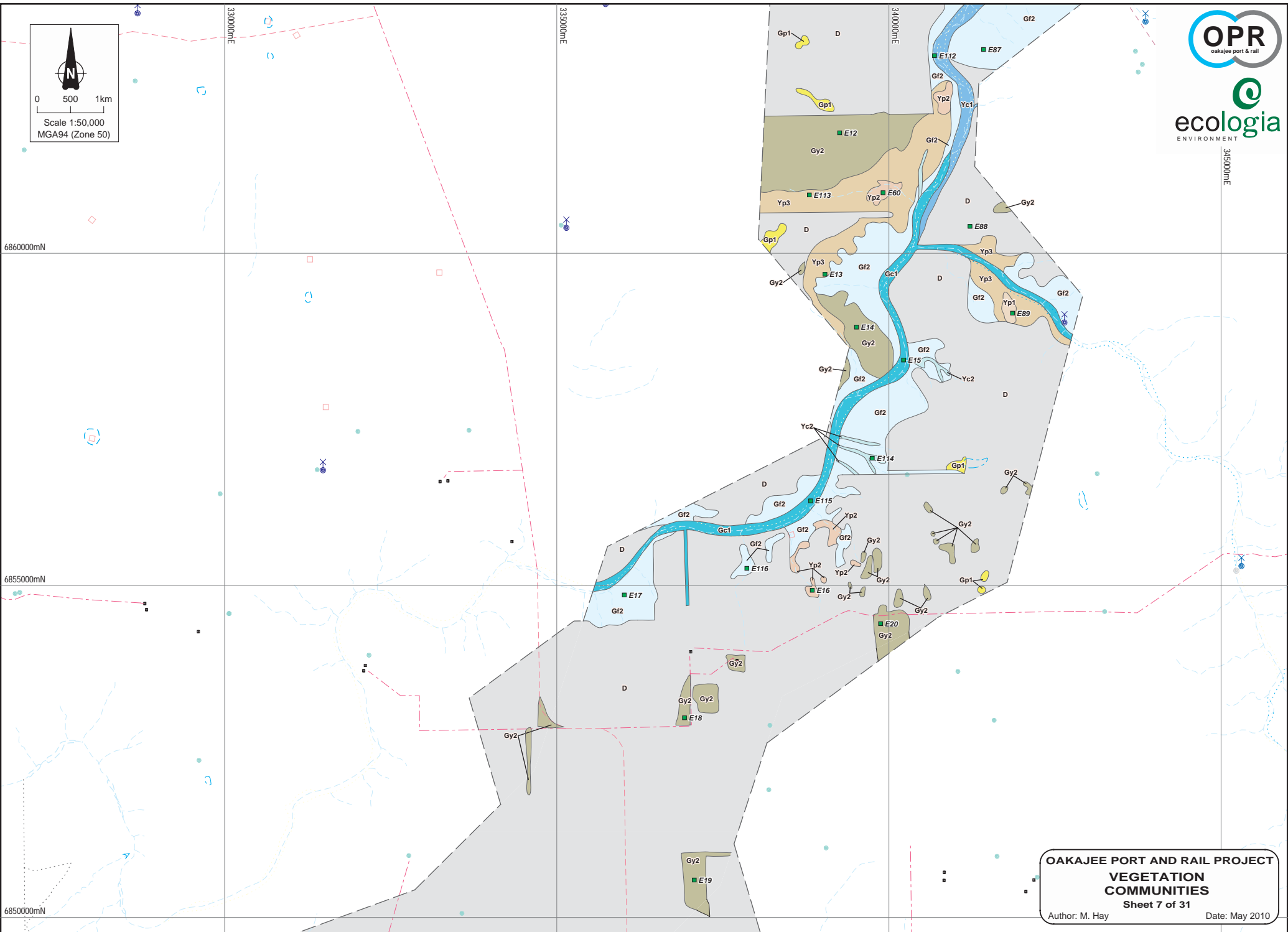
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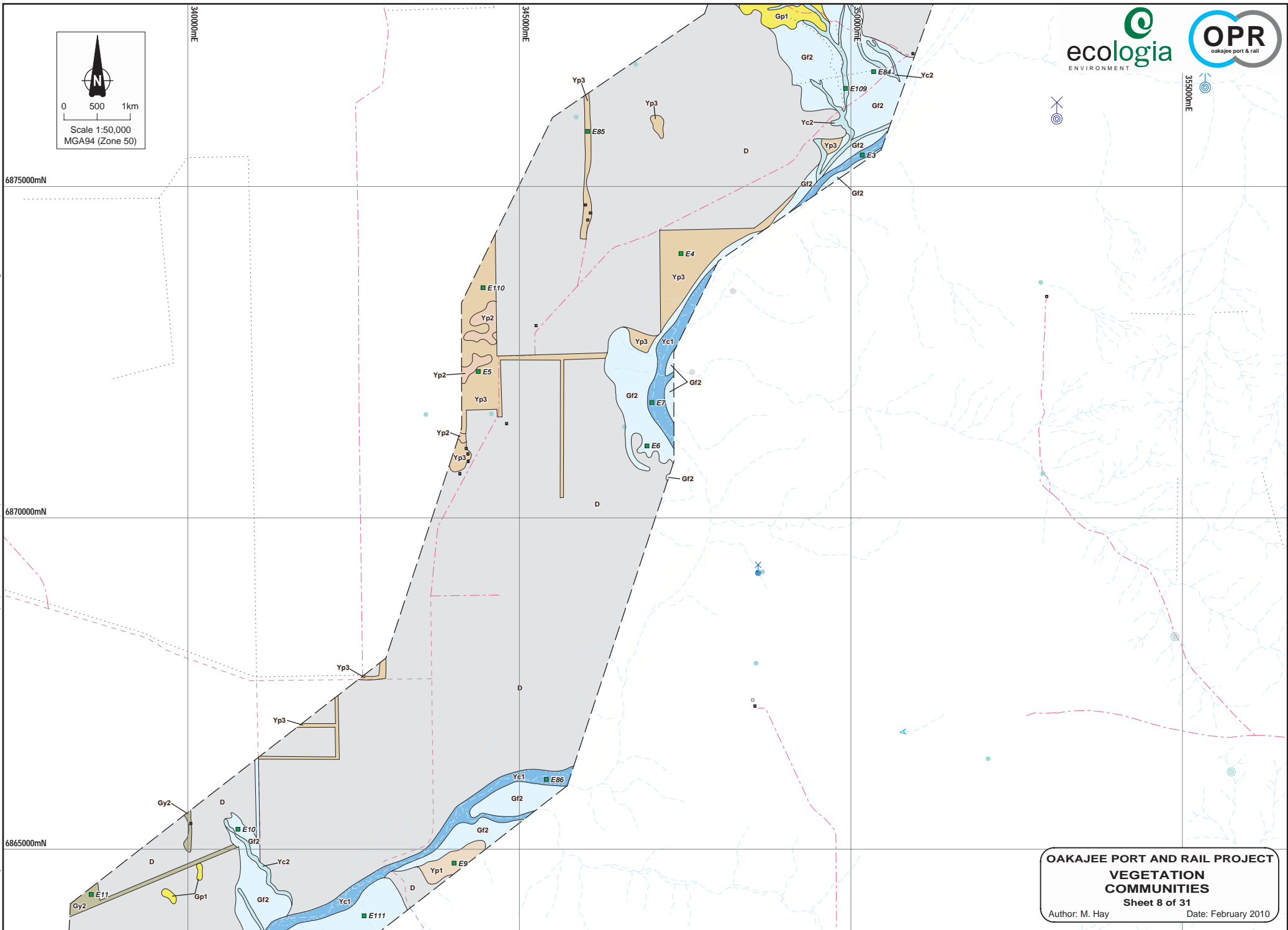
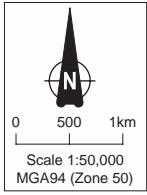
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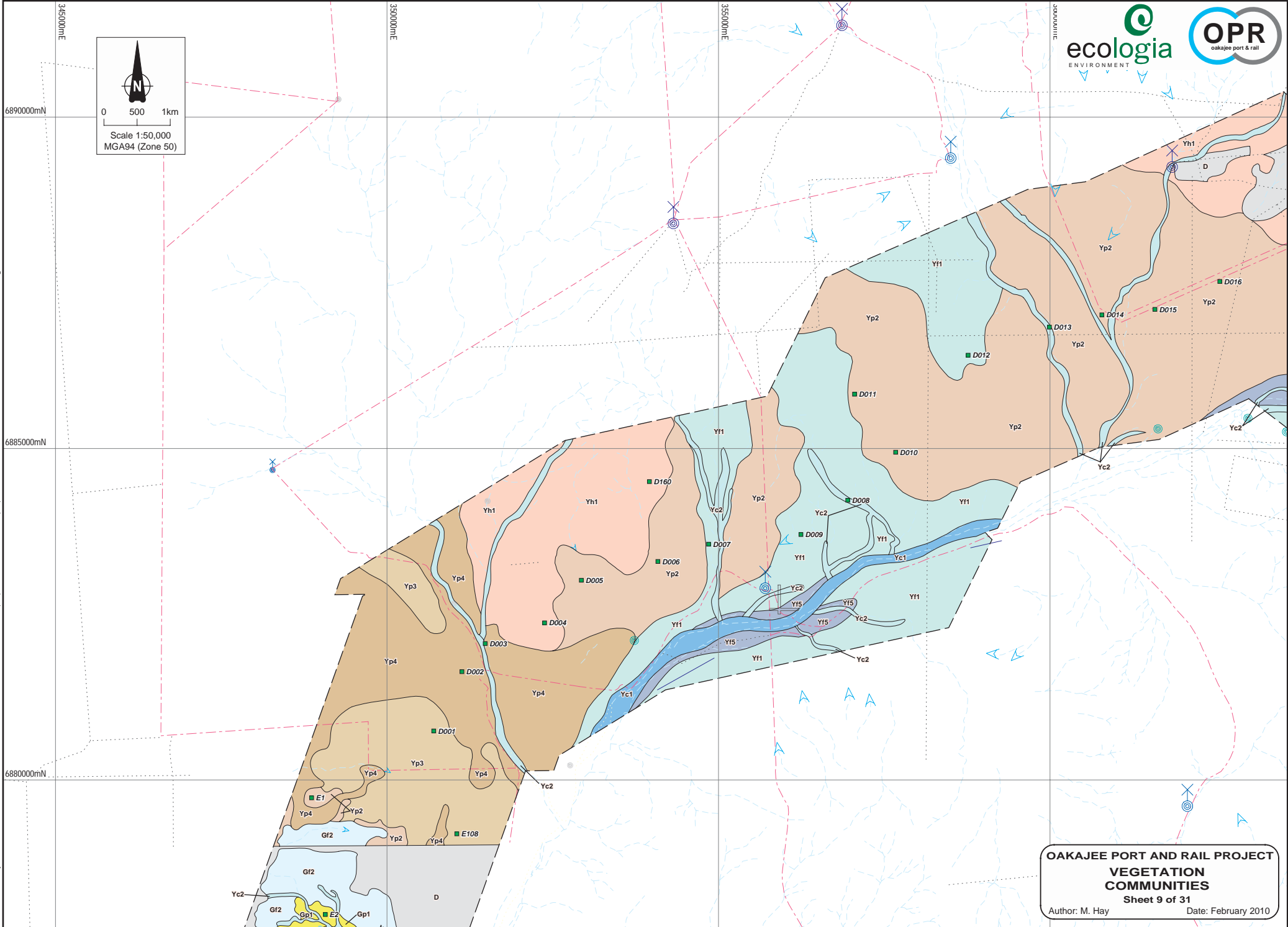
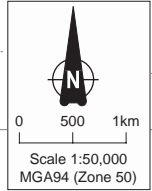
**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Sheet 7 of 31  
Author: M. Hay Date: May 2010



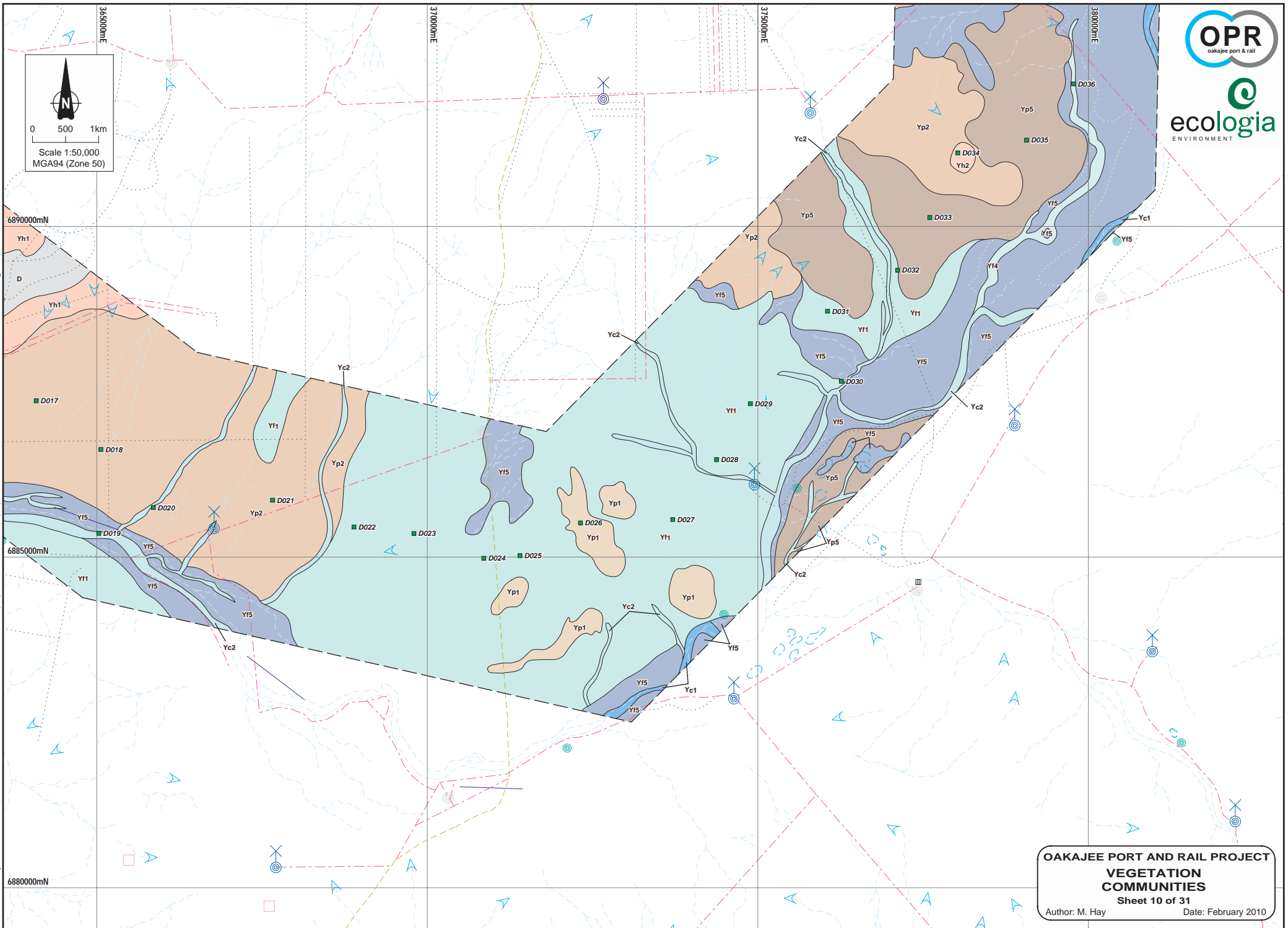
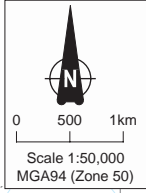
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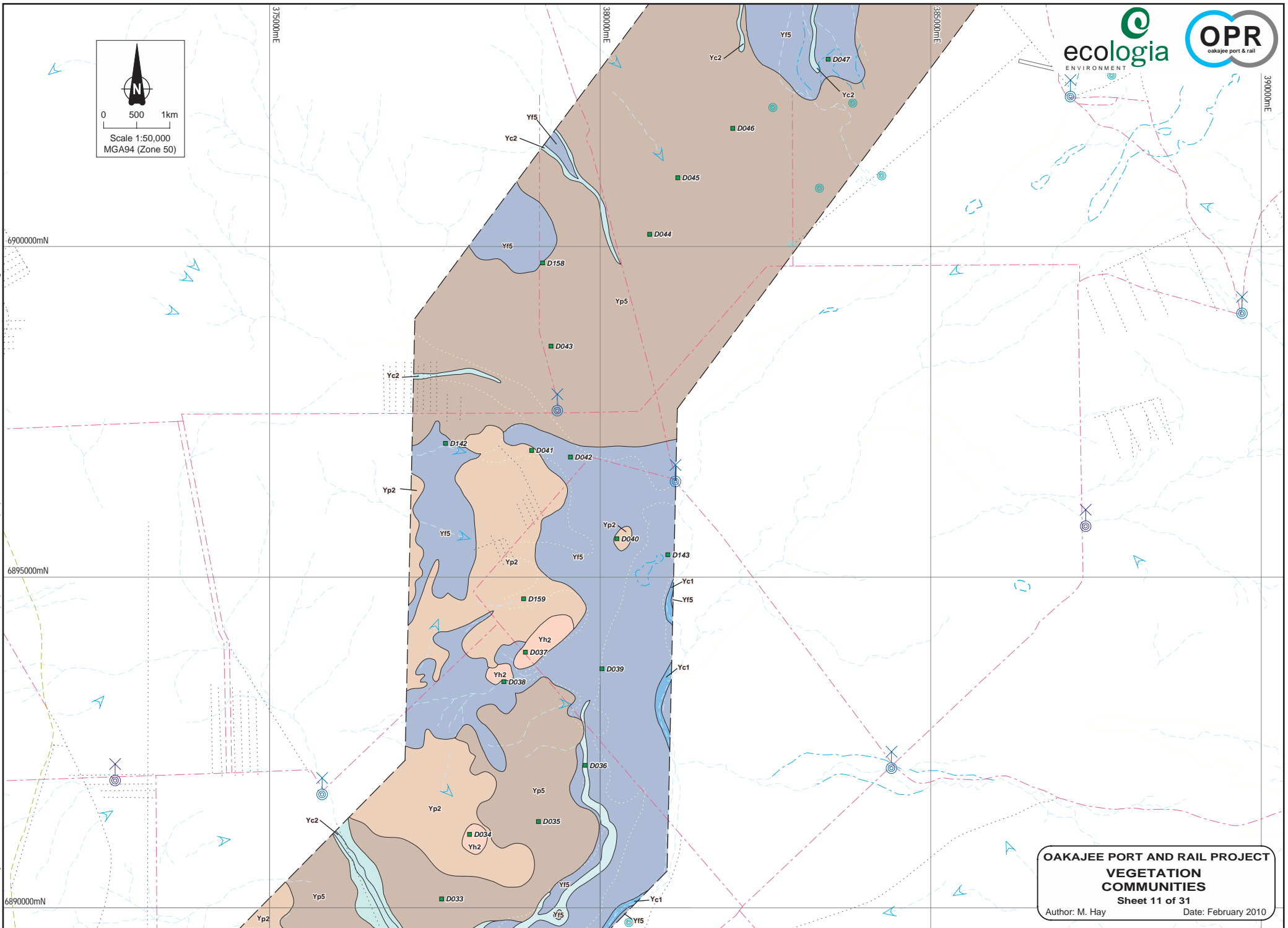
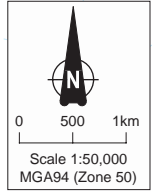
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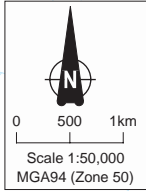
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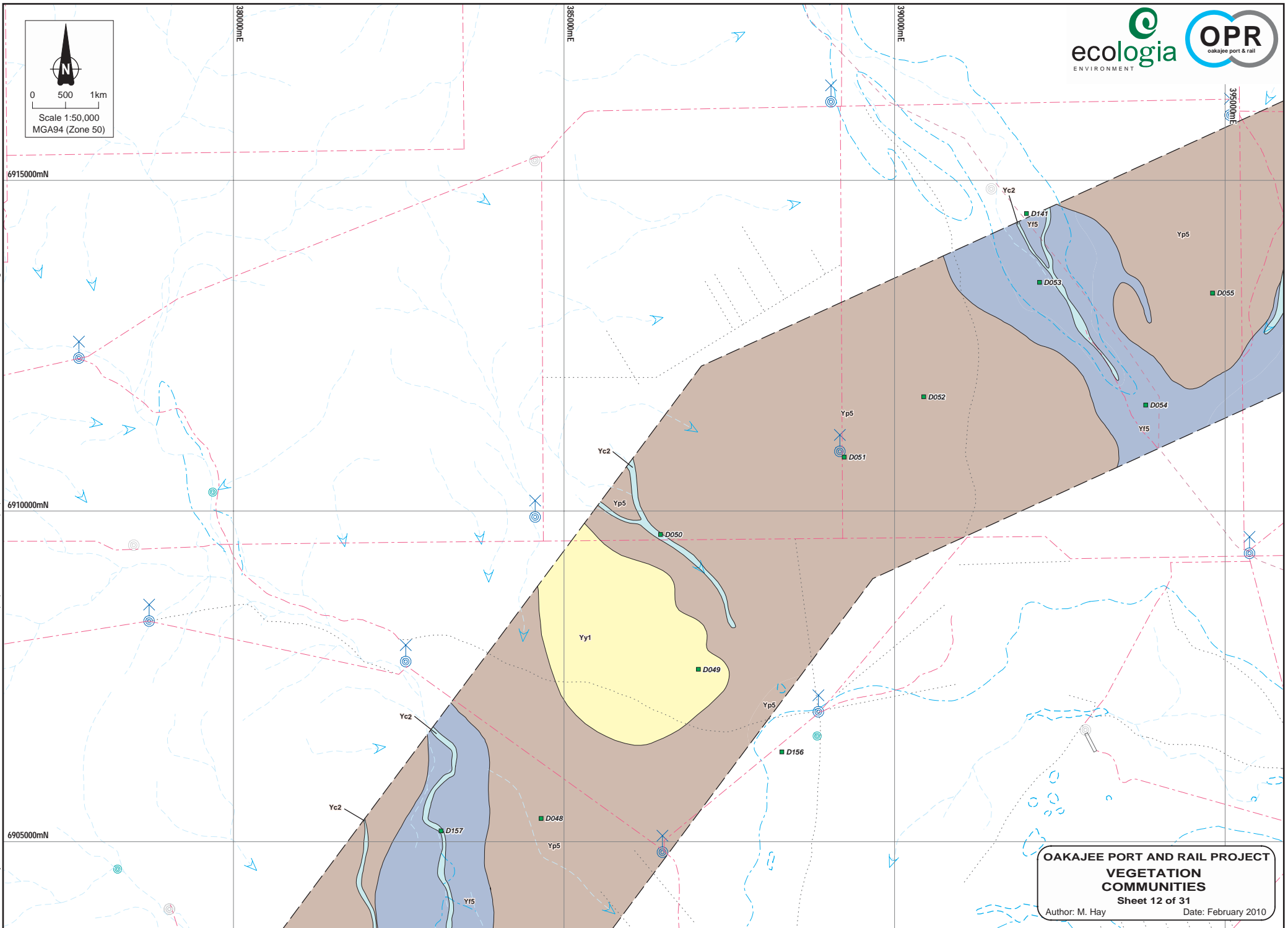
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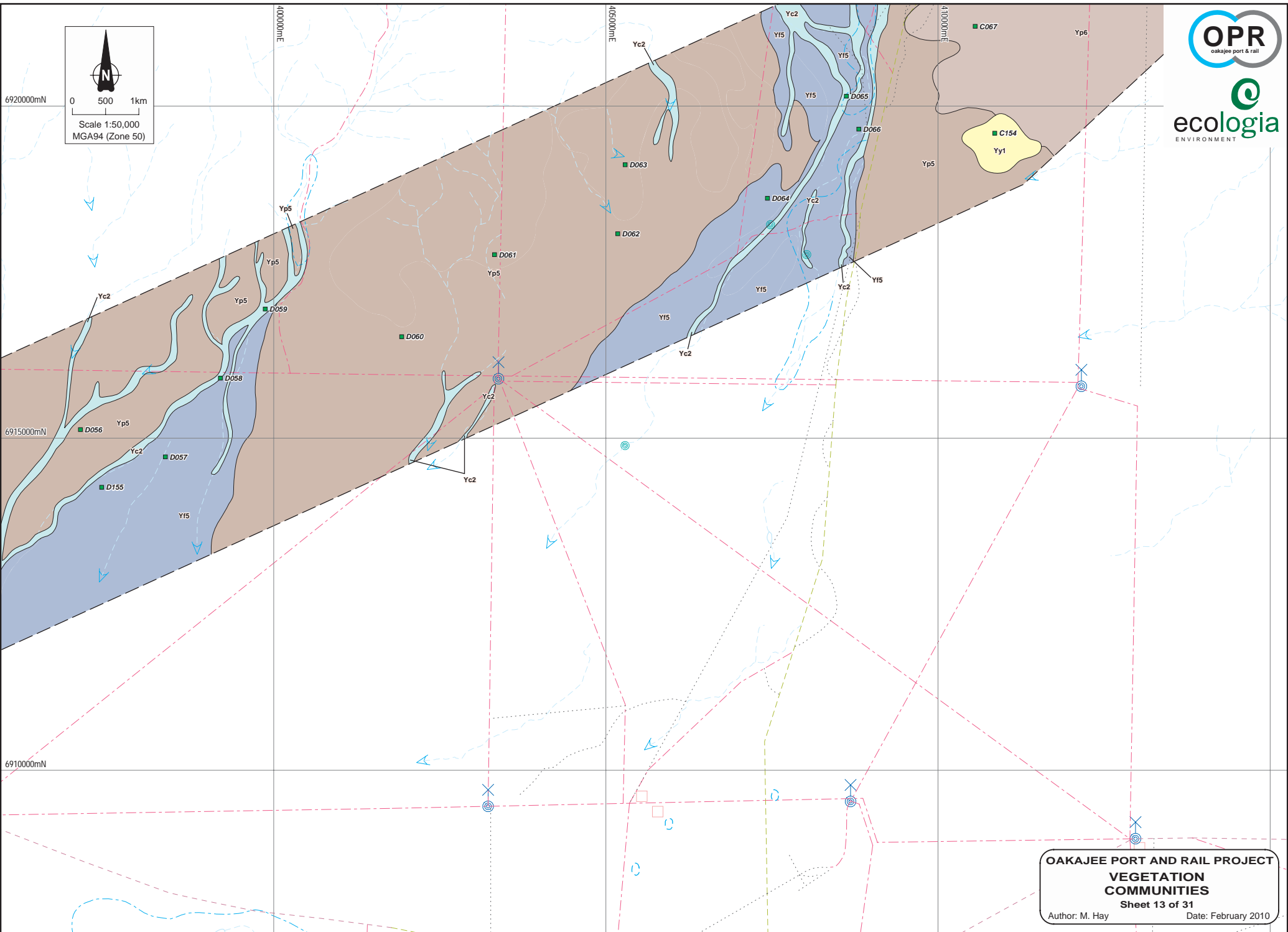
**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Sheet 11 of 31  
Author: M. Hay Date: February 2010



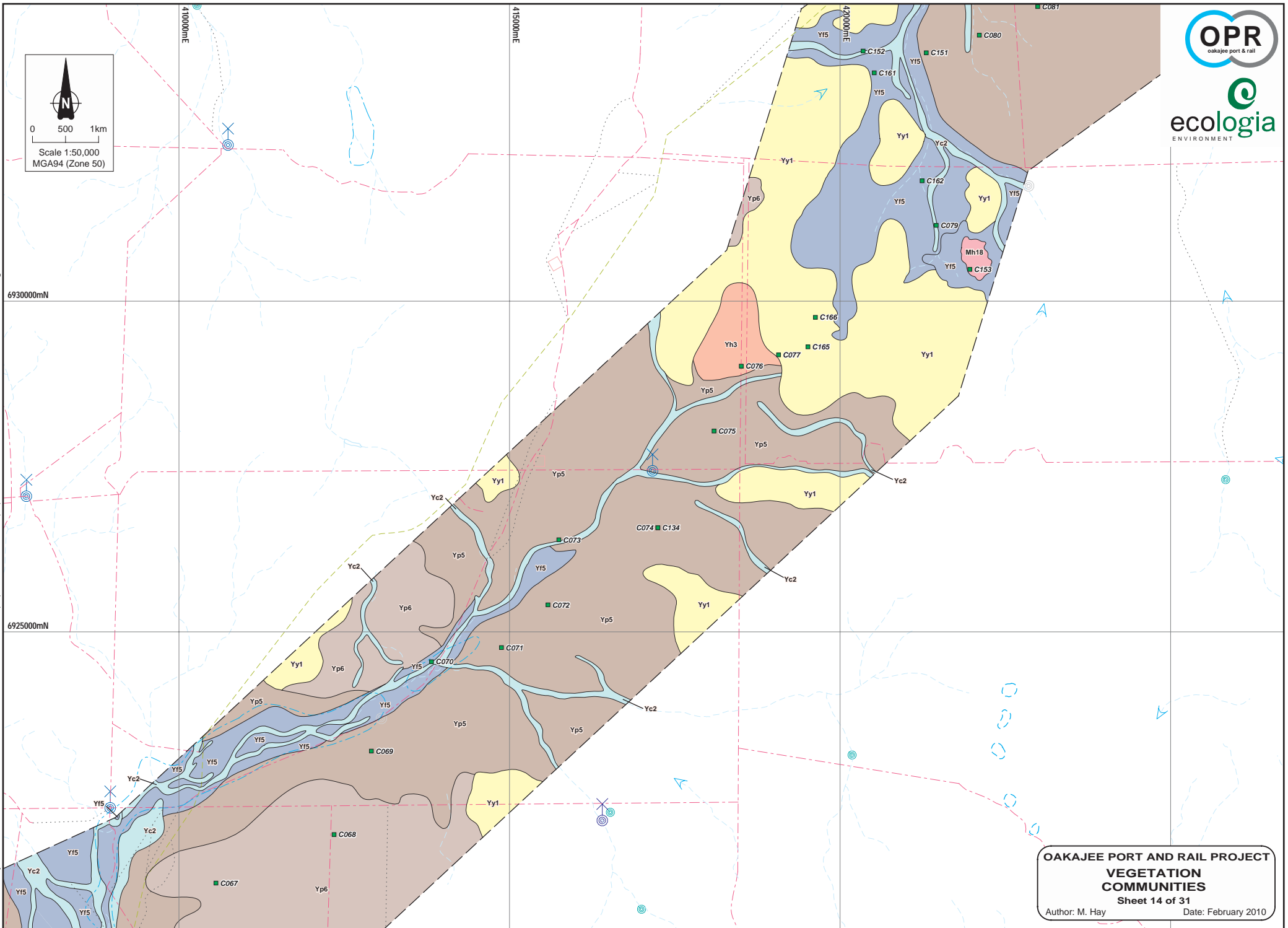
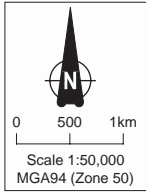
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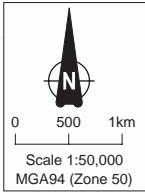
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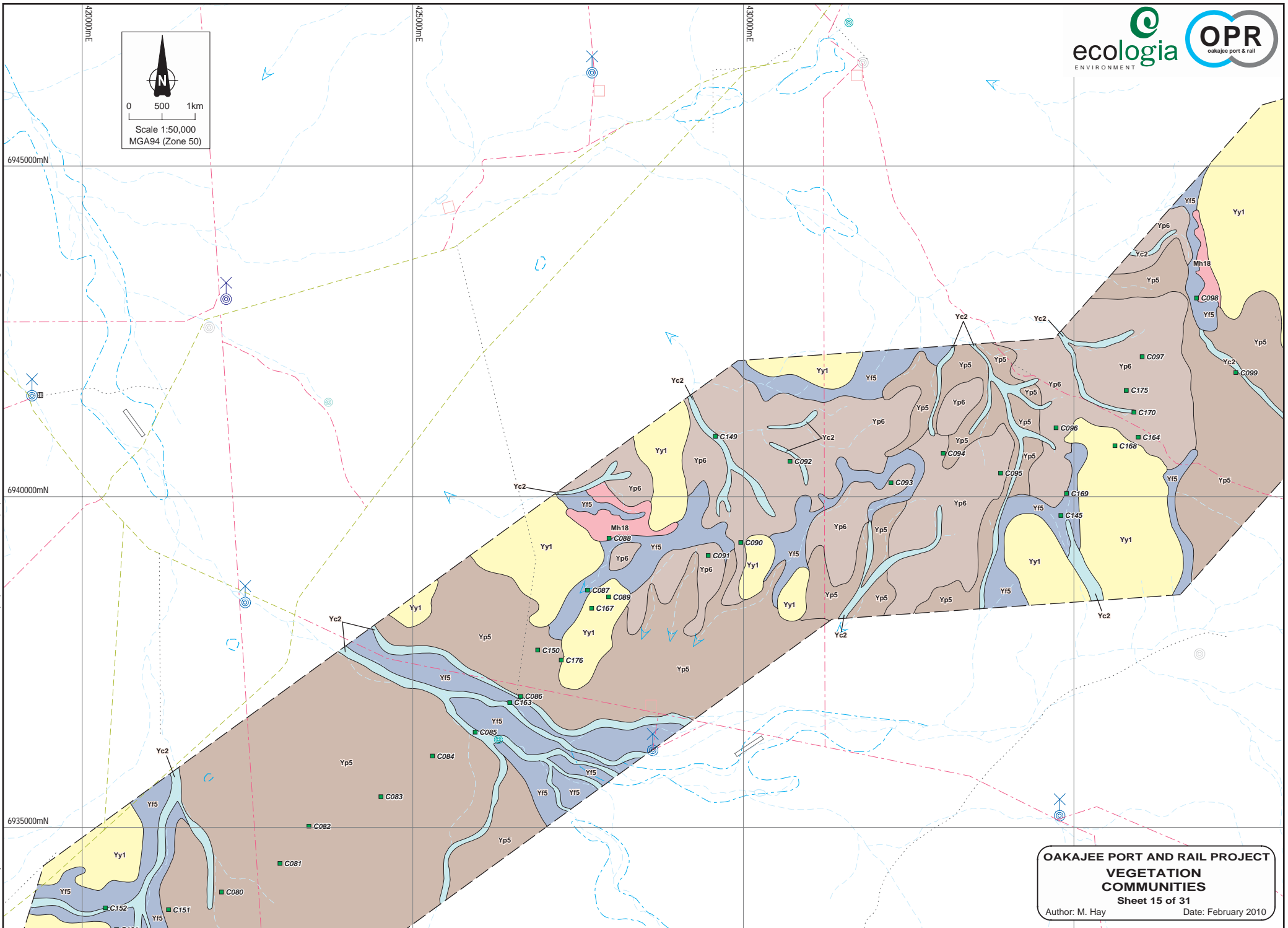
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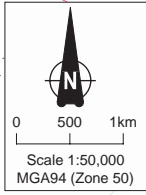
**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Sheet 14 of 31  
Author: M. Hay Date: February 2010



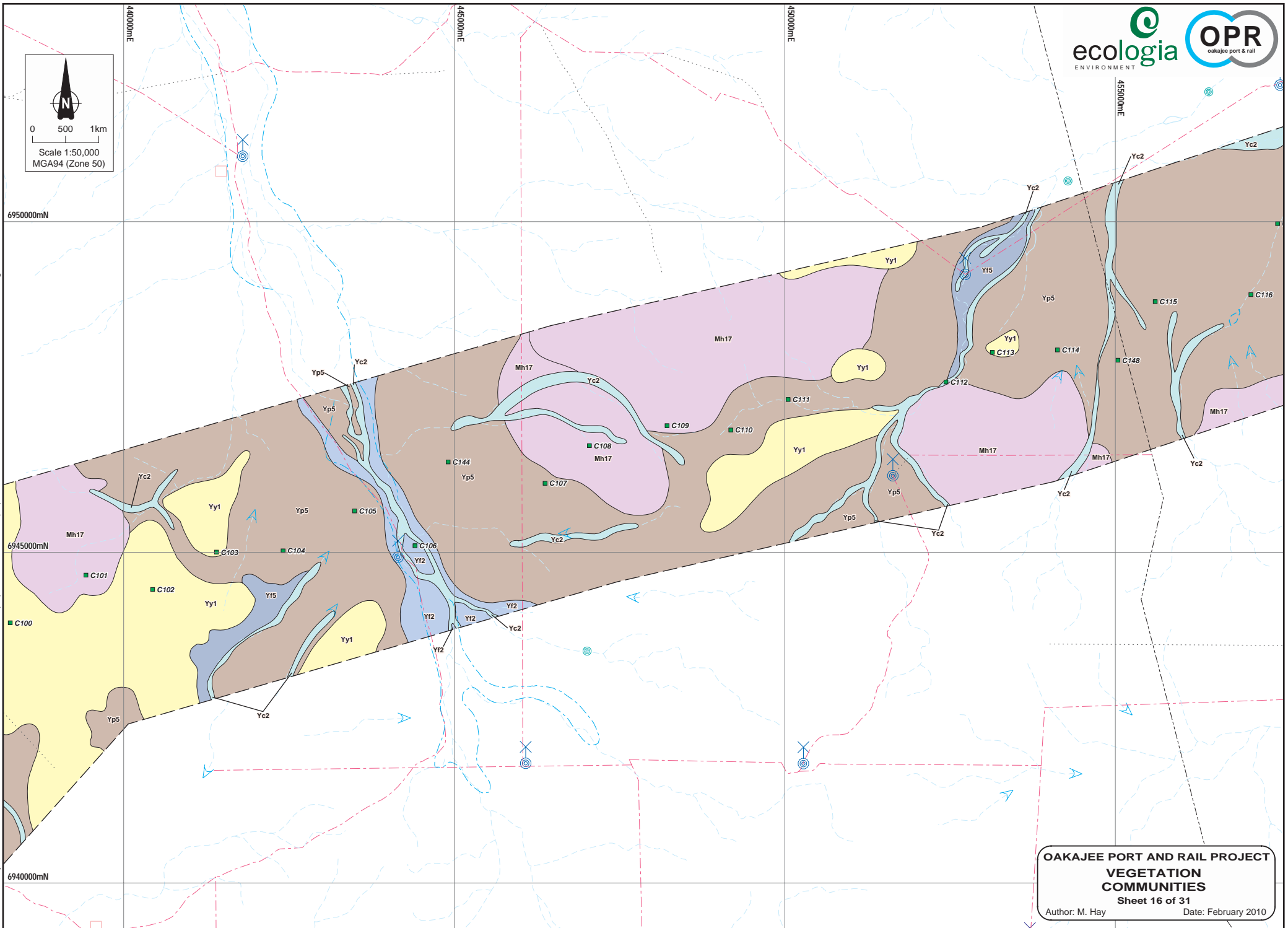
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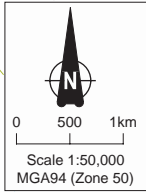




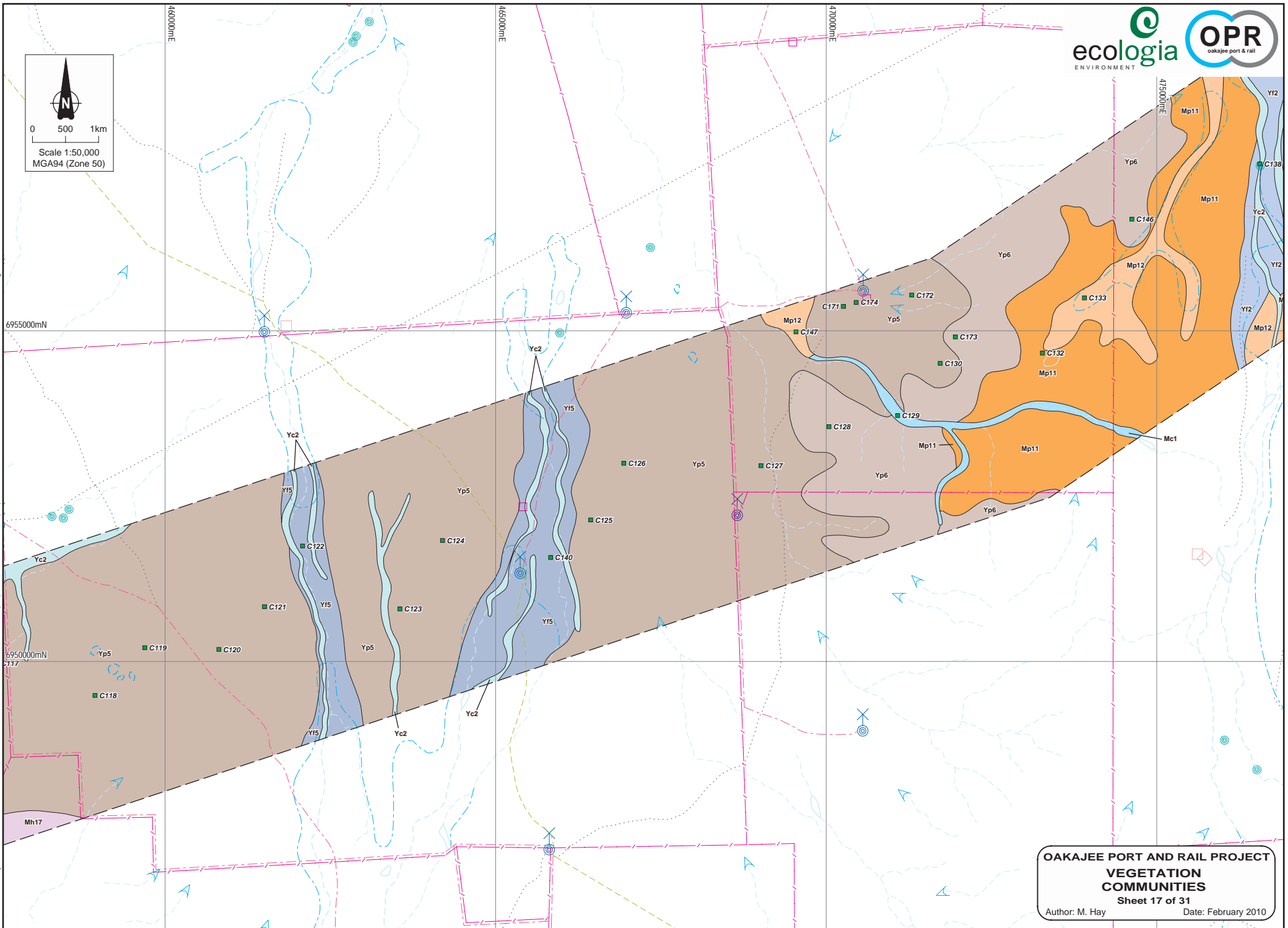


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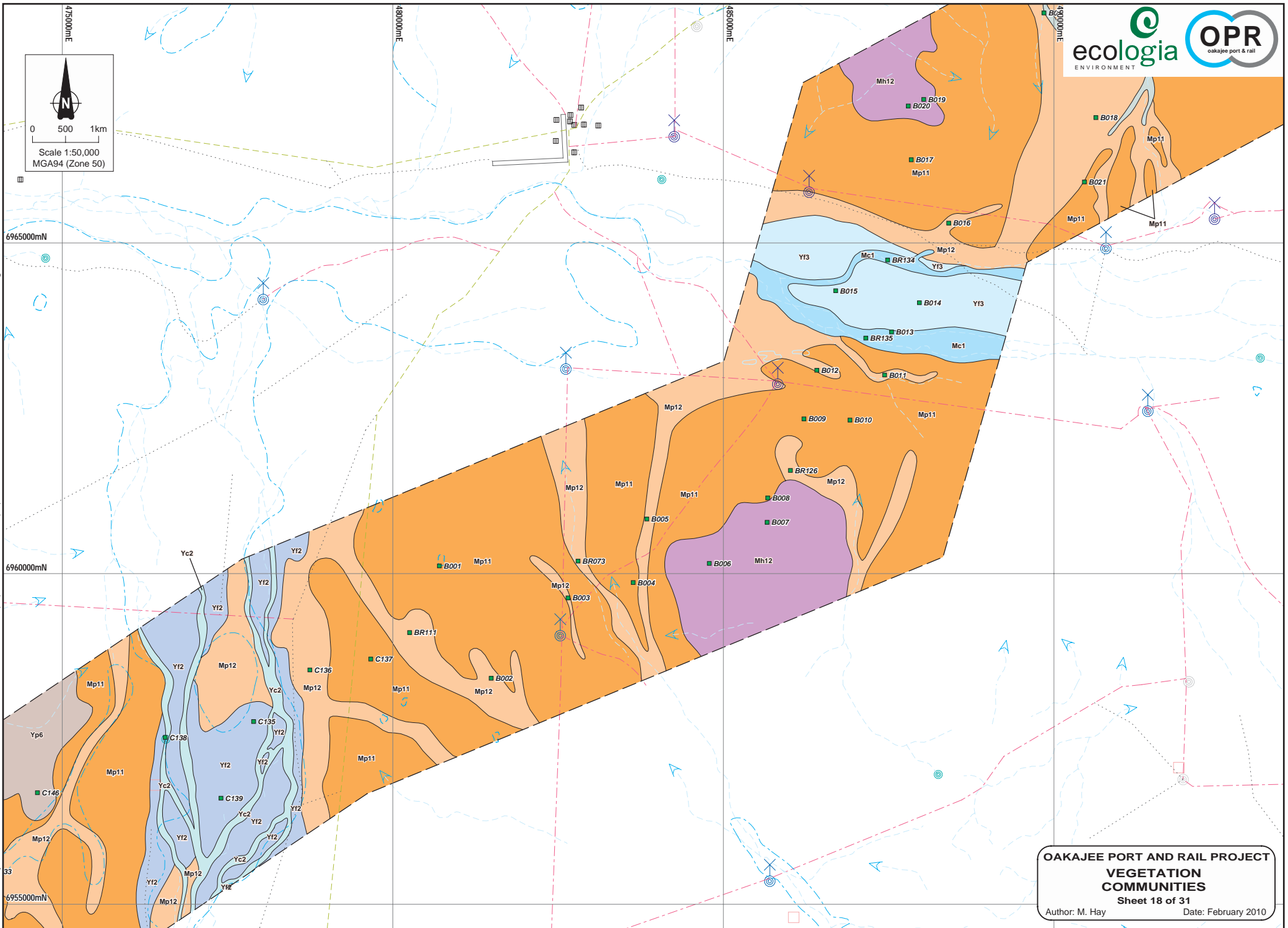
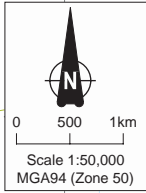




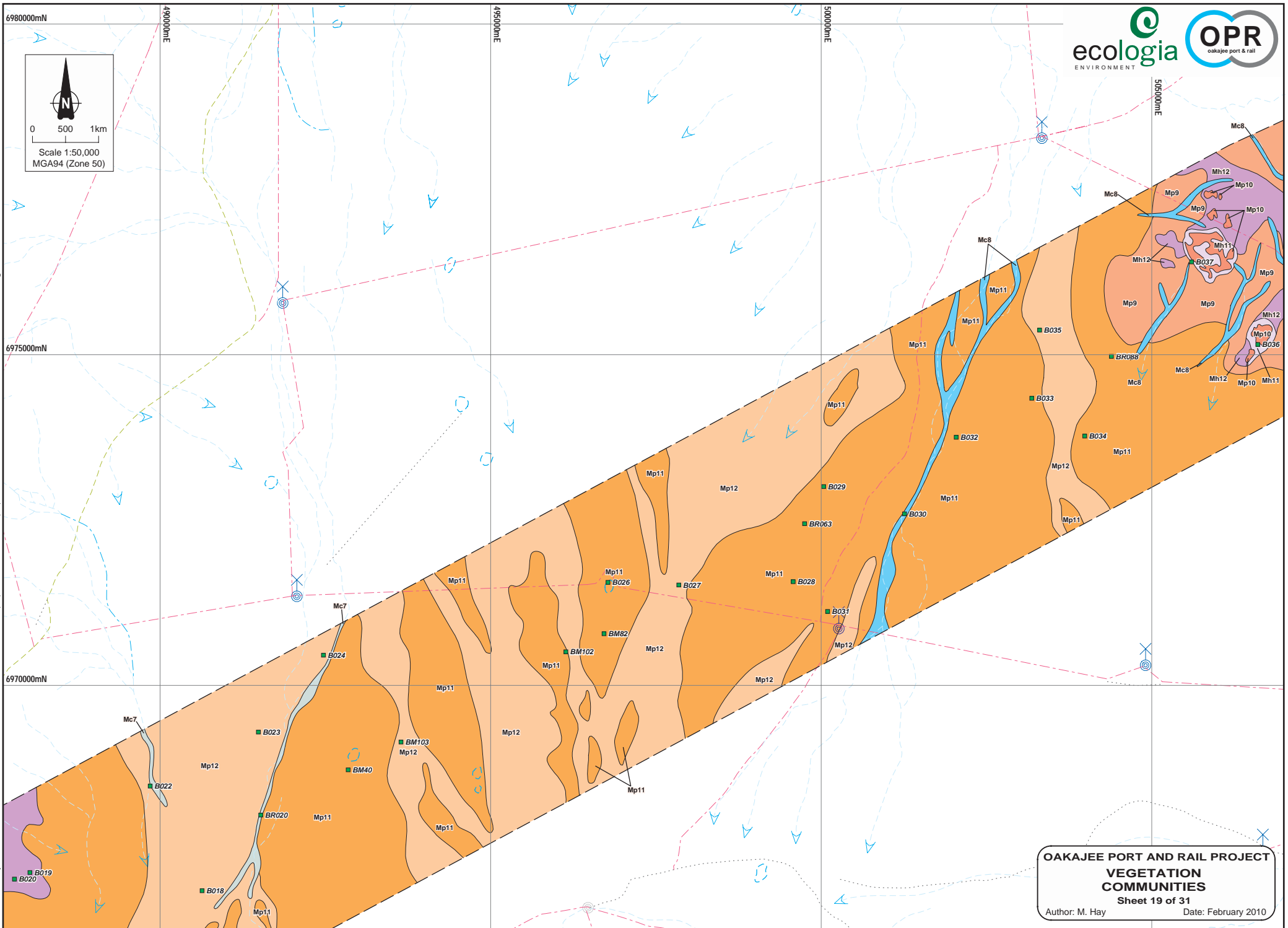
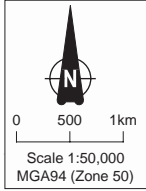
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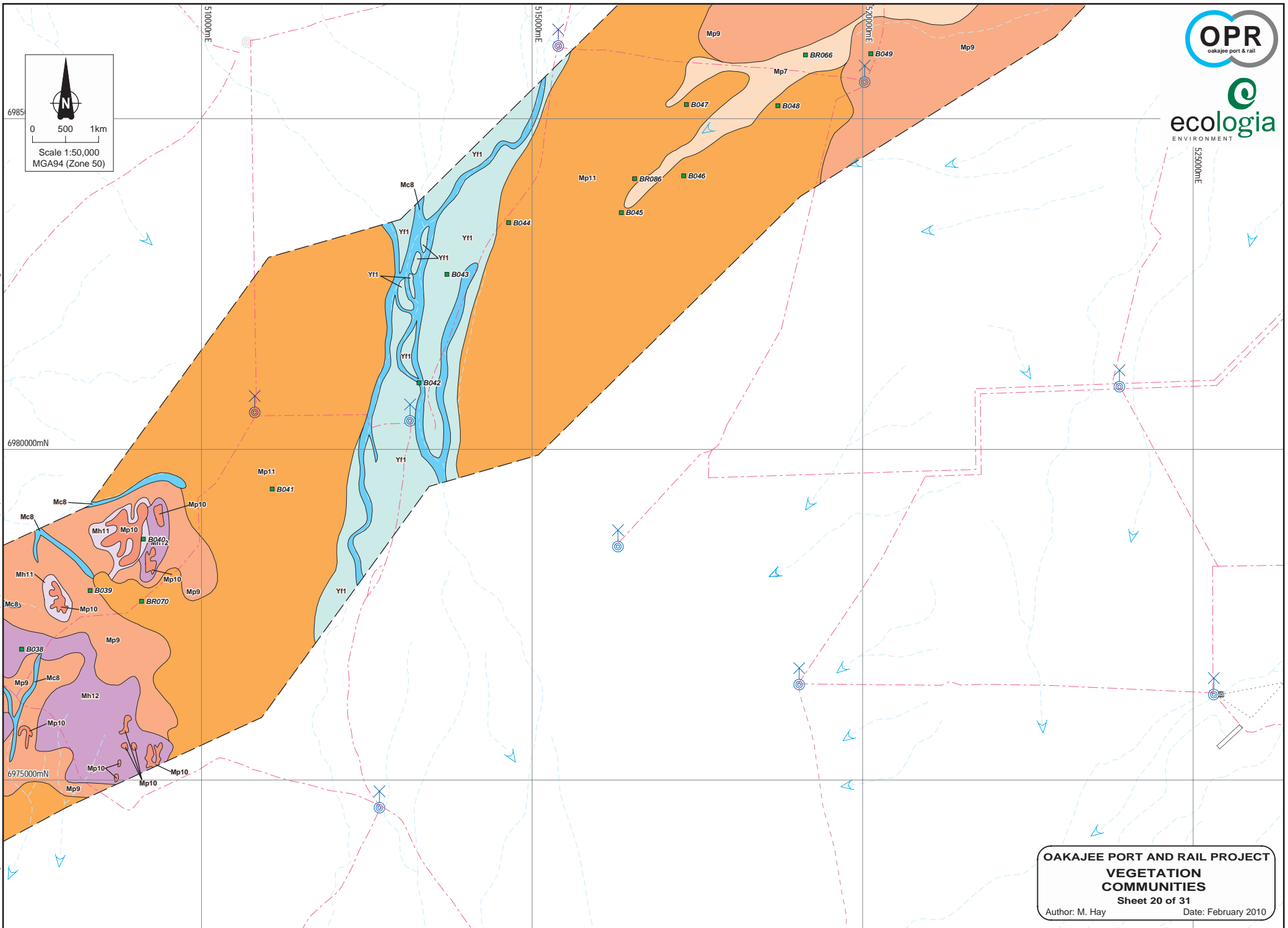
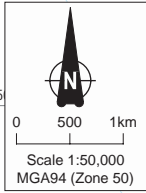
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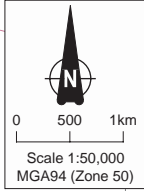
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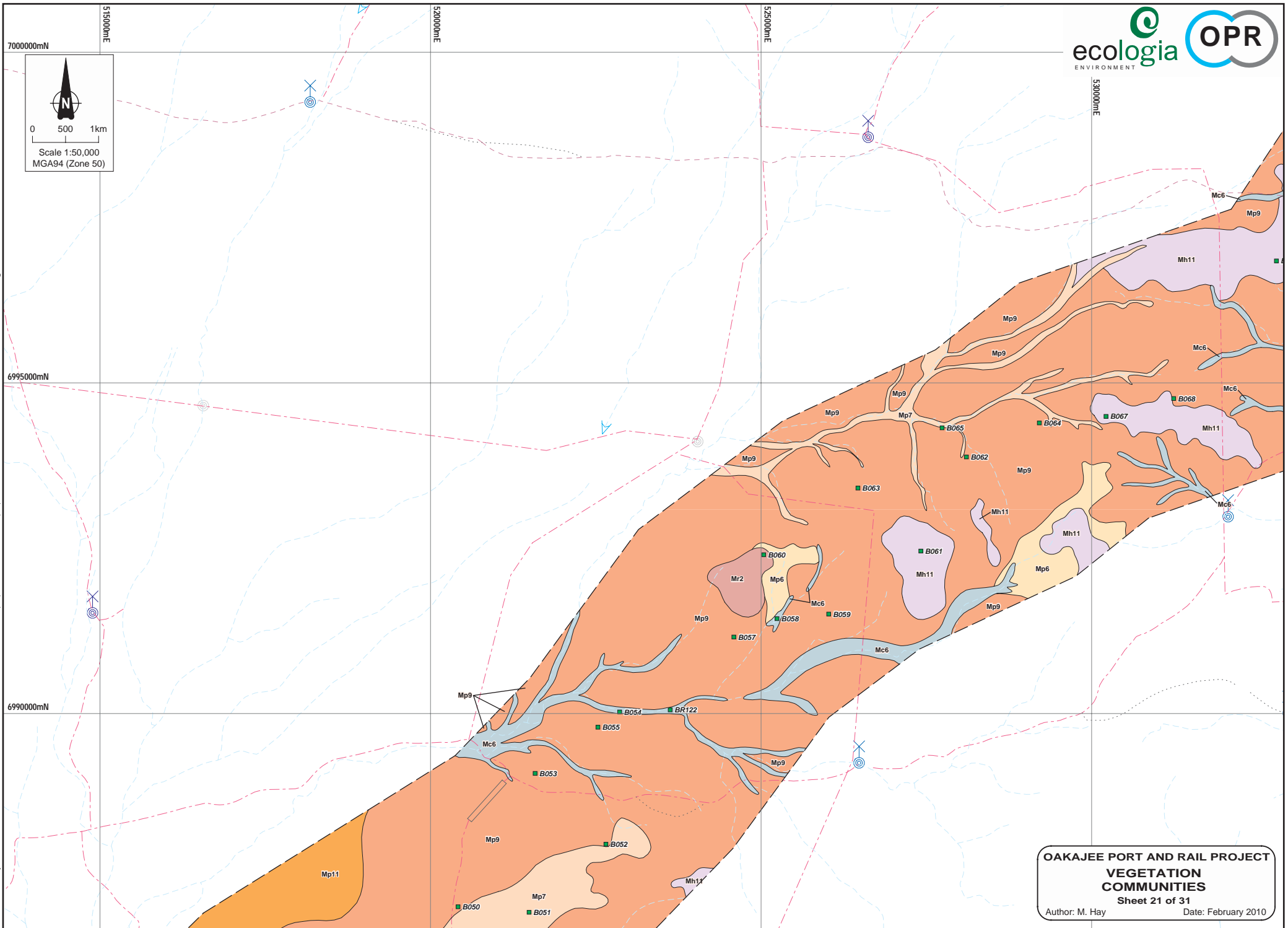
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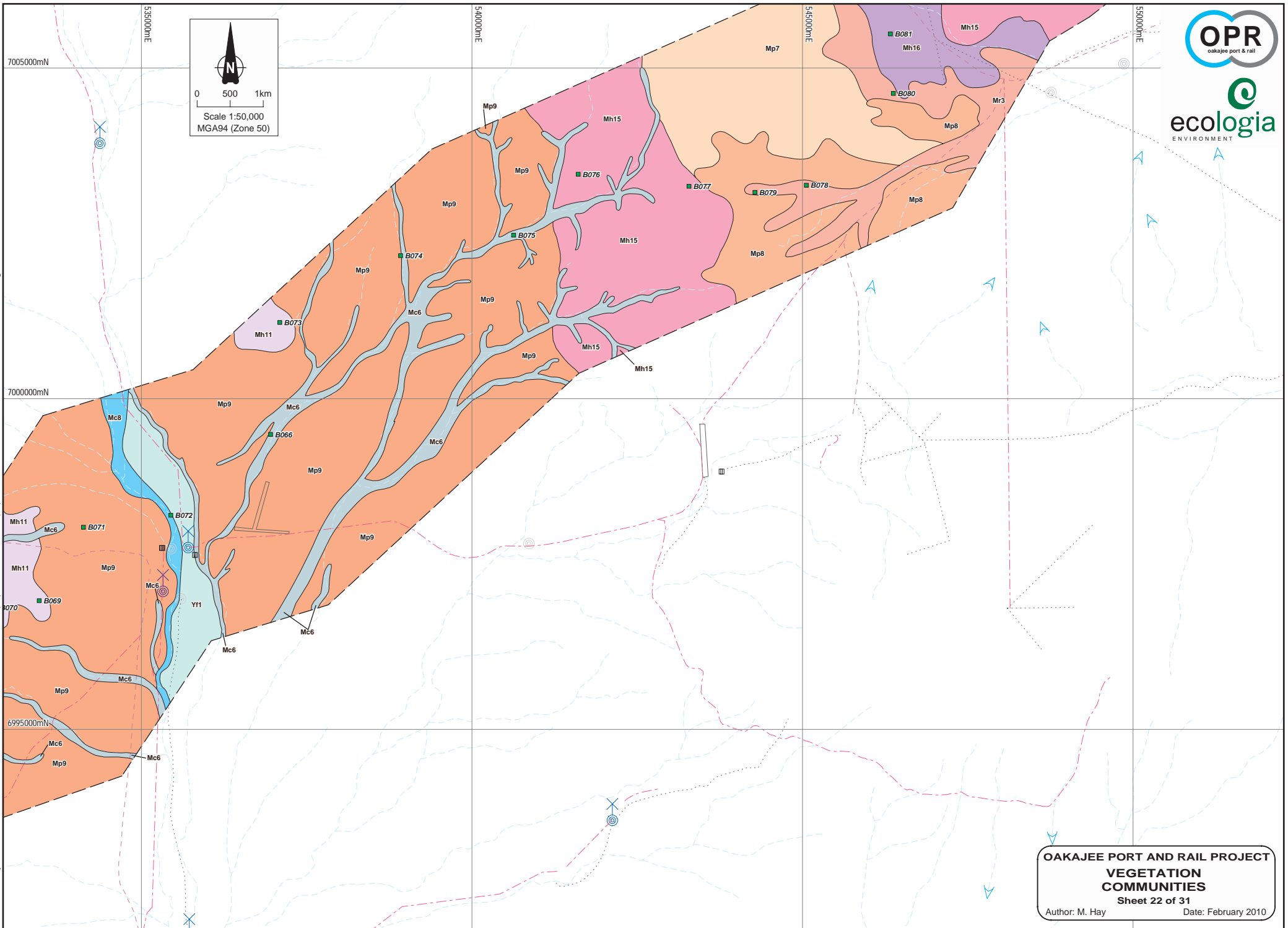
**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Sheet 20 of 31  
Author: M. Hay Date: February 2010



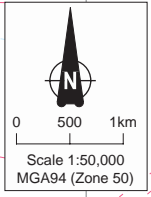
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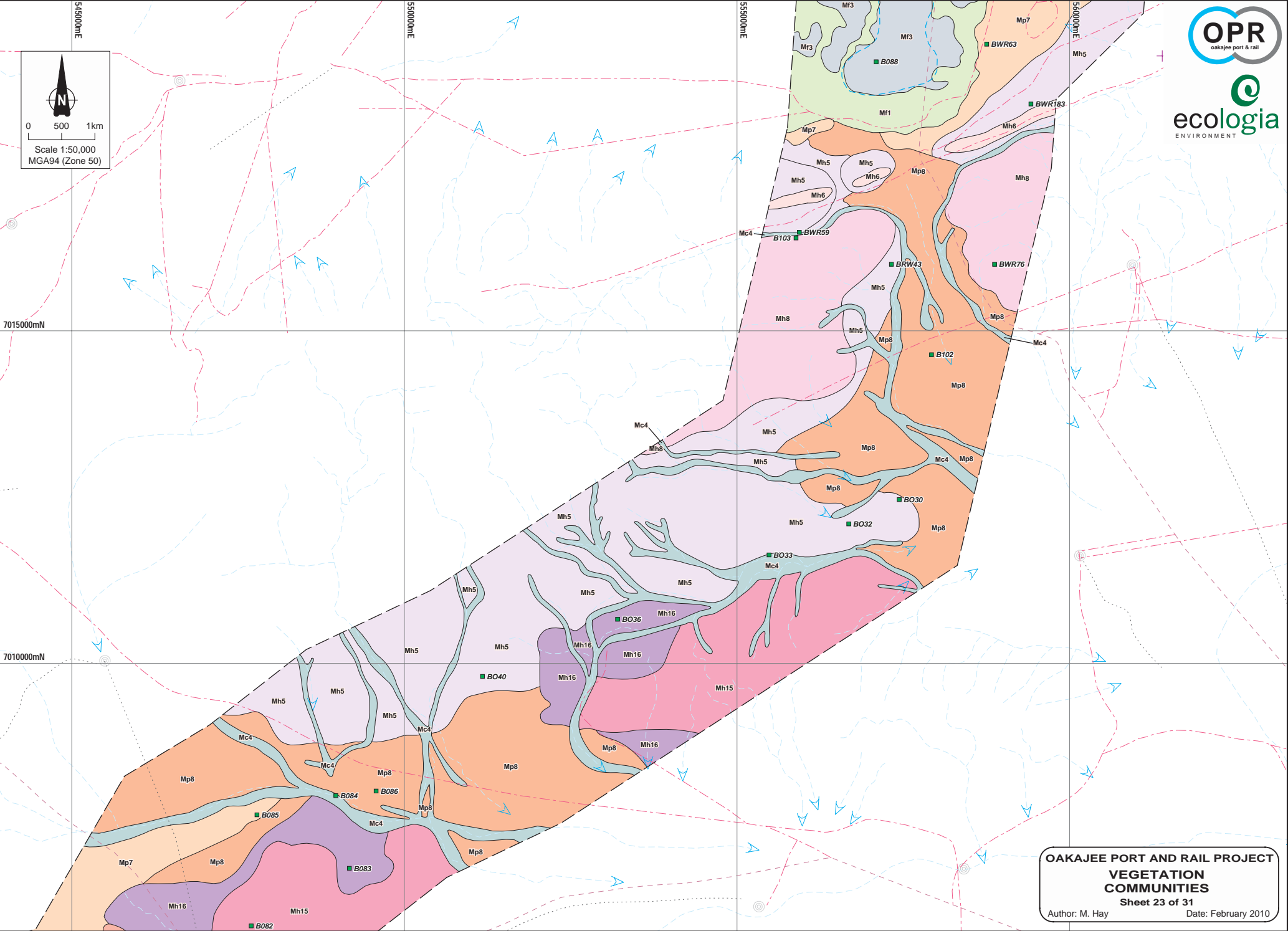
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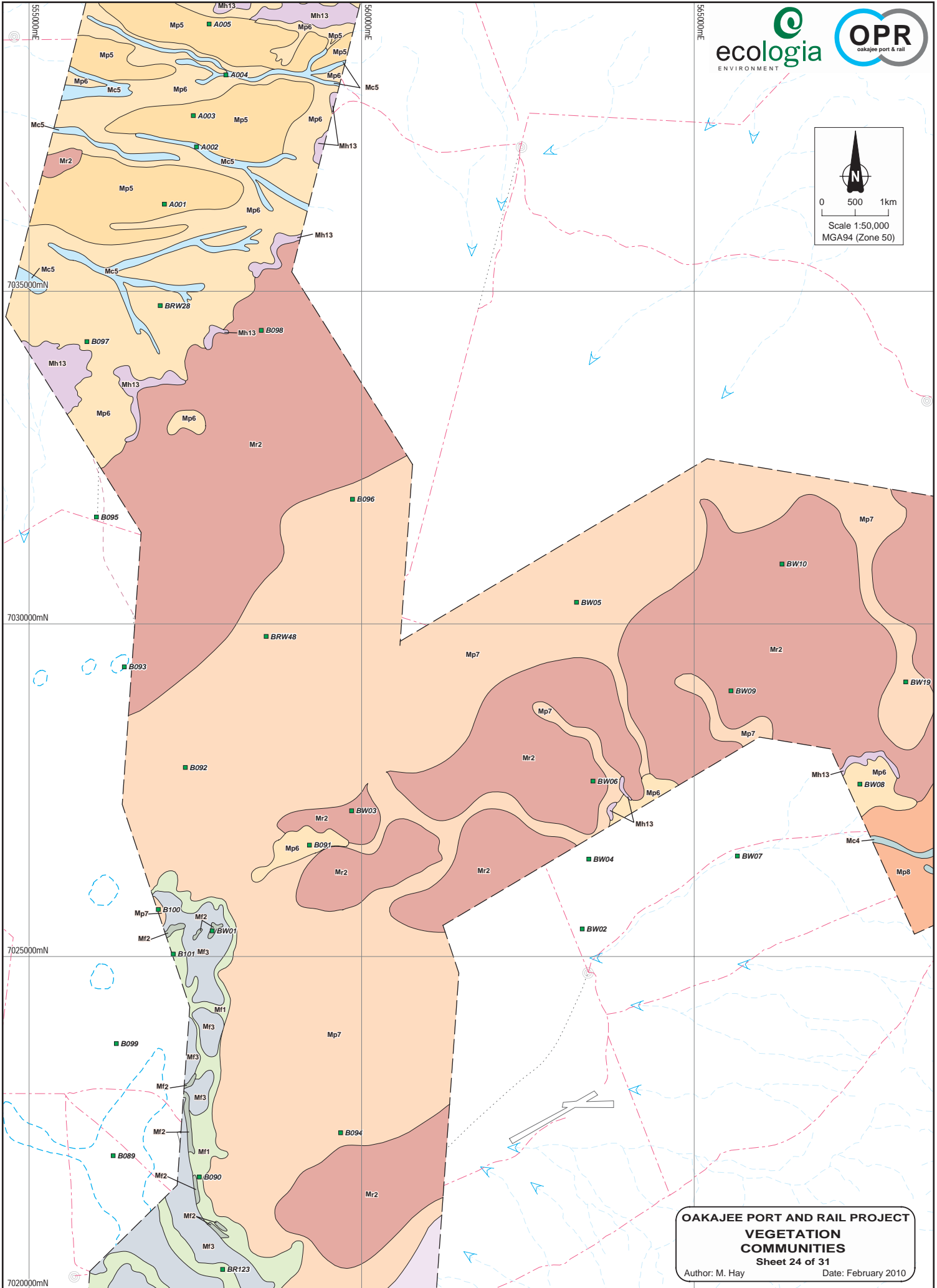
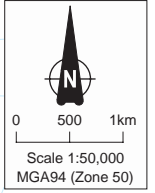
**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Sheet 22 of 31  
Author: M. Hay Date: February 2010



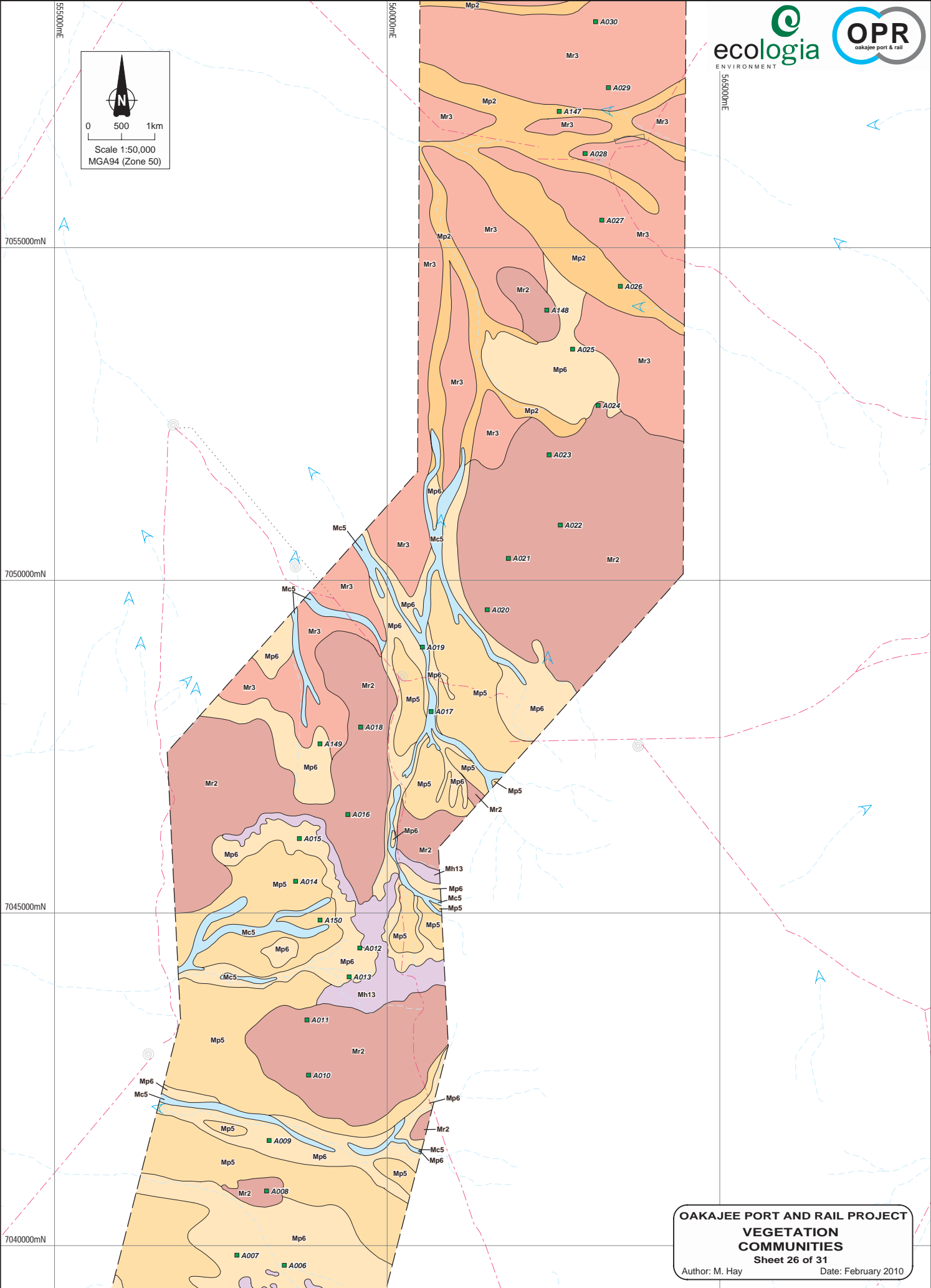
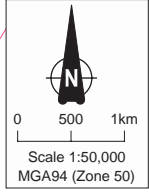
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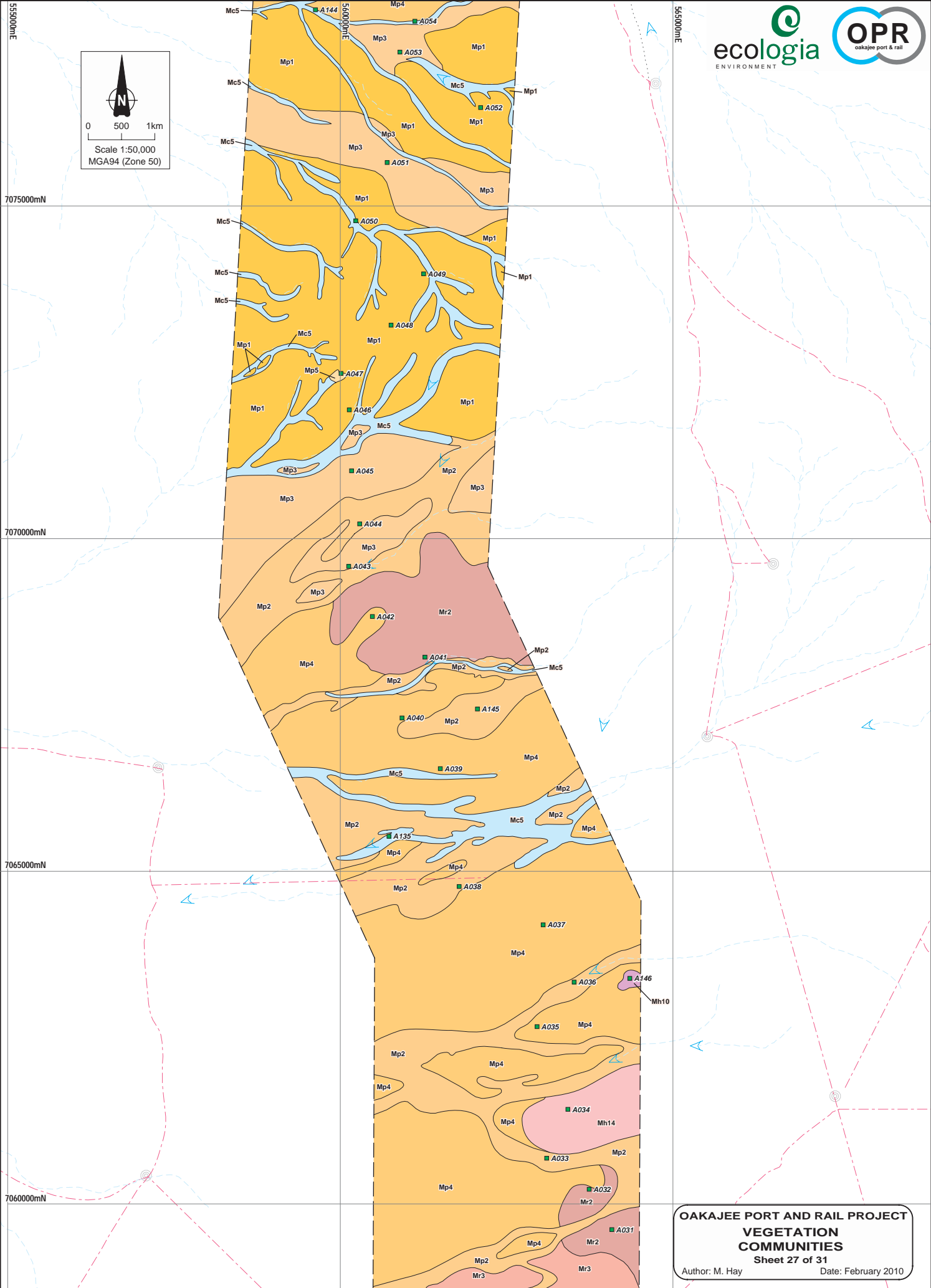
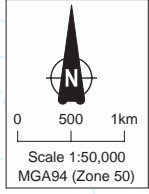


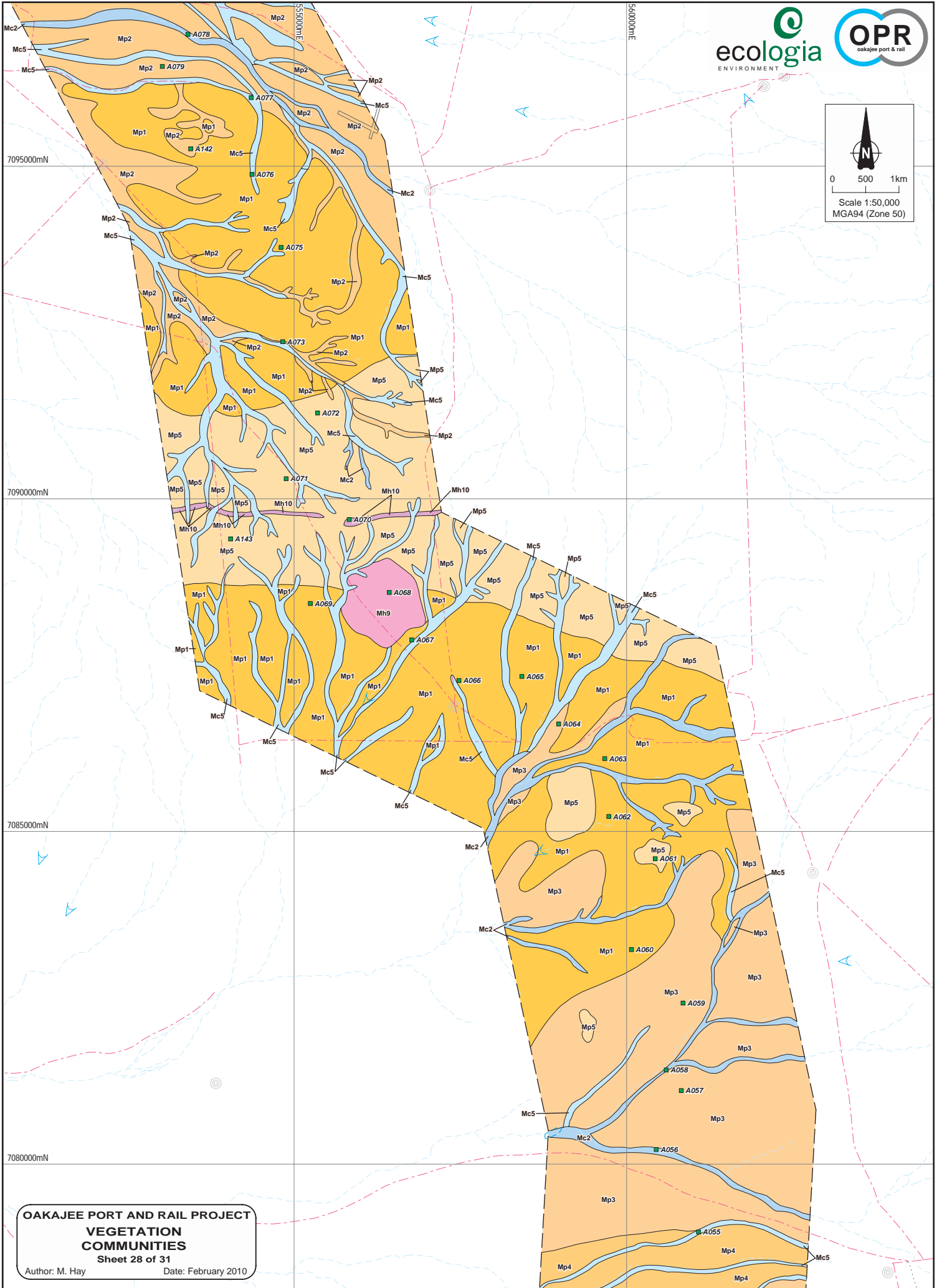
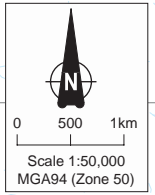






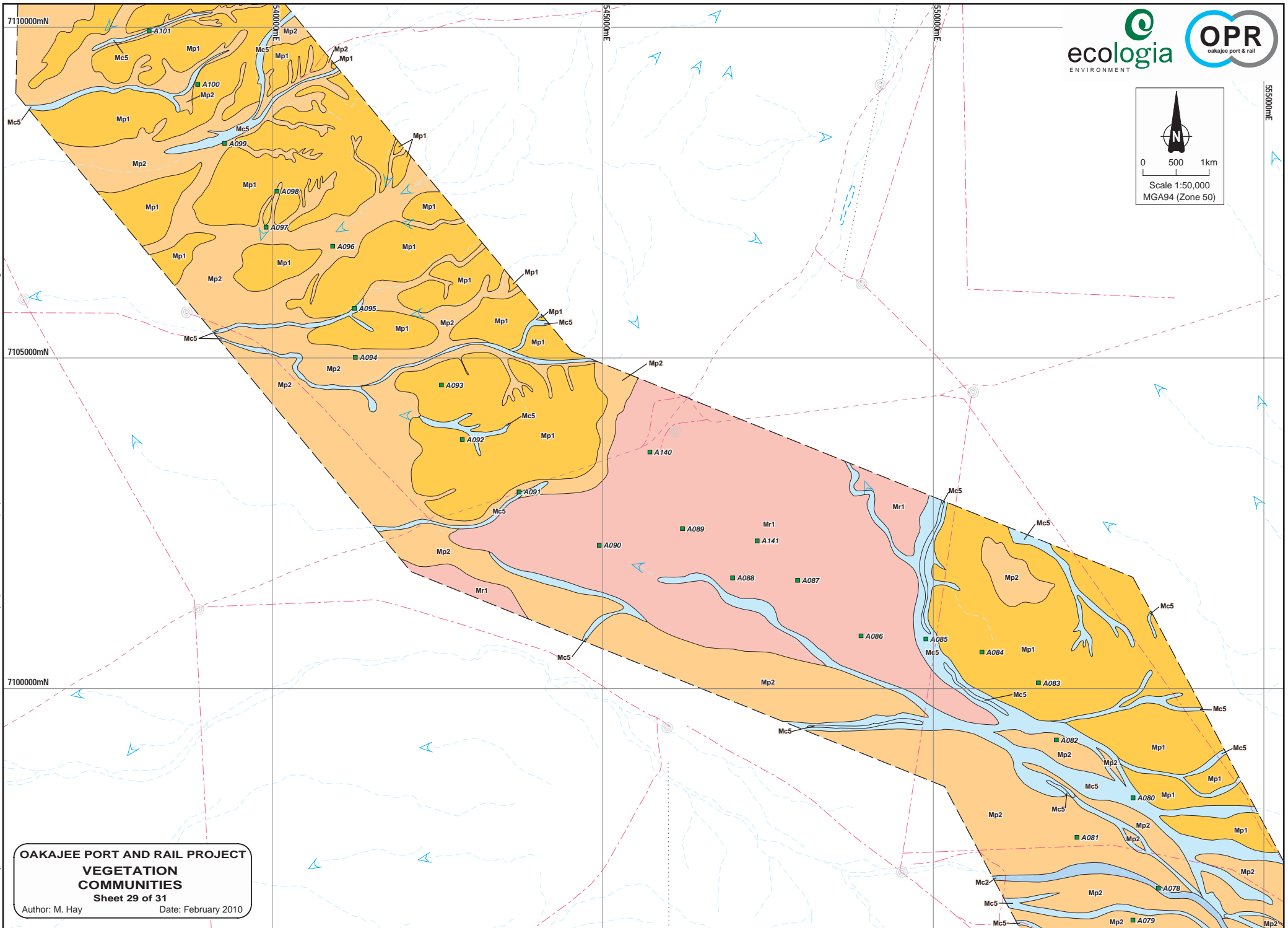
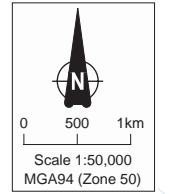




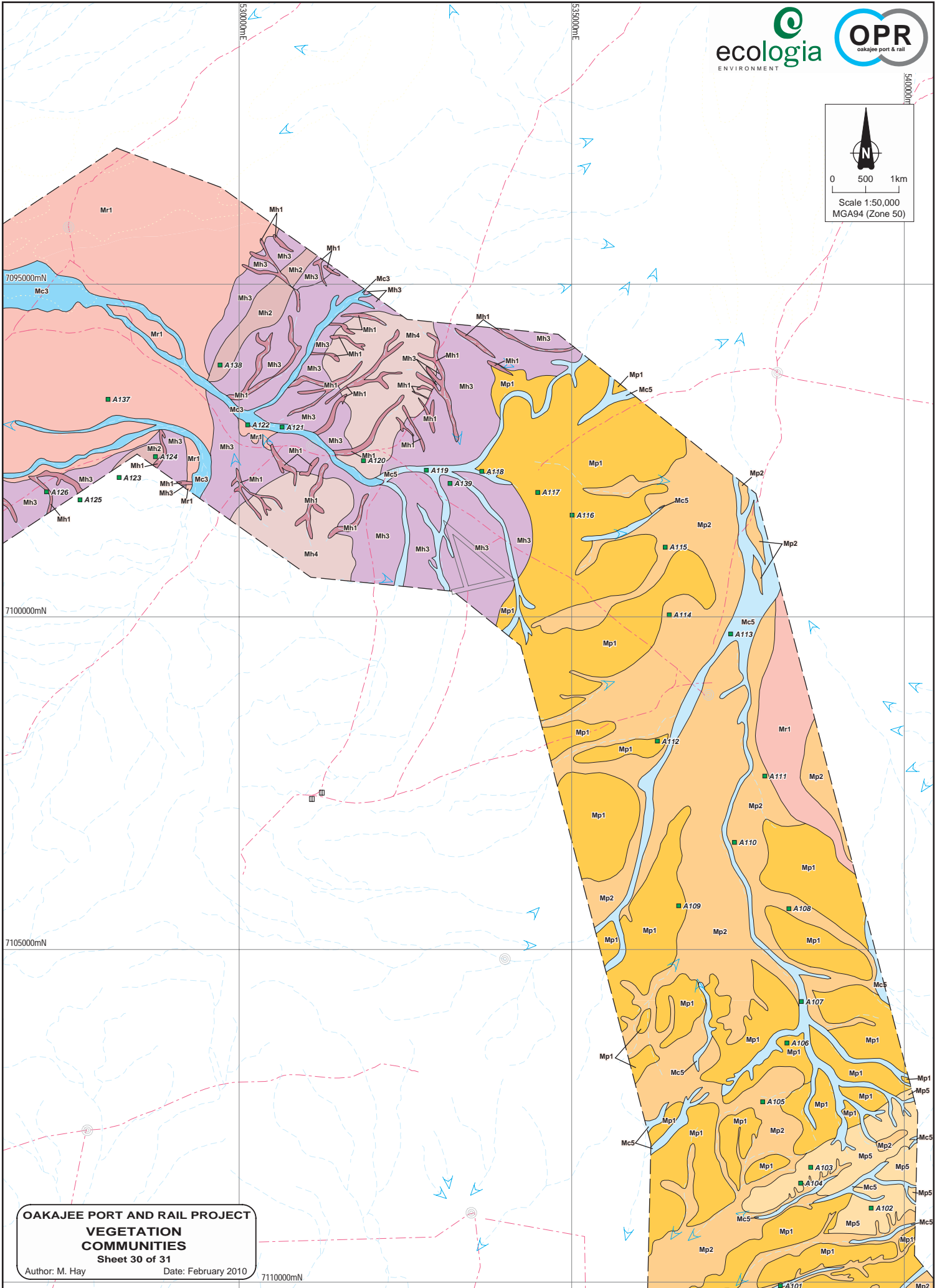
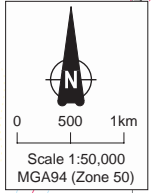


**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Sheet 28 of 31  
Author: M. Hay Date: February 2010

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**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION COMMUNITIES**  
Sheet 29 of 31  
Author: M. Hay Date: February 2010

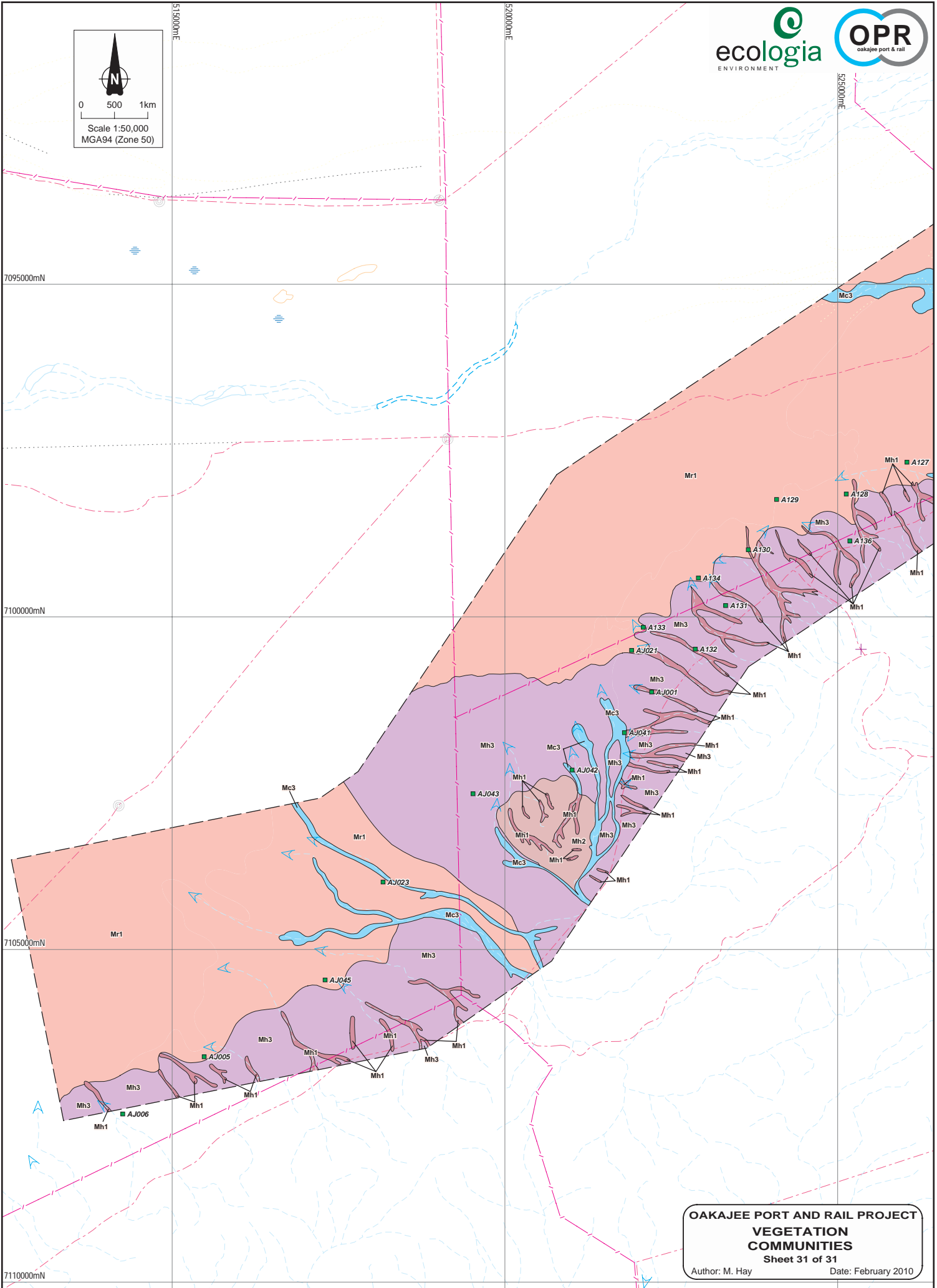
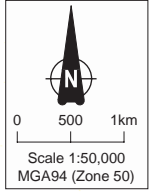


**OAKAJEE PORT AND RAIL PROJECT**  
**VEGETATION**  
**COMMUNITIES**  
Sheet 30 of 31

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Date: February 2010

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## APPENDIX J      FLORA TAXA RECORDED IN THE STUDY AREA

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**J.1 – Flora Taxa Recorded in the Study Area**

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
ACANTHACEAE	<i>Dicladantha forrestii</i> (RE)	X			
AIZOACEAE	<i>Carpobrotus virescens</i>	X			
AIZOACEAE	<b><i>Gunniopsis divisa</i> (P1)</b>			X	
AIZOACEAE	<b><i>Gunniopsis glabra</i> (RE)</b>			X	
AIZOACEAE	<b><i>Gunniopsis intermedia</i> (RE)</b>		X		
AIZOACEAE	<i>Gunniopsis quadrifida</i>		X	X	X
AIZOACEAE	<i>Gunniopsis septifraga</i>			X	
AIZOACEAE	<b>*<i>Mesembryanthemum nodiflorum</i></b>	X	X		
AIZOACEAE	<i>Tetragonia cristata</i>			X	
AIZOACEAE	<i>Tetragonia diptera</i>		X		
AIZOACEAE	<i>Trianthema glossostigma</i>	X			
AIZOACEAE	<i>Trianthema</i> sp.		X		
AIZOACEAE	<i>Trianthema triquetra</i>	X			
AMARANTHACEAE	<i>Alternanthera angustifolia</i>	X			
AMARANTHACEAE	<i>Alternanthera denticulata</i>	X			
AMARANTHACEAE	<i>Alternanthera nodiflora</i>	X			
AMARANTHACEAE	<i>Amaranthus cuspidifolius</i>	X			
AMARANTHACEAE	<i>Ptilotus aevroides</i>	X			
AMARANTHACEAE	<b><i>Ptilotus beardii</i> (P3)</b>	X		X	X
AMARANTHACEAE	<i>Ptilotus declinatus</i>				X
AMARANTHACEAE	<i>Ptilotus divaricatus</i> var. <i>divaricatus</i>	X		X	X
AMARANTHACEAE	<i>Ptilotus drummondii</i> var. <i>minor</i>				X
AMARANTHACEAE	<i>Ptilotus exaltatus</i>	X			
AMARANTHACEAE	<i>Ptilotus gaudichaudii</i>	X		X	
AMARANTHACEAE	<i>Ptilotus helipteroides</i>	X			
AMARANTHACEAE	<b><i>Ptilotus luteolus</i> (P3)</b>			X	
AMARANTHACEAE	<i>Ptilotus macrocephalus</i>			X	
AMARANTHACEAE	<i>Ptilotus manglesii</i>		X		X
AMARANTHACEAE	<i>Ptilotus obovatus</i>		X	X	X
AMARANTHACEAE	<i>Ptilotus obovatus</i> var. <i>obovatus</i>	X			
AMARANTHACEAE	<i>Ptilotus polystachyus</i>	X			
AMARANTHACEAE	<i>Ptilotus polystachyus</i> var. <i>polystachyus</i>		X		
AMARANTHACEAE	<i>Ptilotus roei</i>	X		X	
AMARANTHACEAE	<i>Ptilotus rotundifolius</i>	X			
AMARANTHACEAE	<i>Ptilotus schwartzii</i> var. <i>georgei</i>	X			
AMARANTHACEAE	<i>Ptilotus schwartzii</i> var. <i>schwartzii</i>	X			
AMARANTHACEAE	<i>Ptilotus</i> sp.		X		
APHANOPETALACEAE	<i>Aphanopetalum clematideum</i>		X		
APIACEAE	<i>Apium annuum</i>	X			
APIACEAE	<i>Platysace effusa</i>		X		X
APOCYNACEAE	<i>Alyxia buxifolia</i>		X		X
APOCYNACEAE	<i>Marsdenia australis</i>	X			
APOCYNACEAE	<i>Marsdenia graniticola</i>	X		X	
APOCYNACEAE	<i>Rhyncharhena linearis</i>	X	X		
ARALIACEAE	<i>Hydrocotyle pilifera</i>		X		
ARALIACEAE	<i>Trachymene ceratocarpa</i>		X		
ARALIACEAE	<i>Trachymene cyanopetala</i>			X	
ARALIACEAE	<i>Trachymene ornata</i>		X	X	
ARALIACEAE	<i>Trachymene pilbarensis</i>	X			
ARALIACEAE	<i>Trachymene pilosa</i>		X		

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
ASPARAGACEAE	<i>Arthropodium dyeri</i>		X	X	
ASPARAGACEAE	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>		X		
ASPARAGACEAE	<i>Dichopogon capillipes</i>		X		
ASPARAGACEAE	<i>Laxmannia sessiliflora</i> subsp. <i>sessiliflora</i>		X		X
ASPARAGACEAE	<i>Lomandra effusa</i>	X	X		
ASPARAGACEAE	<i>Sowerbaea laxiflora</i>		X		
ASPARAGACEAE	<i>Thysanotus manglesianus</i>	X	X	X	X
ASTERACEAE	<i>Actinobole uliginosum</i>		X		
ASTERACEAE	<i>Angianthus cornutus</i>	X			
ASTERACEAE	<i>Angianthus milnei</i>				X
ASTERACEAE	<i>Angianthus</i> sp.		X		
ASTERACEAE	<b>*Arctotheca calendula</b>		X		
ASTERACEAE	<b>*Bidens bipinnata</b>	X			
ASTERACEAE	<i>Blennospora drummondii</i>		X		
ASTERACEAE	<i>Brachyscome cheilocarpa</i>		X		
ASTERACEAE	<b>Brachyscome glandulosa (RE)</b>		X		
ASTERACEAE	<i>Brachyscome iberidifolia</i>	X	X		
ASTERACEAE	<i>Brachyscome oncarpa</i>		X		
ASTERACEAE	<i>Brachyscome pusilla</i>		X		
ASTERACEAE	<i>Calocephalus multiflorus</i>	X			
ASTERACEAE	<i>Calotis hispidula</i>	X	X		
ASTERACEAE	<i>Calotis multicaulis</i>	X	X		
ASTERACEAE	<b>*Carthamus lanatus (DP)</b>	X	X		
ASTERACEAE	<b>*Centaurea melitensis</b>	X			
ASTERACEAE	<i>Centipeda thespidioides</i>	X			
ASTERACEAE	<i>Cephalopterum drummondii</i>		X		
ASTERACEAE	<i>Chthonocephalus pseudevax</i>	X	X		
ASTERACEAE	<i>Cratystylis subspinescens</i>	X			
ASTERACEAE	<i>Gilberta tenuifolia</i>		X		
ASTERACEAE	<i>Gnephosis arachnoidea</i>	X			
ASTERACEAE	<i>Gnephosis tenuissima</i>	X			X
ASTERACEAE	<i>Haptotrichion colwillii</i>		X		
ASTERACEAE	<b>*Hypochaeris glabra</b>		X		
ASTERACEAE	<i>Lawrencella davenportii</i>		X		
ASTERACEAE	<i>Lawrencella rosea</i>		X		
ASTERACEAE	<i>Lemooria burkittii</i>		X		
ASTERACEAE	<i>Millotia myosotidifolia</i>		X		
ASTERACEAE	<b>*Monoculus monstrosus</b>		X		
ASTERACEAE	<i>Myriocephalus guerinae</i>		X		
ASTERACEAE	<i>Myriocephalus occidentalis</i>		X		
ASTERACEAE	<i>Myriocephalus oldfieldii</i>	X			
ASTERACEAE	<i>Olearia dampieri</i> subsp. <i>dampieri</i>		X		
ASTERACEAE	<i>Olearia revoluta</i>		X	X	X
ASTERACEAE	<i>Olearia</i> sp.		X		
ASTERACEAE	<i>Pluchea dentex</i>	X			
ASTERACEAE	<b>Pluchea rubelliflora (RE)</b>	X	X		
ASTERACEAE	<i>Podolepis canescens</i>		X		X
ASTERACEAE	<i>Podolepis capillaris</i>	X	X		
ASTERACEAE	<i>Podolepis kendallii</i>		X		
ASTERACEAE	<i>Podolepis lessonii</i>	X	X		
ASTERACEAE	<i>Podotheca gnaphalioides</i>		X		

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
ASTERACEAE	<i>Pogonolepis muelleriana</i>		X		
ASTERACEAE	<i>Pogonolepis stricta</i>	X			
ASTERACEAE	<i>Pterocaulon sphacelatum</i>	X			
ASTERACEAE	<i>Rhodanthe battii</i>		X		
ASTERACEAE	<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>		X		
ASTERACEAE	<i>Rhodanthe chlorocephala</i> subsp. <i>splendida</i>		X		
ASTERACEAE	<i>Rhodanthe citrina</i>		X		
ASTERACEAE	<i>Rhodanthe manglesii</i>		X		
ASTERACEAE	<i>Rhodanthe oppositifolia</i> subsp. <i>oppositifolia</i>	X			
ASTERACEAE	<i>Rhodanthe spicata</i>		X		
ASTERACEAE	<b><i>Rhodanthe sterilecens</i> (RE)</b>		X		
ASTERACEAE	<i>Schoenia cassiniana</i>		X		
ASTERACEAE	<i>Senecio glossanthus</i>		X		
ASTERACEAE	<i>Senecio pinnatifolius</i>		X		
ASTERACEAE	<b>*<i>Sonchus oleraceus</i></b>	X	X		
ASTERACEAE	<i>Streptoglossa cylindriceps</i>	X			
ASTERACEAE	<b>*<i>Urospermum picroides</i></b>		X		
ASTERACEAE	<b>*<i>Ursinia anthemoides</i></b>		X		
ASTERACEAE	<i>Waitzia acuminata</i> var. <i>acuminata</i>		X		X
BORAGINACEAE	<b>*<i>Echium plantagineum</i> (DP)</b>		X		X
BORAGINACEAE	<i>Halgania anagalloides</i>		X		
BORAGINACEAE	<i>Halgania sericiflora</i>		X		
BORAGINACEAE	<i>Heliotropium cunninghamii</i>	X			
BORAGINACEAE	<i>Heliotropium heteranthum</i>	X			
BORAGINACEAE	<i>Heliotropium inexplicitum</i>	X			
BORAGINACEAE	<i>Trichodesma zeylanicum</i>	X			
BORYACEAE	<i>Borya sphaerocephala</i>	X	X		
BRASSICACEAE	<b>*<i>Brassica tournefortii</i></b>		X		
BRASSICACEAE	<i>Lepidium oxytrichum</i>		X		
BRASSICACEAE	<i>Lepidium phlebopetalum</i>	X			
BRASSICACEAE	<b>*<i>Raphanus raphanistrum</i></b>		X		
BRASSICACEAE	<b>*<i>Sisymbrium erysimoides</i></b>		X		
BRASSICACEAE	<b>*<i>Sisymbrium irio</i></b>	X			
BRASSICACEAE	<i>Stenopetalum gracile</i>		X		
BRASSICACEAE	<i>Stenopetalum pedicellare</i>		X		
CAMPANULACEAE	<i>Isotoma hypocrateriformis</i> var. <i>trichogramma</i>				X
CAMPANULACEAE	<i>Lobelia winfridae</i>			X	X
CAMPANULACEAE	<i>Wahlenbergia tumidifructa</i>	X			
CAPPARACEAE	<i>Cleome oxalidea</i>	X			
CAPPARACEAE	<i>Cleome viscosa</i>	X			
CARYOPHYLLACEAE	? <i>Cerastium</i> sp.		X		
CARYOPHYLLACEAE	<i>Polycarpaea corymbosa</i>	X			
CARYOPHYLLACEAE	<b>*<i>Polycarpon tetraphyllum</i></b>		X		
CARYOPHYLLACEAE	<b>*<i>Silene gallica</i></b>		X		
CARYOPHYLLACEAE	<b>*<i>Spergularia diandra</i></b>			X	
CARYOPHYLLACEAE	<i>Spergularia marina</i>		X		
CARYOPHYLLACEAE	<i>Stellaria filiformis</i>		X		
CASUARINACEAE	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>		X		
CASUARINACEAE	<i>Allocasuarina acutivalvis</i> subsp. <i>prinsepiana</i>		X		X
CASUARINACEAE	<i>Allocasuarina campestris</i>		X		X
CASUARINACEAE	<i>Allocasuarina dielsiana</i>	X	X	X	X

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
CASUARINACEAE	<i>Casuarina obesa</i>	X	X		
CASUARINACEAE	<i>Casuarina pauper</i>	X			
CELASTRACEAE	<i>Psammomoya ephedroides</i>	X		X	
CELASTRACEAE	<i>Stackhousia dielsii</i>				X
CELASTRACEAE	<i>Stackhousia muricata</i>	X		X	
CHENOPODIACEAE	<i>Atriplex amnicola</i>		X		X
CHENOPODIACEAE	<i>Atriplex bunburyana</i>	X			
CHENOPODIACEAE	<i>Atriplex hymenotheca</i>				X
CHENOPODIACEAE	<i>Atriplex lindleyi</i> subsp. <i>inflata</i>		X	X	X
CHENOPODIACEAE	<i>Atriplex semibaccata</i>		X		
CHENOPODIACEAE	<i>Atriplex semilunaris</i>	X	X		X
CHENOPODIACEAE	<b><i>Atriplex spongiosa</i> (RE)</b>			X	
CHENOPODIACEAE	<i>Chenopodium gaudichaudianum</i>		X		X
CHENOPODIACEAE	<i>Didymanthus roei</i>		X		
CHENOPODIACEAE	<i>Dissocarpus paradoxus</i>	X			
CHENOPODIACEAE	<i>Dysphania glandulosa</i>			X	
CHENOPODIACEAE	<i>Dysphania glomulifera</i> subsp. <i>eremaea</i>	X			
CHENOPODIACEAE	<i>Dysphania kalpari</i>	X			
CHENOPODIACEAE	<i>Dysphania rhadinostachya</i> subsp. <i>inflata</i>	X			
CHENOPODIACEAE	<i>Dysphania saxatilis</i>	X			
CHENOPODIACEAE	<i>Enchylaena tomentosa</i>		X		X
CHENOPODIACEAE	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	X			X
CHENOPODIACEAE	<i>Maireana amoena</i>				X
CHENOPODIACEAE	<i>Maireana atkinsiana</i>			X	X
CHENOPODIACEAE	<i>Maireana carnosa</i>	X	X		
CHENOPODIACEAE	<i>Maireana convexa</i>	X			
CHENOPODIACEAE	<i>Maireana georgei</i>	X		X	
CHENOPODIACEAE	<i>Maireana glomerifolia</i>	X		X	
CHENOPODIACEAE	<i>Maireana melanocoma</i>	X			
CHENOPODIACEAE	<i>Maireana planifolia</i>	X		X	X
CHENOPODIACEAE	<i>Maireana platycarpa</i>	X			
CHENOPODIACEAE	<i>Maireana pyramidata</i>	X			
CHENOPODIACEAE	<i>Maireana thesioides</i>	X			
CHENOPODIACEAE	<i>Maireana tomentosa</i>	X	X	X	
CHENOPODIACEAE	<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	X			
CHENOPODIACEAE	<i>Maireana trichoptera</i>	X			
CHENOPODIACEAE	<i>Maireana triptera</i>	X	X		
CHENOPODIACEAE	<i>Maireana villosa</i>	X	X		
CHENOPODIACEAE	<i>Rhagodia drummondii</i>		X		
CHENOPODIACEAE	<i>Rhagodia eremaea</i>	X	X	X	
CHENOPODIACEAE	<i>Rhagodia latifolia</i> subsp. <i>latifolia</i>		X		
CHENOPODIACEAE	<i>Rhagodia preissii</i> subsp. <i>preissii</i>		X		
CHENOPODIACEAE	<i>Salsola tragus</i>	X	X		
CHENOPODIACEAE	<i>Sclerolaena cuneata</i>	X			
CHENOPODIACEAE	<i>Sclerolaena densiflora</i>	X	X	X	X
CHENOPODIACEAE	<i>Sclerolaena diacantha</i>	X	X		
CHENOPODIACEAE	<i>Sclerolaena ericantha</i>	X			
CHENOPODIACEAE	<i>Sclerolaena eurotioides</i>	X			
CHENOPODIACEAE	<i>Sclerolaena gardneri</i>		X		
CHENOPODIACEAE	<i>Sclerolaena uniflora</i>		X		
CHENOPODIACEAE	<i>Tecticornia arborea</i>	X			

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
CHENOPODIACEAE	<i>Tecticornia disarticulata</i>	X			X
CHENOPODIACEAE	<i>Tecticornia halocnemoides</i> subsp. <i>catenulata</i>	X			
CHENOPODIACEAE	<i>Tecticornia indica</i> subsp. <i>bidens</i>		X		X
CHENOPODIACEAE	<i>Tecticornia lepidosperma</i>		X		
CHENOPODIACEAE	<i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i>		X		
CHENOPODIACEAE	<i>Tecticornia pruinosa</i>	X			
CHENOPODIACEAE	<i>Tecticornia</i> sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)			X	
COLCHICACEAE	<i>Burchardia congesta</i>		X		
COLCHICACEAE	<i>Wurmbea densiflora</i>	X			
COLCHICACEAE	<i>Wurmbea dioica</i> subsp. <i>alba</i>		X		
COLCHICACEAE	<i>Wurmbea tenella</i>	X			
CONVOLVULACEAE	<i>Bonamia rosea</i>		X		
CONVOLVULACEAE	<i>Convolvulus angustissimus</i>	X			
CONVOLVULACEAE	<i>Convolvulus remotus</i>		X		
CONVOLVULACEAE	<b>*<i>Cuscuta epithymum</i></b>		X		
CONVOLVULACEAE	<b>*<i>Cuscuta planiflora</i></b>		X	x	
CONVOLVULACEAE	<i>Duperreya commixta</i>	X			
CONVOLVULACEAE	<i>Duperreya sericea</i>	X	X		X
CONVOLVULACEAE	<i>Ipomoea muelleri</i>	X			
CRASSULACEAE	<b>*<i>Crassula natans</i> var. <i>minus</i></b>		X		
CRASSULACEAE	<i>Crassula colorata</i> var. <i>acuminata</i>	X	X		
CRASSULACEAE	<i>Crassula colorata</i> var. <i>colorata</i>		X		
CUCURBITACEAE	<b>*<i>Citrullus colocynthis</i></b>			X	
CUCURBITACEAE	<b>*<i>Cucumis melo</i></b>	X			
CUPRESSACEAE	<i>Actinostrobus arenarius</i>		X		
CUPRESSACEAE	<i>Callitris canescens</i>	X			
CUPRESSACEAE	<i>Callitris columellaris</i>		X		
CYPERACEAE	<i>Bulbostylis barbata</i>	X			
CYPERACEAE	<i>Cyperus betchei</i>	X			
CYPERACEAE	<i>Cyperus bifax</i>	X			
CYPERACEAE	<i>Cyperus gymnocaulos</i>	X	X		
CYPERACEAE	<b><i>Cyperus ixiocarpus</i> (RE)</b>	X			
CYPERACEAE	<i>Eleocharis pallens</i>	X			
CYPERACEAE	<i>Fimbristylis dichotoma</i>	X			
CYPERACEAE	<i>Isolepis congrua</i>	X	X		
CYPERACEAE	<i>Lepidosperma</i> ?sp. A2 Inland Flat (G.J. Keighery 7000)				X
CYPERACEAE	<i>Lepidosperma</i> ?sp. Bandalup Scabrid (N. Evelegh 10798)				X
CYPERACEAE	<i>Lepidosperma scabrum</i>		X		
CYPERACEAE	<i>Lepidosperma</i> sp. Bella Vista (R.L.Barrett & B.G.Briggs RLB 5272)				X
CYPERACEAE	<b><i>Lepidosperma</i> sp. Moresby Range (P1)</b>		X		X
CYPERACEAE	<i>Lepidosperma squamatum</i>		X		
CYPERACEAE	<i>Lepidosperma tenue</i>		X		X
CYPERACEAE	<i>Mesomelaena preissii</i>		X		
CYPERACEAE	<i>Schoenus humilis</i>	X			
CYPERACEAE	<i>Schoenus subaphyllus</i>		X		
CYPERACEAE	<i>Schoenus variicellae</i>		X		
DASYPOGONACEAE	<i>Acanthocarpus canaliculatus</i>		X		X
DASYPOGONACEAE	<b><i>Acanthocarpus parviflorus</i> (P3)</b>				X

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
DASYPOGONACEAE	<i>Acanthocarpus</i> sp. Ajana (C.A. Gardner 8596)		X		X
DILLENIACEAE	<i>Hibbertia conspicua</i>		X		X
DILLENIACEAE	<b><i>Hibbertia glomerata</i> (RE)</b>		X		
DILLENIACEAE	<i>Hibbertia glomerosa</i>		X		X
DILLENIACEAE	<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>				X
DILLENIACEAE	<i>Hibbertia hypericoides</i>		X		X
DILLENIACEAE	<i>Hibbertia potentilliflora</i>		X		X
DILLENIACEAE	<i>Hibbertia stenophylla</i>		X		X
DIOSCOREACEAE	<i>Dioscorea hastifolia</i>		X		
DROSERACEAE	<i>Drosera bulbosa</i> subsp. <i>bulbosa</i>		X		
DROSERACEAE	<i>Drosera humilis</i>		X		
DROSERACEAE	<i>Drosera indica</i>	X			
DROSERACEAE	<i>Drosera macrantha</i> subsp. <i>macrantha</i>	X	X		
DROSERACEAE	<b><i>Drosera microphylla</i> (RE)</b>		X		
DROSERACEAE	<i>Drosera pallida</i>		X		
DROSERACEAE	<i>Drosera subhirtella</i>		X		
ECDEIOCOLEACEAE	<i>Ecdeiocolea monostachya</i>		X		
ERICACEAE	<i>Astroloma pedicellatum</i>		X		
ERICACEAE	<i>Astroloma serratifolium</i>		X	X	X
ERICACEAE	<i>Astroloma xerophyllum</i>		X		
ERICACEAE	<b><i>Leucopogon borealis</i> (P2)</b>				X
ERICACEAE	<b><i>Leucopogon</i> sp. Howatharra (D. &amp; N. McFarland 1046) (P2)</b>				X
ERICACEAE	<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)				X
ERICACEAE	<i>Leucopogon</i> sp. outer wheatbelt (M. Hislop 30)				X
EUPHORBIACEAE	<b>*<i>Ricinus communis</i></b>		X		
EUPHORBIACEAE	<i>Euphorbia biconvexa</i>	X			
EUPHORBIACEAE	<i>Euphorbia boophthona</i>	X	X	X	
EUPHORBIACEAE	<i>Euphorbia drummondii</i>	X	X		
EUPHORBIACEAE	<b><i>Euphorbia sarcostemmoides</i> (P1)</b>	X		X	
EUPHORBIACEAE	<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>				X
EUPHORBIACEAE	<i>Monotaxis bracteata</i>				X
EUPHORBIACEAE	<i>Ricinocarpos muricatus</i>		X		
EUPHORBIACEAE	<i>Ricinocarpos psilocladus</i>		X		
EUPHORBIACEAE	<i>Ricinocarpos velutinus</i>			X	
EUPHORBIACEAE	<i>Stachystemon intricatus</i>		X	X	
FABACEAE	<i>Acacia ?thoma</i>	X			
FABACEAE	<i>Acacia ?victoriae</i>		X		
FABACEAE	<i>Acacia acanthoclada</i> subsp. <i>glaucescens</i>				X
FABACEAE	<i>Acacia acuarua</i>		X		X
FABACEAE	<i>Acacia acuminata</i>	X	X		X
FABACEAE	<b><i>Acacia</i> aff. <i>incongesta</i> (SOI)</b>				X
FABACEAE	<b><i>Acacia</i> aff. <i>rhodophloia</i> (SOI)</b>	X		X	
FABACEAE	<i>Acacia alata</i> var. <i>biglandulosa</i>		X		X
FABACEAE	<i>Acacia andrewsii</i>	X	X		X
FABACEAE	<i>Acacia aneura</i>	X			
FABACEAE	<i>Acacia aneura</i> var. <i>aneura</i>	X		X	
FABACEAE	<i>Acacia aneura</i> var. <i>argentea</i>	X			
FABACEAE	<i>Acacia aneura</i> var. <i>conifera</i>	X			
FABACEAE	<i>Acacia aneura</i> var. <i>fuliginea</i>	X			
FABACEAE	<i>Acacia aneura</i> var. <i>intermedia</i>	X			



FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
FABACEAE	<i>Acacia aneura</i> var. <i>major</i>	X			
FABACEAE	<i>Acacia aneura</i> var. <i>microcarpa</i>	X		X	
FABACEAE	<i>Acacia assimilis</i> subsp. <i>assimilis</i>	X			
FABACEAE	<i>Acacia aulacophylla</i>	X			
FABACEAE	<i>Acacia ayersiana</i>	X			
FABACEAE	<i>Acacia blakelyi</i>		X		X
FABACEAE	<i>Acacia burkittii</i>	X	X	X	X
FABACEAE	<i>Acacia cavealis</i>				X
FABACEAE	<i>Acacia citrinoviridis</i>	X			
FABACEAE	<i>Acacia congesta</i> subsp. <i>congesta</i>		X		
FABACEAE	<i>Acacia coolgardiensis</i>	X	X		
FABACEAE	<i>Acacia craspedocarpa</i>	X			
FABACEAE	<i>Acacia craspedocarpa</i> x <i>aneura</i>	X		x	
FABACEAE	<i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i>	X			
FABACEAE	<i>Acacia cyperophylla</i> var. <i>cyperophylla</i>	X			
FABACEAE	<i>Acacia daviesioides</i>	X		X	
FABACEAE	<i>Acacia demissa</i>	X			
FABACEAE	<i>Acacia duriuscula</i>		X		
FABACEAE	<i>Acacia effusifolia</i>		X		
FABACEAE	<i>Acacia eremaea</i>	X		X	X
FABACEAE	<i>Acacia ericifolia</i>				X
FABACEAE	<i>Acacia ericifolia/leptospermoides</i> (Complex)				X
FABACEAE	<i>Acacia erinacea</i>		X		
FABACEAE	<i>Acacia grasbyi</i>	X			
FABACEAE	<b><i>Acacia guinetii</i> (P4)</b>		X		X
FABACEAE	<i>Acacia idiomorpha</i>				X
FABACEAE	<i>Acacia jibberdingensis</i>	X		X	
FABACEAE	<i>Acacia kempeana</i>	X			
FABACEAE	<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>		X		X
FABACEAE	<i>Acacia latipes</i>		X		
FABACEAE	<i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i>		X		
FABACEAE	<b><i>Acacia leptospermoides</i> subsp. <i>psammophila</i> (P3)</b>		X		X
FABACEAE	<i>Acacia ligulata</i>	X	X	X	
FABACEAE	<i>Acacia lineolata</i> subsp. <i>lineolata</i>		X		
FABACEAE	<b><i>Acacia lineolata</i> subsp. <i>multilineata</i> (P1)</b>		X		
FABACEAE	<i>Acacia longiphylloidea</i>		X		
FABACEAE	<i>Acacia longispinea</i>	X	X		
FABACEAE	<i>Acacia masliniana</i>	X			
FABACEAE	<i>Acacia microbotrya</i>				X
FABACEAE	<i>Acacia minyura</i>	X			
FABACEAE	<i>Acacia murrayana</i>	X	X		X
FABACEAE	<i>Acacia neurophylla</i> subsp. <i>neurophylla</i>		X		X
FABACEAE	<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>		X		X
FABACEAE	<i>Acacia oxyclada</i>		X		X
FABACEAE	<i>Acacia palustris</i>			X	
FABACEAE	<i>Acacia paraneura</i>	X			
FABACEAE	<i>Acacia prainii</i>	X			
FABACEAE	<i>Acacia pruinocarpa</i>	X			
FABACEAE	<i>Acacia puncticulata</i>				X
FABACEAE	<i>Acacia quadrimarginea</i>	X		X	

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
FABACEAE	<i>Acacia ramulosa</i> var. <i>linophylla</i>	X	X	X	X
FABACEAE	<i>Acacia ramulosa</i> var. <i>ramulosa</i>	X	X	X	X
FABACEAE	<i>Acacia restiacea</i>		X		
FABACEAE	<i>Acacia rhodophloia</i>	X	X		X
FABACEAE	<i>Acacia roycei</i>		X		X
FABACEAE	<i>Acacia saligna</i> subsp. <i>lindleyi</i>		X		
FABACEAE	<i>Acacia scirpifolia</i>		X		
FABACEAE	<i>Acacia scleroclada</i>	X		X	
FABACEAE	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	X	X		X
FABACEAE	<i>Acacia sibirica</i>	X			
FABACEAE	<i>Acacia</i> sp. Weld Range (A. Markey & S. Dillon 2994)	X		X	
FABACEAE	<i>Acacia spathulifolia</i>				X
FABACEAE	<b><i>Acacia speckii</i> (P3)</b>	X		X	X
FABACEAE	<i>Acacia stenoptera</i>				X
FABACEAE	<i>Acacia stereophylla</i> var. <i>stereophylla</i>	X	X		X
FABACEAE	<b><i>Acacia subsessilis</i> (P3) (RE)</b>		X	X	X
FABACEAE	<i>Acacia synchronicia</i>	X		X	
FABACEAE	<i>Acacia tetragonophylla</i>	X	X		X
FABACEAE	<i>Acacia tysonii</i>	X			
FABACEAE	<i>Acacia ulicina</i>		X		X
FABACEAE	<i>Acacia victoriae</i>	X			
FABACEAE	<b><i>Acacia wiseana</i> (RE)</b>	X	X		
FABACEAE	<i>Chorizema racemosum</i>			X	
FABACEAE	<i>Daviesia benthamii</i> subsp. <i>acanthoclona</i>			X	
FABACEAE	<i>Daviesia divaricata</i> subsp. <i>lanulosa</i>				X
FABACEAE	<i>Daviesia grahamii</i>		X		
FABACEAE	<i>Daviesia hakeoides</i> subsp. <i>hakeoides</i>		X		
FABACEAE	<i>Gastrolobium laytonii</i>	X			
FABACEAE	<i>Gastrolobium plicatum</i>		X		X
FABACEAE	<i>Gastrolobium triangulare</i>		X		X
FABACEAE	<i>Glycine canescens</i>	X	X		
FABACEAE	<b><i>Gompholobium aristatum</i> (RE)</b>				X
FABACEAE	<i>Gompholobium</i> sp.		X		
FABACEAE	<b><i>Indigofera gilesii</i> subsp. <i>gilesii</i> (P3) (RE)</b>			X	
FABACEAE	<i>Indigofera monophylla</i>	X			
FABACEAE	<i>Indigofera occidentalis</i>		X		
FABACEAE	<i>Isotropis cuneifolia</i>		X		
FABACEAE	<i>Jacksonia acicularis</i>				X
FABACEAE	<i>Jacksonia angulata</i>				X
FABACEAE	<i>Jacksonia cupulifera</i>		X		
FABACEAE	<i>Jacksonia fasciculata</i>		X		
FABACEAE	<i>Jacksonia foliosa</i>		X		
FABACEAE	<i>Jacksonia hakeoides</i>				X
FABACEAE	<i>Jacksonia macrocalyx</i>		X		
FABACEAE	<i>Jacksonia nutans</i>				X
FABACEAE	<i>Jacksonia sternbergiana</i>				X
FABACEAE	<b><i>Jacksonia velutina</i> (P4)</b>				X
FABACEAE	<i>Labichea lanceolata</i> subsp. <i>lanceolata</i>		X		
FABACEAE	<i>Labichea teretifolia</i> subsp. <i>grandistipulata</i>				X
FABACEAE	<i>Labichea teretifolia</i> subsp. <i>teretifolia</i>		X		

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FABACEAE	<i>Leptosema aphyllum</i>		X		
FABACEAE	<b>*Lupinus cosentinii</b>		X		
FABACEAE	<b>*Medicago arabica</b>		X		
FABACEAE	<b>*Medicago minima</b>		X		
FABACEAE	<b>*Medicago truncatula</b>		X		
FABACEAE	<i>Mirbelia bursarioides</i>		X		
FABACEAE	<i>Mirbelia depressa</i>	X	X		
FABACEAE	<i>Mirbelia ramulosa</i>	X			
FABACEAE	<i>Mirbelia rhagadioides</i>	X		X	
FABACEAE	<i>Mirbelia spinosa</i>			X	X
FABACEAE	<b>Mirbelia ternata (P1)</b>				X
FABACEAE	<i>Mirbelia trichocalyx</i>		X		
FABACEAE	<i>Muelleranthus trifoliolatus</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. <i>artemisioides</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	X	X		
FABACEAE	<i>Senna artemisioides</i> subsp. <i>helmsii</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. <i>helmsii</i> x <i>oligophylla</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. <i>helmsii</i> x <i>sturtii</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. x <i>artemisioides</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. x <i>sturtii</i>	X			
FABACEAE	<i>Senna artemisioides</i> subsp. x <i>sturtii</i> x <i>Senna</i> sp. Meekatharra	X			
FABACEAE	<i>Senna artemisioides</i> subsp. x <i>sturtii</i> x <i>Senna glutinosa</i>	X			
FABACEAE	<i>Senna charlesiana</i>	X	X		X
FABACEAE	<i>Senna glaucifolia</i>	X			
FABACEAE	<i>Senna glaucifolia</i> x <i>Senna glutinosa</i> subsp. <i>pruinosa</i>	X			
FABACEAE	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	X			
FABACEAE	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	X			
FABACEAE	<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	X			
FABACEAE	<i>Senna</i> sp. Austin (A. Strid 20210)	X			
FABACEAE	<i>Senna</i> sp. Meekatharra (E. Bailey 1-26)	X			
FABACEAE	<i>Senna</i> sp. Meekatharra x <i>artemisioides</i> subsp. x <i>sturtii</i>	X			
FABACEAE	<i>Senna stricta</i>	X			
FABACEAE	<i>Swainsona affinis</i>	X	X	X	
FABACEAE	<b>Swainsona oroboides (RE)</b>			X	
FABACEAE	<i>Swainsona perlonga</i>		X		
FRANKENIACEAE	<i>Frankenia cinerea</i>	X		X	
FRANKENIACEAE	<b>Frankenia confusa (P2)</b>	X		X	X
FRANKENIACEAE	<i>Frankenia cordata</i>		X		
FRANKENIACEAE	<i>Frankenia laxiflora</i>	X		X	
FRANKENIACEAE	<i>Frankenia pauciflora</i>		X	X	X
FRANKENIACEAE	<i>Frankenia sessilis</i>			X	
FRANKENIACEAE	<i>Frankenia setosa</i>	X	X	X	
GERANIACEAE	<i>Erodium ?cygnotorum</i>	X			
GERANIACEAE	<b>*Erodium aureum</b>		X		X
GERANIACEAE	<b>*Erodium botrys</b>		X		
GERANIACEAE	<b>*Erodium cicutarium</b>		X		
GERANIACEAE	<b>*Erodium crinitum</b>			X	

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GERANIACEAE	<i>Erodium cygnorum</i>		X	X	X
GERANIACEAE	<i>Pelargonium</i> sp.		X		
GOODENIACEAE	<i>Brunonia australis</i>			X	X
GOODENIACEAE	<i>Dampiera altissima</i>		X		
GOODENIACEAE	<i>Dampiera eriocephala</i>				X
GOODENIACEAE	<i>Dampiera haematotricha</i>		X		
GOODENIACEAE	<i>Dampiera juncea</i>		X		
GOODENIACEAE	<i>Dampiera spicigera</i>		X		X
GOODENIACEAE	<i>Goodenia berardiana</i>		X	X	X
GOODENIACEAE	<b><i>Goodenia berringbinensis (P4)</i></b>	X			
GOODENIACEAE	<i>Goodenia havilandii</i>	X			
GOODENIACEAE	<b><i>Goodenia maideniana (RE)</i></b>			X	
GOODENIACEAE	<i>Goodenia mimuloides</i>		X	X	
GOODENIACEAE	<i>Goodenia occidentalis</i>		X	X	
GOODENIACEAE	<i>Goodenia pinnatifida</i>			X	
GOODENIACEAE	<i>Goodenia tenuiloba</i>	X		X	
GOODENIACEAE	<b><i>Goodenia triodiophila (RE)</i></b>			X	
GOODENIACEAE	<i>Lechenaultia linarioides</i>		X		X
GOODENIACEAE	<i>Scaevola glandulifera</i>				X
GOODENIACEAE	<i>Scaevola globulifera</i>		X		X
GOODENIACEAE	<i>Scaevola spinescens</i>	X	X		X
GOODENIACEAE	<i>Scaevola tomentosa</i>			X	
GOODENIACEAE	<i>Scaevola virgata</i>		X		
GOODENIACEAE	<i>Velleia glabrata</i>		X		
GOODENIACEAE	<i>Velleia hispida</i>		X		X
GOODENIACEAE	<i>Velleia rosea</i>		X	X	X
GYROSTEMONACEAE	<i>Codonocarpus cotinifolius</i>	X	X		
HAEMODORACEAE	<i>Anigozanthos ?manglesii</i>		X		
HAEMODORACEAE	<i>Conostylis aculeata</i> subsp. <i>riphidion</i>		X		X
HAEMODORACEAE	<i>Conostylis stylidioides</i>		X		
HAEMODORACEAE	<i>Haemodorum discolor</i>		X		X
HAEMODORACEAE	<i>Haemodorum simulans</i>				X
HALORAGACEAE	<i>Glischrocaryon aureum</i>		X		
HALORAGACEAE	<i>Gonocarpus</i> sp.		X		
HALORAGACEAE	<i>Haloragis odontocarpa</i>	X			
HALORAGACEAE	<i>Haloragis odontocarpa</i> forma <i>octoforma</i>	X			
HEMEROCALLIDACEAE	<i>Caesia micrantha</i>		X		
HEMEROCALLIDACEAE	<i>Corynotheca micrantha</i> var. <i>micrantha</i>		X		
HEMEROCALLIDACEAE	<i>Dianella revoluta</i> var. <i>divaricata</i>	X	X		
HEMEROCALLIDACEAE	<i>Stypandra glauca</i>		X		X
HEMEROCALLIDACEAE	<i>Tricoryne</i> sp. Eneabba (E.A. Griffin 1200)				X
HEMEROCALLIDACEAE	<i>Tricoryne</i> sp. Mullewa (G.J. Keighery 12080)				X
HYPOXIDACEAE	<i>Hypoxis glabella</i> var. <i>glabella</i>		X		
HYPOXIDACEAE	<i>Hypoxis occidentalis</i> var. <i>occidentalis</i>		X		
IRIDACEAE	<i>Orthrosanthus laxus</i> var. <i>laxus</i>		X		
IRIDACEAE	<i>Patersonia graminea</i>				X
IRIDACEAE	<i>Patersonia occidentalis</i> var. <i>latifolia</i>				X
JUNCACEAE	<i>Juncus aridicola</i>	X			
JUNCACEAE	<i>Juncus kraussii</i> subsp. <i>australiensis</i>		X		
JUNCAGINACEAE	<i>Triglochin</i> sp. A Flora of Australia (G.J. Keighery 2477)		X		

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
LAMIACEAE	<i>Dicrastylis fulva</i>				X
LAMIACEAE	<b><i>Dicrastylis linearifolia</i> (P3)</b>	X		X	
LAMIACEAE	<i>Hemigenia diplanthera</i>				X
LAMIACEAE	<i>Hemigenia divaricata</i>			X	
LAMIACEAE	<i>Hemigenia humilis</i>		X		
LAMIACEAE	<i>Hemigenia macphersonii</i>		X		
LAMIACEAE	<i>Hemigenia</i> sp. Yalgoo (A.M. Ashby 2624)	X		X	
LAMIACEAE	<i>Hemigenia</i> sp. Yuna (A.C. Burns 95)		X		X
LAMIACEAE	<i>Hemigenia tomentosa</i>			X	
LAMIACEAE	<b><i>Hemigenia tysonii</i> (P3)</b>	X		X	
LAMIACEAE	<b><i>Hemigenia virescens</i> (P3)</b>	X		X	
LAMIACEAE	<i>Lachnostachys eriobotrya</i>		X		
LAMIACEAE	<b><i>Microcorys tenuifolia</i> (P3)</b>				X
LAMIACEAE	<i>Pityrodia atriplicina</i>		X		X
LAMIACEAE	<i>Pityrodia hemigenioides</i>		X		X
LAMIACEAE	<i>Pityrodia oldfieldii</i>		X		X
LAMIACEAE	<i>Pityrodia verbascina</i>				X
LAMIACEAE	<i>Prostanthera albiflora</i>	X			
LAMIACEAE	<i>Prostanthera campbellii</i>				X
LAMIACEAE	<i>Prostanthera magnifica</i>				X
LAMIACEAE	<b><i>Prostanthera petrophila</i> (P3)</b>	X		X	
LAMIACEAE	<i>Prostanthera wilkieana</i>			X	
LAMIACEAE	<b><i>Spartothamnella teucriflora</i> (RE)</b>	X	X		
LAURACEAE	<i>Cassytha aurea</i> var. <i>hirta</i>	X	X		
LAURACEAE	<i>Cassytha glabella</i> forma <i>glabella</i>		X		
LORANTHACEAE	<i>Amyema fitzgeraldii</i>	X	X		
LORANTHACEAE	<i>Amyema nestor</i>	X		X	
LORANTHACEAE	<i>Amyema preissii</i>	X			
LORANTHACEAE	<i>Lysiana casuarinae</i>	X			
LORANTHACEAE	<i>Lysiana murrayi</i>	X			
LORANTHACEAE	<i>Nuytsia floribunda</i>		X		X
MALVACEAE	<i>Abutilon cryptopetalum</i>	X	X		
MALVACEAE	<i>Abutilon leucopetalum</i>	X			
MALVACEAE	<i>Abutilon malvifolium</i>	X			
MALVACEAE	<i>Abutilon otocarpum</i>	X			
MALVACEAE	<i>Abutilon oxycarpum</i> subsp. <i>prostratum</i>	X			
MALVACEAE	<i>Alyogyne pinoniana</i>		X		
MALVACEAE	<i>Alyogyne wrayae</i>		X		
MALVACEAE	<i>Brachychiton gregorii</i>	X			X
MALVACEAE	<i>Commersonia pulchella</i>		X		X
TILIACEAE	<i>Corchorus crozophorifolius</i>	X			
MALVACEAE	<i>Guichenotia angustifolia</i>		X		X
MALVACEAE	<i>Guichenotia basivirida</i>		X		
MALVACEAE	<i>Guichenotia micrantha</i>		X		X
MALVACEAE	<i>Hibiscus burtonii</i>	X			
MALVACEAE	<i>Hibiscus coatesii</i>	X			
MALVACEAE	<i>Hibiscus sturtii</i>	X			
MALVACEAE	<i>Hibiscus sturtii</i> var. <i>grandiflorus</i>	X			
MALVACEAE	<i>Keraudrenia hermanniifolia</i>		X		X
MALVACEAE	<i>Keraudrenia velutina</i> subsp. <i>elliptica</i>	X			
MALVACEAE	<i>Keraudrenia velutina</i> subsp. <i>velutina</i>			X	

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
MALVACEAE	<i>Lawrenzia densiflora</i>	X			
MALVACEAE	<i>Lawrenzia diffusa</i>	X			
MALVACEAE	<b>*Malva parviflora</b>		X		
MALVACEAE	<i>Rulingia densiflora</i>		X		X
MALVACEAE	<i>Rulingia luteiflora</i>	X	X		X
MALVACEAE	<i>Sida ?fibulifera</i>		X		
MALVACEAE	<i>Sida calyxhymenia</i>		X		
MALVACEAE	<i>Sida cardiophylla</i>	X			
MALVACEAE	<i>Sida ectogama</i>	X		X	
MALVACEAE	<i>Sida fibulifera</i>	X			
MALVACEAE	<i>Sida kingii</i>	X			
MALVACEAE	<i>Sida</i> sp. Dark green fruits (S. van Leeuwen 2260)	X			
MALVACEAE	<i>Sida</i> sp. Golden calyces glabrous (H.N. Foote 32)	X			
MALVACEAE	<i>Sida</i> sp. Pindar (A. Mitchell 3585)	X			
MALVACEAE	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/199)	X			
MALVACEAE	<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	X			
MARSILEACEAE	<i>Marsilea hirsuta</i>	X			
MOLLUGINACEAE	<i>Glinus lotoides</i>			X	
MYRTACEAE	? <i>Thryptomene decussata</i>		X		
MYRTACEAE	<i>Aluta aspera</i> subsp. <i>hesperia</i>	X		X	X
MYRTACEAE	<i>Baeckea blackallii</i>		X		X
MYRTACEAE	<i>Baeckea crispiflora</i> var. <i>tenuior</i>				X
MYRTACEAE	<i>Baeckea megaflorea</i>		X		X
MYRTACEAE	<i>Baeckea pentagonantha</i>		X		
MYRTACEAE	<b><i>Baeckea</i> sp. Melita Station (H. Pringle 2738) (P4)</b>			X	
MYRTACEAE	<i>Beaufortia aestiva</i>		X		X
MYRTACEAE	<i>Beaufortia sprengelioides</i>				X
MYRTACEAE	<i>Callistemon phoeniceus</i>	X	X		
MYRTACEAE	<i>Calothamnus gilesii</i>		X		X
MYRTACEAE	<i>Calothamnus glaber</i>		X		X
MYRTACEAE	<i>Calothamnus homalophyllus</i>		X		X
MYRTACEAE	<i>Calothamnus oldfieldii</i>		X		X
MYRTACEAE	<i>Calothamnus quadrifidus</i>		X		X
MYRTACEAE	<i>Calothamnus sanguineus</i>				X
MYRTACEAE	<i>Calytrix amethystina</i>	X			
MYRTACEAE	<i>Calytrix brevifolia</i>		X		X
MYRTACEAE	<i>Calytrix depressa</i>		X		X
MYRTACEAE	<i>Calytrix desolata</i>	X		X	
MYRTACEAE	<i>Calytrix divergens</i>	X		X	
MYRTACEAE	<b><i>Calytrix erosipetala</i> (P3)</b>	X		X	
MYRTACEAE	<b><i>Calytrix formosa</i> (P3)</b>				X
MYRTACEAE	<i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)			X	X
MYRTACEAE	<i>Calytrix strigosa</i>	X	X		X
MYRTACEAE	<b><i>Calytrix uncinata</i> (P3)</b>	X		X	
MYRTACEAE	<b><i>Calytrix verruculosa</i> (P1)</b>	X		X	
MYRTACEAE	<i>Chamelaucium ?halophilum</i>		X		
MYRTACEAE	<i>Chamelaucium micranthum</i>				X
MYRTACEAE	<b><i>Chamelaucium</i> sp. Yalgoo (Y. Chadwick 1816) (P1)</b>			X	
MYRTACEAE	<i>Cheyniana microphylla</i>		X		
MYRTACEAE	<i>Corymbia lenziana</i>	X			

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
MYRTACEAE	<i>Darwinia capitellata</i>	X			X
MYRTACEAE	<i>Enekbatus eremaeus</i>	X			
MYRTACEAE	<i>Enekbatus sessilis</i>		X		X
MYRTACEAE	<i>Eremaea dendroidea</i>				X
MYRTACEAE	<b><i>Eucalyptus blaxellii</i> (Vulnerable, Priority 4)</b>		X		X
MYRTACEAE	<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i>		X		X
MYRTACEAE	<i>Eucalyptus celastroides</i> subsp. <i>virella</i>		X		
MYRTACEAE	<i>Eucalyptus dolichocera</i>		X		X
MYRTACEAE	<i>Eucalyptus ebbanoensis</i> subsp. <i>ebbanoensis</i>				X
MYRTACEAE	<i>Eucalyptus eudesmioides</i>		X		X
MYRTACEAE	<i>Eucalyptus ewartiana</i>				X
MYRTACEAE	<i>Eucalyptus gittinsii</i> subsp. <i>illucida</i>				X
MYRTACEAE	<i>Eucalyptus horistes</i>		X		X
MYRTACEAE	<i>Eucalyptus jucunda</i>		X		X
MYRTACEAE	<i>Eucalyptus kochii</i> subsp. <i>amaryssia</i>	X			
MYRTACEAE	<i>Eucalyptus kochii</i> subsp. <i>borealis</i>		X		X
MYRTACEAE	<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>		X		X
MYRTACEAE	<i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i>		X		X
MYRTACEAE	<i>Eucalyptus loxophleba</i> subsp. <i>supralaervis</i>		X		X
MYRTACEAE	<i>Eucalyptus obtusiflora</i> subsp. <i>obtusiflora</i>		X		X
MYRTACEAE	<i>Eucalyptus oldfieldii</i>		X		X
MYRTACEAE	<i>Eucalyptus pyriformis</i>		X		
MYRTACEAE	<i>Eucalyptus rigidula</i>				X
MYRTACEAE	<b><i>Eucalyptus sargentii</i> subsp. <i>sargentii</i> (RE)</b>				X
MYRTACEAE	<i>Eucalyptus striaticalyx</i>	X			
MYRTACEAE	<i>Eucalyptus subangusta</i> subsp. <i>subangusta</i>		X		
MYRTACEAE	<i>Eucalyptus trivalva</i>	X			
MYRTACEAE	<i>Eucalyptus victrix</i>	X			
MYRTACEAE	<i>Eucalyptus wandoo</i> subsp. <i>pulverea</i>				X
MYRTACEAE	<b><i>Homalocalyx echinulatus</i> (P3)</b>			X	
MYRTACEAE	<b><i>Homalocalyx inerrabundus</i> (P2)</b>				X
MYRTACEAE	<i>Malleostemon minilyaensis</i>		X		X
MYRTACEAE	<i>Malleostemon peltiger</i>		X		X
MYRTACEAE	<i>Malleostemon roseus</i>		X		X
MYRTACEAE	<i>Malleostemon tuberculatus</i>	X	X		X
MYRTACEAE	<i>Melaleuca adnata</i>		X		X
MYRTACEAE	<i>Melaleuca concreta</i>		X		X
MYRTACEAE	<i>Melaleuca cordata</i>		X		X
MYRTACEAE	<i>Melaleuca coronicarpa</i>		X		X
MYRTACEAE	<i>Melaleuca eleuterostachya</i>	X			X
MYRTACEAE	<i>Melaleuca filifolia</i>		X		
MYRTACEAE	<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>		X		
MYRTACEAE	<i>Melaleuca hamata</i>		X		
MYRTACEAE	<b><i>Melaleuca huttensis</i> (P1)</b>		X		
MYRTACEAE	<i>Melaleuca lateriflora</i> subsp. <i>acutifolia</i>		X		
MYRTACEAE	<i>Melaleuca longistaminea</i> subsp. <i>spectabilis</i>				X
MYRTACEAE	<i>Melaleuca megacephala</i>		X		X
MYRTACEAE	<i>Melaleuca nematophylla</i>		X		X
MYRTACEAE	<i>Melaleuca psammophila</i>		X		X
MYRTACEAE	<i>Melaleuca radula</i>		X		X
MYRTACEAE	<i>Melaleuca rhapsiophylla</i>		X		X

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
MYRTACEAE	<i>Melaleuca ryeae</i>		X		X
MYRTACEAE	<i>Melaleuca stereophloia</i>	X	X	X	
MYRTACEAE	<b><i>Melaleuca tuberculata</i> (RE)</b>				X
MYRTACEAE	<i>Melaleuca uncinata</i>		X		
MYRTACEAE	<i>Melaleuca viminea</i> subsp. <i>viminea</i>		X		
MYRTACEAE	<i>Micromyrtus racemosa</i> var. <i>Jingemarra</i> (R.J. Cranfield 5253a)			X	
MYRTACEAE	<i>Micromyrtus racemosa</i> var. <i>north-central</i> (M.E. Trudgen 2223)		X		X
MYRTACEAE	<i>Micromyrtus racemosa</i> var. <i>north-west</i> (R.J. Cranfield 2891)				X
MYRTACEAE	<i>Micromyrtus racemosa</i> var. <i>prochytes</i>	X		X	X
MYRTACEAE	<i>Micromyrtus racemosa</i> var. <i>racemosa</i>		X	X	
MYRTACEAE	<i>Micromyrtus sulphurea</i>	X		X	
MYRTACEAE	<i>Pileanthus peduncularis</i> subsp. <i>peduncularis</i>		X		X
MYRTACEAE	<i>Pileanthus vernicosus</i>				X
MYRTACEAE	<b><i>Scholtzia</i> ?sp. <i>Binnu</i> (M.E. Trudgen 2218) (P1)</b>		X		
MYRTACEAE	<i>Scholtzia capitata</i>		X		
MYRTACEAE	<i>Scholtzia ciliata</i>		X		X
MYRTACEAE	<i>Scholtzia laxiflora</i>		X		
MYRTACEAE	<b><i>Scholtzia</i> sp. <i>East Yuna</i> (A.C. Burns 6) (P2)</b>		X		
MYRTACEAE	<i>Scholtzia umbellifera</i>				X
MYRTACEAE	<i>Thryptomene</i> "orbiculata" ms		X		
MYRTACEAE	<i>Thryptomene baeckeacea</i>		X		X
MYRTACEAE	<i>Thryptomene costata</i>	X		X	
MYRTACEAE	<i>Thryptomene decussata</i>	X		X	
MYRTACEAE	<i>Thryptomene denticulata</i>		X		X
MYRTACEAE	<b><i>Thryptomene</i> sp. <i>Wandana</i> (M.E. Trudgen MET 22016) (P1)</b>		X		
MYRTACEAE	<i>Thryptomene racemulosa</i>		X		
MYRTACEAE	<b><i>Thryptomene</i> sp. <i>East Yuna</i> (P2)</b>				X
MYRTACEAE	<b><i>Thryptomene</i> sp. <i>Moresby Range</i> (A.S. George 14873) (P3)</b>		X		X
MYRTACEAE	<b><i>Thryptomene stenophylla</i> (P2)</b>		X		X
MYRTACEAE	<i>Thryptomene stronglylophylla</i>		X		X
MYRTACEAE	<b><i>Verticordia capillaris</i> (P4)</b>		X		X
MYRTACEAE	<i>Verticordia centipeda</i>				X
MYRTACEAE	<i>Verticordia chrysanthella</i>		X		X
MYRTACEAE	<b><i>Verticordia chrysostachys</i> var. <i>pallida</i> (P3)</b>				X
MYRTACEAE	<b><i>Verticordia densiflora</i> var. <i>roseostella</i> (P3)</b>				X
MYRTACEAE	<i>Verticordia densiflora</i> var. <i>stelluligera</i>			X	X
MYRTACEAE	<i>Verticordia interioris</i>			X	
MYRTACEAE	<b><i>Verticordia jamiesonii</i> (P3)</b>	X		X	
MYRTACEAE	<i>Verticordia monadelpha</i> var. <i>monadelpha</i>		X		X
MYRTACEAE	<b><i>Verticordia penicillaris</i> (P4)</b>		X		X
MYRTACEAE	<i>Verticordia picta</i>				X
MYRTACEAE	<i>Verticordia spicata</i> subsp. <i>spicata</i>				X
NYCTAGINACEAE	<i>Boerhavia coccinea</i>	X			
ORCHIDACEAE	<i>Caladenia brevisura</i>		X		
ORCHIDACEAE	<i>Caladenia flava</i> subsp. <i>maculata</i>		X		X
ORCHIDACEAE	<i>Caladenia footeana</i>		X		
ORCHIDACEAE	<i>Caladenia hirta</i> subsp. <i>rosea</i>		X		



FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
ORCHIDACEAE	<b><i>Caladenia hoffmanii</i> (DRF)</b>		X		
ORCHIDACEAE	<i>Caladenia longicauda</i> subsp. <i>borealis</i>		X		
ORCHIDACEAE	<i>Caladenia reptans</i> subsp. <i>impensa</i>		X		
ORCHIDACEAE	<i>Cyanicula gemmata</i>		X		
ORCHIDACEAE	<b><i>Diuris recurva</i> (P4)</b>		X		
ORCHIDACEAE	<i>Pheladenia deformis</i>		X		
ORCHIDACEAE	<i>Pterostylis sanguinea</i>		X		
ORCHIDACEAE	<i>Pterostylis</i> sp. inland (A.C. Beaglehole 1188)		X		
ORCHIDACEAE	<i>Thelymitra antennifera</i>		X		
OROBANCHACEAE	<b>*<i>Bartsia trixago</i></b>				X
OXALIDACEAE	<b>*<i>Oxalis pes-caprae</i></b>		X		
OXALIDACEAE	<b>*<i>Oxalis purpurea</i></b>		X		
PAPAVERACEAE	<b>*<i>Fumaria capreolata</i></b>		X		
PEDALIACEAE	<i>Josephinia eugeniae</i>	X			
PHRYMACEAE	<i>Peplidium aithocheilum</i>	X			
PHYLLANTHACEAE	<i>Phyllanthus erwinii</i>	X			
PHYLLANTHACEAE	<b><i>Sauropus</i> sp. Woolgorong (M. Officer s.n. 1/8/94) (P1)</b>	X		X	
PITTIOSPORACEAE	<i>Billardiera coriacea</i>		X		
PITTIOSPORACEAE	<i>Bursaria occidentalis</i>	X	X	X	X
PITTIOSPORACEAE	<i>Cheiranthra filifolia</i>		X		
PITTIOSPORACEAE	<i>Marianthus bicolor</i>				X
PITTIOSPORACEAE	<i>Pittosporum angustifolium</i>	X			
PLANTAGINACEAE	<i>Plantago debilis</i>	X			
PLANTAGINACEAE	<i>Stemodia viscosa</i>	X			
PLUMBAGINACEAE	<b>*<i>Limonium lobatum</i></b>		X		
POACEAE	? <i>Digitaria</i> sp.		X		
POACEAE	?* <i>Pennisetum</i> sp.		X		
POACEAE	<i>Amphipogon caricinus</i> var. <i>caricinus</i>		X		
POACEAE	<i>Aristida contorta</i>	X	X		
POACEAE	<i>Aristida holathera</i> var. <i>holathera</i>	X	X		
POACEAE	<i>Aristida</i> sp.	X			
POACEAE	<b>*<i>Arundo donax</i> (RE)</b>		X		
POACEAE	<i>Austrodanthonia caespitosa</i>				X
POACEAE	<i>Austrostipa elegantissima</i>		X		
POACEAE	<i>Austrostipa nodosa</i>		X		
POACEAE	<i>Austrostipa scabra</i>	X	X		
POACEAE	<i>Austrostipa trichophylla</i>	X			
POACEAE	<b>*<i>Avena fatua</i></b>		X		
POACEAE	<b>*<i>Bromus diandrus</i></b>		X		
POACEAE	<b>*<i>Bromus rubens</i></b>		X		
POACEAE	<b>*<i>Cenchrus ciliaris</i></b>	X		X	
POACEAE	<i>Chrysopogon fallax</i>	X			
POACEAE	<i>Cymbopogon ambiguus</i>	X			
POACEAE	<i>Cynodon dactylon</i>	X			
POACEAE	<i>Dactyloctenium radulans</i>	X			
POACEAE	<i>Digitaria brownii</i>	X			
POACEAE	<b>*<i>Ehrharta calycina</i></b>		X		
POACEAE	<b>*<i>Ehrharta longiflora</i></b>		X		
POACEAE	<i>Enneapogon caeruleus</i>	X			
POACEAE	<i>Enneapogon cylindricus</i>	X			

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
POACEAE	<i>Enteropogon ramosus</i>	X			
POACEAE	<i>Eragrostis australasica</i>	X			
POACEAE	<i>Eragrostis cumingii</i>	X			
POACEAE	<i>Eragrostis desertorum</i>	X			
POACEAE	<i>Eragrostis dielsii</i>	X	X		
POACEAE	<i>Eragrostis eriopoda</i>	X			
POACEAE	<i>Eragrostis falcata</i>	X			
POACEAE	<i>Eragrostis lanipes</i>		X		X
POACEAE	<i>Eragrostis leptocarpa</i>	X			
POACEAE	<i>Eragrostis pergracilis</i>	X			
POACEAE	<i>Eragrostis setifolia</i>	X			
POACEAE	<i>Eriachne aristidea</i>	X			
POACEAE	<i>Eriachne benthamii</i>	X			
POACEAE	<i>Eriachne flaccida</i>	X			
POACEAE	<i>Eriachne helmsii</i>	X			
POACEAE	<i>Eriachne mucronata</i>	X			
POACEAE	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	X			
POACEAE	<b>*Hordeum glaucum</b>		X		
POACEAE	<b>*Lamarckia aurea</b>		X		
POACEAE	<b>*Lolium rigidum</b>		X		
POACEAE	<i>Monachather paradoxus</i>	X	X		
POACEAE	<i>Neurachne alopecuroidea</i>		X		
POACEAE	<i>Paspalidium basicladum</i>	X			
POACEAE	<i>Paspalidium clementii</i>	X			
POACEAE	<b>*Pennisetum setaceum</b>				X
POACEAE	<b>*Pentaschistis airoides</b>	X			
POACEAE	<b>*Pentaschistis airoides</b> subsp. <i>airoides</i>		X		
POACEAE	<i>Rostraria pumila</i>		X		
POACEAE	<i>Setaria dielsii</i>	X			
POACEAE	<b>*Setaria verticillata</b>	X			
POACEAE	<i>Themeda triandra</i>	X			
POACEAE	<i>Thyridolepis multiculmis</i>	X			
POACEAE	<i>Triodia danthonioides</i>		X		X
POACEAE	<i>Tripogon loliiformis</i>	X			
POACEAE	<i>Triraphis mollis</i>	X			
POACEAE	<i>Yakirra australiensis</i>	X			
POLYGALACEAE	<i>Comesperma integerrimum</i>	X	X	X	X
POLYGALACEAE	<i>Comesperma scoparium</i>		X		
POLYGALACEAE	<i>Comesperma volubile</i>		X		
POLYGALACEAE	<i>Polygala isingii</i>	X			
POLYGONACEAE	<b>*Acetosa vesicaria</b>		X		X
POLYGONACEAE	<b>*Emex australis (DP)</b>		X		X
POLYGONACEAE	<i>Muehlenbeckia adpressa</i>		X		X
POLYGONACEAE	<b>*Rumex obtusifolius</b>		X		
PORTULACACEAE	<i>Calandrinia corrigioloides</i>		X		
PORTULACACEAE	<i>Calandrinia creethae</i>	X		X	
PORTULACACEAE	<i>Calandrinia eremaea</i>		X	X	
PORTULACACEAE	<i>Calandrinia papillata</i>			X	
PORTULACACEAE	<i>Calandrinia polyandra</i>	X		X	
PORTULACACEAE	<i>Calandrinia</i> sp.	X			
PORTULACACEAE	<i>Calandrinia</i> sp. Blackberry (D.M. Porter 171)		X		X

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
PORTULACACEAE	<i>Calandrinia</i> sp. The Pink Hills (F. Obbens FO 19/6)	X			
PORTULACACEAE	<i>Calandrinia</i> sp. Truncate capsules (A. Markey & S. Dillon 3474)		X		
PORTULACACEAE	<i>Portulaca cyclophylla</i>	X			
PORTULACACEAE	<b>*<i>Portulaca oleracea</i></b>	X			
PORTULACACEAE	<i>Portulaca pilosa</i>	X			
PRIMULACEAE	<b>*<i>Anagallis arvensis</i></b>	X			
PRIMULACEAE	<b>*<i>Anagallis arvensis</i> var. <i>caerulea</i></b>		X		
PRIMULACEAE	<i>Samolus repens</i> var. <i>floribundus</i>	X	X		
PROTEACEAE	<i>Banksia fraseri</i> var. <i>ashbyi</i>		X		X
PROTEACEAE	<i>Banksia prionotes</i>		X		
PROTEACEAE	<i>Banksia sceptrum</i>		X		X
PROTEACEAE	<i>Banksia sessilis</i> var. <i>flabellifolia</i>		X		
PROTEACEAE	<i>Conospermum microflorum</i>		X		X
PROTEACEAE	<i>Conospermum stoechadis</i>		X		
PROTEACEAE	<i>Grevillea acacioides</i>	X			
PROTEACEAE	<i>Grevillea berryana</i>	X			
PROTEACEAE	<i>Grevillea biformis</i>				X
PROTEACEAE	<i>Grevillea candelabroides</i>		X		
PROTEACEAE	<i>Grevillea commutata</i>				X
PROTEACEAE	<i>Grevillea commutata</i> subsp. <i>pinnatisecta</i>				X
PROTEACEAE	<i>Grevillea deflexa</i>	X		X	X
PROTEACEAE	<i>Grevillea didymobotrya</i>		X		
PROTEACEAE	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>			X	
PROTEACEAE	<i>Grevillea dielsiana</i>		X		X
PROTEACEAE	<i>Grevillea eriostachya</i>	X	X		X
PROTEACEAE	<i>Grevillea excelsior</i>		X		X
PROTEACEAE	<i>Grevillea gordoniana</i>				X
PROTEACEAE	<b><i>Grevillea haplantha</i> (RE)</b>			X	
PROTEACEAE	<b><i>Grevillea inconspicua</i> (P4)</b>	X		X	
PROTEACEAE	<i>Grevillea integrifolia</i>		X		
PROTEACEAE	<i>Grevillea juncifolia</i> subsp. <i>juncifolia</i>	X			
PROTEACEAE	<i>Grevillea levis</i>			X	X
PROTEACEAE	<i>Grevillea nematophylla</i> subsp. <i>supraplana</i>	X	X		X
PROTEACEAE	<i>Grevillea obliquistigma</i>		X	X	X
PROTEACEAE	<i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i>	X	X		
PROTEACEAE	<i>Grevillea paradoxa</i>		X		X
PROTEACEAE	<i>Grevillea petrophiloides</i>		X		
PROTEACEAE	<i>Grevillea pinaster</i>		X		
PROTEACEAE	<i>Grevillea pterosperma</i>		X		
PROTEACEAE	<i>Grevillea sarissa</i>			X	
PROTEACEAE	<i>Grevillea sarissa</i> subsp. <i>sarissa</i>	X			
PROTEACEAE	<i>Grevillea stenobotrya</i>	X			
PROTEACEAE	<b><i>Grevillea stenostachya</i> (P3)</b>	X		X	
PROTEACEAE	<i>Grevillea striata</i>	X			
PROTEACEAE	<b><i>Grevillea triloba</i> (P3)</b>		X		X
PROTEACEAE	<i>Grevillea vestita</i> subsp. <i>isopogoides</i>		X		X
PROTEACEAE	<i>Hakea bucculenta</i>		X		X
PROTEACEAE	<i>Hakea invaginata</i>	X	X		
PROTEACEAE	<i>Hakea lissocarpha</i>		X		
PROTEACEAE	<i>Hakea lorea</i> subsp. <i>lorea</i>	X			

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
PROTEACEAE	<i>Hakea minyma</i>		X		
PROTEACEAE	<i>Hakea preissii</i>	X	X	X	
PROTEACEAE	<i>Hakea pycnoneura</i>		X		
PROTEACEAE	<i>Hakea recurva</i> subsp. <i>arida</i>	X	X	X	
PROTEACEAE	<i>Hakea recurva</i> subsp. <i>recurva</i>	X	X		
PROTEACEAE	<i>Hakea rhombales</i>	X			
PROTEACEAE	<i>Hakea trifurcata</i>		X		X
PROTEACEAE	<i>Isopogon divergens</i>		X		
PROTEACEAE	<b><i>Isopogon teretifolius</i> (RE)</b>				X
PROTEACEAE	<i>Persoonia hexagona</i>			X	
PROTEACEAE	<i>Persoonia manotricha</i>		X		
PROTEACEAE	<i>Petrophile conifera</i>		X		X
PROTEACEAE	<b><i>Petrophile pauciflora</i> (P3)</b>	X		X	
PROTEACEAE	<b><i>Petrophile vana</i> (P1)</b>	X		X	
PROTEACEAE	<i>Synaphea spinulosa</i> subsp. <i>borealis</i>		X		
PROTEACEAE	<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>				X
PROTEACEAE	<i>Xylomelum angustifolium</i>		X		
PTERIDACEAE	<i>Cheilanthes adiantoides</i>		X		
PTERIDACEAE	<i>Cheilanthes lasiophylla</i>	X			
PTERIDACEAE	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	X	X		
RANUNCULACEAE	<i>Clematis linearifolia</i>				X
RESTIONACEAE	<i>Desmocladus lateriticus</i>		X		X
RESTIONACEAE	<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>		X		X
RHAMNACEAE	<b><i>Blackallia nudiflora</i> (P3)</b>		X		
RHAMNACEAE	<i>Cryptandra apetala</i>		X		X
RHAMNACEAE	<i>Cryptandra arbutiflora</i> var. <i>borealis</i>		X		X
RHAMNACEAE	<i>Cryptandra connata</i>	X			
RHAMNACEAE	<i>Cryptandra mutila</i>		X		
RHAMNACEAE	<i>Polianthion wichurae</i>		X		
RHAMNACEAE	<b><i>Serichonus gracilipes</i> (P3)</b>		X		X
RHAMNACEAE	<i>Stenanthemum complicatum</i>				X
RHAMNACEAE	<i>Stenanthemum notiale</i> subsp. <i>notiale</i>				X
RHAMNACEAE	<i>Stenanthemum pomaderroides</i>		X		X
RHAMNACEAE	<i>Trymalium angustifolium</i>		X		X
RUBIACEAE	<b>*<i>Galium murale</i></b>		X		
RUBIACEAE	<i>Opercularia spermacocea</i>		X	X	X
RUBIACEAE	<i>Opercularia vaginata</i>		X		
RUBIACEAE	<i>Psydrax latifolia</i>	X			
RUBIACEAE	<i>Psydrax rigidula</i>	X			
RUBIACEAE	<i>Psydrax suaveolens</i>	X			
RUBIACEAE	<i>Synaptantha tillaeacea</i> var. <i>tillaeacea</i>	X			
RUTACEAE	<i>Boronia cymosa</i>		X		X
RUTACEAE	<i>Diplolaena geraldtonensis</i>				X
RUTACEAE	<i>Diplolaena grandiflora</i>		X		
RUTACEAE	<b><i>Geleznowia verrucosa</i> subsp. <i>Kalbarri</i> (P3)</b>				X
RUTACEAE	<i>Geleznowia verrucosa</i> subsp. <i>verrucosa</i>				X
RUTACEAE	<b><i>Philotheca</i> aff. <i>tubiflora</i> (SOI)</b>	X			
RUTACEAE	<b><i>Philotheca brucei</i> subsp. <i>brevifolia</i> (RE)</b>			X	
RUTACEAE	<i>Philotheca brucei</i> subsp. <i>brucei</i>	X			
RUTACEAE	<i>Philotheca deserti</i>			X	X
RUTACEAE	<i>Philotheca deserti</i> subsp. <i>deserti</i>		X		

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
RUTACEAE	<i>Philotheca sericea</i>	X		X	
SANTALACEAE	<i>Choretrum pritzelii</i>		X		
SANTALACEAE	<i>Exocarpos aphyllus</i>	X	X		X
SANTALACEAE	<i>Santalum acuminatum</i>	X	X		X
SANTALACEAE	<i>Santalum lanceolatum</i>	X			
SANTALACEAE	<i>Santalum spicatum</i>	X	X		
SAPINDACEAE	<i>Alectryon oleifolius</i>	X			
SAPINDACEAE	<i>Diplopeltis huegelii</i>		X		
SAPINDACEAE	<i>Diplopeltis huegelii</i> subsp. <i>huegelii</i>				X
SAPINDACEAE	<b><i>Dodonaea amplisemina</i> (P3)</b>	X		X	
SAPINDACEAE	<i>Dodonaea ericoides</i>		X		X
SAPINDACEAE	<i>Dodonaea inaequifolia</i>	X	X	X	
SAPINDACEAE	<i>Dodonaea microzyga</i> var. <i>acrolobata</i>	X			
SAPINDACEAE	<i>Dodonaea pachyneura</i>	X		X	
SAPINDACEAE	<i>Dodonaea petiolaris</i>	X			
SAPINDACEAE	<i>Dodonaea viscosa</i> subsp. <i>spatulata</i>	X		X	
SCROPHULARIACEAE	<b><i>Eremophila</i> aff. <i>forrestii</i> (SOI)</b>			X	
SCROPHULARIACEAE	<i>Eremophila alternifolia</i>	X			
SCROPHULARIACEAE	<i>Eremophila angustifolia</i>			X	
SCROPHULARIACEAE	<b><i>Eremophila arachnoides</i> subsp. <i>arachnoides</i> (P3)</b>	X			
SCROPHULARIACEAE	<i>Eremophila clarkei</i>	X	X	X	X
SCROPHULARIACEAE	<i>Eremophila compacta</i>	X		X	
SCROPHULARIACEAE	<i>Eremophila compacta</i> subsp. <i>compacta</i>	X		X	
SCROPHULARIACEAE	<i>Eremophila compacta</i> subsp. <i>fecunda</i>	X			
SCROPHULARIACEAE	<i>Eremophila ericalyx</i>	X	X		
SCROPHULARIACEAE	<i>Eremophila ericalyx</i>			X	X
SCROPHULARIACEAE	<i>Eremophila exilifolia</i>	X			
SCROPHULARIACEAE	<i>Eremophila flabellata</i>	X			
SCROPHULARIACEAE	<i>Eremophila foliosissima</i>	X			
SCROPHULARIACEAE	<i>Eremophila forrestii</i>			X	
SCROPHULARIACEAE	<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	X	X	X	
SCROPHULARIACEAE	<i>Eremophila forrestii</i> subsp. <i>hastiana</i>	X	X		
SCROPHULARIACEAE	<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	X			
SCROPHULARIACEAE	<i>Eremophila fraseri</i> subsp. <i>parva</i>	X			
SCROPHULARIACEAE	<i>Eremophila galeata</i>	X		X	
SCROPHULARIACEAE	<i>Eremophila georgei</i>	X			
SCROPHULARIACEAE	<i>Eremophila gibsonii</i>	X			
SCROPHULARIACEAE	<i>Eremophila gilesii</i>			X	
SCROPHULARIACEAE	<i>Eremophila gilesii</i> subsp. <i>gilesii</i>	X			
SCROPHULARIACEAE	<i>Eremophila gilesii</i> subsp. <i>variabilis</i>			X	
SCROPHULARIACEAE	<i>Eremophila glabra</i> subsp. <i>albicans</i>				X
SCROPHULARIACEAE	<i>Eremophila glabra</i> subsp. <i>glabra</i>	X			
SCROPHULARIACEAE	<i>Eremophila glabra</i> subsp. <i>tomentosa</i>	X			
SCROPHULARIACEAE	<i>Eremophila glandulifera</i>			X	
SCROPHULARIACEAE	<i>Eremophila glutinosa</i>	X			
SCROPHULARIACEAE	<i>Eremophila hughesii</i> subsp. <i>hughesii</i>	X			
SCROPHULARIACEAE	<i>Eremophila jucunda</i> subsp. <i>jucunda</i>	X			
SCROPHULARIACEAE	<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	X	X	X	
SCROPHULARIACEAE	<i>Eremophila longifolia</i>	X			
SCROPHULARIACEAE	<i>Eremophila mackinlayi</i> subsp. <i>mackinlayi</i>			X	X
SCROPHULARIACEAE	<i>Eremophila mackinlayi</i> subsp. <i>spatulata</i>	X			

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
SCROPHULARIACEAE	<i>Eremophila macmillaniana</i>	X			
SCROPHULARIACEAE	<i>Eremophila maculata</i> subsp. <i>brevifolia</i>	X			
SCROPHULARIACEAE	<i>Eremophila margarethae</i>	X			
SCROPHULARIACEAE	<b><i>Eremophila muelleriana</i> (P3)</b>			X	X
SCROPHULARIACEAE	<i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>	X			
SCROPHULARIACEAE	<i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>	X	X	X	
SCROPHULARIACEAE	<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>		X		
SCROPHULARIACEAE	<i>Eremophila pantonii</i>		X	X	X
SCROPHULARIACEAE	<i>Eremophila phyllopoda</i>	X			
SCROPHULARIACEAE	<i>Eremophila platycalyx</i>			X	
SCROPHULARIACEAE	<i>Eremophila platycalyx</i> subsp. <i>platycalyx</i>	X		X	
SCROPHULARIACEAE	<i>Eremophila pterocarpa</i> subsp. <i>pterocarpa</i>	X		X	
SCROPHULARIACEAE	<i>Eremophila punicea</i>	X		X	X
SCROPHULARIACEAE	<i>Eremophila serrulata</i>	X	X		X
SCROPHULARIACEAE	<i>Eremophila simulans</i> subsp. <i>simulans</i>	X			
SCROPHULARIACEAE	<i>Eremophila spathulata</i>	X			
SCROPHULARIACEAE	<i>Eremophila spuria</i>	X		X	
SCROPHULARIACEAE	<b><i>Eremophila strongylophylla</i> (RE)</b>			X	X
SCROPHULARIACEAE	<b><i>Eremophila tietkensis</i> (RE)</b>	X			
SCROPHULARIACEAE	<i>Eremophila youngii</i> subsp. <i>youngii</i>	X			
SCROPHULARIACEAE	<i>Myoporum montanum</i>	X			
SCROPHULARIACEAE	<b>*<i>Zaluzianskya divaricata</i></b>		X		
SOLANACEAE	<i>Anthotroche pannosa</i>		X		
SOLANACEAE	<i>Anthotroche walcottii</i>				X
SOLANACEAE	<i>Duboisia hopwoodii</i>		X		
SOLANACEAE	<i>Lycium australe</i>	X			
SOLANACEAE	<i>Nicotiana occidentalis</i> subsp. <i>obliqua</i>	X	X		
SOLANACEAE	<i>Nicotiana rosulata</i> subsp. <i>rosulata</i>	X			
SOLANACEAE	<i>Nicotiana rotundifolia</i>		X		
SOLANACEAE	<i>Solanum ashbyae</i>	X			
SOLANACEAE	<i>Solanum ellipticum</i>	X	X		
SOLANACEAE	<i>Solanum hesperium</i>		X		X
SOLANACEAE	<i>Solanum lasiophyllum</i>	X	X		X
SOLANACEAE	<b>*<i>Solanum nigrum</i></b>		X		
SOLANACEAE	<i>Solanum nummularium</i>	X	X		X
SOLANACEAE	<i>Solanum oldfieldii</i>		X		
SOLANACEAE	<i>Solanum orbiculatum</i>		X		
SOLANACEAE	<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>	X			
STYLIDIACEAE	<i>Levenhookia octomaculata</i>				X
STYLIDIACEAE	<b><i>Stylidium arenicola</i> (RE)</b>	X			
STYLIDIACEAE	<b><i>Stylidium bulbiferum</i> (RE)</b>		X		
STYLIDIACEAE	<i>Stylidium burbridgeanum</i>		X		
STYLIDIACEAE	<i>Stylidium confluens</i>		X		
STYLIDIACEAE	<i>Stylidium dichotomum</i>		X		
STYLIDIACEAE	<i>Stylidium diuroides</i> subsp. <i>diuroides</i>		X		
STYLIDIACEAE	<i>Stylidium elongatum</i>		X		X
STYLIDIACEAE	<i>Stylidium induratum</i>	X			
STYLIDIACEAE	<i>Stylidium longibracteatum</i>	X		X	
SURIANACEAE	<i>Stylobasium australe</i>		X		
SURIANACEAE	<i>Stylobasium spathulatum</i>	X	X		
THYMELAEACEAE	<i>Pimelea avonensis</i>		X		

FAMILY	Taxa	Pastoral Quadrat Survey	Freehold Quadrat Survey	Pastoral Transect survey	Freehold Transect Survey
THYMELAEACEAE	<i>Pimelea forrestiana</i>	X			
THYMELAEACEAE	<i>Pimelea leucantha</i>				X
THYMELAEACEAE	<i>Pimelea microcephala</i>		X	X	X
THYMELAEACEAE	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	X	X	X	X
THYMELAEACEAE	<b><i>Pimelea subvillifera</i> (RE)</b>				X
TROPAEOLACEAE	<b>*<i>Tropaeolum majus</i></b>		X		X
URTICACEAE	<i>Parietaria cardiostegia</i>		X		
VITACEAE	<i>Clematicissus angustissima</i>		X		
ZYGOPHYLLACEAE	<i>Tribulus astrocarpus</i>	X			
ZYGOPHYLLACEAE	<i>Tribulus macrocarpus</i>	X			
ZYGOPHYLLACEAE	<i>Tribulus suberosus</i>	X			
ZYGOPHYLLACEAE	<i>Zygophyllum aurantiacum</i>	X		X	
ZYGOPHYLLACEAE	<i>Zygophyllum fruticosum</i>			X	
ZYGOPHYLLACEAE	<i>Zygophyllum simile</i>		X		

Note: DRF = Declared Rare Flora, P1 = Priority 1 Flora, P2 = Priority 3 Flora, P4 = Priority 4 Flora, RE = Range Extension, SOI = Species of Interest, DP = Declared Plant, \* = Introduced Flora, var. = variant, subsp. = sub species, x in the species column = hybridised species.

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## **APPENDIX K      CONSERVATION CATEGORY DEFINITIONS**

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**Table K.1 – Definition of Threatened Flora Species Categories under the EPBC Act**

Conservation Category	Definition
Extinct	A species is extinct if there is no reasonable doubt that the last member of the species has died.
Extinct in the wild	A species is categorised as extinct in the wild if it is only known to survive in cultivation, in captivity or as a naturalised population well outside its past range; or if it has not been recorded in its known/expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
Critically Endangered	The species is facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	The species is likely to become extinct unless the circumstances and factors threatening its abundance, survival or evolutionary development cease to operate; or its numbers have been reduced to such a critical level, or its habitats have been so drastically reduced, that it is in immediate danger of extinction.
Vulnerable	Within the next 25 years, the species is likely to become endangered unless the circumstances and factors threatening its abundance, survival or evolutionary development cease to operate.
Conservation Dependent	The species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of five years.

**Table K.2 – Definition of Declared Rare and Priority Flora Categories under the WC Act**

Conservation Category	Definition
DRF	Declared Rare Flora-Extant Taxa. Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.
P1: Priority One	Poorly Known Taxa. Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2: Priority Two	Poorly Known Taxa. Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3: Priority Three	Poorly Known Taxa. Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.
P4: Priority Four	Rare Taxa. Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

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**APPENDIX L            WAHERB DRF AND PRIORITY FLORA VOUCHER  
FORMS (INCLUDED ELECTRONICALLY)**

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Voucher forms are provided electronically for each DRF and Priority Flora species recorded. As every specimen collected for each conservation significant taxon can not be lodged, specimens that will be lodged have been chosen to represent the distribution of the species recorded in the Study Area.

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**APPENDIX M            PRIORITY FLORA LOCATIONS RECORDED DURING THE  
*ECOLOGIA* REGIONAL SURVEYS**

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**Table M.1 – Priority Flora Taxa Recorded during the *ecologia* Regional Survey**

Code	Taxa	Coordinates (WGS84)		Cover (%)
		Easting (mE)	Northing (mN)	
Priority 1	<i>Petrophile vana</i>	436263	6950732	< 2 %
Priority 1	<i>Petrophile vana</i>	435840	6950414	< 2 %
Priority 1	<i>Sauropus</i> sp. Woolgorong	530286	7022868	2 - 10 %
Priority 1	<i>Sauropus</i> sp. Woolgorong	530225	7023490	10 - 30 %
Priority 1	<i>Sauropus</i> sp. Woolgorong	487496	7040129	< 2 %
Priority 1	<i>Sauropus</i> sp. Woolgorong	490901	7001425	< 2 %
Priority 3	<i>Acacia speckii</i>	383652	6933635	< 2 %
Priority 3	<i>Acacia speckii</i>	422014	6969504	< 2 %
Priority 3	<i>Acacia speckii</i>	580411	7022341	< 2 %
Priority 3	<i>Acacia speckii</i>	422908	6970047	2 - 10 %
Priority 3	<i>Acacia speckii</i>	580165	7022907	2 - 10 %
Priority 3	<i>Acacia speckii</i>	426141	6941129	< 2 %
Priority 3	<i>Acacia speckii</i>	507879	6982725	< 2 %
Priority 3	<i>Acacia speckii</i>	542997	7002340	< 2 %
Priority 3	<i>Acacia speckii</i>	550024	7009344	< 2 %
Priority 3	<i>Calytrix erosipetala</i>	436323	6950805	2 - 10 %
Priority 3	<i>Calytrix verruculosa</i>	510517	7109908	10 - 30 %
Priority 3	<i>Calytrix verruculosa</i>	519521	7117341	< 2 %
Priority 3	<i>Dicrastylis linearifolia</i>	400658	6934427	10 - 30 %
Priority 3	<i>Dicrastylis linearifolia</i>	348321	6910757	10 - 30 %
Priority 3	<i>Dodonaea amplisemina</i>	543233	7002598	< 2 %
Priority 3	<i>Dodonaea amplisemina</i>	550024	7009345	< 2 %
Priority 3	<i>Dodonaea amplisemina</i>	541980	7001146	< 2 %
Priority 3	<i>Dodonaea amplisemina</i>	550024	7009344	< 2 %
Priority 3	<i>Dodonaea amplisemina</i>	555745	7011604	< 2 %
Priority 3	<i>Grevillea stenostachya</i>	362584	6919254	< 2 %
Priority 3	<i>Grevillea stenostachya</i>	530225	7023490	2 - 10 %
Priority 3	<i>Grevillea stenostachya</i>	530942	7010438	2 - 10 %
Priority 3	<i>Grevillea stenostachya</i>	348712	6910919	10 - 30 %
Priority 3	<i>Grevillea stenostachya</i>	350114	6911823	10 - 30 %
Priority 3	<i>Grevillea stenostachya</i>	358194	6916642	10 - 30 %
Priority 3	<i>Grevillea stenostachya</i>	530286	7022868	< 2 %
Priority 3	<i>Grevillea stenostachya</i>	353823	6914028	< 2 %
Priority 3	<i>Grevillea stenostachya</i>	373498	6926892	< 2 %
Priority 3	<i>Grevillea stenostachya</i>	352939	6913506	< 2 %
Priority 3	<i>Hemigenia tysonii</i>	530225	7023490	2 - 10 %
Priority 3	<i>Hemigenia tysonii</i>	530818	7017782	2 - 10 %
Priority 3	<i>Hemigenia tysonii</i>	546537	7007060	2 - 10 %
Priority 3	<i>Hemigenia tysonii</i>	549418	7009084	2 - 10 %
Priority 3	<i>Hemigenia tysonii</i>	551174	7009805	2 - 10 %
Priority 3	<i>Hemigenia tysonii</i>	495766	6971562	10 - 30 %
Priority 3	<i>Hemigenia tysonii</i>	531149	7012714	10 - 30 %
Priority 3	<i>Hemigenia tysonii</i>	533739	7064453	10 - 30 %
Priority 3	<i>Hemigenia tysonii</i>	535189	7107089	10 - 30 %
Priority 3	<i>Hemigenia tysonii</i>	535168	7104328	< 2 %
Priority 3	<i>Petrophile pauciflora</i>	401929	6934702	< 2 %
Priority 3	<i>Petrophile pauciflora</i>	483762	6999058	< 2 %
Priority 3	<i>Petrophile pauciflora</i>	484274	6999462	< 2 %
Priority 3	<i>Petrophile pauciflora</i>	527408	7001350	< 2 %
Priority 3	<i>Prostanthera petrophila</i>	530742	7018481	2 - 10 %
Priority 3	<i>Ptilotus beardii</i>	454490	6991623	2 - 10 %

Code	Taxa	Coordinates (WGS84)		Cover (%)
		Easting (mE)	Northing (mN)	
Priority 3	<i>Ptilotus beardii</i>	542201	7000075	2 - 10 %
Priority 3	<i>Ptilotus beardii</i>	553269	7010803	2 - 10 %
Priority 3	<i>Ptilotus beardii</i>	454998	6991858	2 - 10 %
Priority 3	<i>Ptilotus beardii</i>	552304	7010429	< 2 %
Priority 3	<i>Ptilotus luteolus</i>	543233	7002598	< 2 %
Priority 3	<i>Verticordia jamiesonii</i>	364955	6920841	10 - 30 %
Priority 3	<i>Verticordia jamiesonii</i>	483784	6999062	< 2 %
Priority 3	<i>Verticordia jamiesonii</i>	484274	6999462	< 2 %
Priority 3	<i>Verticordia jamiesonii</i>	530971	7011554	< 2 %
Priority 4	<i>Goodenia berringbinensis</i>	495837	7050869	< 2 %

## APPENDIX N      INTRODUCED FLORA LOCATIONS

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**Table N.1 – Locations of Introduced Flora Taxa Recorded in the Study Area**

Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
?* <i>Pennisetum</i> sp.	Freehold	338822	6856273	<2%
* <i>Acetosa vesicaria</i>	Freehold	341221	6860406	<2%
* <i>Acetosa vesicaria</i>	Freehold	344656	6837264	<2%
* <i>Acetosa vesicaria</i>	Freehold	344656	6837264	<2%
* <i>Acetosa vesicaria</i>	Freehold	337895	6855392	<2%
* <i>Acetosa vesicaria</i>	Freehold	349918	6876480	10-30%
* <i>Acetosa vesicaria</i>	Freehold	337880	6855389	10-30%
* <i>Acetosa vesicaria</i>	Freehold	270834	6833000	15 plants
* <i>Anagallis arvensis</i> var. <i>caerulea</i>	Freehold	345407	6866054	<2%
* <i>Arctotheca calendula</i>	Freehold	269903	6828559	<2%
* <i>Arctotheca calendula</i>	Freehold	340755	6865301	<2%
* <i>Arctotheca calendula</i>	Freehold	340220	6858393	<2%
* <i>Arctotheca calendula</i>	Freehold	339874	6854424	<2%
* <i>Arctotheca calendula</i>	Freehold	333528	6846894	<2%
* <i>Arctotheca calendula</i>	Freehold	330368	6845833	<2%
* <i>Arctotheca calendula</i>	Freehold	325220	6841600	<2%
* <i>Arctotheca calendula</i>	Freehold	313490	6839249	<2%
* <i>Arctotheca calendula</i>	Freehold	299059	6835338	<2%
* <i>Arctotheca calendula</i>	Freehold	295656	6831303	<2%
* <i>Arctotheca calendula</i>	Freehold	291479	6828916	<2%
* <i>Arctotheca calendula</i>	Freehold	279837	6826448	<2%
* <i>Arctotheca calendula</i>	Freehold	278029	6826648	<2%
* <i>Arctotheca calendula</i>	Freehold	345407	6866054	<2%
* <i>Arctotheca calendula</i>	Freehold	335172	6836157	<2%
* <i>Arctotheca calendula</i>	Freehold	337755	6836034	<2%
* <i>Arctotheca calendula</i>	Freehold	344656	6837264	<2%
* <i>Arctotheca calendula</i>	Freehold	298423	6834415	<2%
* <i>Arctotheca calendula</i>	Freehold	335478	6835196	<2%
* <i>Arctotheca calendula</i>	Freehold	346998	6871740	2-10%
* <i>Arctotheca calendula</i>	Freehold	320964	6841681	2-10%
* <i>Arctotheca calendula</i>	Freehold	317276	6841071	2-10%
* <i>Arctotheca calendula</i>	Freehold	270004	6831628	2-10%
* <i>Arctotheca calendula</i>	Freehold	284811	6826143	2-10%
* <i>Arctotheca calendula</i>	Freehold	274056	6830340	2-10%
* <i>Arctotheca calendula</i>	Freehold	269939	6832284	2-10%
* <i>Arctotheca calendula</i>	Freehold	334446	6837401	2-10%
* <i>Arctotheca calendula</i>	Freehold	275639	6829162	2-10%
* <i>Arctotheca calendula</i>	Freehold	269277	6834552	2-10%
* <i>Arctotheca calendula</i>	Freehold	349918	6876480	2-10%
* <i>Arctotheca calendula</i>	Freehold	338822	6856273	2-10%
* <i>Arctotheca calendula</i>	Freehold	337861	6855257	2-10%
* <i>Arctotheca calendula</i>	Freehold	297010	6830803	2-10%
* <i>Arctotheca calendula</i>	Freehold	323153	6843583	10-30%
* <i>Arctotheca calendula</i>	Freehold	297859	6832563	10-30%
* <i>Arctotheca calendula</i>	Freehold	293444	6829620	10-30%
* <i>Arctotheca calendula</i>	Freehold	294958	6829207	10-30%
* <i>Arctotheca calendula</i>	Freehold	288547	6828109	10-30%
* <i>Arctotheca calendula</i>	Freehold	333750	6838344	10-30%
* <i>Arctotheca calendula</i>	Freehold	335545	6835037	10-30%
* <i>Arctotheca calendula</i>	Freehold	282948	6827051	10-30%
* <i>Arctotheca calendula</i>	Freehold	323227	6841113	10-30%



Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
<i>*Arctotheca calendula</i>	Freehold	294133	6829695	10-30%
<i>*Arctotheca calendula</i>	Freehold	290629	6829123	10-30%
<i>*Arctotheca calendula</i>	Freehold	286683	6827051	10-30%
<i>*Arctotheca calendula</i>	Freehold	288334	6828940	30-70%
<i>*Arctotheca calendula</i>	Freehold	337706	6833284	< 2%
<i>*Arctotheca calendula</i>	Freehold	322125	6841256	< 2%
<i>*Arundo donax</i>	Freehold	284276	6827837	2-10%
<i>*Avena fatua</i>	Freehold	325220	6841600	<2%
<i>*Avena fatua</i>	Freehold	317731	6838606	<2%
<i>*Avena fatua</i>	Freehold	307321	6833125	<2%
<i>*Avena fatua</i>	Freehold	279837	6826448	<2%
<i>*Avena fatua</i>	Freehold	335045	6841430	<2%
<i>*Avena fatua</i>	Freehold	333750	6838344	<2%
<i>*Avena fatua</i>	Freehold	334446	6837401	<2%
<i>*Avena fatua</i>	Freehold	335545	6835037	<2%
<i>*Avena fatua</i>	Freehold	344757	6835484	<2%
<i>*Avena fatua</i>	Freehold	335172	6836157	<2%
<i>*Avena fatua</i>	Freehold	339612	6832756	<2%
<i>*Avena fatua</i>	Freehold	342658	6863996	<2%
<i>*Avena fatua</i>	Freehold	322125	6841256	<2%
<i>*Avena fatua</i>	Freehold	323153	6843583	2-10%
<i>*Avena fatua</i>	Freehold	320964	6841681	2-10%
<i>*Avena fatua</i>	Freehold	315773	6838776	2-10%
<i>*Avena fatua</i>	Freehold	294958	6829207	2-10%
<i>*Avena fatua</i>	Freehold	288334	6828940	2-10%
<i>*Avena fatua</i>	Freehold	286288	6828127	2-10%
<i>*Avena fatua</i>	Freehold	269038	6835734	2-10%
<i>*Avena fatua</i>	Freehold	337706	6833284	2-10%
<i>*Avena fatua</i>	Freehold	271415	6831013	2-10%
<i>*Avena fatua</i>	Freehold	269277	6834552	2-10%
<i>*Avena fatua</i>	Freehold	338822	6856273	2-10%
<i>*Avena fatua</i>	Freehold	297010	6830803	2-10%
<i>*Avena fatua</i>	Freehold	294133	6829695	2-10%
<i>*Avena fatua</i>	Freehold	346998	6871740	10-30%
<i>*Avena fatua</i>	Freehold	297859	6832563	10-30%
<i>*Avena fatua</i>	Freehold	293444	6829620	10-30%
<i>*Avena fatua</i>	Freehold	284811	6826143	10-30%
<i>*Avena fatua</i>	Freehold	279837	6826448	10-30%
<i>*Avena fatua</i>	Freehold	275596	6827377	10-30%
<i>*Avena fatua</i>	Freehold	270733	6832982	10-30%
<i>*Avena fatua</i>	Freehold	275639	6829162	10-30%
<i>*Avena fatua</i>	Freehold	323227	6841113	10-30%
<i>*Avena fatua</i>	Freehold	290629	6829123	10-30%
<i>*Avena fatua</i>	Freehold	286683	6827051	10-30%
<i>*Avena fatua</i>	Freehold	317276	6841071	30-70%
<i>*Avena fatua</i>	Freehold	299059	6835338	30-70%
<i>*Avena fatua</i>	Freehold	298316	6833644	30-70%
<i>*Avena fatua</i>	Freehold	295656	6831303	30-70%
<i>*Avena fatua</i>	Freehold	291479	6828916	30-70%
<i>*Avena fatua</i>	Freehold	278029	6826648	30-70%
<i>*Avena fatua</i>	Freehold	278029	6826648	30-70%
<i>*Avena fatua</i>	Freehold	270004	6831628	70-100%





Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
* <i>Avena fatua</i>	Freehold	289031	6827990	70-100%
* <i>Avena fatua</i>	Freehold	289031	6827990	70-100%
* <i>Avena fatua</i>	Freehold	288547	6828109	70-100%
* <i>Avena fatua</i>	Freehold	274056	6830340	70-100%
* <i>Avena fatua</i>	Freehold	282948	6827051	70-100%
* <i>Avena fatua</i>	Freehold	284276	6827837	70-100%
* <i>Avena fatua</i>	Freehold	270733	6832982	< 2%
* <i>Avena fatua</i>	Freehold	279195	6827641	< 2%
* <i>Bartsia trixago</i>	Freehold	298263	6833573	< 10 plants
* <i>Bartsia trixago</i>	Freehold	279027	6825908	< 2%
* <i>Brassica tournefortii</i>	Freehold	313490	6839249	<2%
* <i>Brassica tournefortii</i>	Freehold	345407	6866054	<2%
* <i>Brassica tournefortii</i>	Freehold	341425	6863069	<2%
* <i>Brassica tournefortii</i>	Freehold	340242	6832514	<2%
* <i>Brassica tournefortii</i>	Freehold	340687	6862976	<2%
* <i>Brassica tournefortii</i>	Freehold	310907	6836455	<2%
* <i>Brassica tournefortii</i>	Freehold	335478	6835196	<2%
* <i>Brassica tournefortii</i>	Freehold	346924	6871086	< 2%
* <i>Brassica tournefortii</i>	Freehold	320964	6841681	< 2%
* <i>Brassica tournefortii</i>	Freehold	336387	6838125	< 2%
* <i>Brassica tournefortii</i>	Freehold	342658	6863996	< 2%
* <i>Bromus diandrus</i>	Freehold	323153	6843583	<2%
* <i>Bromus diandrus</i>	Freehold	342958	6833541	<2%
* <i>Bromus diandrus</i>	Freehold	342958	6833541	<2%
* <i>Bromus diandrus</i>	Freehold	294133	6829695	<2%
* <i>Bromus diandrus</i>	Freehold	290629	6829123	<2%
* <i>Bromus diandrus</i>	Freehold	320964	6841681	2-10%
* <i>Bromus diandrus</i>	Freehold	293444	6829620	2-10%
* <i>Bromus diandrus</i>	Freehold	291479	6828916	2-10%
* <i>Bromus diandrus</i>	Freehold	275639	6829162	10-30%
* <i>Bromus diandrus</i>	Freehold	343388	6833212	< 2%
* <i>Bromus rubens</i>	Freehold	349918	6876480	<2%
* <i>Bromus rubens</i>	Freehold	313490	6839249	2-10%
* <i>Carthamus lanatus</i> (DP)	Freehold	350092	6875757	< 2%
* <i>Crassula natans</i> var. <i>minus</i>	Freehold	315773	6838776	<2%
* <i>Crassula natans</i> var. <i>minus</i>	Freehold	335481	6835184	<2%
* <i>Cuscuta epithymum</i>	Freehold	346924	6871086	<2%
* <i>Cuscuta planiflora</i>	Freehold	269939	6832284	<2%
* <i>Cuscuta planiflora</i>	Freehold	297010	6830803	<2%
* <i>Echium plantagineum</i> (DP)	Freehold	297859	6832563	<2%
* <i>Echium plantagineum</i> (DP)	Freehold	279837	6826448	<2%
* <i>Echium plantagineum</i> (DP)	Freehold	288547	6828109	<2%
* <i>Echium plantagineum</i> (DP)	Freehold	284811	6826143	<2%
* <i>Echium plantagineum</i> (DP)	Freehold	278029	6826648	<2%
* <i>Echium plantagineum</i> (DP)	Freehold	270004	6831628	<2%
* <i>Echium plantagineum</i> (DP)	Freehold	288547	6828109	10-30%
* <i>Echium plantagineum</i> (DP)	Freehold	288541	6828836	2-10%
* <i>Ehrharta calycina</i>	Freehold	335545	6835037	<2%
* <i>Ehrharta calycina</i>	Freehold	335172	6836157	<2%
* <i>Ehrharta longiflora</i>	Freehold	333528	6846894	<2%
* <i>Ehrharta longiflora</i>	Freehold	323153	6843583	<2%
* <i>Ehrharta longiflora</i>	Freehold	320964	6841681	<2%



Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
<i>*Ehrharta longiflora</i>	Freehold	339911	6860912	<2%
<i>*Ehrharta longiflora</i>	Freehold	337706	6833284	<2%
<i>*Ehrharta longiflora</i>	Freehold	338822	6856273	<2%
<i>*Ehrharta longiflora</i>	Freehold	323227	6841113	<2%
<i>*Ehrharta longiflora</i>	Freehold	269939	6832284	< 2%
<i>*Ehrharta longiflora</i>	Freehold	349918	6876480	< 2%
<b>*Emex australis (DP)</b>	Freehold	288334	6828940	<2%
<b>*Emex australis (DP)</b>	Freehold	346029	6875832	<2%
<b>*Emex australis (DP)</b>	Freehold	298423	6834415	<2%
<b>*Emex australis (DP)</b>	Freehold	284811	6826143	< 2%
<i>*Erodium aureum</i>	Freehold	335257	6835943	<2%
<i>*Erodium botrys</i>	Freehold	279837	6826448	<2%
<i>*Erodium botrys</i>	Freehold	288547	6828109	2-10%
<i>*Erodium cicutarium</i>	Freehold	346807	6872288	<2%
<i>*Erodium cicutarium</i>	Freehold	339612	6832756	< 2%
<i>*Fumaria capreolata</i>	Freehold	275639	6829162	<2%
<i>*Fumaria capreolata</i>	Freehold	275596	6827377	2-10%
<i>*Galium murale</i>	Freehold	340220	6858393	< 2%
<i>*Galium murale</i>	Freehold	290629	6829123	< 2%
<i>*Hordeum glaucum</i>	Freehold	288334	6828940	<2%
<i>*Hordeum glaucum</i>	Freehold	341221	6860406	<2%
<i>*Hordeum glaucum</i>	Freehold	282948	6827051	<2%
<i>*Hordeum glaucum</i>	Freehold	349918	6876480	<2%
<i>*Hordeum glaucum</i>	Freehold	340687	6862976	<2%
<i>*Hordeum glaucum</i>	Freehold	335514	6835138	<2%
<i>*Hordeum glaucum</i>	Freehold	323153	6843583	2-10%
<i>*Hordeum glaucum</i>	Freehold	320964	6841681	2-10%
<i>*Hordeum glaucum</i>	Freehold	291479	6828916	2-10%
<i>*Hordeum glaucum</i>	Freehold	337706	6833284	2-10%
<i>*Hordeum glaucum</i>	Freehold	345407	6866054	2-10%
<i>*Hordeum glaucum</i>	Freehold	338822	6856273	2-10%
<i>*Hordeum glaucum</i>	Freehold	293444	6829620	10-30%
<i>*Hordeum glaucum</i>	Freehold	318256	6842259	< 2%
<i>*Hordeum glaucum</i>	Freehold	270004	6831628	< 2%
<i>*Hypochaeris glabra</i>	Freehold	269903	6828559	<2%
<i>*Hypochaeris glabra</i>	Freehold	313490	6839249	<2%
<i>*Hypochaeris glabra</i>	Freehold	311468	6837216	<2%
<i>*Hypochaeris glabra</i>	Freehold	307321	6833125	<2%
<i>*Hypochaeris glabra</i>	Freehold	299059	6835338	<2%
<i>*Hypochaeris glabra</i>	Freehold	269038	6835734	<2%
<i>*Hypochaeris glabra</i>	Freehold	333750	6838344	<2%
<i>*Hypochaeris glabra</i>	Freehold	271600	6829687	<2%
<i>*Hypochaeris glabra</i>	Freehold	271415	6831013	<2%
<i>*Hypochaeris glabra</i>	Freehold	339612	6832756	<2%
<i>*Hypochaeris glabra</i>	Freehold	315773	6838776	2-10%
<i>*Hypochaeris glabra</i>	Freehold	299146	6831858	2-10%
<i>*Hypochaeris glabra</i>	Freehold	297863	6830919	2-10%
<i>*Hypochaeris glabra</i>	Freehold	271084	6832089	2-10%
<i>*Hypochaeris glabra</i>	Freehold	342958	6833541	2-10%
<i>*Hypochaeris glabra</i>	Freehold	341221	6860406	2-10%
<i>*Hypochaeris glabra</i>	Freehold	269277	6834552	2-10%
<i>*Hypochaeris glabra</i>	Freehold	335172	6836157	2-10%



Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
* <i>Hypochaeris glabra</i>	Freehold	340242	6832514	2-10%
* <i>Hypochaeris glabra</i>	Freehold	310907	6836455	2-10%
* <i>Hypochaeris glabra</i>	Freehold	271336	6828999	10-30%
* <i>Hypochaeris glabra</i>	Freehold	317276	6841071	10-30%
* <i>Hypochaeris glabra</i>	Freehold	282948	6827051	10-30%
* <i>Hypochaeris glabra</i>	Freehold	297010	6830803	10-30%
* <i>Hypochaeris glabra</i>	Freehold	288547	6828109	70-100%
* <i>Hypochaeris glabra</i>	Freehold	271825	6829195	70-100%
* <i>Hypochaeris glabra</i>	Freehold	309907	6835524	< 2%
* <i>Hypochaeris glabra</i>	Freehold	271467	6831441	< 2%
* <i>Hypochaeris glabra</i>	Freehold	286683	6827051	< 2%
* <i>Lamarckia aurea</i>	Freehold	288334	6828940	<2%
* <i>Lamarckia aurea</i>	Freehold	318256	6842259	2-10%
* <i>Lamarckia aurea</i>	Freehold	349918	6876480	2-10%
* <i>Lamarckia aurea</i>	Freehold	336760	6835134	2-10%
* <i>Lamarckia aurea</i>	Freehold	335035	6836441	< 2%
* <i>Lolium rigidum</i>	Freehold	274056	6830340	<2%
* <i>Lupinus cosentinii</i>	Freehold	317731	6838606	<2%
* <i>Lupinus cosentinii</i>	Freehold	298316	6833644	<2%
* <i>Lupinus cosentinii</i>	Freehold	270733	6832982	<2%
* <i>Lupinus cosentinii</i>	Freehold	335545	6835037	<2%
* <i>Lupinus cosentinii</i>	Freehold	282948	6827051	<2%
* <i>Lupinus cosentinii</i>	Freehold	335172	6836157	<2%
* <i>Lupinus cosentinii</i>	Freehold	344656	6837264	<2%
* <i>Lupinus cosentinii</i>	Freehold	269939	6832284	2-10%
* <i>Lupinus cosentinii</i>	Freehold	269277	6834552	2-10%
* <i>Lupinus cosentinii</i>	Freehold	297859	6832563	10-30%
* <i>Lupinus cosentinii</i>	Freehold	339912	6833476	10-30%
* <i>Lupinus cosentinii</i>	Freehold	290629	6829123	10-30%
* <i>Lupinus cosentinii</i>	Freehold	284811	6826143	30-70%
* <i>Lupinus cosentinii</i>	Freehold	270004	6831628	< 2%
* <i>Lupinus cosentinii</i>	Freehold	278029	6826648	< 2%
* <i>Lupinus cosentinii</i>	Freehold	337706	6833284	< 2%
* <i>Lupinus cosentinii</i>	Freehold	322125	6841256	< 2%
* <i>Malva parviflora</i>	Freehold	350093	6875762	2-10%
* <i>Medicago arabica</i>	Freehold	278029	6826648	<2%
* <i>Medicago minima</i>	Freehold	336016	6854856	2-10%
* <i>Medicago truncatula</i>	Freehold	325220	6841600	<2%
* <i>Medicago truncatula</i>	Freehold	323153	6843583	<2%
* <i>Medicago truncatula</i>	Freehold	320964	6841681	<2%
* <i>Medicago truncatula</i>	Freehold	334446	6837401	<2%
* <i>Medicago truncatula</i>	Freehold	335545	6835037	<2%
* <i>Medicago truncatula</i>	Freehold	342958	6833541	<2%
* <i>Medicago truncatula</i>	Freehold	339612	6832756	<2%
* <i>Medicago truncatula</i>	Freehold	340242	6832514	<2%
* <i>Medicago truncatula</i>	Freehold	337861	6855257	<2%
* <i>Medicago truncatula</i>	Freehold	346998	6871740	2-10%
* <i>Medicago truncatula</i>	Freehold	299059	6835338	2-10%
* <i>Medicago truncatula</i>	Freehold	345407	6866054	2-10%
* <i>Medicago truncatula</i>	Freehold	335172	6836157	2-10%
* <i>Medicago truncatula</i>	Freehold	349918	6876480	2-10%
* <i>Medicago truncatula</i>	Freehold	340687	6862976	2-10%



Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
* <i>Medicago truncatula</i>	Freehold	338822	6856273	2-10%
* <i>Medicago truncatula</i>	Freehold	297859	6832563	10-30%
* <i>Medicago truncatula</i>	Freehold	333750	6838344	10-30%
* <i>Medicago truncatula</i>	Freehold	337706	6833284	70-100%
* <i>Medicago truncatula</i>	Freehold	323227	6841113	< 2%
* <i>Mesembryanthemum nodiflorum</i>	Freehold	343388	6833212	2-10%
* <i>Mesembryanthemum nodiflorum</i>	Freehold	342958	6833541	2-10%
* <i>Monoculus monstrosus</i>	Freehold	346998	6871740	<2%
* <i>Monoculus monstrosus</i>	Freehold	340220	6858393	<2%
* <i>Monoculus monstrosus</i>	Freehold	323153	6843583	<2%
* <i>Monoculus monstrosus</i>	Freehold	313490	6839249	<2%
* <i>Monoculus monstrosus</i>	Freehold	317731	6838606	<2%
* <i>Monoculus monstrosus</i>	Freehold	288334	6828940	<2%
* <i>Monoculus monstrosus</i>	Freehold	270733	6832982	<2%
* <i>Monoculus monstrosus</i>	Freehold	335045	6841430	<2%
* <i>Monoculus monstrosus</i>	Freehold	333750	6838344	<2%
* <i>Monoculus monstrosus</i>	Freehold	334446	6837401	<2%
* <i>Monoculus monstrosus</i>	Freehold	344656	6837264	<2%
* <i>Monoculus monstrosus</i>	Freehold	340242	6832514	<2%
* <i>Monoculus monstrosus</i>	Freehold	338822	6856273	<2%
* <i>Monoculus monstrosus</i>	Freehold	322125	6841256	<2%
* <i>Monoculus monstrosus</i>	Freehold	346998	6871740	2-10%
* <i>Monoculus monstrosus</i>	Freehold	339874	6854424	2-10%
* <i>Monoculus monstrosus</i>	Freehold	320964	6841681	2-10%
* <i>Monoculus monstrosus</i>	Freehold	318256	6842259	2-10%
* <i>Monoculus monstrosus</i>	Freehold	317276	6841071	2-10%
* <i>Monoculus monstrosus</i>	Freehold	297859	6832563	2-10%
* <i>Monoculus monstrosus</i>	Freehold	345407	6866054	2-10%
* <i>Monoculus monstrosus</i>	Freehold	335172	6836157	2-10%
* <i>Monoculus monstrosus</i>	Freehold	323227	6841113	2-10%
* <i>Monoculus monstrosus</i>	Freehold	297010	6830803	2-10%
* <i>Monoculus monstrosus</i>	Freehold	336749	6835091	2-10%
* <i>Monoculus monstrosus</i>	Freehold	335545	6835037	10-30%
* <i>Monoculus monstrosus</i>	Freehold	349918	6876480	< 2%
* <i>Monoculus monstrosus</i>	Freehold	337861	6855257	< 2%
* <i>Oxalis pes-caprae</i>	Freehold	275639	6829162	2-10%
* <i>Oxalis pes-caprae</i>	Freehold	289031	6827990	30-70%
* <i>Oxalis pes-caprae</i>	Freehold	286288	6828127	30-70%
* <i>Oxalis pes-caprae</i>	Freehold	275596	6827377	30-70%
* <i>Oxalis pes-caprae</i>	Freehold	282948	6827051	30-70%
* <i>Oxalis pes-caprae</i>	Freehold	284276	6827837	70-100%
* <i>Oxalis pes-caprae</i>	Freehold	334317	6837495	< 2%
* <i>Oxalis pes-caprae</i>	Freehold	290629	6829123	<2%
* <i>Oxalis pes-caprae</i>	Freehold	288547	6828109	30-70%
* <i>Oxalis pes-caprae</i>	Freehold	295656	6831303	< 2%
* <i>Oxalis purpurea</i>	Freehold	295656	6831303	<10 plants
* <i>Oxalis purpurea</i>	Freehold	288547	6828109	30-70%
* <i>Oxalis purpurea</i>	Freehold	290629	6829123	<2%
* <i>Pennisetum setaceum</i>	Freehold	563165	7020009	< 2%
* <i>Pentaschistis airoides</i> subsp. <i>airoides</i>	Freehold	347437	6873988	<2%
* <i>Pentaschistis airoides</i> subsp. <i>airoides</i>	Freehold	339911	6860912	<2%
* <i>Pentaschistis airoides</i> subsp. <i>airoides</i>	Freehold	269939	6832284	<2%



Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
* <i>Pentaschistis airoides</i> subsp. <i>airoides</i>	Freehold	350344	6876733	<2%
* <i>Pentaschistis airoides</i> subsp. <i>airoides</i>	Freehold	315773	6838776	2-10%
* <i>Polycarpon tetraphyllum</i>	Freehold	288334	6828940	<2%
* <i>Raphanus raphanistrum</i>	Freehold	340220	6858393	<2%
* <i>Raphanus raphanistrum</i>	Freehold	340220	6858393	<2%
* <i>Raphanus raphanistrum</i>	Freehold	333528	6846894	<2%
* <i>Raphanus raphanistrum</i>	Freehold	270004	6831628	<2%
* <i>Raphanus raphanistrum</i>	Freehold	299059	6835338	<2%
* <i>Raphanus raphanistrum</i>	Freehold	298316	6833644	<2%
* <i>Raphanus raphanistrum</i>	Freehold	286288	6828127	<2%
* <i>Raphanus raphanistrum</i>	Freehold	335545	6835037	<2%
* <i>Raphanus raphanistrum</i>	Freehold	337706	6833284	<2%
* <i>Raphanus raphanistrum</i>	Freehold	350344	6876733	<2%
* <i>Raphanus raphanistrum</i>	Freehold	346029	6875832	<2%
* <i>Raphanus raphanistrum</i>	Freehold	345407	6866054	<2%
* <i>Raphanus raphanistrum</i>	Freehold	282948	6827051	<2%
* <i>Raphanus raphanistrum</i>	Freehold	335172	6836157	<2%
* <i>Raphanus raphanistrum</i>	Freehold	340687	6862976	<2%
* <i>Raphanus raphanistrum</i>	Freehold	323227	6841113	<2%
* <i>Raphanus raphanistrum</i>	Freehold	290629	6829123	<2%
* <i>Raphanus raphanistrum</i>	Freehold	284276	6827837	<2%
* <i>Raphanus raphanistrum</i>	Freehold	335514	6835138	<2%
* <i>Raphanus raphanistrum</i>	Freehold	291479	6828916	2-10%
* <i>Raphanus raphanistrum</i>	Freehold	269277	6834552	2-10%
* <i>Raphanus raphanistrum</i>	Freehold	338822	6856273	2-10%
* <i>Raphanus raphanistrum</i>	Freehold	333528	6846894	< 2%
* <i>Raphanus raphanistrum</i>	Freehold	320964	6841681	< 2%
* <i>Raphanus raphanistrum</i>	Freehold	270004	6831628	< 2%
* <i>Raphanus raphanistrum</i>	Freehold	335045	6841430	< 2%
* <i>Raphanus raphanistrum</i>	Freehold	334446	6837401	< 2%
* <i>Raphanus raphanistrum</i>	Freehold	337706	6833284	< 2%
* <i>Raphanus raphanistrum</i>	Freehold	335478	6835196	< 2%
* <i>Ricinus communis</i>	Freehold	320964	6841681	<2%
* <i>Ricinus communis</i>	Freehold	289031	6827990	<2%
* <i>Ricinus communis</i>	Freehold	340220	6858393	2-10%
* <i>Rumex obtusifolius</i>	Freehold	289031	6827990	< 2%
* <i>Silene gallica</i>	Freehold	298316	6833644	<2%
* <i>Silene gallica</i>	Freehold	298316	6833644	<2%
* <i>Silene gallica</i>	Freehold	279837	6826448	<2%
* <i>Silene gallica</i>	Freehold	290629	6829123	<2%
* <i>Silene gallica</i>	Freehold	288547	6828109	2-10%
* <i>Silene gallica</i>	Freehold	294133	6829695	2-10%
* <i>Silene gallica</i>	Freehold	269939	6832284	< 2%
* <i>Sisymbrium erysimoides</i>	Freehold	349070	6877970	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	347437	6873988	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	346924	6871086	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	340220	6858393	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	270004	6831628	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	335545	6835037	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	335545	6835037	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	337706	6833284	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	335172	6836157	<2%



Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
* <i>Sisymbrium erysimoides</i>	Freehold	338887	6854843	<2%
* <i>Sisymbrium erysimoides</i>	Freehold	350172	6875474	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	346998	6871740	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	336016	6854856	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	323153	6843583	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	320964	6841681	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	334446	6837401	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	341425	6863069	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	342658	6863996	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	323227	6841113	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	336749	6835091	2-10%
* <i>Sisymbrium erysimoides</i>	Freehold	342958	6833541	10-30%
* <i>Sisymbrium erysimoides</i>	Freehold	345407	6866054	10-30%
* <i>Sisymbrium erysimoides</i>	Freehold	341221	6860406	10-30%
* <i>Sisymbrium erysimoides</i>	Freehold	340687	6862976	10-30%
* <i>Sisymbrium erysimoides</i>	Freehold	338822	6856273	10-30%
* <i>Sisymbrium erysimoides</i>	Freehold	340755	6865301	< 2%
* <i>Sisymbrium erysimoides</i>	Freehold	337861	6855257	< 2%
* <i>Sisymbrium erysimoides</i>	Freehold	322125	6841256	< 2%
* <i>Sisymbrium erysimoides</i>	Freehold	350465	6876906	< 2%
* <i>Solanum nigrum</i>	Freehold	346998	6871740	<2%
* <i>Solanum nigrum</i>	Freehold	270004	6831628	<2%
* <i>Solanum nigrum</i>	Freehold	289031	6827990	2-10%
* <i>Sonchus oleraceus</i>	Freehold	350172	6875474	<2%
* <i>Sonchus oleraceus</i>	Freehold	336016	6854856	<2%
* <i>Sonchus oleraceus</i>	Freehold	323153	6843583	<2%
* <i>Sonchus oleraceus</i>	Freehold	299059	6835338	<2%
* <i>Sonchus oleraceus</i>	Freehold	298316	6833644	<2%
* <i>Sonchus oleraceus</i>	Freehold	299146	6831858	<2%
* <i>Sonchus oleraceus</i>	Freehold	293444	6829620	<2%
* <i>Sonchus oleraceus</i>	Freehold	270733	6832982	<2%
* <i>Sonchus oleraceus</i>	Freehold	269038	6835734	<2%
* <i>Sonchus oleraceus</i>	Freehold	274056	6830340	<2%
* <i>Sonchus oleraceus</i>	Freehold	334446	6837401	<2%
* <i>Sonchus oleraceus</i>	Freehold	337706	6833284	<2%
* <i>Sonchus oleraceus</i>	Freehold	345407	6866054	<2%
* <i>Sonchus oleraceus</i>	Freehold	282948	6827051	<2%
* <i>Sonchus oleraceus</i>	Freehold	275639	6829162	<2%
* <i>Sonchus oleraceus</i>	Freehold	271415	6831013	<2%
* <i>Sonchus oleraceus</i>	Freehold	335172	6836157	<2%
* <i>Sonchus oleraceus</i>	Freehold	340687	6862976	<2%
* <i>Sonchus oleraceus</i>	Freehold	338822	6856273	<2%
* <i>Sonchus oleraceus</i>	Freehold	284276	6827837	<2%
* <i>Sonchus oleraceus</i>	Freehold	346998	6871740	2-10%
* <i>Sonchus oleraceus</i>	Freehold	318256	6842259	2-10%
* <i>Sonchus oleraceus</i>	Freehold	270004	6831628	2-10%
* <i>Sonchus oleraceus</i>	Freehold	291479	6828916	2-10%
* <i>Sonchus oleraceus</i>	Freehold	286288	6828127	2-10%
* <i>Sonchus oleraceus</i>	Freehold	337706	6833284	2-10%
* <i>Sonchus oleraceus</i>	Freehold	342958	6833541	2-10%
* <i>Sonchus oleraceus</i>	Freehold	345407	6866054	2-10%
* <i>Sonchus oleraceus</i>	Freehold	338822	6856273	2-10%

Taxa	Section	Coordinates (WGS84)		Cover (%) or No. Plants
		Easting (mE)	Northing (mN)	
* <i>Sonchus oleraceus</i>	Freehold	335321	6835865	< 2%
* <i>Tropaeolum majus</i>	Freehold	275632	6829199	< 2%
* <i>Urospermum picroides</i>	Freehold	349918	6876480	< 2%
* <i>Ursinia anthemoides</i>	Freehold	269939	6832284	< 2%
* <i>Zaluzianskyia divaricata</i>	Freehold	296923	6830930	<2%
* <i>Anagallis arvensis</i>	Pastoral	522861	6990024	< 2%
* <i>Bidens bipinnata</i>	Pastoral	530128	7122885	< 2% - <10%
* <i>Bidens bipinnata</i>	Pastoral	526041	7122325	< 2% - <10%
* <i>Bidens bipinnata</i>	Pastoral	536954	6999460	< 2% - <10%
* <b>Carthamus lanatus (DP)</b>	Pastoral	413820	6924548	< 2% - <10%
* <b>Carthamus lanatus (DP)</b>	Pastoral	383140	6905164	< 2% - <10%
* <i>Cenchrus ciliaris</i>	Pastoral	530186	7122893	<10%
* <i>Cenchrus ciliaris</i>	Pastoral	335253	6837230	<30%
* <i>Centaurea melitensis</i>	Pastoral	383140	6905164	< 2%
* <i>Citrullus colocynthis</i>	Pastoral	335298	6837088	<1%
* <i>Cucumis melo</i>	Pastoral	556670	7094388	< 2% - <10%
* <i>Cucumis melo</i>	Pastoral	560233	7074778	< 2% - <10%
* <i>Cucumis melo</i>	Pastoral	553404	7096983	< 2% - <10%
* <i>Cucumis melo</i>	Pastoral	538265	7115614	< 2% - <10%
* <i>Cucumis melo</i>	Pastoral	425943	6936439	< 2% - <10%
* <i>Cucumis melo</i>	Pastoral	393798	6911602	< 2% - <10%
* <i>Cucumis melo</i>	Pastoral	408620	6920149	< 2% - <10%
* <b>Emex australis (DP)</b>	Pastoral	349954	6875937	2-10%
* <i>Mesembryanthemum nodiflorum</i>	Pastoral	365855	6885748	<2% - <10%
* <i>Mesembryanthemum nodiflorum</i>	Pastoral	378544	6893420	<2% - <10%
* <i>Mesembryanthemum nodiflorum</i>	Pastoral	379550	6896816	<2% - <10%
* <i>Pentaschistis airoides</i>	Pastoral	421962	6930480	< 2% - <10%
* <i>Pentaschistis airoides</i>	Pastoral	435793	6941608	< 2% - <10%
* <i>Pentaschistis airoides</i>	Pastoral	384654	6905352	< 2% - <10%
* <i>Pentaschistis airoides</i>	Pastoral	371401	6885021	< 2% - <10%
* <i>Pentaschistis airoides</i>	Pastoral	358765	6886408	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	538452	7114218	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	530128	7122885	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	536466	7120030	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	527103	7121880	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	533648	7122187	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	538138	7109946	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	538265	7115614	< 2% - <10%
* <i>Portulaca oleracea</i>	Pastoral	408620	6920149	< 2% - <10%
* <i>Setaria verticillata</i>	Pastoral	530645	7122853	<2% - <70%
* <i>Setaria verticillata</i>	Pastoral	530128	7122885	<2% - <70%
* <i>Setaria verticillata</i>	Pastoral	526041	7122325	<2% - <70%
* <i>Setaria verticillata</i>	Pastoral	476557	6957524	<2% - <70%
* <i>Sisymbrium irio</i>	Pastoral	399872	6916944	< 2%
* <i>Spergularia diandra</i>	Pastoral	466241	6954481	< 2%
* <i>Sonchus oleraceus</i>	Pastoral	426466	6936888	< 2%
* <i>Sonchus oleraceus</i>	Pastoral	435793	6941608	< 2%
* <i>Sonchus oleraceus</i>	Pastoral	425943	6936439	< 2%

Note: DP = Declared Plant (Agricultural and Related Resources Act 1976).

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## **APPENDIX O      CONTROL CODES FOR DECLARED WEEDS**

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**Table O.1 - Control codes for Declared Weeds in Western Australia**

Priority	Requirements
P1 Prohibits movement	The movement of plants or their seeds is prohibited within the State. This prohibits the movement of contaminated machinery and produce including livestock and fodder.
P2 Aim is to eradicate infestation	Treat all plants to destroy and prevent propagation each year until no plants remain. The infested area must be managed in such a way that prevents the spread of seed or plant parts on or in livestock, fodder, grain, vehicles and/or machinery.
P3 Aims to control infestation by reducing area and/or density of infestation	<p>The infested area must be managed in such a way that prevents the spread of seed or plant parts within and from the property on or in livestock, fodder, grain, vehicles and/or machinery.</p> <p>Treat to destroy and prevent seed set for all plants:-</p> <ul style="list-style-type: none"> <li>- Within 100 metres inside of the boundaries of the infestation.</li> <li>- Within 50 metres of roads and high-water mark on waterways.</li> <li>- Within 50 metres of sheds, stock yards and houses.</li> </ul> <p>Treatment must be done prior to seed set each year.</p> <p>Of the remaining infested area:-</p> <ul style="list-style-type: none"> <li>- Where plant density is 1-10 per hectare treat 100% of infestation.</li> <li>- Where plant density is 11-100 per hectare treat 50% of infestation.</li> <li>- Where plant density is 101-1000 per hectare treat 10% of infestation.</li> </ul> <p>Properties with less than 2 hectares of infestation must treat the entire infestation. Additional areas may be ordered to be treated.</p>
P4 Aims to prevent infestation spreading beyond existing boundaries of infestation	<p>The infested area must be managed in such a way that prevents the spread of seed or plant parts within and from the property on or in livestock, fodder, grain, vehicles and/or machinery.</p> <p>Treat to destroy and prevent seed set <i>al.</i> l plants:-</p> <ul style="list-style-type: none"> <li>- Within 100 metres inside of the boundaries of the infested property</li> <li>- Within 50 metres of roads and high-water mark on waterways</li> <li>- Within 50 metres of sheds, stock yards and houses</li> </ul> <p>Treatment must be done prior to seed set each year. Properties with less than 2 hectares of infestation must treat the entire infestation. Additional areas may be ordered to be treated.</p> <p>Special considerations</p> <p>In the case of P4 infestations where they continue across property boundaries there is no requirement to treat the relevant part of the property boundaries as long as the boundaries of the infestation as a whole are treated. There must be agreement between neighbours in relation to the treatment of these areas.</p>
P5	Infestations on public lands must be controlled.

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**APPENDIX P                      MATRIX OF PRIORITY FLORA TAXA THAT HAS BEEN  
RECORDED IN EACH LAND SYSTEM AND VEGETATION  
COMMUNITY**

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