

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

Prepared for

WorleyParsons



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Australia

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Prepared for

WORLEYPARSONS

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	III
1 INTRODUCTION	1
1.1 THE PROJECT	1
1.1.1 Objectives	1
1.1.2 Location.....	1
1.1.3 Previous Biological Studies	1
1.2 PHYSICAL ENVIRONMENT	2
1.2.1 Climate.....	2
1.2.2 Geology.....	3
1.2.3 Land Systems	4
1.3 BIOLOGICAL ENVIRONMENT	5
1.3.1 IBRA and Beard Vegetation Mapping.....	5
2 METHODOLOGY	6
2.1 BACKGROUND TO SURVEY METHODOLOGY.....	6
2.1.1 Protection of Flora and Vegetation.....	6
2.1.2 Environmental Protection Authority Guidance Statement No. 51	8
2.1.3 Introduced Species.....	8
2.2 SURVEY METHODOLOGY	9
2.2.1 Desktop Survey	9
2.2.2 Field Survey	9
2.2.3 Taxonomic Identification.....	10
2.2.4 Vegetation Analysis.....	10
2.2.5 Vegetation Mapping	11

3	RESULTS	12
3.1	VARIABLES INFLUENCING THE FLORA AND VEGETATION SURVEY	12
3.1.1	Potentially Occurring Flora Species and Vegetation Communities of Conservation Significance	13
3.2	FIELD SURVEY	14
3.2.1	Flora	14
3.2.2	Flora of Conservation Significance	15
3.2.3	Flora of Interest	15
3.2.4	Introduced Flora	16
3.2.5	Vegetation Associations	17
3.2.6	Vegetation Condition	22
4	DISCUSSION	23
4.1	FLORA OF CONSERVATION SIGNIFICANCE	23
4.2	FLORA OF INTEREST	24
4.3	FLORA TAXA RICHNESS	24
4.4	INTRODUCED FLORA TAXA	25
4.5	VEGETATION ASSOCIATIONS	27
4.6	VEGETATION CONDITION	28
4.7	REGIONAL REPRESENTATION	29
4.7.1	Vegetation Types and Associations	29
4.7.2	Land Systems	30
5	CONCLUSIONS	32
6	REFERENCES	33

FIGURES

FIGURE 1	PROJECT AREA LOCATION
FIGURE 2	AVERAGE MONTHLY RAINFALL AND MINIMUM AND MAXIMUM TEMPERATURES AT NEWMAN FROM 1965 TO 2003 (INCLUDED IN-TEXT)
FIGURE 3A-H	FLORA SURVEY QUADRAT AND RELEVÉ LOCATIONS
FIGURE 4	LOCATIONS OF DECLARED RARE, PRIORITY AND SIGNIFICANT FLORA
FIGURE 5A-H	LOCATIONS OF INTRODUCED PLANT SPECIES
FIGURE 6A-H	VEGETATION ASSOCIATION MAP
FIGURE 7A-H	VEGETATION CONDITION MAP

TABLES

TABLE 1	VARIABLES ASSOCIATED WITH THE PROPOSED NEWMAN TO JIMBLEBAR TRANSMISSION LINE FLORA AND VEGETATION SURVEY
TABLE 2	LOCATIONS OF SPECIES OF INTEREST
TABLE 3	INTRODUCED PLANT SPECIES IDENTIFIED
TABLE 4A	CLASSIFICATION OF QUADRATS INTO VEGETATION ASSOCIATIONS FOR NEWMAN TO JIMBLEBAR
TABLE 4B	CLASSIFICATION OF QUADRATS INTO VEGETATION ASSOCIATIONS FOR NEWMAN TOWN SUBSTATION
TABLE 5	REGIONAL REPRESENTATION OF VEGETATION TYPES IN THE PROPOSED NEWMAN TO JIMBLEBAR TRANSMISSION LINE PROJECT AREA
TABLE 6	IMPACT ON LAND SYSTEMS IN THE PROJECT AREA

APPENDICES

APPENDIX A	DEFINITION OF DECLARED RARE / PRIORITY / THREATENET FLORA SPECIES AND SIGNIFICANT FLORA SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA
APPENDIX B	DEFINITION OF THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES
APPENDIX C	ENVIRONMENTAL WEEDS AND DECLARED PLANT CATEGORIES AND INTRODUCED FLORA SPECIES POTENTIALLY OCCURING IN THE PROJECT AREA
APPENDIX D	FLORA SURVEY QUADRAT AND RELEVÉ LOCATIONS
APPENDIX E	SITE PHOTOGRAPHS
APPENDIX F	BUSH FOREVER CONDITION SCALE AND FIRE AGE DEFINITIONS
APPENDIX G	DATA SHEETS
APPENDIX H	FLORA SPECIES INVENTORY
APPENDIX I	MATRIX OF SPECIES FOUND WITHIN EACH SITE
APPENDIX J	LOCATION OF INTRODUCED FLORA SPECIES
APPENDIX K	CLUSTER ANALYSIS

PERMITS

This flora survey was undertaken under the following licences issued by the Department of Environment and Conservation: SL008487 issued to Todd Edwards, SL008483 issued to Emma Carroll, SL008481 issued to Ciaran Sgherza and SL008491 issued to Kerryn McCann.

STATEMENT OF LIMITATIONS

Scope of Services

This environmental site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and ENV.Australia Pty Ltd (ENV) (scope of services). In some circumstances the scope of services may have been limited by factors such as time, budget, access and/or site disturbance constraints.

Reliance on Data

In preparing the report, ENV has relied on data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, ENV has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. ENV will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed to ENV.

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The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

EXECUTIVE SUMMARY

ENV.Australia Pty Ltd was commissioned in March 2009 by WorleyParsons on behalf of BHP Billiton Iron Ore to undertake a Level Two, single season flora and vegetation assessment of the proposed Newman to Jimblebar Transmission Line and Newman Town Substation.

The field survey took place from the 23 to 28 April 2009. Twenty-four person days were invested in the survey, which included the compilation of a species inventory, a Declared Rare and Priority Flora search, assessment of vegetation condition, and mapping of vegetation communities and introduced species.

There were 365 taxa comprising 49 families and 147 genera recorded in the Newman to Jimblebar project area. The families most commonly represented by taxa richness, were Poaceae (62 taxa), Mimosaceae (38 taxa) and Malvaceae (33 taxa). The most common genera were *Acacia* (35 taxa), *Senna* (16 taxa) and *Eremophila* (16 taxa).

There were 44 taxa comprising 16 families and 66 genera recorded in Newman Town Substation. The families most commonly represented were Poaceae (25 taxa), Mimosaceae (14 taxa) and Malvaceae (13 taxa). The most common genera were *Acacia* (14 taxa), *Senna* (eight taxa) and *Eremophila* (eight taxa).

No species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) or *Wildlife Conservation Act 1950* (WA) were recorded during the survey. Only one Priority Flora species listed by the Department of Environment and Conservation was recorded in the Newman to Jimblebar project area, *Goodenia nuda* (Priority 3).

There were 15 introduced flora species recorded within the Newman to Jimblebar project area. Two introduced species, **Aerva javanica* and **Cenchrus ciliaris*, were recorded within the Newman Town Substation project area. No taxa recorded in the project area are listed as Declared Plants under the *Agriculture and Related Resources Protection Act 1976* in the East Pilbara region.

There were twenty one vegetation associations characterised and categorised, and then mapped in the Newman to Jimblebar project area. Vegetation condition ranged from Pristine to Completely Degraded, with most sites being recorded as being in Excellent condition. Disturbances to vegetation within the project area included clearing for infrastructure and grading, and consequential introduced species invasion.

One vegetation community was mapped in the Newman Town Substation project area. The area consisted of Degraded to Completely Degraded vegetation, with some of the area being denuded of native vegetation. There was a high level of disturbance within the expansion area from roads, adjacent infrastructure and introduced species.

No vegetation associations recorded in the project area are listed as Threatened Ecological Communities under the *Environment Protection and Biodiversity Conservation*

Act 1999, as Environmentally Sensitive Areas under the *Environmental Protection Act 1986*, or as Priority Ecological Communities by the Department of Environment and Conservation.

Beard (1975) mapped two vegetation types in the project area: Hummock grassland, low tree steppe, Snappy Gum (*Eucalyptus leucophloia* subsp. *leucophloia*) over *Triodia wiseana*; and Low woodland, Mulga (*Acacia aneura*). Neither of these vegetation types is considered to present constraints in terms of their regional representation.

Eight land systems were mapped by van Vreeswyk *et al.* (2004) for the project area; these were the Boolgeeda, Divide, Elimunna, Jamindie, Washplain, McKay, Newman and River land systems. All of these land systems are represented outside the project area and therefore disturbance is unlikely to impact upon their regional representation.

1 INTRODUCTION

1.1 THE PROJECT

ENV.Australia Pty Ltd (ENV) was commissioned by WorleyParsons on behalf of BHP Billiton Iron Ore ('BHPBIO') in March 2009 to undertake a Level Two, single season flora and vegetation assessment for a proposed Newman to Jimblebar transmission line.

1.1.1 Objectives

The objectives of the flora and vegetation assessment were to:

- document the presence of all plant species;
- document the presence of all plant species of conservation significance;
- record the occurrence of introduced plant species;
- assess and map vegetation condition;
- document, describe and map the vegetation associations present; and
- describe the conservation significance of these vegetation associations

1.1.2 Location

The project area is located in the vicinity of Newman and Jimblebar in the East Pilbara region of Western Australia (Figure 1). The project area consists of a 100 m wide by 50 km long corridor running from BHPBIO Mount Whaleback mine site (2.5 km north-west of the Newman town centre) to an area immediately west of the Jimblebar mine site (50 km north-east of the Newman town centre). The Newman Town Substation is located adjacent to the Great Northern Highway, adjacent to Kurra Village, and is approximately 1.6 kilometres north-north-east of the Newman townsite (Figure 1). The Newman Town Substation project area covers approximately 0.62 hectares.

1.1.3 Previous Biological Studies

Historically, the flora and fauna of the Pilbara has not generally been recorded systematically, with significant exceptions being flora studies by Burbidge (1959) and Beard (1975). More recently, the Department of Agriculture (van Vreeswyk *et al.* 2004) conducted an inventory and condition survey of the Pilbara. This report provides a regional inventory of flora species and a description of land resources. A comprehensive and systematic field review by the Department of Environment

and Conservation (DEC) of Pilbara regional flora is underway (DEC Pilbara Biological Survey 2002 to 2009), and is due for public release shortly.

In recent decades, a boom in large-scale regional resource development projects has resulted in a significant amount of site-specific biological survey work being carried out in the region, most of which is undertaken for formal environmental approvals. Various biological surveys have been conducted in the vicinity (i.e. within 50 km) of the project area in the last 5 years. Those most relevant to the current survey are:

- Orebody 24 (ENV 2006a);
- Orebody 18 (ENV 2008a);
- Jimblebar Wye Rail Junction (ENV 2007a);
- West Jimblebar (ENV 2007b);
- Jimblebar Access Road (ENV 2008b);
- Kurra Village (ENV 2006c) and
- Mount Whaleback (ENV 2006b).

In addition, a comprehensive bibliography of biological survey work undertaken in the Pilbara is available at <http://science.dec.wa.gov.au/projects/pilbaradb/>.

1.2 PHYSICAL ENVIRONMENT

1.2.1 Climate

The project area is in the Pilbara region of Western Australia. The nearest accessible climate data to the project area is available from the Bureau of Meteorology (BoM) Newman Aero weather station located approximately 9.4 km from the Newman Township .

The Pilbara has an arid-tropical climate with two distinct seasons, a hot summer from October to April and a mild winter from May to September. The area experiences a wide range of temperatures, with an average annual temperature of 31.4°C (1965-1998). In summer, maximum temperatures may reach 46.0°C, whilst in winter, minimum temperatures may reach -2.0°C (BoM 2009). The average maximum temperature over this three month period was 26.1°C.

Rainfall in the Pilbara is often sporadic, and can occur in summer and winter. The Newman area has average annual rainfall of 310 mm (1971-2009) (Figure 3). Summer rainfall is typically associated with tropical storms in the north, or tropical

cyclones that cross the coast and move inland. Winter rainfall is generally less significant, and is commonly the result of cold fronts moving north-easterly across the State.

The Newman area received a relatively low amount of rainfall in the 2008/2009 summer season, with the area having received 122.8 mm (December - February). On average the area usually receives 175.8 mm over the December to February period (BoM 2009). However, for the three months preceding the survey the area received 204 mm (January - March 2009), compared with 179.1 mm for the long-term (1971–2009) average for the same period (BoM 2009).

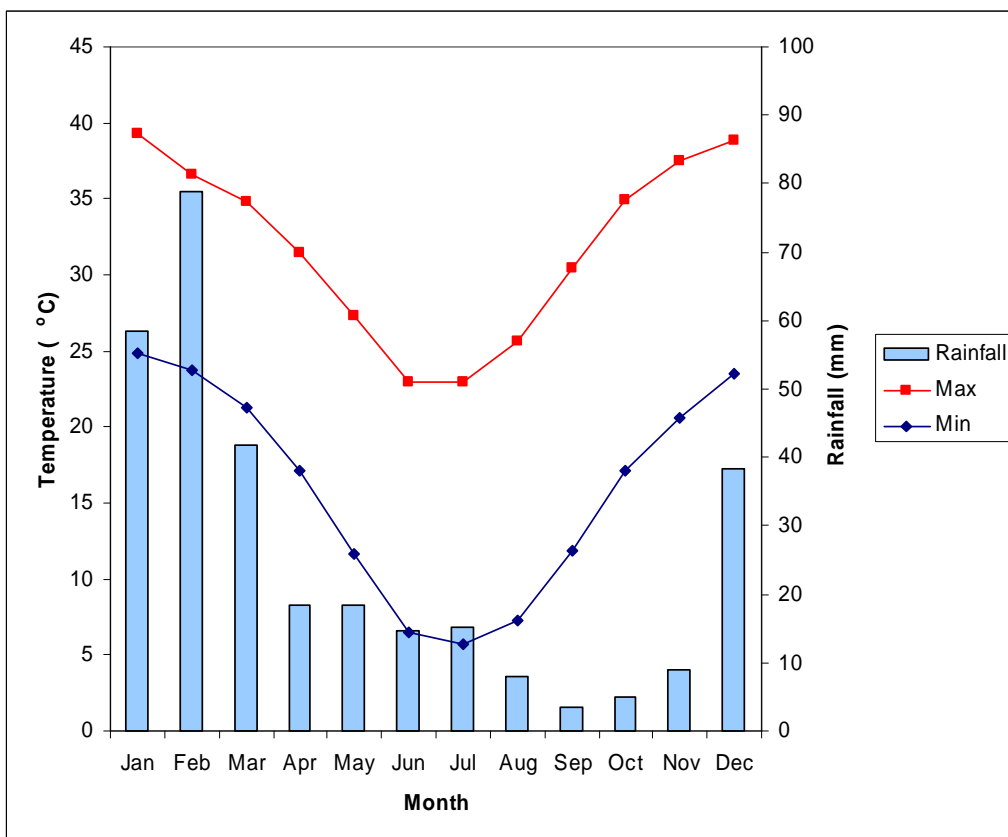


Figure 3: Average Monthly Rainfall from 1971–2009 and Maximum and Minimum Temperatures at Newman from 1965-2009 (BoM 2009)

1.2.2 Geology

Tyler, Hunter & Williams (1991) mapped the geology of the Newman region, which includes the project area. Seven units occur within the project area, as listed below:

- Qa: Alluvium: clay, silt, sand, gravel: in drainage channels and adjacent flood plains;

- Qc: Colluvium and minor alluvium: quartz pebble and rock fragments in silt, sand; adjacent to bedrock; scree, talus slope deposits;
- Czc: Colluvium: partly consolidated and consolidated ferruginized silt, sand, gravel; valley-fill deposits dissected by present drainage;
- Czk: Calcrete: sheet carbonate usually formed in major drainage lines;
- Hj: Weeli Wolli Formation: interlayered banded iron-formation and metadoleritic sills, minor shale. Often overlies the Brockman Iron Formation (Hb); and
- Hm: Marra mamba iron formation: chert, ferruginous chert and banded iron-formation with minor shale.

1.2.3 Land Systems

Land system mapping is based on regional patterns in topography, soils and vegetation. The most recent land system mapping of the Pilbara bioregion, in which the current project area lies, was completed by van Vreeswyk *et al.* (2004). The mapping classifies the Pilbara region into 102 land systems.

The project area comprises of eight land systems, as listed below:

- New: Newman: Rugged jaspilite plateaux, ridges and mountains; supporting hard Spinifex grasslands; forms 8.0% of the Pilbara bioregion;
- Bgd: Boolgeeda: Stony lower slopes and plains below hill slopes; supporting hard and soft Spinifex grasslands and Mulga scrublands; forms 4.3% of the Pilbara bioregion;
- Div: Divide: Sand plains and occasional dunes supporting shrubby hard spinifex grasslands; forms 2.9% of the Pilbara bioregion;
- Mck: McKay: Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands; forms 2.3% of the Pilbara bioregion;
- Riv: River: Active flood plains and major rivers supporting grassy eucalypt woodlands and soft spinifex grasslands; forms 2.3% of the Pilbara bioregion;
- Jam: Jamindie: Stony hardpan plains and rises supporting groved mulga shrublands, occasionally with spinifex understorey; forms 1.1% of the Pilbara bioregion;

Wsp: Washplain: Hardpan plains supporting groved mulga shrublands; forms 0.5% of the Pilbara bioregion; and

Eli: Elimunna: Stony plains on basalt supporting sparse *Acacia* and *Cassia* shrublands and patchy tussock grasslands; forms 0.3% of the Pilbara bioregion.

1.3 BIOLOGICAL ENVIRONMENT

1.3.1 IBRA and Beard Vegetation Mapping

The IBRA divides Australia into 85 bioregions based on major biological and geographical/geological attributes (Thackway and Cresswell 1995). These bioregions are subdivided into 404 subregions, as part of a refinement of the IBRA framework (Department of Environment, Water, Heritage and the Arts [DEWHA] 2007).

The project area is located within the Hamersley subregion (PIL3) of the Pilbara region and the Augustus subregion (GAS3) of the Gascoyne region (Thackway and Cresswell 1995).

The Hamersley subregion is characterised by mountain ranges and plateaux of Proterozoic sedimentary rock, dissected by gorges (Kendrick 2001). The vegetation is characterised by mulga low woodland over bunch grasses on fine textured soils in valley floors, and Snappy Gum (*Eucalyptus leucophloia*) over *Triodia brizoides* on skeletal soils of the ranges (Kendrick 2001).

The Augustus subregion is characterised by rugged low Proterozoic sedimentary and granite ranges divided by broad flat valleys (Desmond *et al.* 2001). The vegetation is characterised by Mulga woodland with *Triodia* on shallow stony loams on rises and shallow earthy loams over hardpan on the plains are covered by Mulga parkland (Desmond *et al.* 2001).

Vegetation mapping of the Pilbara region was completed on a broad scale (1:1,000,000) by Beard (1975). The project area is situated in the Hamersley Plateau, which forms part of the Fortescue Botanical District in the Eremaean Botanical Province of Western Australia as per Beard (1975), who mapped the project area as two vegetation associations:

a₁Li: Low woodland; Mulga (*Acacia aneura*); and

e₁₆Lr.t₃Hi: Hummock grasslands, low tree steppe; Snappy Gum (*Eucalyptus leucophloia* subsp. *leucophloia*) over *Triodia wiseana*.

2 METHODOLOGY

2.1 BACKGROUND TO SURVEY METHODOLOGY

2.1.1 Protection of Flora and Vegetation

Flora species are protected formally and informally by various legislative and non-legislative measures, which are as follows:-

Legislative Protection

- *Environment Protection and Biodiversity Conservation Act 1999* (Cth): a federal Act;
- *Wildlife Conservation Act 1950* (WA): a State Act; and
- *Environmental Protection Act 1986* (WA): a State Act.

Non-Legislative Protection

- Western Australian Department of Environment and Conservation (DEC) Priority lists for flora and vegetation; and
- informal recognition of locally significant populations.

A short description of these Acts is given below, and definitions of the species conservation codes and ecological community categories they use, and those used by the DEC, are provided in Appendix A and B.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (the *EPBC Act*) aims to protect matters of national environmental significance, which are detailed in Appendix A.

Under the *EPBC Act*, the DEWHA lists threatened species and Threatened Ecological Communities (TECs) in certain categories determined by criteria set out in the Act (www.environment.gov.au/epbc/index.html).

Wildlife Conservation Act 1950 (WA)

The Western Australian DEC lists flora taxa under the provisions of the *Wildlife Conservation Act 1950* (WC Act) as protected according to their need for protection (see Appendix A).

Flora species are given Declared Rare Flora (DRF) status when their populations are geographically restricted or are threatened by local processes. In addition,

under the *WC Act*, by Notice in the Western Australian Government Gazette of 9 October 1987, all native flora (spermatophytes, pteridophytes, bryophytes and thallophytes) is protected throughout the State.

The *WC Act* makes it an offence to ‘take’ threatened species without an appropriate licence.

Environmental Protection Act 1986 (WA)

DRF and TECs are given special consideration in environmental impact assessments, and areas covered by TECs have special status as Environmentally Sensitive Areas (ESAs) under the *Environmental Protection Act* and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

The protection of ESAs is a 'clearing principle' for assessing applications for permits to clear native vegetation, where exemptions for a clearing permit do not apply.

DEC Priority Lists

The DEC lists Priority flora species that have not been assigned statutory protection under the *WC Act*, but which are under consideration for declaration as DRF. Species assessed as Priorities 1 to 3 (see Appendix A) are in urgent need of further survey, whilst Priority 4 species require monitoring every 5 to 10 years.

In addition, the DEC maintains a list of Priority Ecological Communities (PEC) which identifies those communities that need further investigation before possible nomination for TEC status (see below).

Although DEC Priority species and communities have no formal legal protection, they are under consideration as ‘Scheduled’ flora under the *WC Act*.

The DEC identifies and lists vegetation communities believed to be threatened. Once listed, a community is a PEC, but only when endorsed by the Minister for the Environment, does it become a TEC, and therefore protected as an environmentally sensitive area under vegetation clearing regulations.

Informal Recognition of Threatened Flora and Vegetation

Certain populations or communities may be of local significance or interest because of their patterns of distribution and abundance. For example, flora may be locally significant because they are range extensions to the previously-known distribution or are newly-discovered taxa (and therefore have the potential to be of more than local significance). In addition, many species are in decline as a

result of threatening processes (primarily land clearing), and relict populations of such species assume local importance.

2.1.2 Environmental Protection Authority Guidance Statement No. 51

A baseline flora survey for environmental impact assessment should at the very least provide a comprehensive list of species in a given area. There are two levels of flora survey as delineated by the EPA:

- **Level One:** a 'desktop' study to collate historical knowledge conducted in conjunction with a reconnaissance survey (site inspection); and
- **Level Two:** an intensive survey that incorporates a detailed and comprehensive survey to characterise the flora present, combined with a Level One survey.

Where the scale and nature of the proposed impact is moderate to high, a Level Two survey will be required in most areas of the State, and is typically required for resource development projects. The expectations of the EPA are set out in *Guidance Statement No. 51* (EPA 2004). Specifically, it details the extent, design and intensity of field surveys for environmental assessments in Western Australia.

The methodology of the current survey, a Level Two survey, has been developed to be compliant with the requirements of *Guidance Statement No. 51*.

2.1.3 Introduced Species

The Environmental Weed Strategy for Western Australia (Conservation and Land Management 1999) contains criteria for the assessment and ranking of weeds in terms of their environmental impact on biodiversity. The Strategy defines environmental weeds as 'plants that establish themselves in natural ecosystems and proceed to modify natural processes, usually adversely, resulting in the decline of the communities they invade.'

Plants may also be 'Declared' by the Agriculture Protection Board under the *Agriculture and Related Resources Protection Act 1979* (WA) (ARRP Act). Declared Plants are gazetted under five categories (P1 to P5), which define the action required. Details of the definitions of these categories are provided in Appendix C. A declaration may apply to the whole State, to districts, individual properties or even to single paddocks. If a plant is Declared, landholders are obliged to control that plant on their properties (Department of Agriculture and Food Western Australia [DAFWA] 2007).

2.2 SURVEY METHODOLOGY

The survey was carried out in a manner designed to be compliant with EPA requirements for the environmental surveying and reporting for flora and vegetation in Western Australia, as set out in the following documents:

- *Environmental Protection of Native Vegetation in Western Australia: Clearing of Native Vegetation with Particular Reference to Agricultural Areas. Position Statement No.2* (EPA 2000);
- *Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3* (EPA 2002); and
- *EPA Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia No. 51* (EPA 2004).

The methodology for the current work involved the following key steps:

2.2.1 Desktop Survey

The purpose of a desktop survey was to gather background information on the project area and the flora species and vegetation it may support. This involved a search of literature, data, aerial photographs and maps for information relating to landforms likely to be found in the area.

A request for a database search was submitted to the DEC [23°20'10"S, 119° 42' 02"E and 23°21'11"S, 119° 43' 19"E] to ascertain whether any DRF or Priority species or any TECs or PECs had been recorded in the project area or surrounding areas. In addition, a literature review of previous biological reports conducted in the vicinity of the project area was completed. These sources were used to compile a list of expected DRF and Priority species, and TECs or PECs that may occur on the landforms in the project area.

2.2.2 Field Survey

The field survey was conducted from 23 to 28 April 2009 with 24 person-days invested in the field survey.

Field staff collected flora information using 50 m x 50 m vegetation survey plots, as preferred by DEC (pers. comm. S. van Leeuwen, DEC), relevés and opportunistic collections. For areas in which a 50 m x 50 m quadrat was not achievable, suitable quadrat dimensions were used, whilst maintaining the same total search area. Forty-eight quadrats and nineteen relevés were executed (Figure 3A-H). The quadrats and relevés were selected as being representative of the flora and vegetation of the project area (flora survey quadrat and relevé

locations are presented in Appendix D and project area photographs are presented in Appendix E).

Data was recorded using standardised field sheets designed in accordance with BHPBIO guidelines (BHPBIO May 2009). The information noted at each site included landscape features, soils, bare ground and disturbance levels (the vegetation condition scale used is presented in Appendix F). Each species of plant at each site was recorded, including information on height and percentage cover (Data Sheets are presented in Appendix G). This enabled more accurate vegetation mapping to be undertaken, and provided greater detail of the species present. The opportunistic collections and relevés focussed mainly on the location of new flora taxa not recorded in the quadrats, and in particular, DRF and Priority Flora, and flora not well known or not currently described.

2.2.3 Taxonomic Identification

Where field identification of plant taxa was not possible, specimens were collected systematically for later identification by taxonomists utilising the resources of the Western Australian Herbarium (WAH), through comparison with the reference collection and use of identification keys.

The project species list was checked against FloraBase (WAH 2009) and Atkins (2008) DRF and Priority Flora list to determine whether any of the species are listed as DRF or Priority species. Species were also checked against the EPBC Act listing of Threatened species to determine whether any are federally listed (DEWHA 2007).

All difficult to identify, new taxa, range extensions, DRF and Priority flora specimens were validated by the WAH.

2.2.4 Vegetation Analysis

Vegetation was described based on structure and species composition in accordance with BHPBIO guidelines (BHPBIO May 2009). Vegetation was categorised in three levels; Broad Floristic Formations, Vegetation Associations, and Sub-Associations.

Multivariate analysis was computed on quadrat data. Quadrat data was transformed (square root) to improve normality, and a similarity matrix based on Bray-Curtis similarities was computed. A dendrogram was then computed, using hierarchical agglomerative cluster analysis using *Primer-E* version 6.1.5 (2006). Non-metric Multivariate Dimensional Scaling (NMDS) analysis of quadrat data was then used to complement hierarchical agglomerative cluster analysis to help define vegetation communities.

Once the vegetation associations were determined, they were checked against the listings of State and Federal TECs and PECs.

2.2.5 Vegetation Mapping

Field mapping was carried out using GPS (Magellan) and GIS (OziExplorer and Microstation V7.0) hardware and software. The details of each site were interpreted and vegetation associations were then described. The boundaries of the vegetation associations were drawn over an aerial photograph with the aid of GPS coordinates taken throughout the field survey. The vegetation associations were then digitised and produced as manipulable electronic mapping data using Microstation V7.0. ESRI shape files were created with ARCGIS 3.

3 RESULTS

3.1 VARIABLES INFLUENCING THE FLORA AND VEGETATION SURVEY

It is important to note the variables associated with individual surveys, which are often difficult to predict, as is the extent to which they influence survey outcomes. Survey variables of the proposed Newman to Jimblebar transmission line and Newman Town Substation flora and vegetation survey are detailed in Table 1.

Table 1: Variables Associated with the Proposed Newman to Jimblebar Transmission Line Flora and Vegetation Survey

Variable	Impact on Survey Outcomes
Access Problems	All areas were accessible and adequately surveyed.
Experience levels	<p>The scientists who executed this survey were practitioners suitably qualified in their respective fields.</p> <ul style="list-style-type: none"> • Coordinating Botanist: Todd Edwards (Senior Environmental Scientist/Botanist); • Field Staff: Emma Carroll (Environmental Biologist), Ciaran Sgherza (Environmental Biologist) and Kerryn McCann (Environmental Biologist); • Taxonomy: Malcolm Trudgen (Taxonomist) and Chris Hancock (Taxonomist / Botanist); • Taxonomy Verifications: Steven Dillon; and • Data Interpretation and Analysis: Todd Edwards and Elaine Chua (Environmental Biologist).
Timing ¹ , weather, season.	<p>The survey was undertaken following the wet season from 23 to 28 April 2009. The area had received 212.2 mm of rain in the year to date (January to April 2009) (BoM 2009). March received a high amount of rainfall (122.8 mm) as a remnant result from a tropical cyclone. Overall conditions were ideal for flora and vegetation surveys as the area received above average rainfall during the wet season.</p> <p>Flora composition changes over time, with flora species having specific growing periods, especially annuals and ephemerals (some plants lasting</p>

¹ EPA Guidance Statement 51 (2004) stipulates that flora and vegetation surveys should be undertaken following the season that contributes the greatest rainfall in the region. In the Eremaean Province, this is after summer. Short-term variations in normal weather patterns (e.g. drought) may necessitate supplementary survey work at other times of year or in later years to take into account temporal changes in diversity.

Variable	Impact on Survey Outcomes
	for a markedly brief time, some only a day or two). Therefore the results of future botanical surveys in this location may differ from the results of this survey.
Scope: Life forms	The high level of rainfall preceding the survey meant that flowers and fruit were available for most perennial and annual species in the project area, therefore allowing for detailed taxonomic identification.
Sources of information	At the bioregion level, the Pilbara has been relatively well studied in recent years. Numerous flora and vegetation assessment surveys have been undertaken in the area as part of environmental impact assessment processes.
Completeness	<p><u>Newman to Jimblebar</u></p> <p>The field survey recorded 365 taxa, including species, subspecies, affiliates and variants. The species richness recorded in the project area was 36.8 taxa per quadrat. This level of species richness is comparable to that recorded in other surveys conducted in the region using similar methodologies, for example: 44 taxa per quadrat were recorded at West Jimblebar (1380 ha: ENV 2007b); 38 taxa per quadrat at Mount Whaleback (1700 ha: ENV 2006b); and 37 taxa per quadrat Orebody 24 (ENV 2006a). Other surveys have recorded much lower species richness than in the project area, for example at Orebody 18 (1500 ha) 27 taxa per quadrat were recorded (ENV 2008a), and for the Jimblebar Access Road survey (130.1 ha) only 14 taxa per quadrat were recorded (ENV 2008b). This suggests the survey effort was comprehensive and adequate.</p> <p><u>Newman Town Substation</u></p> <p>The field survey recorded 44 taxa from a single quadrat and site walkover. A previous survey of Kurra Village (ENV 2006c) recorded 38 taxa in a quadrat located within the immediate vicinity of that in the current survey. Six of the taxa recorded in the current survey were coloniser species while two were introduced species.</p>

3.1.1 Potentially Occurring Flora Species and Vegetation Communities of Conservation Significance

From previous surveys conducted in the area and database searches EPBC listed DRF and 19 Priority species were identified as potentially occurring in the area.

The DRF species that potentially occurs within the project area is *Lepidium catapycnon* (Hamersley Lepidium). It is a woody perennial herb or shrub that

grows to 0.3 m high, and is typically recorded on skeletal soils on hill slopes (WAH 2009).

Details of the 19 Priority flora species that potentially occur in the project area are provided in Appendix A.

The DEC database search found that one known TEC, the Ethel Gorge Aquifer Stygobiont community, is located about 1 km north of the project area. This TEC is not relevant to the current study; because it is a stygofauna (groundwater fauna) based community.

From previous surveys conducted in the area, twenty-one introduced plant species were identified as potentially occurring in the project area, and these species are listed in Appendix C.

3.2 FIELD SURVEY

3.2.1 Flora

Newman to Jimblebar

Forty-nine families, 147 genera and 365 taxa were recorded in the project area (347 native flora taxa and 15 introduced). The flora inventory is provided in Appendix H.

Seven taxa could not be confirmed to species level, and three taxa could not be confirmed to subspecies level. A further sixteen taxa are considered to be affiliates, and were not given discrete species names.

The plant families most frequently recorded from the survey were as follows:

- Poaceae 62 taxa;
- Mimosaceae 38 taxa; and
- Malvaceae 33 taxa.

The plant genera most frequently recorded from the survey were as follows:

- *Acacia* 35 taxa;
- *Senna* 16 taxa; and
- *Eremophila* 16 taxa.

Average plant species richness was 36.8 taxa per quadrat (excludes relevés: Appendix I).

The species most commonly recorded flora species was *Solanum lasiophyllum* (recorded in 37 quadrats and five relevés), *Acacia bivenosa* (recorded in 34 quadrats and nine relevés) and *Cymbopogon obtectus* (recorded in 31 quadrats and four relevés).

Newman Town Substation

Sixteen families, 25 genera and 44 taxa were recorded in the survey area (42 native flora taxa and 2 introduced): refer to Appendix H for the flora species list).

The plant genera most frequently recorded from the survey were as follows:

- *Acacia* seven taxa;
- *Ptilotus* five taxa; and
- *Senna* five taxa.

The plant families most frequently recorded from the survey were Amaranthaceae, Mimosaceae and Poaceae, all of which were all represented by seven taxa.

3.2.2 Flora of Conservation Significance

No Threatened species pursuant to the *EPBC Act* were identified during the survey.

No plant taxa gazetted as DRF pursuant to the *WC Act* were located in the survey area.

One Priority Flora species was located in the survey area, *Goodenia nuda*, which is currently Priority 3. One individual was recorded at one location, GDA94 Zone 51K 793 683mE 741 7742mN. The location of the Priority flora is shown in Figure 4.

3.2.3 Flora of Interest

One taxa recorded in the project area, *Muelleranthus trifoliolatus*, is considered to be taxa of interest because it represents a possible range extension. *Muelleranthus trifoliolatus* is a prostrate to semi-prostrate annual or perennial herb, growing 0.02 to 0.3 m high and 0.3 to 2m wide (WAH 2009). It favours river banks, claypans and rocky outcrops and typically occurs in the Gascoyne and Murchison regions. This herb was recorded once in the project area (quadrat NJ16) located in a drainage / floodplain area (Table 2). Its location in the project area represents an approximately 80 km range extension for this species (DEC 2009). The species has not previously been recorded in the Pilbara region (WAH 2009).

One further species of interest *Goodenia* sp. Sandy Creek (R.D. Royce 1653) was recorded in the project area. It was recorded opportunistically at one location on a hill slope on *Triodia* hummock grassland (Table 2). *Goodenia* sp. Sandy Creek (R.D. Royce 1653) is a species which is superficially similar to the priority species *Goodenia hartiana*. It is doubtful that both these species occur within the local region and therefore previous records of the priority *G. hartiana* within the project area and its vicinity are likely to be misidentifications (pers. comm. Trudgen).

Table 2: Locations of Species of Interest

Taxon	Site Number	# Easting	# Northing
<i>Muelleranthus trifoliolatus</i>	NJ16	794080	7417709
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)	NJOP44T	798414	7417931

Australian Geocentric 1994 (GDA94), Zone 50K

3.2.4 Introduced Flora

There were 15 introduced flora species recorded in the project area. The introduced flora ratings and criteria according to the Environmental Weed Strategy for Western Australia (refer to Appendix B for the criteria used for ranking) are displayed in the table below.

Table 3: Introduced Species Identified

Taxon	Common Name	Criteria			
		Rating	Invasiveness	Distribution	Impacts
* <i>Datura leichhardtii</i>	Native Thornapple	P1; Moderate	Yes	Yes	-
* <i>Acetosa vesicaria</i>	Ruby Dock	High	Yes	Yes	Yes
* <i>Aerva javanica</i>	Kapok Bush	High	Yes	Yes	Yes
* <i>Cenchrus ciliaris</i>	Buffel Grass	High	Yes	Yes	Yes
* <i>Cenchrus setiger</i>	Birdwood Grass	High	Yes	Yes	Yes
* <i>Vachellia farnesiana</i>	Mimosa Bush	High	Yes	Yes	Yes
* <i>Cynodon dactylon</i>	Couch	Moderate	Yes	Yes	-
* <i>Malvastrum americanum</i>	Spiked Malvastrum	Moderate	Yes	Yes	-

Taxon	Common Name	Criteria			
		Rating	Invasiveness	Distribution	Impacts
* <i>Sonchus oleraceus</i>	Common Sowthistle	Moderate	Yes	Yes	-
* <i>Echinochloa colona</i>	Awnless Barnyard Grass	Mild	Yes	-	-
* <i>Setaria verticillata</i>	Whorled Pigeon Grass	Low	-	-	-
* <i>Bidens bipinnata</i>	Bipinnate Beggartick	N/A	-	-	-
* <i>Cucumis melo subsp. agrestis</i>	Ulcardo Melon	N/A	-	-	-
* <i>Portulaca oleracea</i>	Purslane	N/A	-	-	-
* <i>Tribulus terrestris</i>	Caltrop	N/A	-	-	-

No Declared Plants listed under the *Agriculture and Related Resources Protection Act 1976* were recorded in the project area. Note: *Datura leichhardtii* is listed as a Declared Plant, but not in the East Pilbara region.

Locations of introduced species are presented in Appendix J, and mapped in Figure 5A-H.

3.2.5 Vegetation Associations

Newman to Jimblebar

Twenty one vegetation associations were described at the project area (Table 4). The results of cluster analysis are provided in Appendix K and the vegetation associations are mapped in Figures 6A-H.

Table 4a: Classification of Quadrats into Vegetation Associations for Newman to Jimblebar

Broad Floristic Formation	Vegetation Association	Sites and Relevés
<i>Acacia</i> High Shrubland (AHS1)	High Shrubland of <i>Acacia citrinoviridis</i> , <i>A. bivenosa</i> and <i>Petalostylis labicheoides</i> over Hummock Grassland of <i>Triodia pungens</i> with Scattered Low Trees of <i>Eucalyptus xerothermica</i> on Red-Brown Alluvial Loam on Drainage Lines and Floodplains.	NJ50, NJ54 and NJR32

Broad Floristic Formation	Vegetation Association	Sites and Relevés
Acacia High Shrubland (AHS2)	High Shrubland of <i>Acacia ligulata</i> , <i>A. pruinocarpa</i> and <i>Petalostylis labicheoides</i> over Closed Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on Red-Brown Loam on Hill Slopes and Drainage Lines.	NJR30
Acacia Open Scrub (AOS1)	Open Scrub of <i>Acacia monticola</i> , <i>A. citrinoviridis</i> and <i>Petalostylis labicheoides</i> over Open Hummock Grassland of <i>Triodia pungens</i> and <i>T. basedowii</i> over Scattered Low Trees <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> or <i>E. gamophylla</i> (Mallee) on Red-Brown Clay Loam on Drainage Lines.	NJ38, NJ63, NJR17, NJR18, NJR20 and NJR22
Acacia Open Scrub (AOS2)	Open Scrub of <i>Acacia melleodora</i> , <i>Petalostylis labicheoides</i> and <i>A. ancistrocarpa</i> over Very Open Hummock Grassland of <i>Triodia wiseana</i> and <i>T. pungens</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>E. xerothermica</i> on Red-Brown Loam on Minor Drainage Lines.	NJ45 and NJ55
Acacia Shrubland (AOS1)	Open Shrubland of <i>Acacia adsurgens</i> over Low Shrubland of <i>Gompholobium karijini</i> , <i>Halgania solanacea</i> aff. var. <i>hirsuta</i> and <i>Santalum lanceolatum</i> over Scattered Hummock Grasses of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) on Red-Brown Alluvial Sand on Drainage Lines.	NJR16
Acacia Shrubland (AS1)	Shrubland of <i>Acacia bivenosa</i> and <i>A. adsurgens</i> over Very Open Hummock Grassland of <i>Triodia wiseana</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on Red-Brown Loam on Hill Slopes.	NJR59
Acacia Shrubland (AS2)	Shrubland of <i>Acacia sclerosperma</i> over Open Hummock Grassland of <i>Triodia pungens</i> and <i>T. longiceps</i> on Red-Brown Loam on Low Rises and Plains.	NJ14

Broad Floristic Formation	Vegetation Association	Sites and Relevés
<i>Acacia</i> Shrubland (AS3)	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>A. sclerosperma</i> and <i>A. bivenosa</i> over Hummock Grassland of <i>Triodia basedowii</i> , <i>T. pungens</i> and <i>T. sp.</i> Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>E. gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.	NJ09, NJ20, NJ22, NJ23, NJ25, NJ26, NJ28, NJ30, NJ32 and NJ44
<i>Eucalyptus</i> Open Woodland (EOW1)	Open Woodland of <i>Eucalyptus camaldulensis</i> var. <i>obtusa</i> over Closed (to Open) Tussock Grassland of * <i>Cenchrus ciliaris</i> , * <i>Cynodon dactylon</i> and * <i>Echinochloa colona</i> over Very Open Herbs of * <i>Malvastrum americanum</i> on Red-Brown Clay Loam on Creeklines and Rivers.	NJR10, NJR51
<i>Eucalyptus</i> Woodland (EW1)	Woodland of <i>Eucalyptus victrix</i> over High Shrubland of <i>Acacia sclerosperma</i> and <i>A. citrinoviridis</i> over Open Tussock Grassland of * <i>Cenchrus ciliaris</i> , <i>Enteropogon ramosus</i> and <i>Chrysopogon fallax</i> on Red-Brown Loam on Creeklines and Rivers.	NJ16, NJ24 and NJR26
<i>Eucalyptus</i> Woodland (EW2)	Woodland of <i>Eucalyptus camaldulensis</i> var. <i>obtusa</i> over Scattered Shrubs of <i>Melaleuca lasiandra</i> and <i>Petalostylis labicheoides</i> over Very Open Sedges / Tussock Grassland of * <i>Echinochloa colona</i> , <i>Cyperus vaginatus</i> and <i>Typha domingensis</i> on Red-Brown Alluvial Loamy Clay on Creeklines and Rivers.	NJ12 and NJR08
<i>Triodia</i> Hummock Grassland (THG1)	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Shrubs of <i>Acacia synchronicia</i> and <i>A. bivenosa</i> over on Red-Brown Loam on Hill Slopes.	NJ57 and NJ61
<i>Triodia</i> Hummock Grassland (THG2)	Hummock Grassland of <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia aneura</i> , <i>A. dictyophleba</i> and <i>A. pruinocarpa</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>E. xerothermica</i> on Red-Brown Loam on Plains and Floodplains.	NJ15, NJ42, NJ46, NJ67 and NJR53.

Broad Floristic Formation	Vegetation Association	Sites and Relevés
<i>Triodia</i> Hummock Grassland (THG3)	Hummock Grassland of <i>Triodia basedowii</i> and <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia bivenosa</i> , <i>A. synchronicia</i> and <i>A. sclerosperma</i> with Scattered Low Trees of <i>Eucalyptus gamophylla</i> (Mallee) and <i>E. leucophloia</i> subsp. <i>leucophloia</i> on Skeletal Red-Brown Loam on Low Hill Slopes.	NJ18 and NJR12
<i>Triodia</i> Hummock Grassland (THG4)	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with High Open Shrubland of <i>Acacia citrinoviridis</i> , <i>A. bivenosa</i> and <i>A. pruinocarpa</i> with Low Open Woodland (to Scattered Low Trees) of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Corymbia aspera</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> over on Red-Brown Loam on Hill Slopes.	NJ11 and NJ13
<i>Triodia</i> Hummock Grassland (THG5)	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland (to Scattered Trees) of <i>Eucalyptus xerothermica</i> , <i>E. gamophylla</i> (Mallee) and <i>E. socialis</i> subsp. <i>eucentrica</i> (Mallee) over Open Shrubland of <i>Acacia bivenosa</i> , <i>A. sclerosperma</i> and <i>A. ancistrocarpa</i> on Red-Brown Loam on Plains and Floodplains.	NJ10, NJ48, NJ49, NJ56, NJ58 and NJ69
<i>Triodia</i> Hummock Grassland (THG6)	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of <i>Acacia bivenosa</i> and <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on Red-Brown Skeletal Loam on Hill Slopes.	NJ31, NJ34, NJ40, NJ52 and NJR24
<i>Triodia</i> Open Hummock Grassland (TOHG1)	Open Hummock Grassland of <i>Triodia schinzii</i> with Open Shrubland of <i>Acacia pachyacra</i> , <i>A. aneura</i> var ? <i>pilbarana</i> and <i>A. catenulata</i> subsp. <i>occidentalis</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> on Red-Brown Clay Loam on Sand Plains.	NJ33 and NJ35
<i>Triodia</i> Open Hummock Grassland (TOHG2)	Open Hummock Grassland of <i>Triodia angusta</i> and <i>Triodia pungens</i> with Scattered Shrubs of <i>Acacia tetragonophylla</i> , <i>A. bivenosa</i> and <i>Senna glutinosa</i> subsp. <i>glutinosa</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>E. trivalva</i> (Mallee) on Red-Brown Sandy Loam on Hill Slopes.	NJ39, NJ41 and NJR43

Broad Floristic Formation	Vegetation Association	Sites and Relevés
<i>Triodia</i> Open Hummock Grassland (TOHG3)	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>T. wiseana</i> with Open Shrubland of <i>Acacia bivenosa</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> and <i>E. leucophloia</i> subsp. <i>leucophloia</i> (Trees) on Red-Brown Skeletal Loam on a Low Hill Slopes.	NJ36, NJ37 and NJ65
<i>Triodia</i> Open Hummock Grassland (TOHG4)	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835), <i>T. pungens</i> and <i>T. wiseana</i> with Scattered shrubs of <i>Acacia bivenosa</i> , <i>A. synchronicia</i> and <i>A. tetragonophylla</i> on Red-Brown Loam on Low Rocky Hill Slopes.	NJ19, NJ21, NJ27, NJR29 and NJR47

The vegetation associations recorded in the project area are not considered to be representative of TECs or PECs.

Newman Town Substation

One vegetation community was described at the Newman Town Substation project area. The vegetation association is mapped in Figure 6h. No vegetation association analysis was undertaken as there was only one quadrat surveyed.

Table 4b: Classification of Quadrats into Vegetation Associations for Newman Town Substation

Broad Floristic Formation	Vegetation Association	Sites and Relevés
<i>Triodia</i> Open Hummock Grassland (TOHG5)	Open Hummock Grassland of <i>Triodia wiseana</i> and <i>T.</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of <i>Eucalyptus leucophloia</i> over High Shrubland of <i>Acacia bivenosa</i> , <i>A. kempeana</i> and <i>A. aneura</i> var. <i>aneura</i> over Very Open Tussock Grassland of <i>*Cenchrus ciliaris</i> on Red-Brown Sandy Loam on a Low Hill.	NJ07

The vegetation association recorded in the project area is not considered to be representative of TECs or PECs.

3.2.6 Vegetation Condition

Newman to Jimblebar

The vegetation condition in the project area ranged from Completely Degraded to Pristine, with most of the sites rated as Excellent. Vegetation Condition is mapped in Figures 7A to H.

The majority of hilltops, hill slopes, sand plains, floodplains and minor drainage lines in the project area were rated as in Excellent to Pristine vegetation condition. Areas of lesser vegetation condition ratings were recorded in the vicinity of the Mount Whaleback mine site and the Fortescue River.

Disturbances to vegetation within the project area included the presence of introduced flora and fauna (e.g. **Cenchrus ciliaris* and cattle), clearing for infrastructure associated with past drill pads, vehicle tracks, flooding and fire.

Fire age was considered to range from Recent to Very Old, with the majority of sites having an Old fire age. See Appendix F for definitions of fire ages.

Newman Town Substation

The condition of the vegetation in the Newman Town Substation project area ranged from Degraded to Completely Degraded (Figure 7h). There was a high level of disturbance within the project area from roads, adjacent infrastructure (i.e. existing Substation and powerlines) and introduced species (e.g. **Cenchrus ciliaris*).

The vegetation within the Newman Town Substation expansion area was considered to have a Very Old fire age. See Appendix F for definitions of fire ages.

4 DISCUSSION

4.1 FLORA OF CONSERVATION SIGNIFICANCE

No species listed under the *EPBC Act* or species of DRF were recorded in the project area. The survey was comprehensive and conducted in ideal conditions, following a period of above average summer rainfall with 235.6 mm (December – February) compared to an average of 171.8 mm. Therefore it is considered unlikely that any species with legislative protection occur in the project area.

The DRF species, *Lepidum catapycnon*, was previously recorded in the vicinity of the project area, approximately 7 km to the west of the project area, at Mount Whaleback mine site, where it was recorded on mud stone shale on rocky hills (ENV 2006b). However, *L. catapycnon* was not recorded in the project despite sufficient rainfall prior to the survey and considerable effort to locate the species, including walking transects along the proposed impact footprint, quadrating and targeted DRF searches. Its absence from the project area might be because no suitable habitat for *L. catapycnon* was recorded in the project area.

One Priority Flora species was recorded in the project area, *Goodenia nuda* (Priority 3) (Plate 1). *Goodenia nuda* is an erect to ascending herb to 0.5 m high with yellow flowers (WAH 2009). One individual was recorded in the project area, within a section of the Fortescue River floodplain. It has also been recorded in previous surveys in the vicinity of the project area, for example at West Jimblebar (ENV 2007b) where one individual was recorded. Habitat suitable for *G. nuda* did exist within the project area, this being floodplains and plains with red-brown loam soil. *Goodenia nuda* has been recorded at 37 locations across the Pilbara region (DEC 2009), therefore it is unlikely that this species is dependant on habitats in the project area.



Plate 1 *Goodenia nuda*

No other Priority flora species were recorded in the project area, despite 19 priority species being identified as potentially occurring in the vicinity of the project area. Habitat suitable for a number of the priority species identified in the desktop review were present in the project area, for example, riverine habitats commonly associated with *Gymnanthera cunninghamii* (Priority 1) and hill slopes commonly associated with *Eremophila magnifica* subsp. *magnifica* and *E. magnifica* subsp. *velutina* (Priority 1). These species were not located in the project area despite sufficient rainfall prior to the survey, considerable effort to locate the species, including walking transects along the proposed impact footprint, quadrating and targeted DRF searches.

4.2 FLORA OF INTEREST

Two taxa recorded in the project area are of conservation interest, although they have no legislative protection, these are *Muelleranthus trifoliolatus* and *Goodenia* sp. Sandy Creek (R.D. Royce 1653).

One individual of *Muelleranthus trifoliolatus* was recorded in project area, in a drainage habitat. This taxa is widely distributed in the Gascoyne, Little Sandy Desert, Carnarvon and Murchison regions, which are south of the Pilbara region (WAH 2009); the nearest recorded location is 80 km south of the project area. This collection therefore represents a small range extension for this species.

One individual of *Goodenia* sp. Sandy Creek (R.D. Royce 1653) was recorded from a hill slope in the project area. *Goodenia* sp. Sandy Creek (R.D. Royce 1653) is a species which is superficially similar to the priority species *Goodenia hartiana* (Priority 2). *G. hartiana* has previously been recorded at 10 locations in the immediate vicinity (less than 5 km) of the project area (DEC 2009). It is doubtful that both these species occur within the local region and therefore previous records of the priority *G. hartiana* within the project area and its vicinity are likely to be misidentifications (pers. comm. Trudgen).

4.3 FLORA TAXA RICHNESS

Newman to Jimblebar

The species richness in the Newman to Jimblebar project area (36.8 taxa per quadrat) was similar to that recorded in other nearby surveys. For example 44 taxa per quadrat were recorded in the West Jimblebar survey (ENV 2007b), 38 taxa per quadrat were recorded at the Mount Whaleback (ENV 2006b) and 37 taxa per quadrat recorded at the Orebody 24 survey (ENV 2006a). The taxa richness was higher in the project area than some other nearby surveys, for example 27 taxa per quadrat recorded at the Orebody 18 survey (ENV 2008a) and 14 taxa per quadrat recorded at the Jimblebar Access Road survey (ENV 2008b).

To summarise, whilst the species richness is higher than some adjacent surveys, it is comparable to most, and thus considered to be typical of a post-wet season survey conducted in the local region. The results also imply that the survey was adequate and conducted in good conditions.

Newman Town Substation

While the species richness of the Newman Town Substation is relatively high, when compared to a survey of Kurra Village (see section 3.1 for comparison), six of the taxa recorded were coloniser species while two were introduced species. These disturbance species, account for approximately 18% of the species recorded within the Substation project area.

4.4 INTRODUCED FLORA TAXA

Newman to Jimblebar

Fifteen introduced flora species (4% of total taxa) were recorded in the project area, none of which are considered Declared Plants under the AARP Act 1976. The percentage of total taxa that were introduced species in the project area is slightly higher, but not dissimilar to that recorded at other nearby flora and vegetation surveys, for example: at OB24 2% of total taxa were introduced species (ENV 2006a); at OB18 and West Jimblebar less than 1% of total taxa were introduced species (ENV 2008a); at Mt Whaleback 2.3% of total taxa were introduced species (ENV 2006b); at West Wye Rail Junction 6.5% of total taxa were introduced species (ENV 2008b).

Introduced species were most abundant and had the greatest richness in the vicinity of the Mount Whaleback mine site and the Fortescue River. Both these areas are exposed to disturbances that are known to lead to increased introduced species invasion (Hussey *et al.* 1997), for example infrastructure developments, grazing of stock and flooding.

Of the introduced species recorded in the project area, a number have a High rating under the Environmental Weed Strategy for Western Australia (CALM 1999). These were **Acetosa vesicaria*, **Aerva javanica*, **Cenchrus ciliaris*, **C. setiger* and **Vachellia farnesiana*. Control of these introduced species may therefore be desirable.

Of those introduced species with High ratings under the Environmental Weed Strategy (CALM 1999), **Cenchrus ciliaris* was the most widespread in the project area. It was recorded at 38 sites (29 quadrats and nine relevés). The cover of **C. ciliaris* ranged from less than 1% to 70%, with an average cover of 8.6%. **C. ciliaris* is a perennial grass that occurs across much of northern Australia, and semi-arid areas (CRC Weed Management 2008). It is known to out-compete

native flora, exude allelopathic chemicals, adversely alter fire regimes and to be highly invasive (CRC Weed Management 2008). Management of this species is desirable.

A number of the introduced species recorded in the project area are rated as Moderate to Mild. These are **Cynodon dactylon*, **Malvastrum americanum*, **Sonchus oleraceus* and **Echinochloa colona*. Control of these introduced species may also be desirable to reduce impact on the conservation value of the vegetation in project area.

One introduced species that has a Low rating, is **Setaria verticillata* (Whorled Pigeon Grass). Control of this species is not a priority, as it is not likely to have much of an impact on the condition of the vegetation in the project area.

A number of the introduced species recorded in the project area are however not listed or not rated in the Environmental Weeds Strategy (CALM 1999). They include **Bidens bipinnata*, **Cucumis melo* subsp. *agrestis*, **Portulaca oleracea* and **Tribulus terrestris*. None of these are considered particularly invasive or environmentally harmful. Management of these is therefore not a priority.

It should also be noted that **Portulaca oleracea* is probably native in the Pilbara region, although is considered a weed by the WAH (2009), due in part to it being introduced to south-west Western Australia (Hussey *et al.* 1997). **Portulaca oleracea* was widespread in the project area, being recorded at 12 sites (11 quadrats and one relevé). Management of this taxon is not considered necessary; it is unlikely to have negligible impacts on native flora and is potentially native in the Pilbara.

Newman Town Substation

Of the 44 taxa recorded within the Newman Town Substation project area, two were introduced flora species: **Aerva javanica* (Kapok bush) and **Cenchrus ciliaris* (Buffel Grass).

**Aerva javanica* and **Cenchrus ciliaris* were both recorded within the Degraded to Completely Degraded vegetation type TOHG5 and has a cover of less than one percent and 10% respectively.

No taxa recorded in the project area were Declared Plants under the ARRP Act 1976.

4.5 VEGETATION ASSOCIATIONS

Newman to Jimblebar

Twenty one vegetation associations were characterised and categorised, and then mapped in the project area. None of these were considered to represent TECs or PECs. This was expected as only one TEC has been recorded in the vicinity of the project area, the Ethel Gorge TEC, which is a stygofauna based community.

Generally the vegetation associations mapped in the project area are considered to be typical of those in the region. The plains were dominated by mixed *Acacia* shrublands (e.g. *A. aneura*, *A. bivenosa*, *A. inaequilatera* and *A. synchronicia*) over tussock (e.g. *Eriachne* spp.) and hummock grasslands of *Triodia wiseana* and *T. pungens*. The mallee *Eucalyptus gamophylla* tended to occur on slightly elevated sections of the plains. The plains were juxtaposed by floodplains and disintegrating drainage lines, where *Eucalyptus xerothermica*, *Corymbia hamersleyana* and *C. aspera* were recorded. These floodplains tended to have higher diversity, typically with many herbs and tussock grasses, including the introduced species *Malvastrum americanum*, tussock grass *Chrysopogon fallax* and Asteraceae and *Ptilotus* herbs. The drainage line vegetation associations were observed to be frequently grazed and trampled by stock.

The drainage line proper, creeklines and river were dominated by fringing woodlands of *Eucalyptus camaldulensis* var. *obtusa* and *E. victrix* over dense mixed shrublands of species such as *Acacia pyrifolia*, *A. citrinoviridis*, *Gossypium robinsonii* and *Petalostylis labicheoides*. Tussock grasses were common in these drainage communities including *Cymbopogon* sp. and *Themeda triandra*. In areas where permanent water occurred, *Cyperus vaginatus* and *Typha domingensis* grew beneath *Melaleuca lasiandra* shrubs; particularly along the Fortescue River bed. Introduced species were especially common in the drainage communities, possibly as a result of seeds being washed in from upstream and the moist conditions supporting germination. In addition, stock tends to congregate in drainage line areas whilst drinking water, which helps spread seeds into these vegetation associations.

The low hills in the project area tended to be characterised by open to low woodlands of *Eucalyptus leucophloia* subsp. *leucophloia*, over more open and low shrublands of species such as *Hakea chordophylla*, *Grevillia wickhamii*, *Calytrix carinata* and *Acacia adoxa* subsp. *adoxo*. Hummock grasslands dominated the understory on the hill slope communities, including *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3825) and *T. basedowii*. Mallee trees were also

frequently recorded on the hill slopes, including *Eucalyptus gamophylla*, *E. trivalvis* and *E. socialis* subsp. *eucentrica*.

Overall all the vegetation associations recorded in the project area are typical of the Eastern Pilbara region, and not considered to be of conservation value.

Newman Town Substation

No TECs or PECs were recorded in the Newman Town Substation project area and consistent with the DEC database search. One vegetation association was recorded and described during the survey: Open Hummock Grassland of *Triodia wiseana* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Eucalyptus leucophloia* over High Shrubland of *Acacia bivenosa*, *A. kempeana* and *A. aneura* var. *aneura* over Very Open Tussock Grassland of **Cenchrus ciliaris* on Red-Brown Sandy Loam on a Low Hill.

The vegetation association recorded represents a mixture of a low hill community, indicated by the presence of the *Eucalyptus* and *Triodia* species, and a Mulga community, indicated by the presence of the *Acacia* shrubland.

4.6 VEGETATION CONDITION

Newman to Jimblebar

The majority of hilltops, hill slopes, sand plains, floodplains and minor drainage lines in the project area were rated as being in Excellent to Pristine vegetation condition. For much of the project area disturbances were limited to impacts from introduced species, the power line access track, and low intensity cattle grazing. See Appendix F for definitions of condition scale.

Areas of poorer vegetation condition were recorded in the vicinity of the Mount Whaleback mine site and the Fortescue River. In the vicinity of Mount Whaleback vegetation had been impacted by introduced species, particularly **Cenchrus ciliaris*, as well as infrastructure developments and cattle grazing. In the vicinity of the Fortescue River vegetation had been impacted by introduced species invasion, flooding, infrastructure development and grazing by stock.

Newman Town Substation

The vegetation in the Newman Town Substation project area covered approximately 60% of the survey area. While small patches within the vegetation were of Good condition, the overall vegetation condition was Degraded to Completely Degraded. Disturbances included adjacent infrastructure (i.e. existing Substation and powerlines) and introduced species (e.g. **Cenchrus ciliaris*). The remainder of the project area (approximately 40%) was not considered to contain

native vegetation (Completely Disturbed; Figure 7h). See Appendix F for definitions of condition scale.

4.7 REGIONAL REPRESENTATION

4.7.1 Vegetation Types and Associations

Beard (1975) mapped two vegetation types in the proposed Newman to Jimblebar transmission line project area (Table 5). These can be correlated to mapping by Shepherd *et al.* (2002) who attempted to determine the current extent of these vegetation types. This said, for areas outside the Wheatbelt region, data accuracy is poor. In the absence of a more accurate dataset however this is currently the only means available to gauge regional representation.

ENV vegetation associations have been roughly correlated with the Beard (1975) broad vegetation types (Table 5). Differences exist with the terminology used in the descriptions as they are based on different methods of categorising and characterising vegetation types, and spatial scale of the analysis (i.e. region vs. local scale). Some ENV vegetation associations could not be roughly correlated with Beard (1975) vegetation types, because they are too discrete, including ENV vegetation associations EOW1, EW1 and EW2; all of which are drainage line, creekline or riverine vegetation associations.

Table 5: Regional Representation of Vegetation Types in the Proposed Newman to Jimblebar Transmission Line and Newman Town Substation Project Area

Beard (1975) Vegetation Type	Shepherd <i>et al</i> (2002) Vegetation Type	Pre-European Extent	Current Extent	**Extent in Reserves	ENV Vegetation Associations
e ₁₆ Lr.t ₃ Hi - Hummock grasslands, low tree steppe; Snappy Gum (<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>) over <i>Triodia wiseana</i>	82 - Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i>	2,920,910ha	2,920,910ha	265,802ha (9%)	THG1, THG2, THG3, THG5, THG6, TOHG1, TOHG2, TOHG3, TOHG4 and TOHG5
a ₁ Li - Low woodland; Mulga (<i>Acacia aneura</i>)	18 – Low woodland; mulga (<i>Acacia aneura</i>)	24,675,970ha	24,659,110ha	567,159ha (2%)	AHS1, AHS2, AOS1, AOS2, AOS3, AS1, AS2 and AS3

** Includes IUCN Class I-IV and Other Reserves.

Both of the vegetation types mapped by Beard (1975) as occurring in the project area have large distributions across the East Pilbara region, where the project area is located. Current EPA guidance recommends a standard level of native vegetation retention of at least 30% of each ecological community based on its pre-European extent in the State. Below this threshold level, species loss is known to accelerate exponentially at an ecosystem level (EPA 2000). These levels have been recognised in the *National Objectives and Targets for Biodiversity Conservation 2001-2005* (Commonwealth of Australia 2001), which recognises that the retention of 30% or more of the pre-clearing extent of each ecological community is generally necessary if Australia's biological diversity is to be protected. The two vegetation types are likely to have more than 30% of their pre-European extents remaining and therefore the vegetation in the project is considered to be regionally well represented.

4.7.2 Land Systems

The proposed Newman to Jimblebar Transmission Line and the Newman Town Substation project area consists of eight land systems, as described by van Vreeswyk *et al.* (2004). These land systems are Newman, Boolgeeda, Divide, McKay, River, Washplain, Jamindie and Elimunna.

The Newman, Boolgeeda, Divide, McKay and River land systems cover relatively large portions of the Pilbara bioregion. Furthermore they are all geographically widespread. Therefore the regional representation value of these land systems is unlikely to be significantly impacted by disturbances associated with the project.

The Jamindie, Washplain and Elimunna land systems cover smaller portions of the Pilbara bioregion. This is however, not particularly small, when considering that of the 102 land systems documented and described by van Vreeswyk *et al.* (2004), 80 land systems each represent less than 1% of the total area surveyed. Furthermore both are quite widespread in the Pilbara region. Therefore, considering the small scale of the proposed disturbance (i.e. a single power line and association power poles), these land systems are not likely to be greatly impacted by the proposed transmission line. This is demonstrated by Table 6 below.

Table 6: Impact on Land Systems in Project Area

Land System	Total Area in Pilbara Bioregion	Area of Land System in Project Area	% impact of Project Area on Land System
Newman	14580 km ²	0.1788 km ²	0.001%
Boolgeeda	7748 km ²	0.2466 km ²	0.003%
Divide	5293 km ²	0.009 km ²	0.0001%
McKay	4202 km ²	0.1639 km ²	0.003%
River	4088 km ²	0.0712 km ²	0.0003%
Jamindie	2074 km ²	0.0071 km ²	0.0003%
Washplain	917 km ²	0.0177 km ²	0.001%
Elimunna	617 km ²	0.0858 km ²	0.01%

5 CONCLUSIONS

The survey of the proposed Newman to Jimblebar transmission line and Newman Town Substation is believed to have been adequate and comprehensive with 24 person days invested in the field survey. Overall a total of 365 and 44 taxa, respectively, were recorded in the project area, and a high to moderate level of species richness is displayed.

No Threatened species under the *EPBC Act*, or DRF species listed under the *WC Act* occur in the project area. Only one individual of *Goodenia nuda*, a Priority Three flora species, was recorded in the project area. This is despite considerable survey effort (i.e. transects across the entire project area) and ideal climate conditions at the time of survey (i.e. above average rainfall).

No taxa recorded in the project area are listed as Declared Plants under the *Agriculture and Related Resources Protection Act 1976* in the East Pilbara region.

The vegetation associations recorded in the project area are typical of the East Pilbara region and no vegetation associations occurring in the project area are listed as TECs or PECs.

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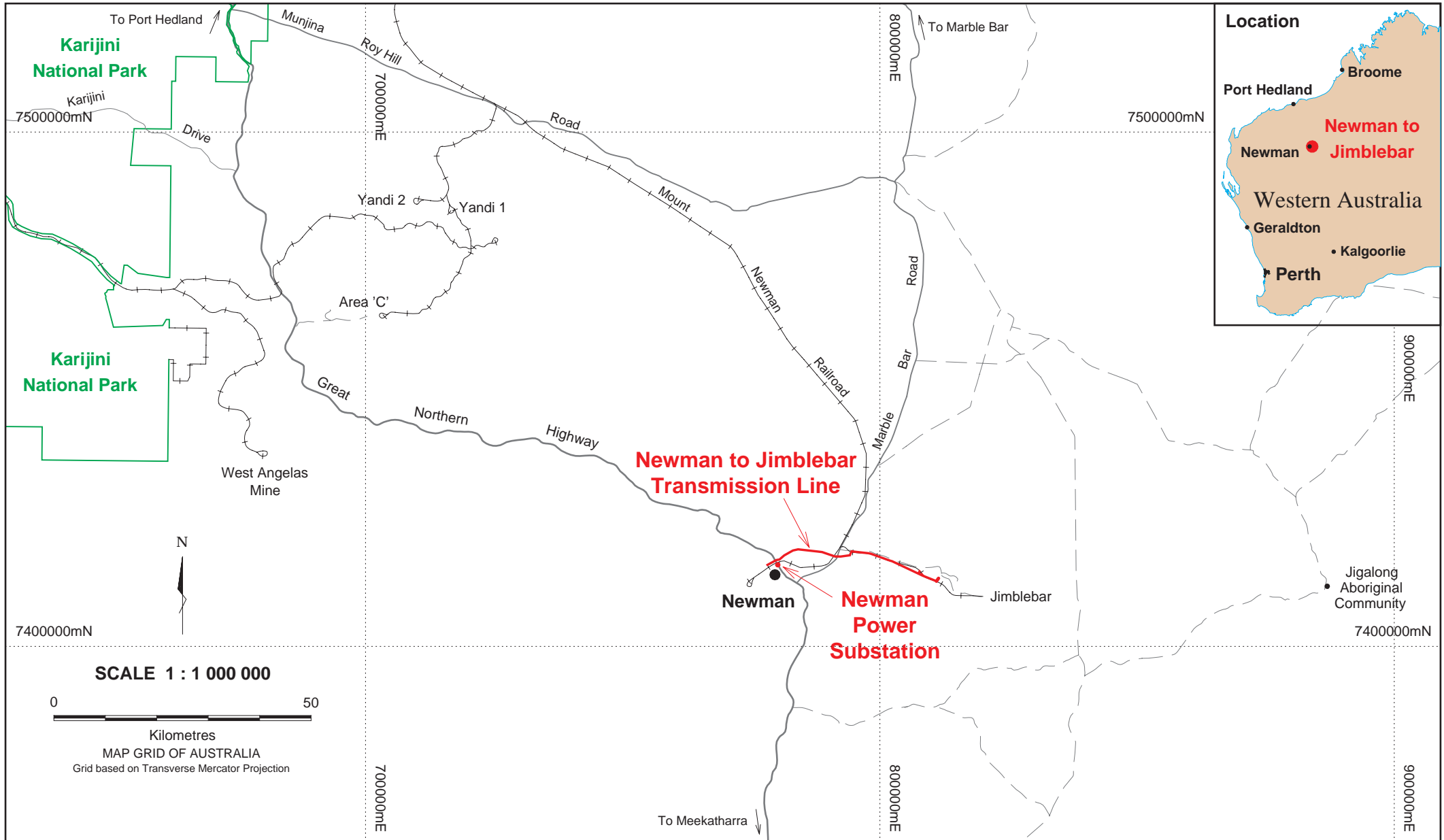
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FIGURES



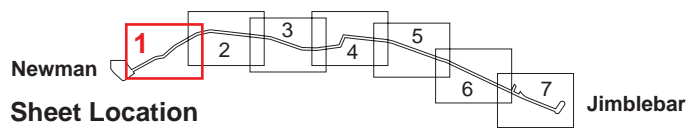
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 Drawn: S.Coleman
 Status:
 Job Number: 09.063

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 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

PROJECT AREA LOCATION

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 Figure No. **1**
 Plan No. **NJ-001**

Legend
 □ NJ09 Flora Quadrats and Relevés



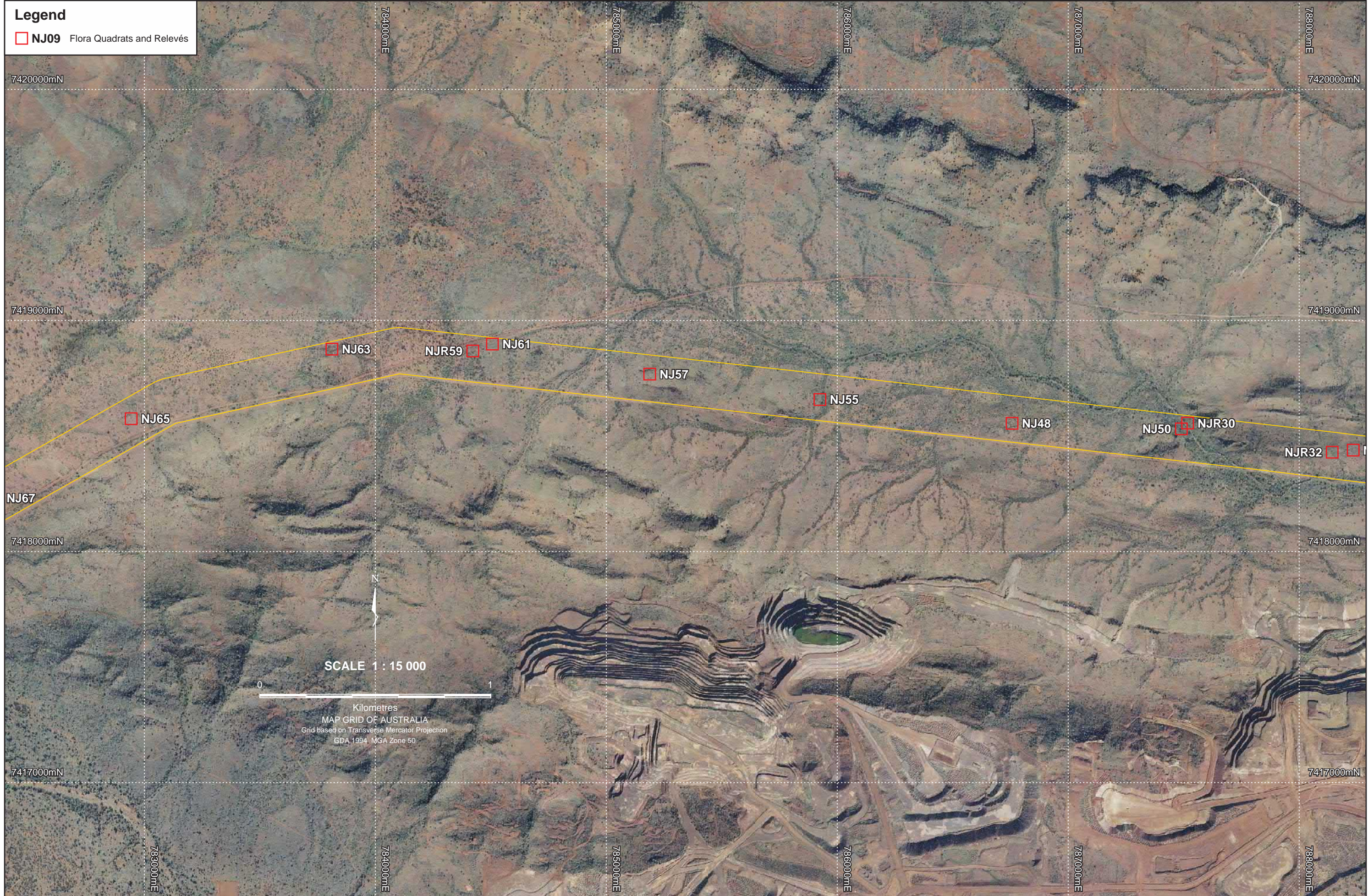
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Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

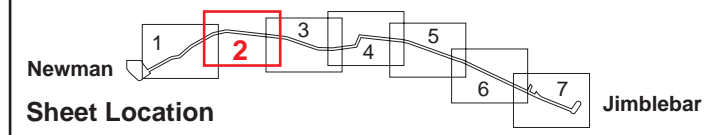
**FLORA SURVEY QUADRAT
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 Plan No. **NJ-002**

Legend
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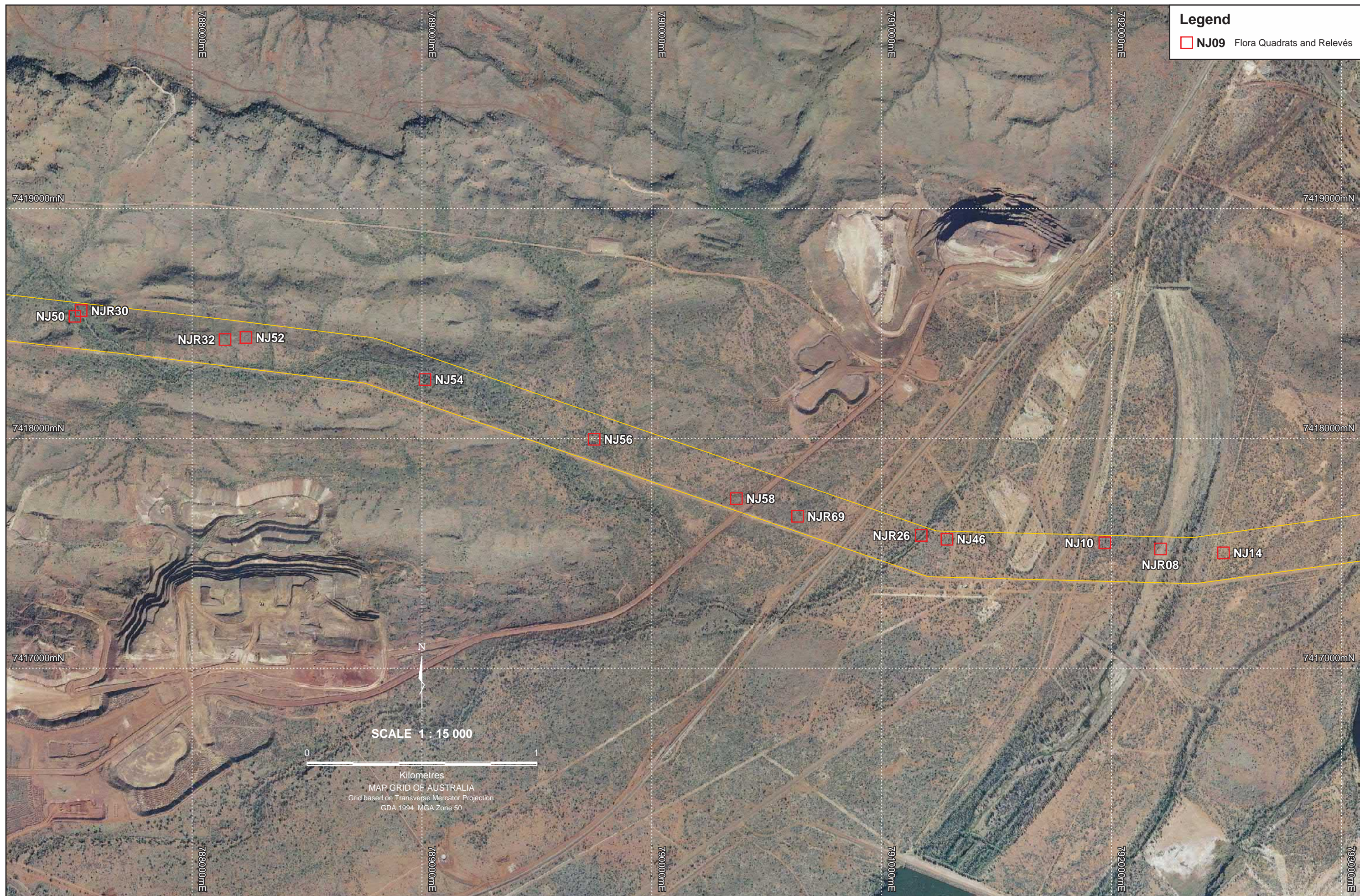


Author: E.Chua.
 Drawn: S.Coleman
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 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

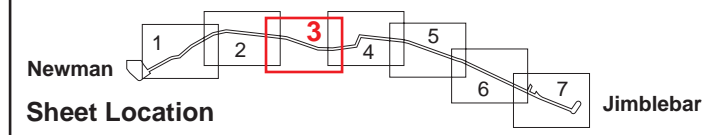
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Legend
 NJ09 Flora Quadrats and Relevés

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 GDA 1994 MGA Zone 50



Author: E.Chua.
 Drawn: S.Coleman
 Status:
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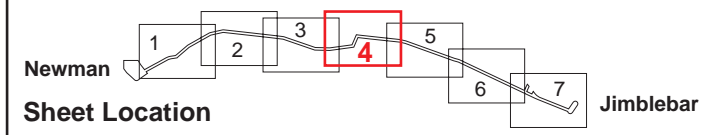
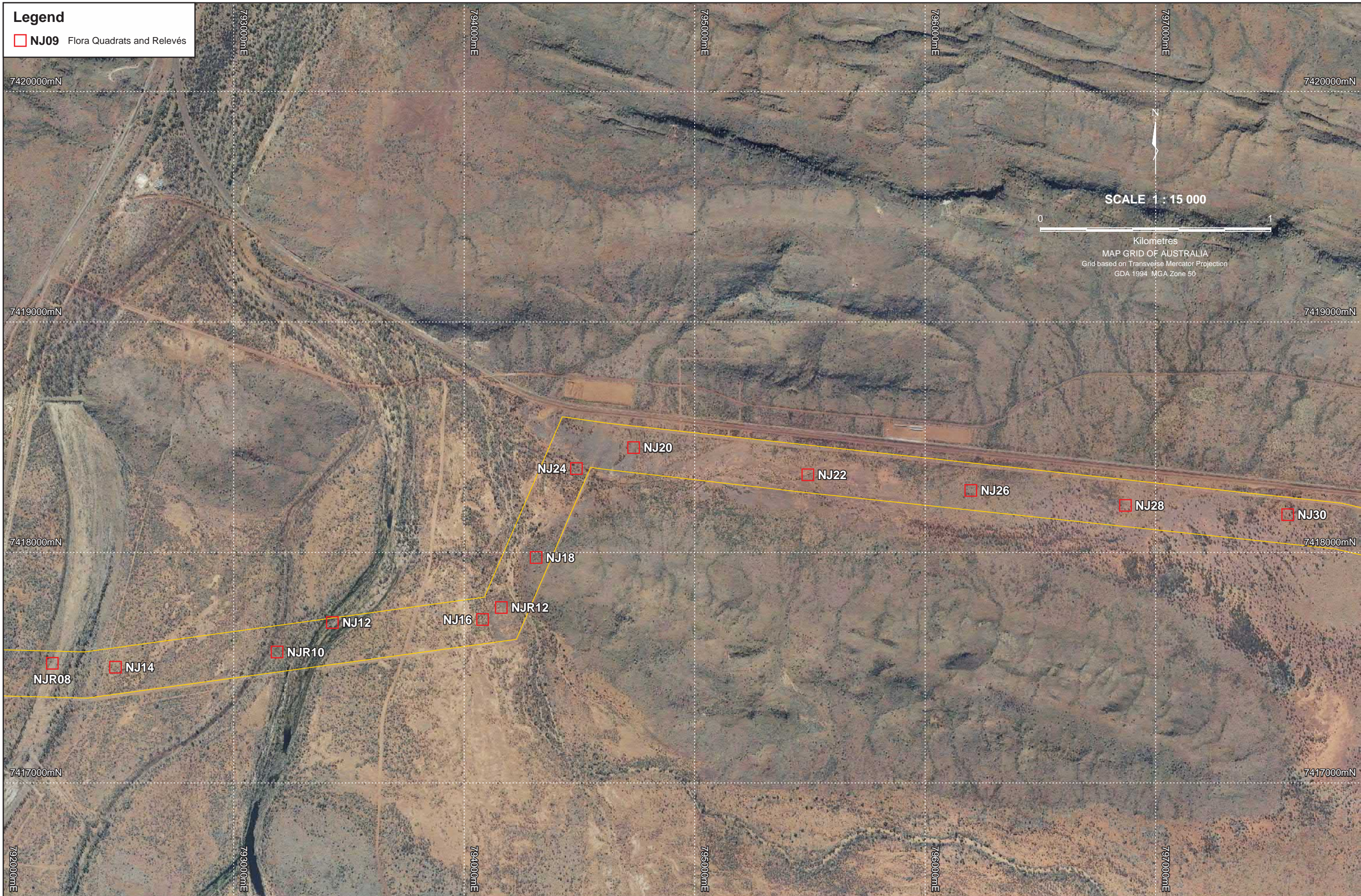
Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**FLORA SURVEY QUADRAT
 AND RELEVÉ LOCATIONS**

Date: 13 August 2009
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Legend

NJ09 Flora Quadrats and Relevés



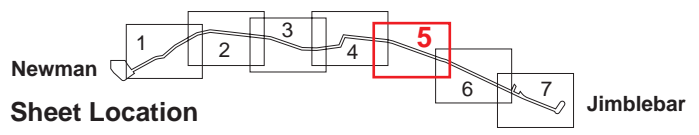
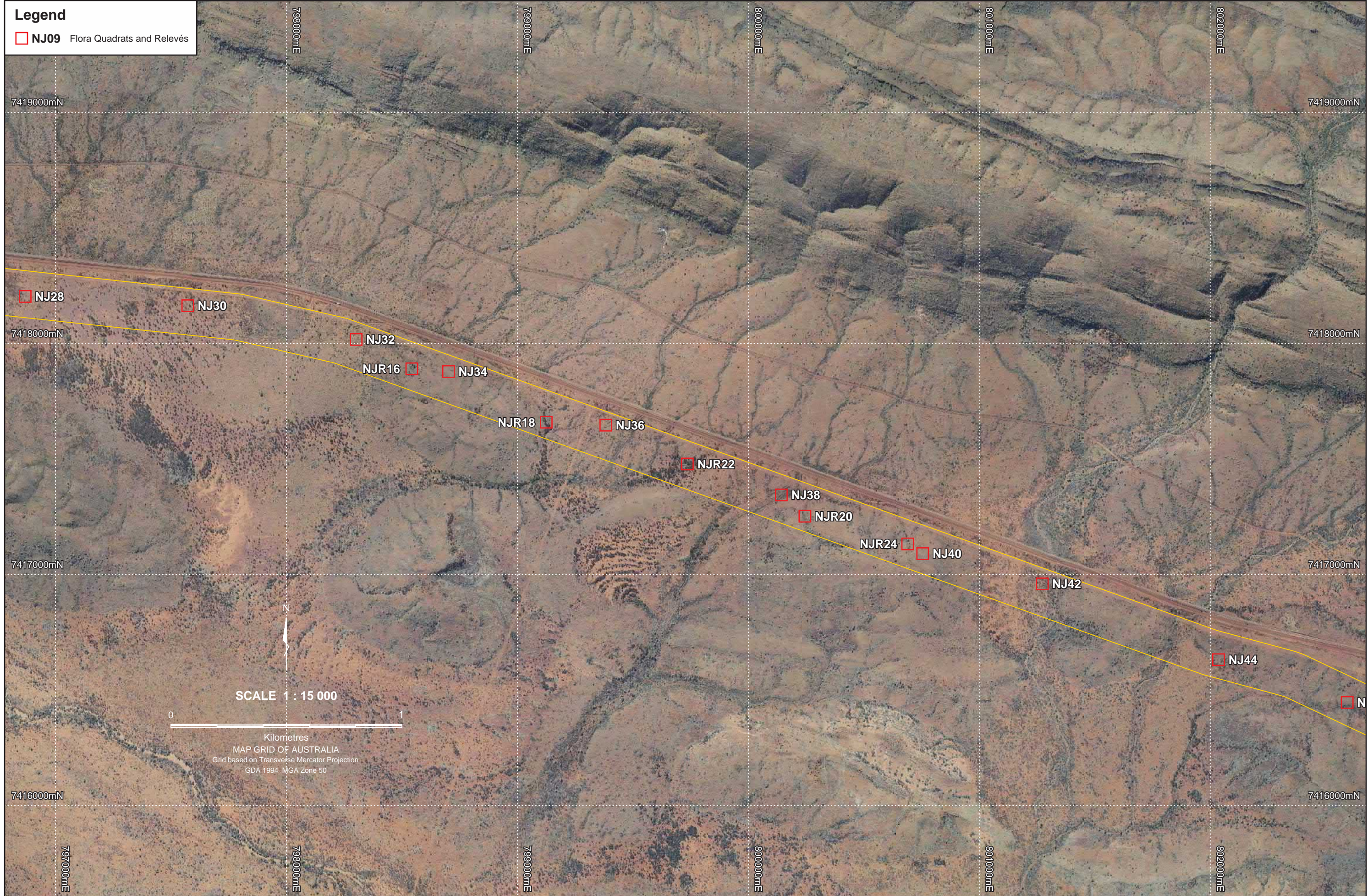
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 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**FLORA SURVEY QUADRAT
 AND RELEVÉ LOCATIONS**

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 Plan No. **NJ-005**

Legend
 □ NJ09 Flora Quadrats and Relevés



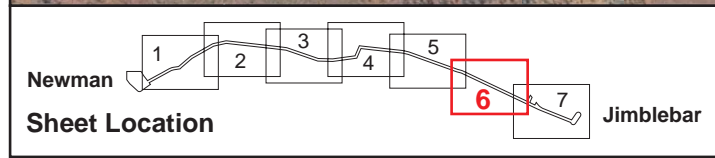
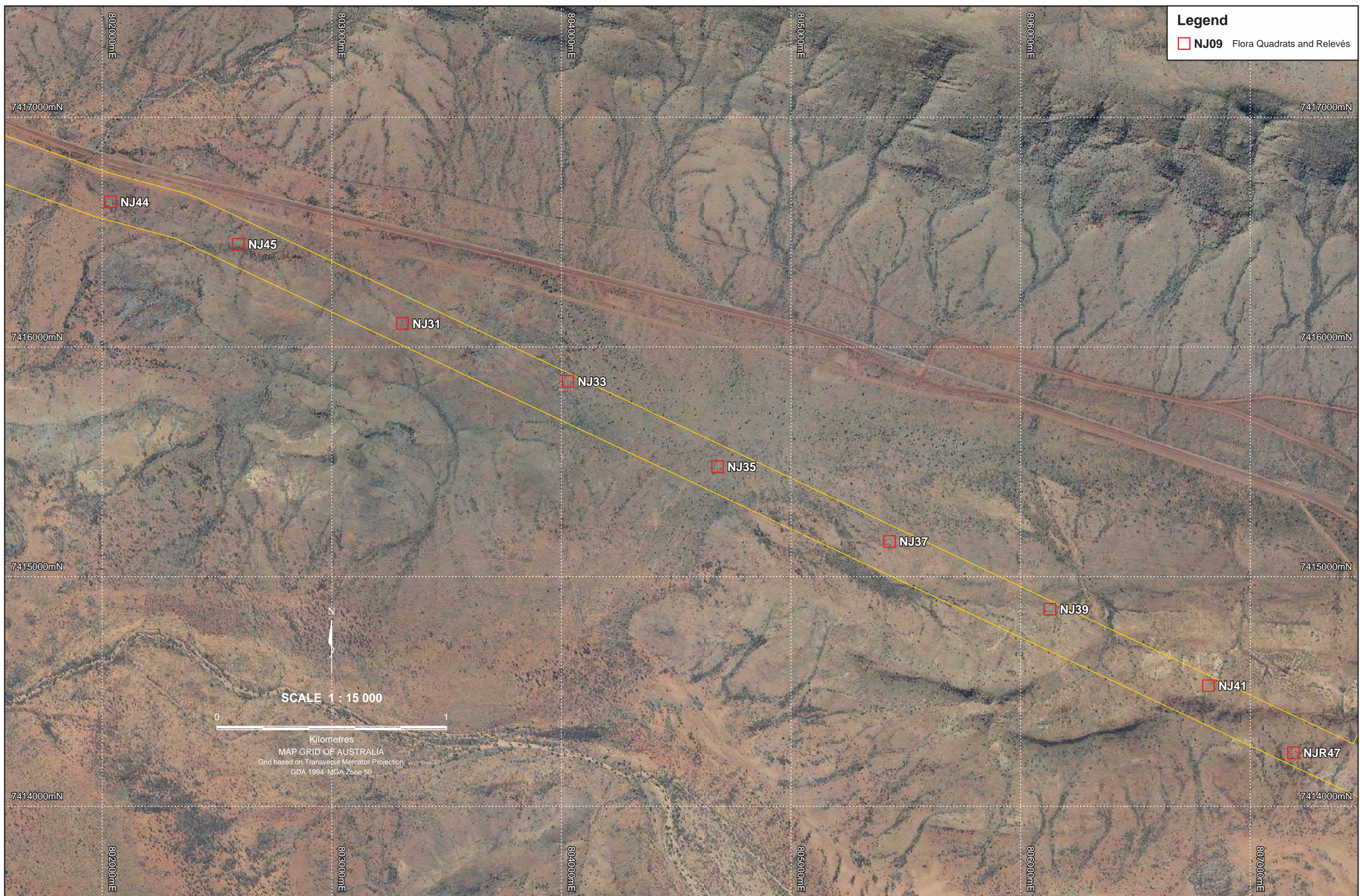
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 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**FLORA SURVEY QUADRAT
 AND RELEVÉ LOCATIONS**

Date: 13 August 2009
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Legend
 NJ09 Flora Quadrats and Relevés



Author: E.Chua.
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

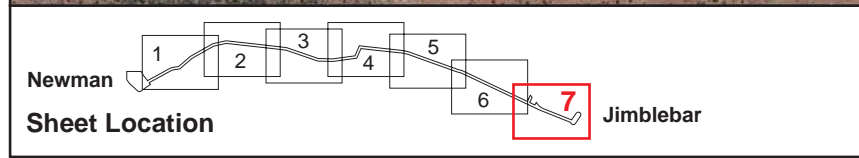
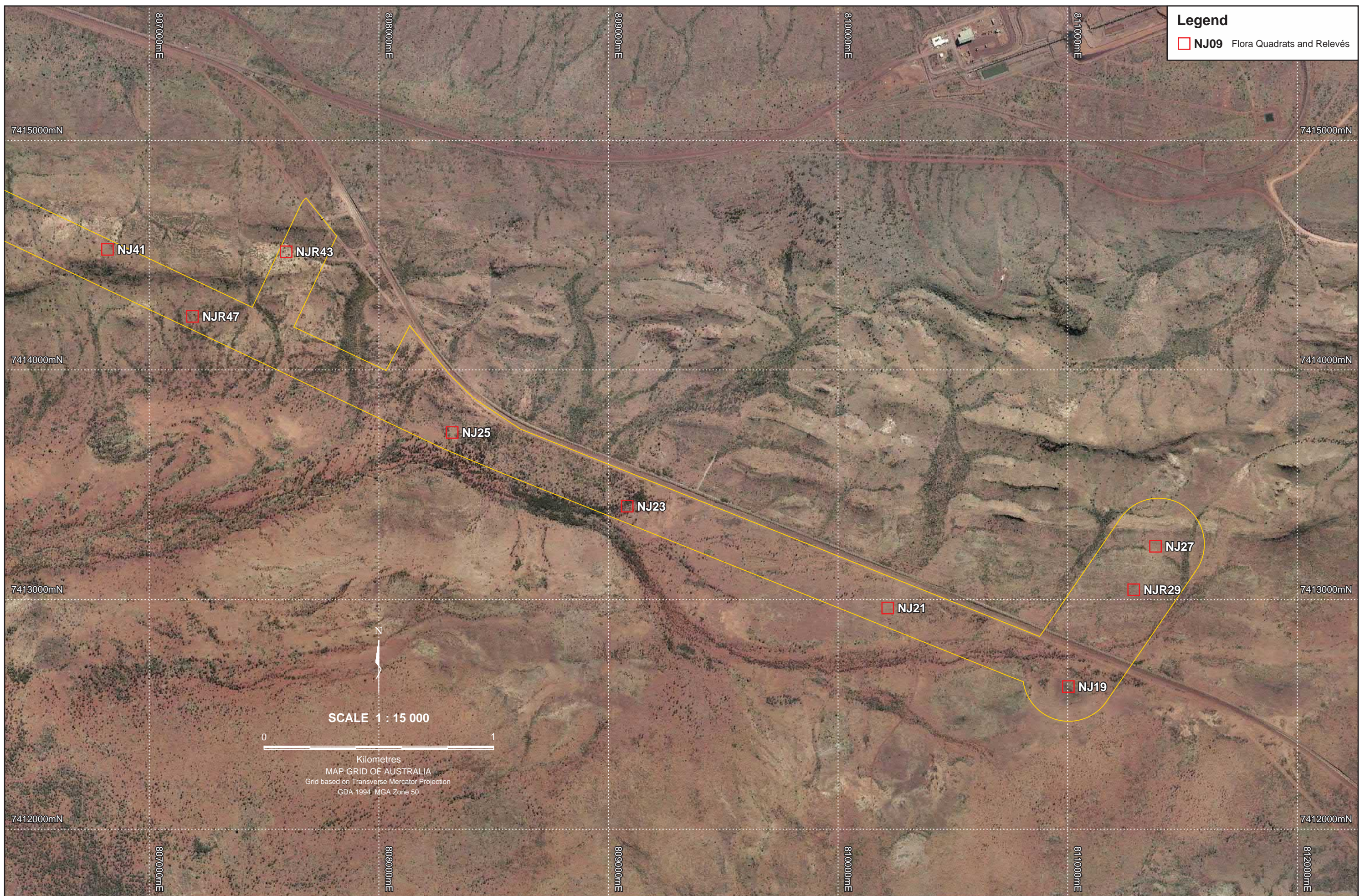
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 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**FLORA SURVEY QUADRAT
 AND RELEVÉ LOCATIONS**

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **3f**
 Plan No. **NJ-007**

A3

Legend
 □ NJ09 Flora Quadrats and Relevés



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Austrelia

Author: E.Chua.
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**FLORA SURVEY QUADRAT
 AND RELEVÉ LOCATIONS**

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **3g**
 Plan No. **NJ-008**

Legend

 **NJ02** Flora Relevé



Client: **WORLEYPARSONS**

**NEWMAN TO JIMBLEBAR
TRANSMISSION LINE AND
NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION**

Project: **ASSESSMENT**

09.063

**FLORA SURVEY QUADRAT
AND RELEVÉ LOCATIONS**

Date: 13 August 2009

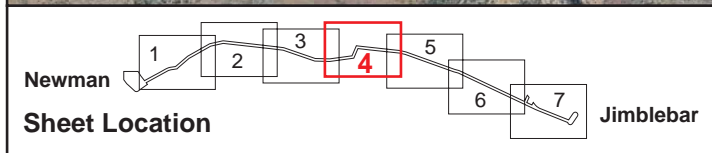
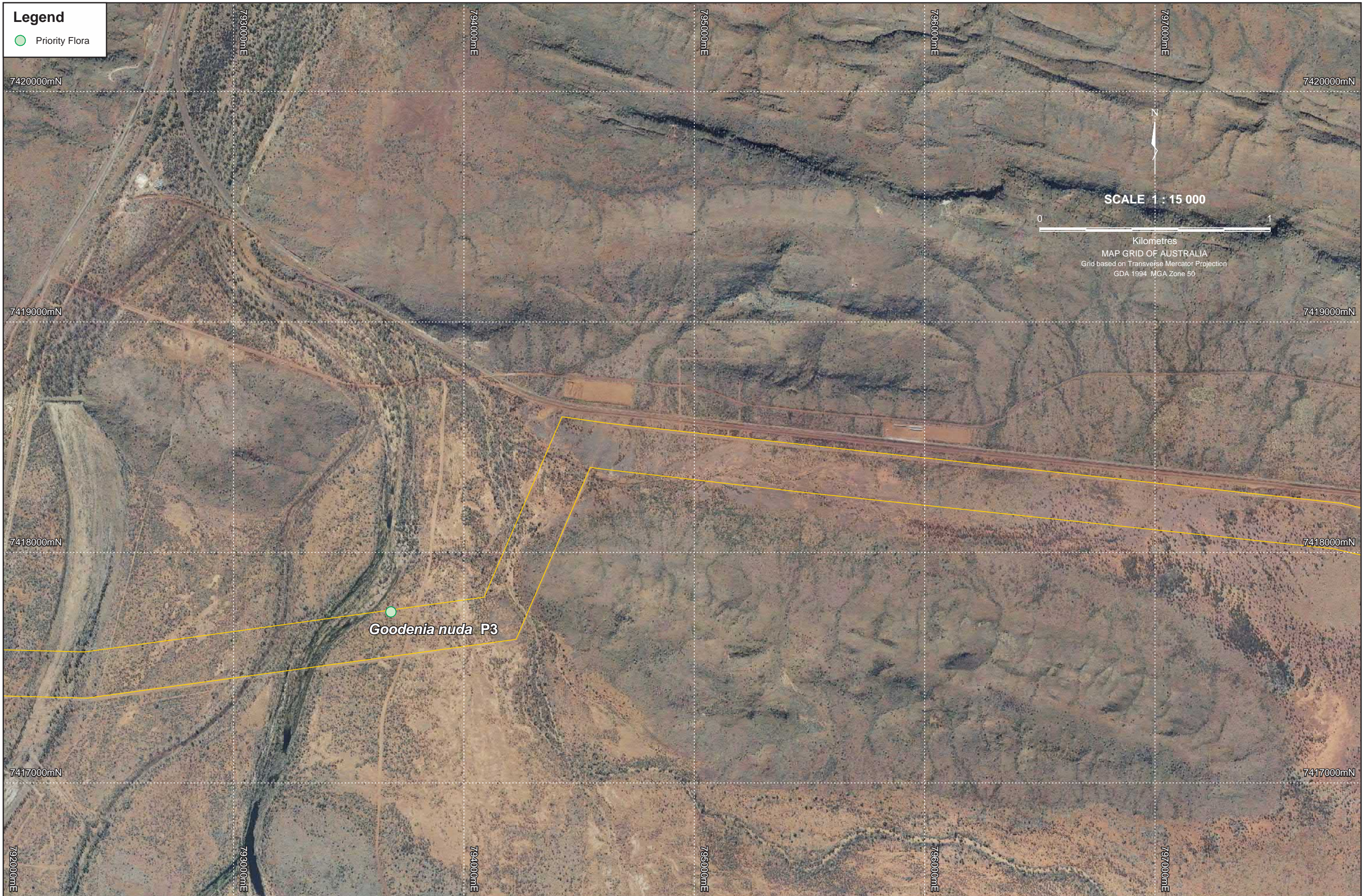
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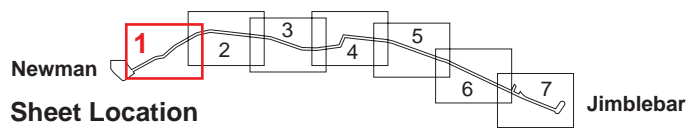
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 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**LOCATION OF DECLARED RARE,
 PRIORITY AND SIGNIFICANT FLORA**

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **4**
 Plan No. **NJ-016**

Legend
 ● Introduced Flora Species



Author: E.Chua.
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

LOCATION OF INTRODUCED PLANT SPECIES

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **5a**
 Plan No. **NJ-018**

Legend
 ● Introduced Flora Species



● **Cenchrus ciliaris*

● **Bidens bipinnata*
 ● **Cenchrus ciliaris*

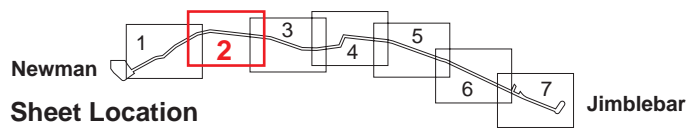
● **Cenchrus ciliaris*

● **Cenchrus ciliaris*

● **Bidens bipinnata*
 ● **Cenchrus ciliaris*
 ● **Malvastrum americanum*



SCALE 1 : 15 000
 Kilometres
 MAP GRID OF AUSTRALIA
 Grid based on Transverse Mercator Projection
 GDA 1994 MGA Zone 50



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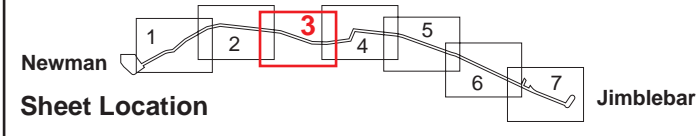
Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**LOCATION OF
 INTRODUCED PLANT SPECIES**

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **5b**
 Plan No. **NJ-019**



Legend
 ● Introduced Flora Species



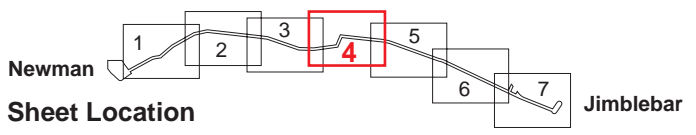
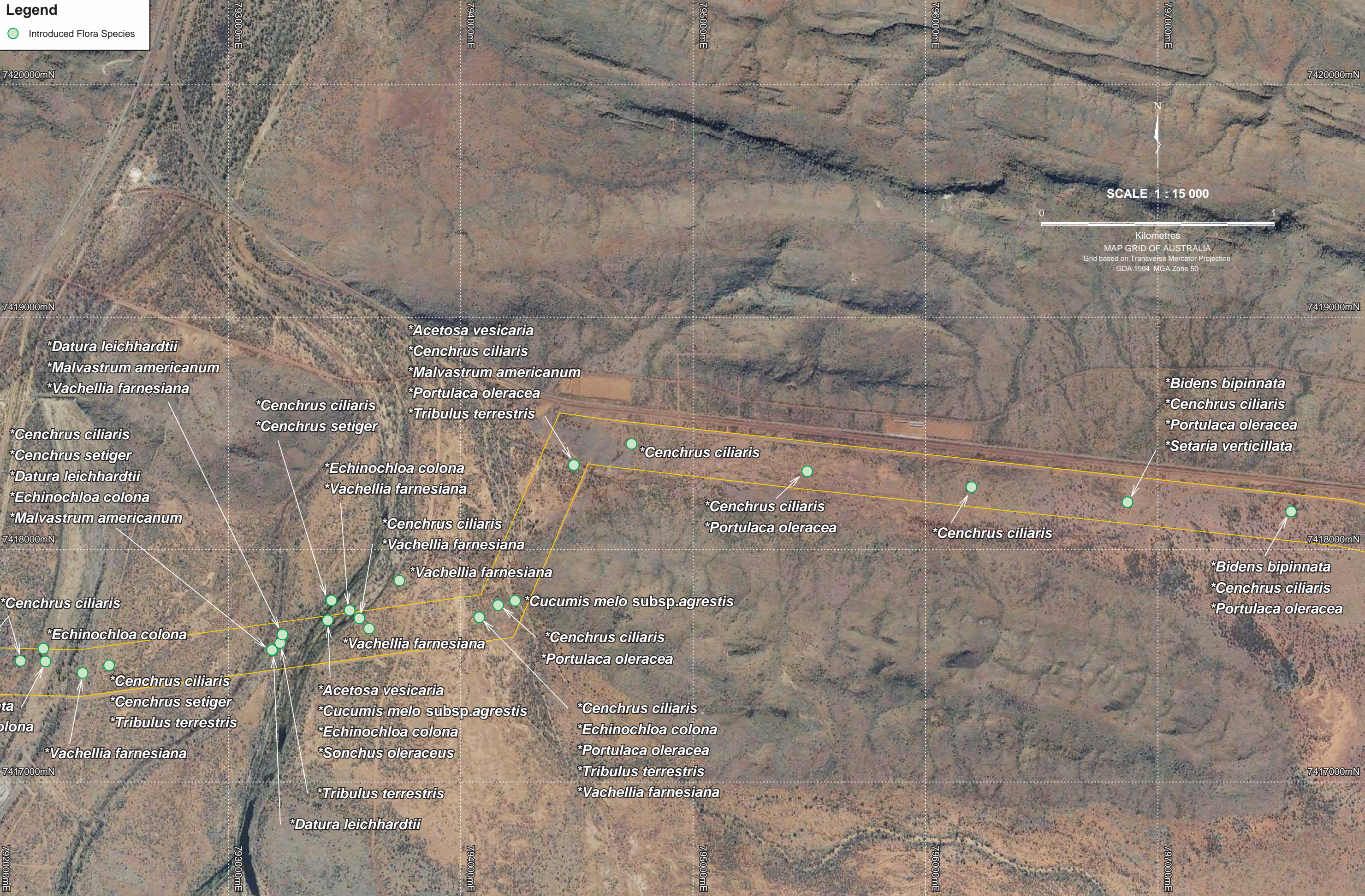
Author: E.Chua.
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**LOCATION OF
 INTRODUCED PLANT SPECIES**

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **5c**
 Plan No. **NJ-020**

Legend
 ● Introduced Flora Species



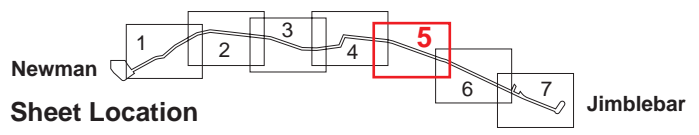
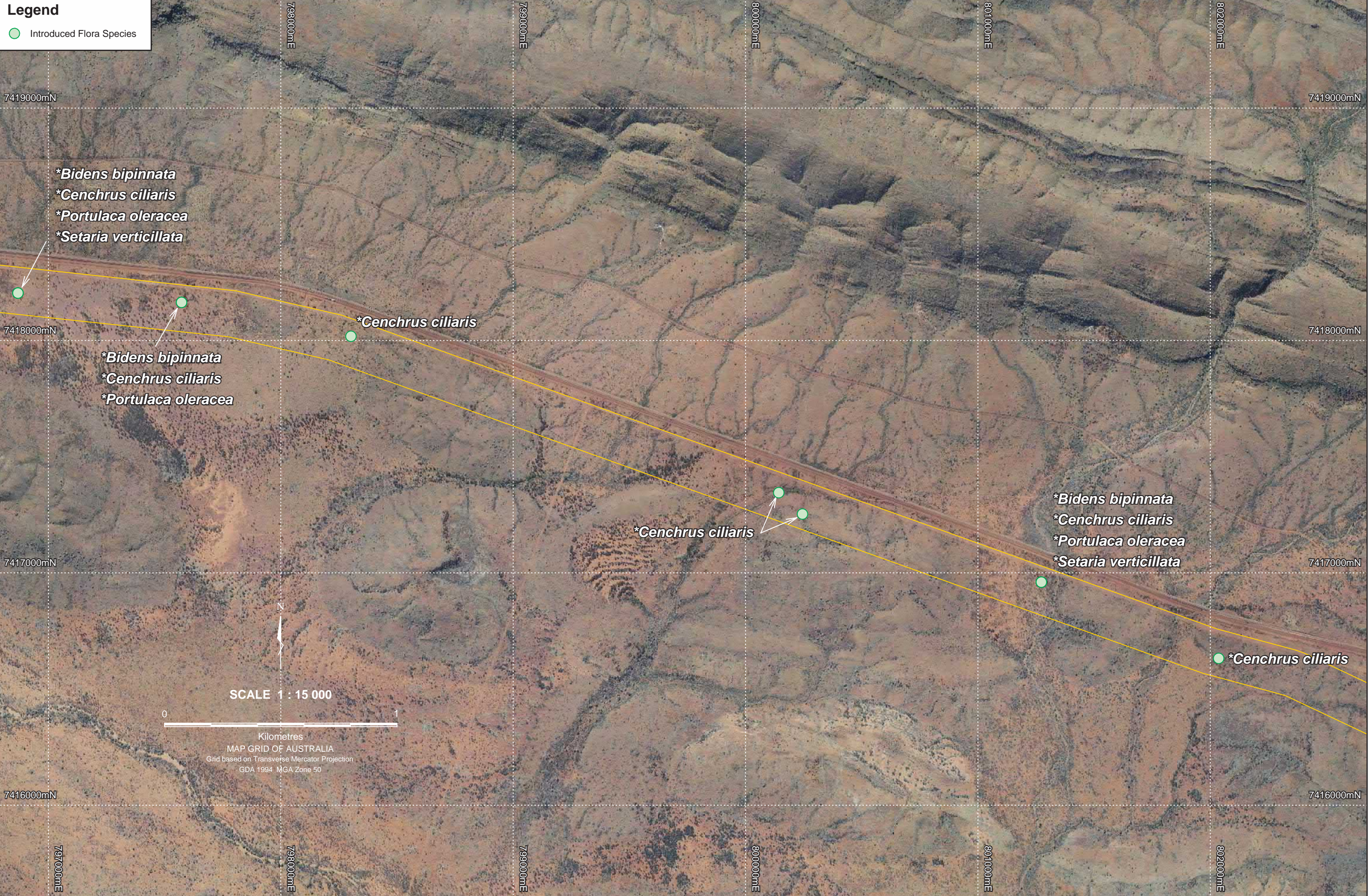
Author: E.Chua.
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

LOCATION OF INTRODUCED PLANT SPECIES

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **5d**
 Plan No. **NJ-021**

Legend
 ● Introduced Flora Species

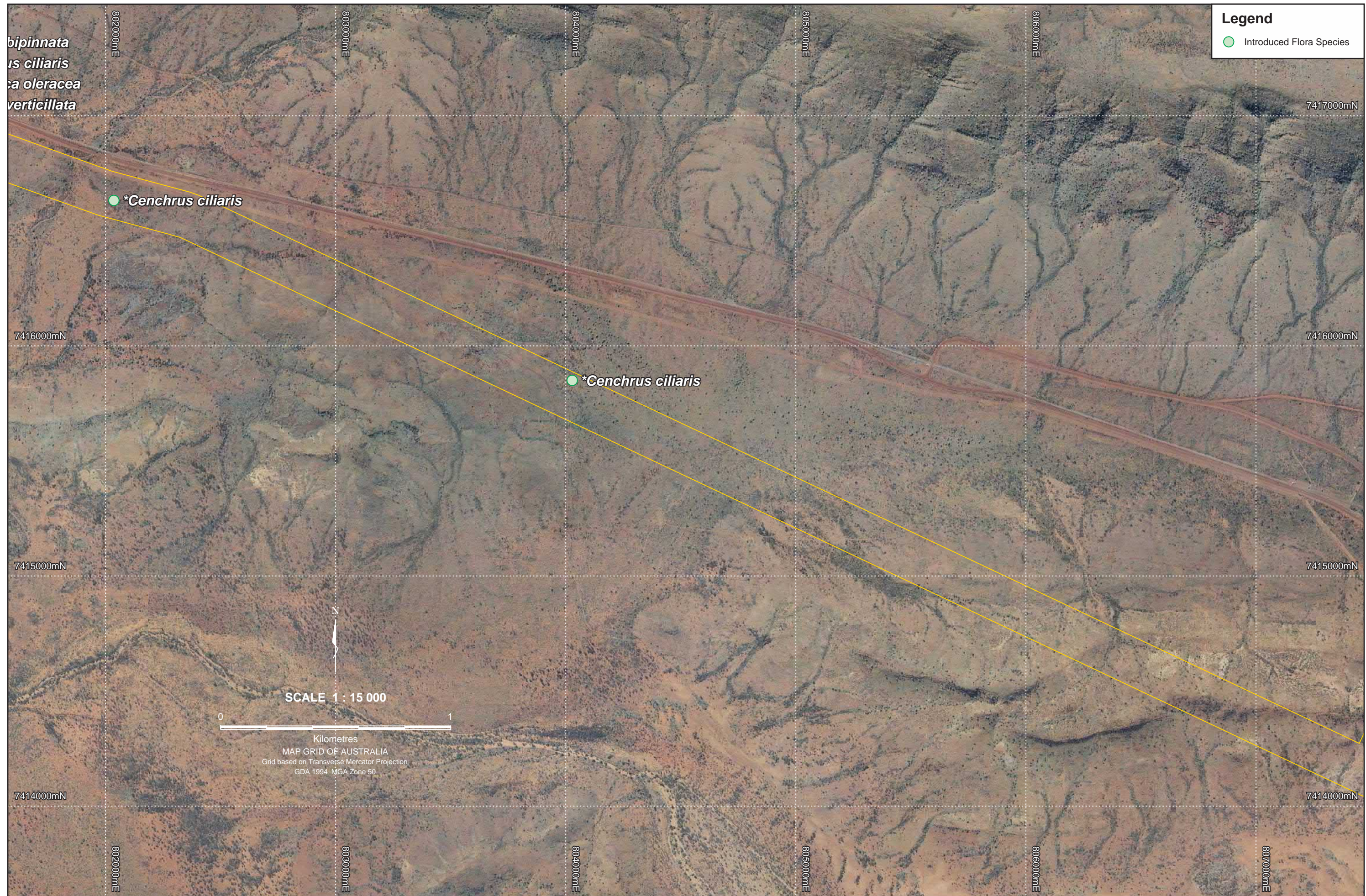


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 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

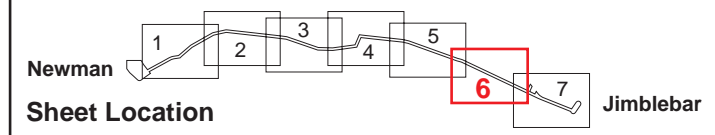
LOCATION OF INTRODUCED PLANT SPECIES

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **5e**
 Plan No. **NJ-022**



Legend
 ● Introduced Flora Species

SCALE 1 : 15 000
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 Kilometres
 MAP GRID OF AUSTRALIA
 Grid based on Transverse Mercator Projection
 GDA 1994 MGA Zone 50




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 Job Number: 09.063

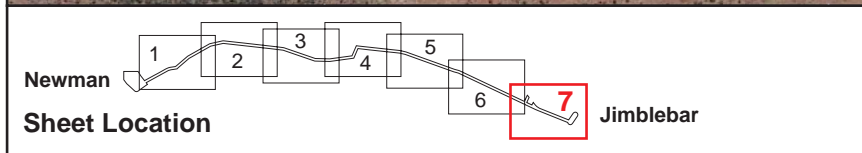
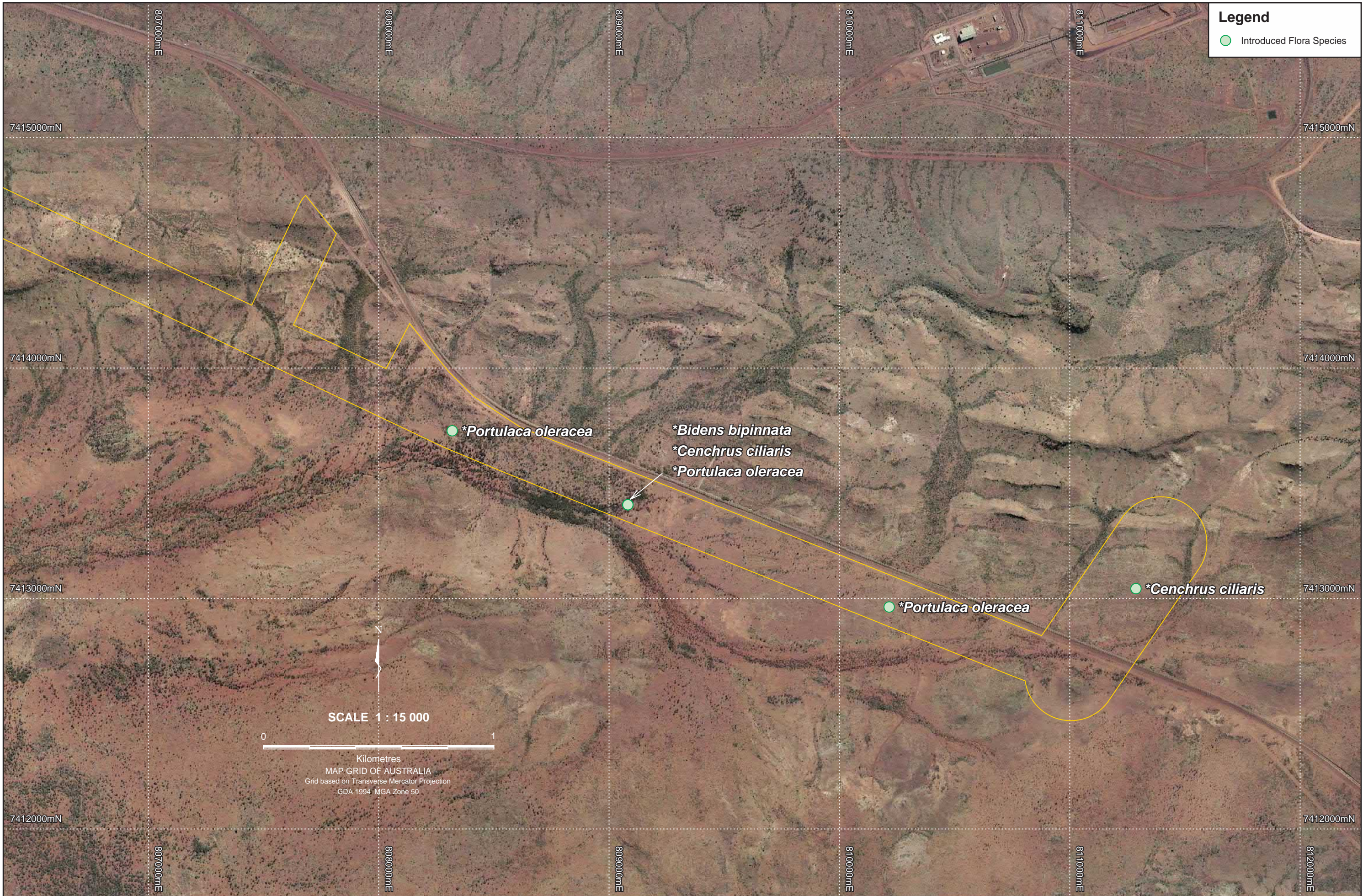
Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**LOCATION OF
 INTRODUCED PLANT SPECIES**

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **5f**
 Plan No. **NJ-023**

A3

Legend
 Introduced Flora Species



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 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

**LOCATION OF
 INTRODUCED PLANT SPECIES**

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **5g**
 Plan No. **NJ-024**

Legend

● Introduced Flora Species



Client: **WORLEYPARSONS**
**NEWMAN TO JIMBLEBAR
TRANSMISSION LINE AND
NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION**
Project: **ASSESSMENT**

09.063

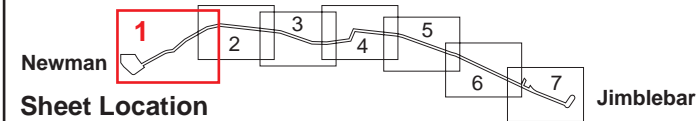
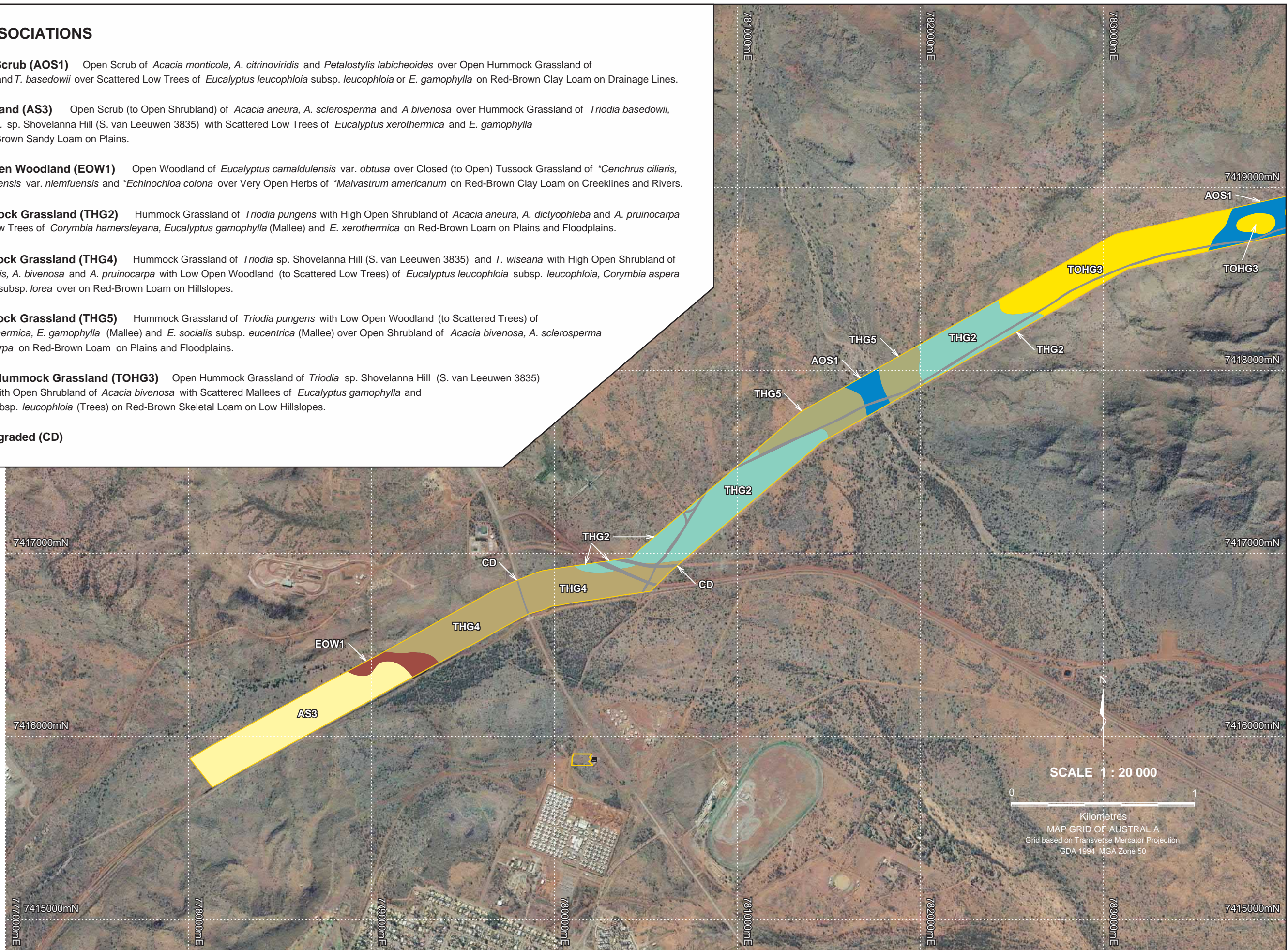
LOCATIONS OF INTRODUCED PLANT SPECIES

Date: 12 August 2009
Scale: 1:1000
Author: K.M. / S.C.
Figure No. **5h**
Plan No. **NJ-040**

A4

VEGETATION ASSOCIATIONS

- Acacia Open Scrub (AOS1)** Open Scrub of *Acacia monticola*, *A. citrinoviridis* and *Petalostylis labicheoides* over Open Hummock Grassland of *Triodia pungens* and *T. basedowii* over Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* or *E. gamophylla* on Red-Brown Clay Loam on Drainage Lines.
- Acacia Shrubland (AS3)** Open Scrub (to Open Shrubland) of *Acacia aneura*, *A. sclerosperma* and *A. bivenosa* over Hummock Grassland of *Triodia basedowii*, *T. pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of *Eucalyptus xerothermica* and *E. gamophylla* (Mallee) on Red-Brown Sandy Loam on Plains.
- Eucalyptus Open Woodland (EOW1)** Open Woodland of *Eucalyptus camaldulensis* var. *obtusata* over Closed (to Open) Tussock Grassland of **Cenchrus ciliaris*, **Cynodon nlemfuensis* var. *nlemfuensis* and **Echinochloa colona* over Very Open Herbs of **Malvastrum americanum* on Red-Brown Clay Loam on Creeklines and Rivers.
- Triodia Hummock Grassland (THG2)** Hummock Grassland of *Triodia pungens* with High Open Shrubland of *Acacia aneura*, *A. dictyophleba* and *A. pruinocarpa* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Plains and Floodplains.
- Triodia Hummock Grassland (THG4)** Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *T. wiseana* with High Open Shrubland of *Acacia citrinoviridis*, *A. bivenosa* and *A. pruinocarpa* with Low Open Woodland (to Scattered Low Trees) of *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia aspera* and *Hakea lorea* subsp. *lorea* over on Red-Brown Loam on Hillslopes.
- Triodia Hummock Grassland (THG5)** Hummock Grassland of *Triodia pungens* with Low Open Woodland (to Scattered Trees) of *Eucalyptus xerothermica*, *E. gamophylla* (Mallee) and *E. socialis* subsp. *eucentrica* (Mallee) over Open Shrubland of *Acacia bivenosa*, *A. sclerosperma* and *A. ancistrocarpa* on Red-Brown Loam on Plains and Floodplains.
- Triodia Open Hummock Grassland (TOHG3)** Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *T. wiseana* with Open Shrubland of *Acacia bivenosa* with Scattered Mallees of *Eucalyptus gamophylla* and *E. leucophloia* subsp. *leucophloia* (Trees) on Red-Brown Skeletal Loam on Low Hillslopes.
- Completely Degraded (CD)**



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 Job Number: 09.063

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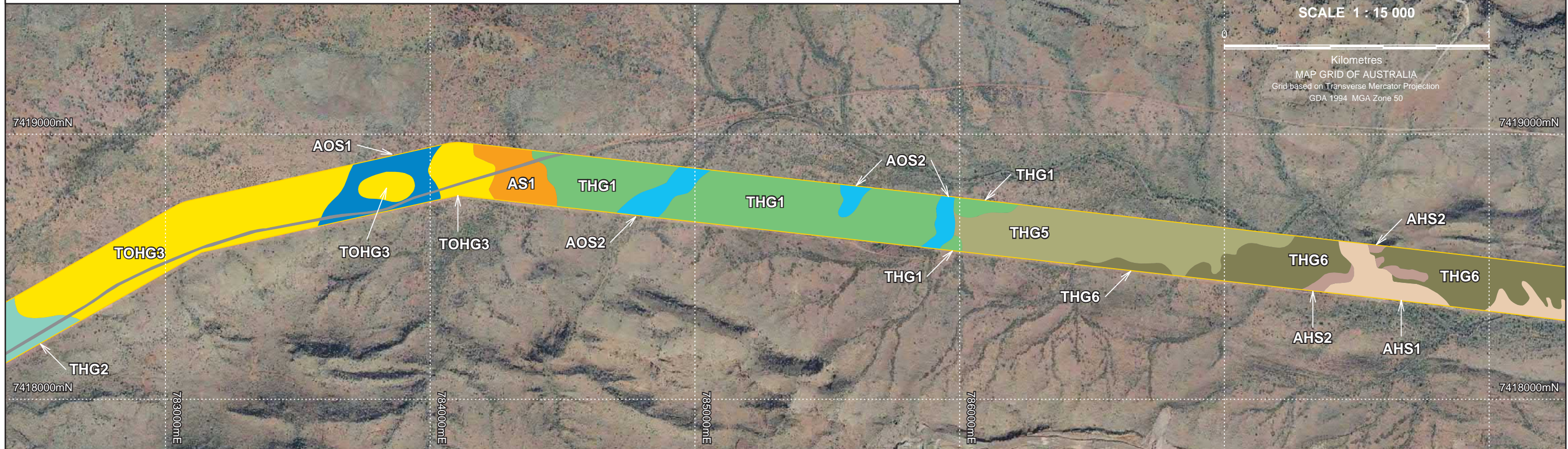
VEGETATION ASSOCIATIONS

Date: 13 August 2009
 Scale: 1:20 000
 Figure No. **6a**
 Plan No. **NJ-025**

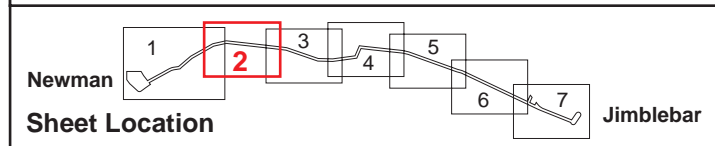
A3

VEGETATION ASSOCIATIONS

- Acacia High Shrubland (AHS1)** High Shrubland of *Acacia citrinoviridis*, *A. bivenosa* and *Petalostylis labicheoides* over Hummock Grassland of *Triodia pungens* with Scattered Low Trees of *Eucalyptus xerothermica* on Red-Brown Alluvial on Drainage Lines and Floodplains.
- Acacia High Shrubland (AHS2)** High Shrubland of *Acacia ligulata*, *A. pruinocarpa* and *Petalostylis labicheoides* over Closed Hummock Grassland of *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Loam on Hillslopes and Drainage Lines.
- Acacia Open Scrub (AOS1)** Open Scrub of *Acacia monticola*, *A. citrinoviridis* and *Petalostylis labicheoides* over Open Hummock Grassland of *Triodia pungens* and *T. basedowii* over Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* or *E. gamophylla* on Red-Brown Clay Loam on Drainage Lines.
- Acacia Open Scrub (AOS2)** Open Scrub of *Acacia melleodora*, *Petalostylis labicheoides* and *A. ancistrocarpa* over Very Open Hummock Grassland of *Triodia wiseana* and *T. pungens* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Minor Drainage Lines.



- Acacia Shrubland (AS1)** Shrubland of *Acacia bivenosa* and *A. adsurgens* over Very Open Hummock Grassland of *Triodia wiseana* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Loam on Hillslopes.
- Triodia Hummock Grassland (THG1)** Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Shrubs of *Acacia synchronicia* and *A. bivenosa* over on Red-Brown Loam on Hillslopes.
- Triodia Hummock Grassland (THG2)** Hummock Grassland of *Triodia pungens* with High Open Shrubland of *Acacia aneura*, *A. dictyophleba* and *A. pruinocarpa* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Plains and Floodplains.
- Triodia Hummock Grassland (THG5)** Hummock Grassland of *Triodia pungens* with Low Open Woodland (to Scattered Trees) of *Eucalyptus xerothermica*, *E. gamophylla* (Mallee) and *E. socialis* subsp. *eucentrica* (Mallee) over Open Shrubland of *Acacia bivenosa*, *A. sclerosperma* and *A. ancistrocarpa* on Red-Brown Loam on Plains and Floodplains.
- Triodia Hummock Grassland (THG6)** Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Skeletal Loam on Hillslopes.
- Triodia Open Hummock Grassland (TOHG3)** Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *T. wiseana* with Open Shrubland of *Acacia bivenosa* with Scattered Mallees of *Eucalyptus gamophylla* and *E. leucophloia* subsp. *leucophloia* (Trees) on Red-Brown Skeletal Loam on Low Hillslopes.
- Completely Degraded (CD)**



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Status:
Job Number: 09.063

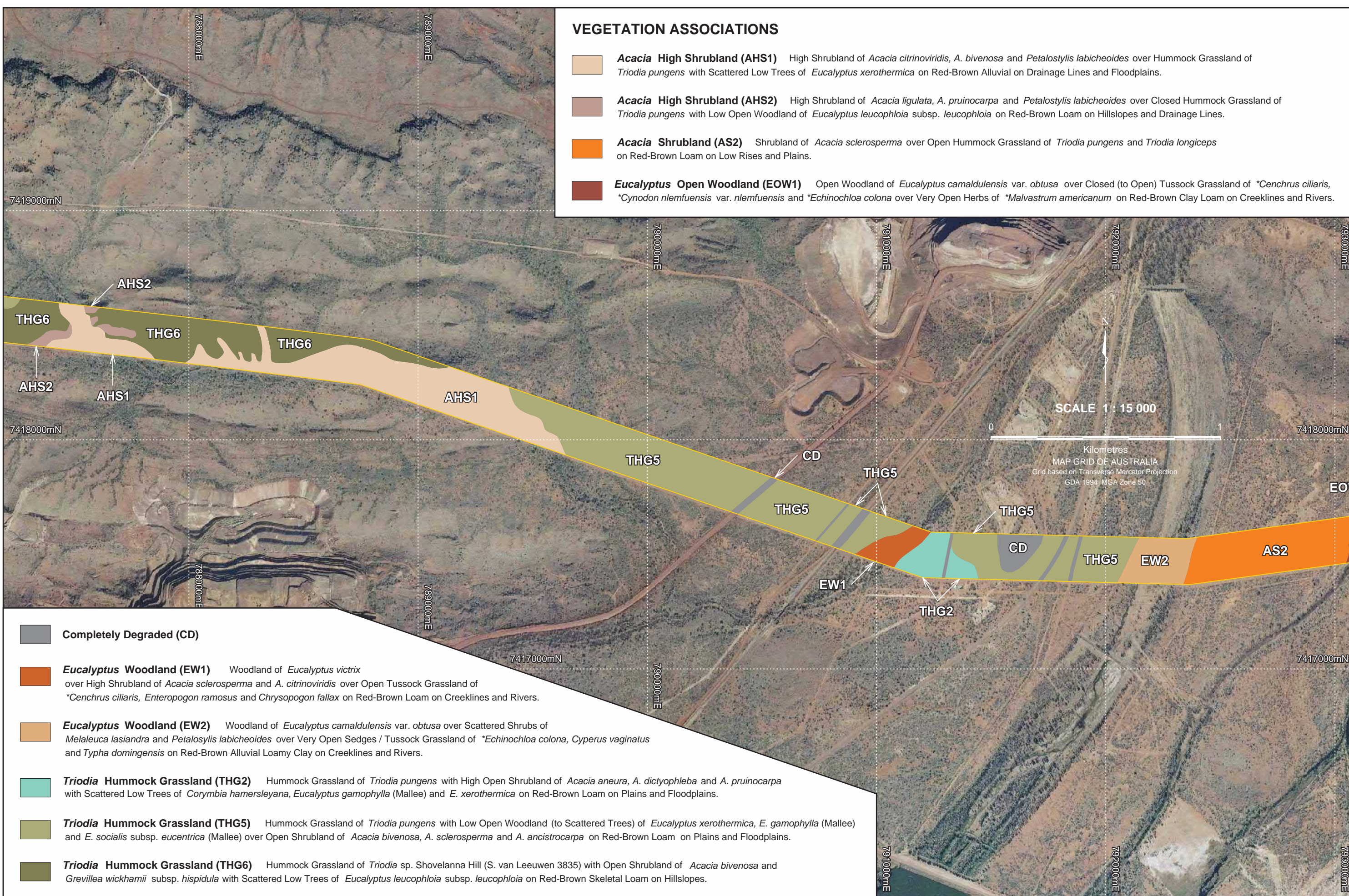
Client: **WORLEYPARSONS**
Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

VEGETATION ASSOCIATIONS

Date:	13 August 2009
Scale:	1:15 000
Figure No.:	6b
Plan No.:	NJ-026

VEGETATION ASSOCIATIONS

- Acacia High Shrubland (AHS1)** High Shrubland of *Acacia citrinoviridis*, *A. bivenosa* and *Petalostylis labicheoides* over Hummock Grassland of *Triodia pungens* with Scattered Low Trees of *Eucalyptus xerothermica* on Red-Brown Alluvial on Drainage Lines and Floodplains.
- Acacia High Shrubland (AHS2)** High Shrubland of *Acacia ligulata*, *A. pruinocarpa* and *Petalostylis labicheoides* over Closed Hummock Grassland of *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Loam on Hillslopes and Drainage Lines.
- Acacia Shrubland (AS2)** Shrubland of *Acacia sclerosperma* over Open Hummock Grassland of *Triodia pungens* and *Triodia longiceps* on Red-Brown Loam on Low Rises and Plains.
- Eucalyptus Open Woodland (EOW1)** Open Woodland of *Eucalyptus camaldulensis* var. *obtusata* over Closed (to Open) Tussock Grassland of **Cenchrus ciliaris*, **Cynodon nlemfuensis* var. *nlemfuensis* and **Echinochloa colona* over Very Open Herbs of **Malvastrum americanum* on Red-Brown Clay Loam on Creeklines and Rivers.



Completely Degraded (CD)

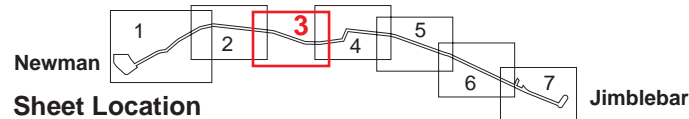
Eucalyptus Woodland (EW1) Woodland of *Eucalyptus victrix* over High Shrubland of *Acacia sclerosperma* and *A. citrinoviridis* over Open Tussock Grassland of **Cenchrus ciliaris*, *Enteropogon ramosus* and *Chrysopogon fallax* on Red-Brown Loam on Creeklines and Rivers.

Eucalyptus Woodland (EW2) Woodland of *Eucalyptus camaldulensis* var. *obtusata* over Scattered Shrubs of *Melaleuca lasiandra* and *Petalostylis labicheoides* over Very Open Sedges / Tussock Grassland of **Echinochloa colona*, *Cyperus vaginatus* and *Typha domingensis* on Red-Brown Alluvial Loamy Clay on Creeklines and Rivers.

Triodia Hummock Grassland (THG2) Hummock Grassland of *Triodia pungens* with High Open Shrubland of *Acacia aneura*, *A. dictyophleba* and *A. pruinocarpa* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Plains and Floodplains.

Triodia Hummock Grassland (THG5) Hummock Grassland of *Triodia pungens* with Low Open Woodland (to Scattered Trees) of *Eucalyptus xerothermica*, *E. gamophylla* (Mallee) and *E. socialis* subsp. *eucentrica* (Mallee) over Open Shrubland of *Acacia bivenosa*, *A. sclerosperma* and *A. ancistrocarpa* on Red-Brown Loam on Plains and Floodplains.

Triodia Hummock Grassland (THG6) Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Skeletal Loam on Hillslopes.



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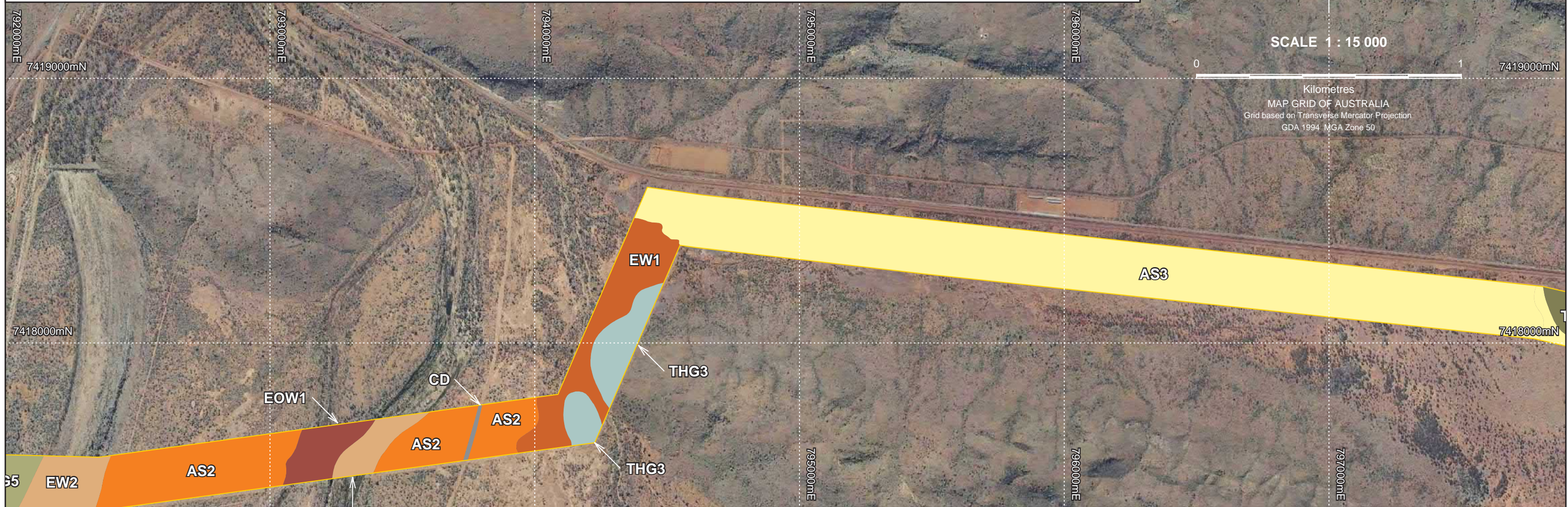
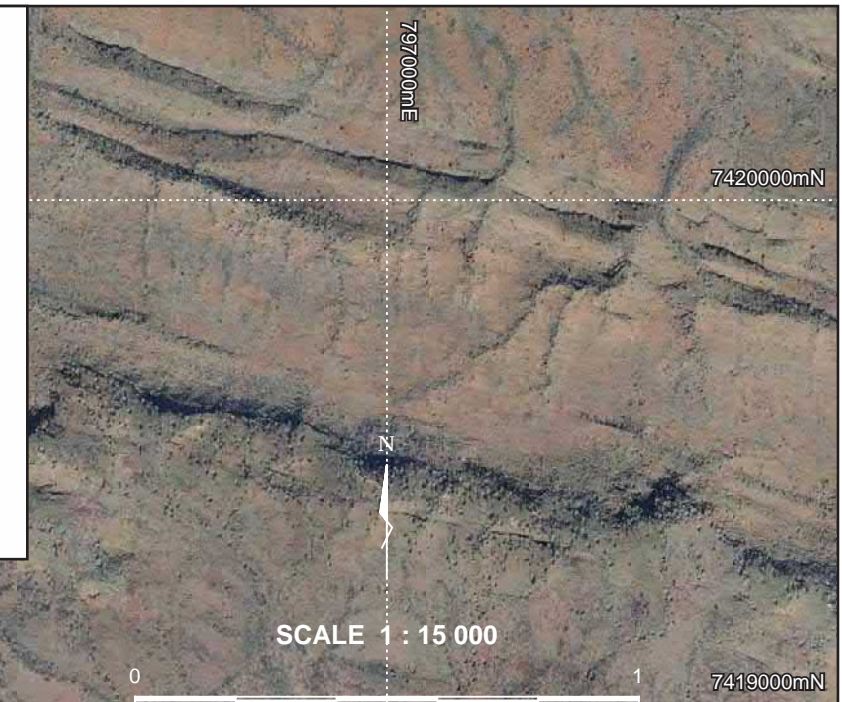
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 Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

VEGETATION ASSOCIATIONS

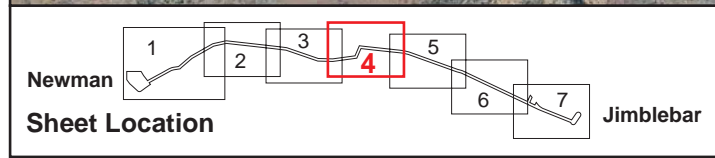
Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **6c**
 Plan No. **NJ-027**

VEGETATION ASSOCIATIONS

- Acacia Shrubland (AS2)** Shrubland of *Acacia sclerosperma* over Open Hummock Grassland of *Triodia pungens* and *Triodia longiceps* on Red-Brown Loam on Low Rises and Plains.
- Acacia Shrubland (AS3)** Open Scrub (to Open Shrubland) of *Acacia aneura*, *A. sclerosperma* and *A. bivenosa* over Hummock Grassland of *Triodia basedowii*, *T. pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of *Eucalyptus xerothermica* and *E. gamophylla* (Mallee) on Red-Brown Sandy Loam on Plains.
- Eucalyptus Open Woodland (EOW1)** Open Woodland of *Eucalyptus camaldulensis* var. *obtusa* over Closed (to Open) Tussock Grassland of **Cenchrus ciliaris*, **Cynodon nlemfuensis* var. *nlemfuensis* and **Echinochloa colona* over Very Open Herbs of **Malvastrum americanum* on Red-Brown Clay Loam on Creeklines and Rivers.
- Eucalyptus Woodland (EW1)** Woodland of *Eucalyptus victrix* over High Shrubland of *Acacia sclerosperma* and *A. citrinoviridis* over Open Tussock Grassland of **Cenchrus ciliaris*, *Enteropogon ramosus* and *Chrysopogon fallax* on Red-Brown Loam on Creeklines and Rivers.
- Eucalyptus Woodland (EW2)** Woodland of *Eucalyptus camaldulensis* var. *obtusa* over Scattered Shrubs of *Melaleuca lasiandra* and *Petalosyilis labicheoides* over Very Open Sedges / Tussock Grassland of **Echinochloa colona*, *Cyperus vaginatus* and *Typha domingensis* on Red-Brown Alluvial Loamy Clay on Creeklines and Rivers.



- Triodia Hummock Grassland (THG3)** Hummock Grassland of *Triodia basedowii* and *T. pungens* with High Open Shrubland of *Acacia bivenosa*, *A. synchronicia* and *A. sclerosperma* with Scattered Low Trees of *Eucalyptus gamophylla* (Mallee) and *E. leucophloia* subsp. *leucophloia* on Skeletal Red-Brown Loam on Low Hillslopes.
- Triodia Hummock Grassland (THG5)** Hummock Grassland of *Triodia pungens* with Low Open Woodland (to Scattered Trees) of *Eucalyptus xerothermica*, *E. gamophylla* (Mallee) and *E. socialis* subsp. *eucentrica* (Mallee) over Open Shrubland of *Acacia bivenosa*, *A. sclerosperma* and *A. ancistrocarpa* on Red-Brown Loam on Plains and Floodplains.
- Triodia Hummock Grassland (THG6)** Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Skeletal Loam on Hillslopes.
- Completely Degraded (CD)**



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Status:
Job Number: 09.063

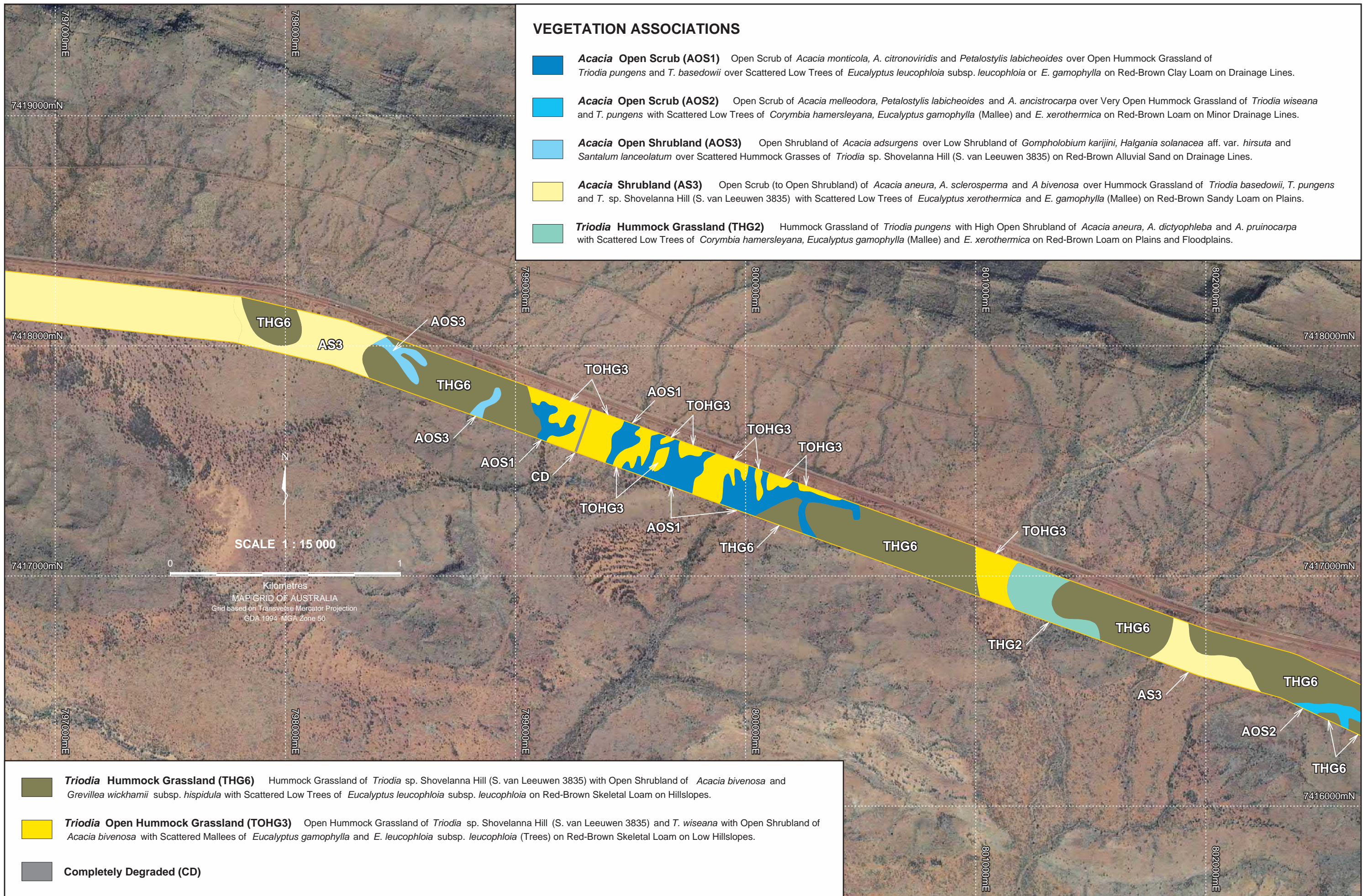
Client: **WORLEYPARSONS**
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TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION ASSESSMENT**

VEGETATION ASSOCIATIONS

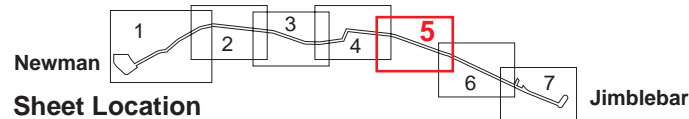
Date: 13 August 2009
Scale: 1:15 000
Figure No. 6d
Plan No. NJ-028

VEGETATION ASSOCIATIONS

- Acacia Open Scrub (AOS1)** Open Scrub of *Acacia monticola*, *A. citronviridis* and *Petalostylis labicheoides* over Open Hummock Grassland of *Triodia pungens* and *T. basedowii* over Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* or *E. gamophylla* on Red-Brown Clay Loam on Drainage Lines.
- Acacia Open Scrub (AOS2)** Open Scrub of *Acacia melleodora*, *Petalostylis labicheoides* and *A. ancistrocarpa* over Very Open Hummock Grassland of *Triodia wiseana* and *T. pungens* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Minor Drainage Lines.
- Acacia Open Shrubland (AOS3)** Open Shrubland of *Acacia adsurgens* over Low Shrubland of *Gompholobium karijini*, *Halgania solanacea* aff. var. *hirsuta* and *Santalum lanceolatum* over Scattered Hummock Grasses of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) on Red-Brown Alluvial Sand on Drainage Lines.
- Acacia Shrubland (AS3)** Open Scrub (to Open Shrubland) of *Acacia aneura*, *A. sclerosperma* and *A. bivenosa* over Hummock Grassland of *Triodia basedowii*, *T. pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of *Eucalyptus xerothermica* and *E. gamophylla* (Mallee) on Red-Brown Sandy Loam on Plains.
- Triodia Hummock Grassland (THG2)** Hummock Grassland of *Triodia pungens* with High Open Shrubland of *Acacia aneura*, *A. dictyophleba* and *A. pruinocarpa* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Plains and Floodplains.



- Triodia Hummock Grassland (THG6)** Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Skeletal Loam on Hillslopes.
- Triodia Open Hummock Grassland (TOHG3)** Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *T. wiseana* with Open Shrubland of *Acacia bivenosa* with Scattered Mallées of *Eucalyptus gamophylla* and *E. leucophloia* subsp. *leucophloia* (Trees) on Red-Brown Skeletal Loam on Low Hillslopes.
- Completely Degraded (CD)**



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 Status:
 Job Number: 09.063

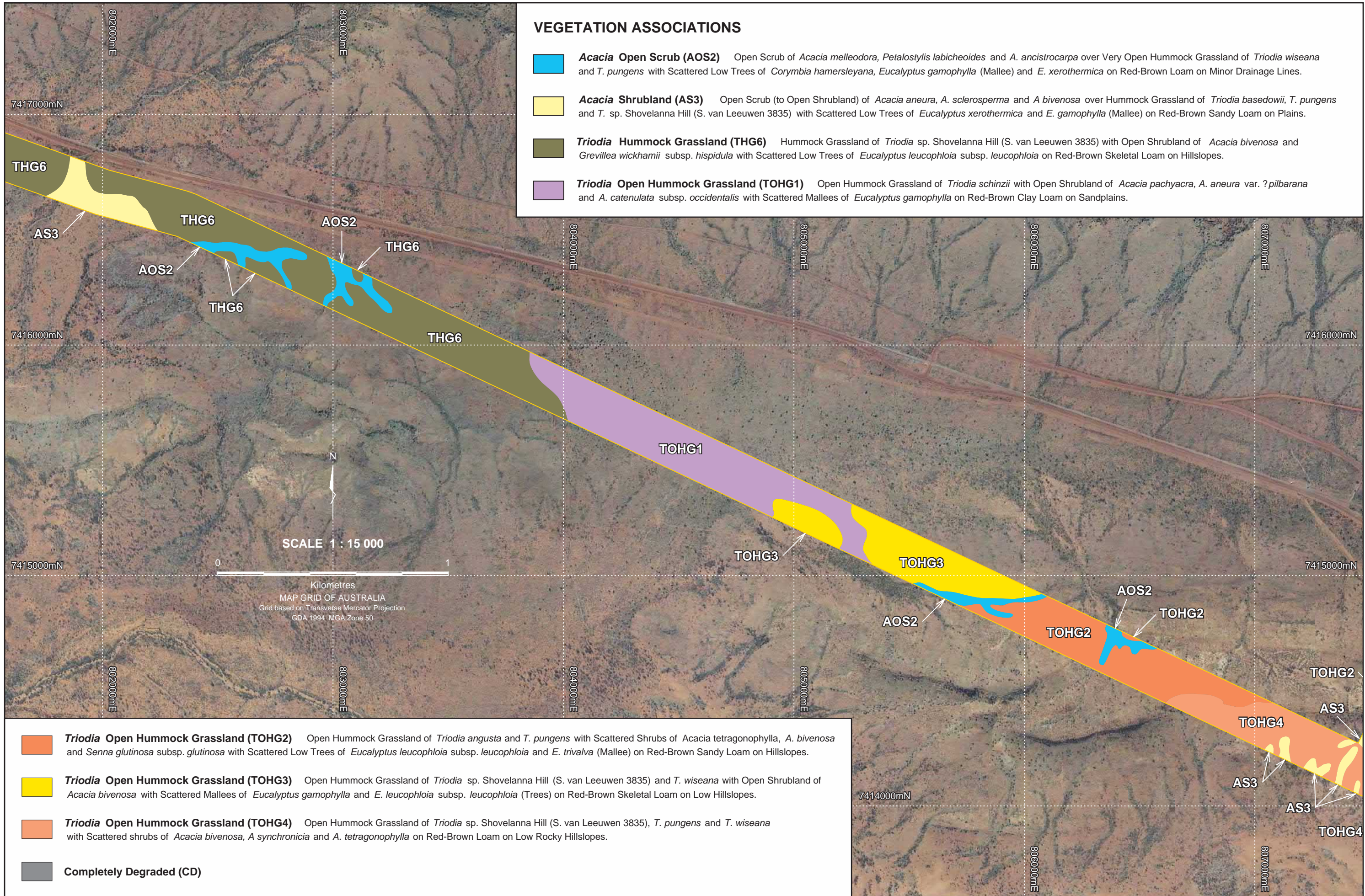
Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

VEGETATION ASSOCIATIONS

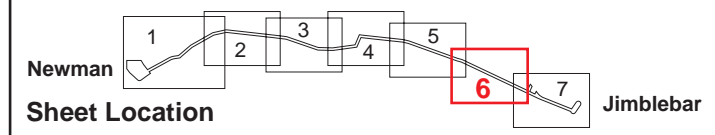
Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **6e**
 Plan No. **NJ-029**

VEGETATION ASSOCIATIONS

- Acacia Open Scrub (AOS2)** Open Scrub of *Acacia melleodora*, *Petalostylis labicheoides* and *A. ancistrocarpa* over Very Open Hummock Grassland of *Triodia wiseana* and *T. pungens* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Minor Drainage Lines.
- Acacia Shrubland (AS3)** Open Scrub (to Open Shrubland) of *Acacia aneura*, *A. sclerosperma* and *A. bivenosa* over Hummock Grassland of *Triodia basedowii*, *T. pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of *Eucalyptus xerothermica* and *E. gamophylla* (Mallee) on Red-Brown Sandy Loam on Plains.
- Triodia Hummock Grassland (THG6)** Hummock Grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Skeletal Loam on Hillslopes.
- Triodia Open Hummock Grassland (TOHG1)** Open Hummock Grassland of *Triodia schinzii* with Open Shrubland of *Acacia pachyacra*, *A. aneura* var. *?pilbarana* and *A. catenulata* subsp. *occidentalis* with Scattered Mallees of *Eucalyptus gamophylla* on Red-Brown Clay Loam on Sandplains.



- Triodia Open Hummock Grassland (TOHG2)** Open Hummock Grassland of *Triodia angusta* and *T. pungens* with Scattered Shrubs of *Acacia tetragonophylla*, *A. bivenosa* and *Senna glutinosa* subsp. *glutinosa* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* and *E. trivalva* (Mallee) on Red-Brown Sandy Loam on Hillslopes.
- Triodia Open Hummock Grassland (TOHG3)** Open Hummock Grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835) and *T. wiseana* with Open Shrubland of *Acacia bivenosa* with Scattered Mallees of *Eucalyptus gamophylla* and *E. leucophloia* subsp. *leucophloia* (Trees) on Red-Brown Skeletal Loam on Low Hillslopes.
- Triodia Open Hummock Grassland (TOHG4)** Open Hummock Grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835), *T. pungens* and *T. wiseana* with Scattered shrubs of *Acacia bivenosa*, *A. synchronicia* and *A. tetragonophylla* on Red-Brown Loam on Low Rocky Hillslopes.
- Completely Degraded (CD)**



env
Australia

Author: E.Chua
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

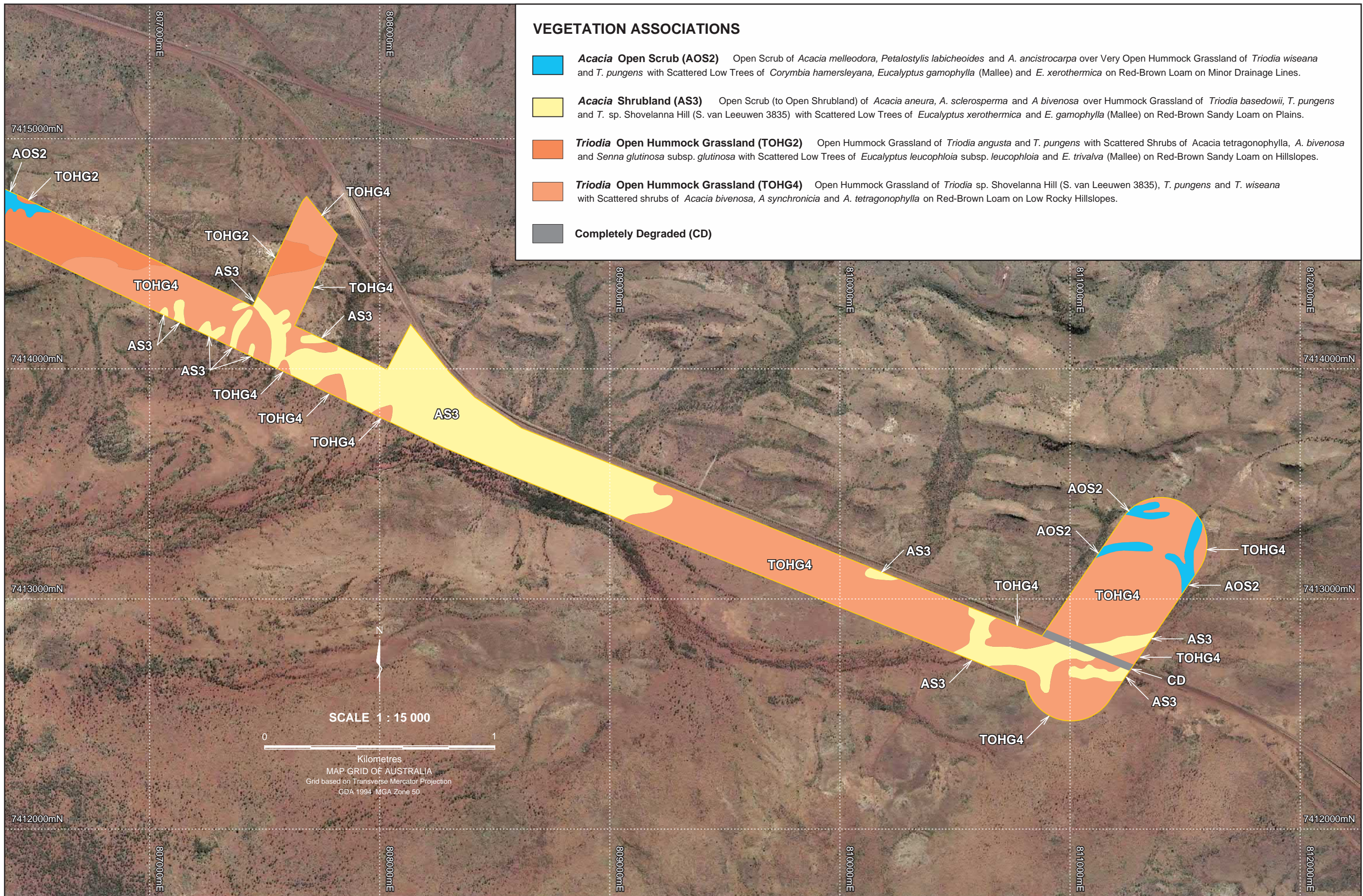
Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

VEGETATION ASSOCIATIONS

Date: 13 August 2009
Scale: 1:15 000
Figure No. 6f
Plan No. NJ-030

VEGETATION ASSOCIATIONS

- Acacia Open Scrub (AOS2)** Open Scrub of *Acacia melleodora*, *Petalostylis labicheoides* and *A. ancistrocarpa* over Very Open Hummock Grassland of *Triodia wiseana* and *T. pungens* with Scattered Low Trees of *Corymbia hamersleyana*, *Eucalyptus gamophylla* (Mallee) and *E. xerothermica* on Red-Brown Loam on Minor Drainage Lines.
- Acacia Shrubland (AS3)** Open Scrub (to Open Shrubland) of *Acacia aneura*, *A. sclerosperma* and *A. bivenosa* over Hummock Grassland of *Triodia basedowii*, *T. pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of *Eucalyptus xerothermica* and *E. gamophylla* (Mallee) on Red-Brown Sandy Loam on Plains.
- Triodia Open Hummock Grassland (TOHG2)** Open Hummock Grassland of *Triodia angusta* and *T. pungens* with Scattered Shrubs of *Acacia tetragonophylla*, *A. bivenosa* and *Senna glutinosa* subsp. *glutinosa* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* and *E. trivalva* (Mallee) on Red-Brown Sandy Loam on Hillslopes.
- Triodia Open Hummock Grassland (TOHG4)** Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *T. pungens* and *T. wiseana* with Scattered shrubs of *Acacia bivenosa*, *A. synchronica* and *A. tetragonophylla* on Red-Brown Loam on Low Rocky Hillslopes.
- Completely Degraded (CD)**



Sheet Location

Newman 1 2 3 4 5 6 7 Jimblebar

Author: E.Chua
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT**

VEGETATION ASSOCIATIONS


Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **6g**
 Plan No. **NJ-031**

Vegetation Association Legend

- TOHG5** Open Hummock Grassland of *Triodia wiseana* and *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Eucalyptus leucophloia* over High Shrubland of *Acacia bivenosa*, *A. kempeana* and *A. aneura* var. *aneura* over Very Open Tussock Grassland of **Cenchrus ciliaris* on Red-Brown Sandy Loam on a Low Hill.

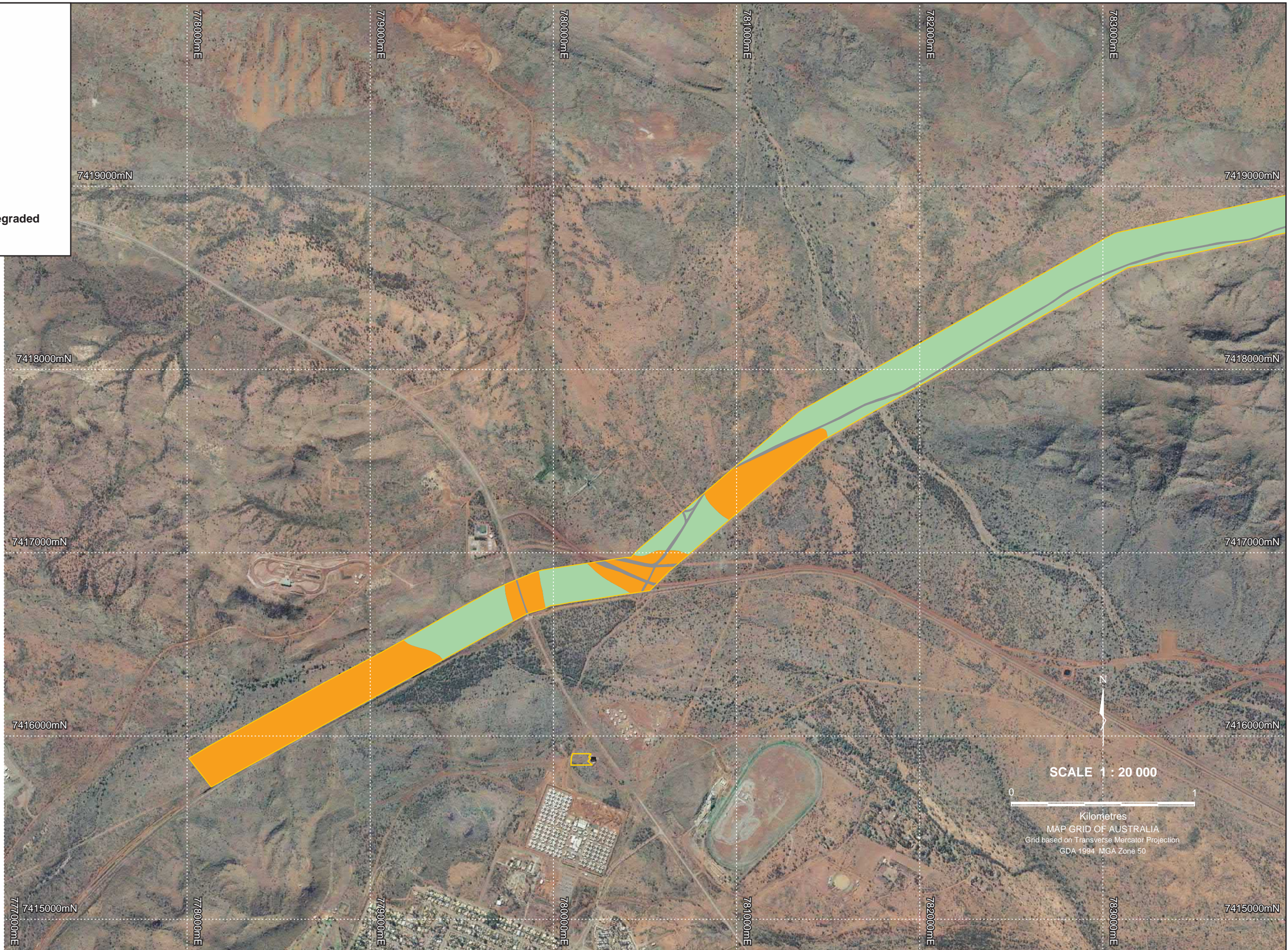
- Disturbed**



	Client: WORLEYPARSONS	VEGETATION ASSOCIATIONS	Date: 19 August 2009
	NEWMAN POWER STATION AND SUBSTATION FLORA AND VEGETATION ASSESSMENT		Scale: 1:1000
Project: ASSESSMENT	09.063	A4	Author: K.M. / S.C.
			Figure No. 6h
			Plan No. NJ-041

**VEGETATION
CONDITION**

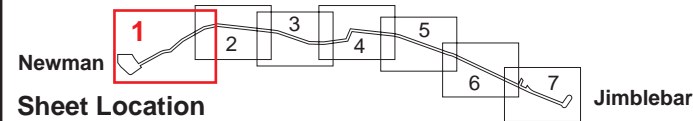
- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded



SCALE 1 : 20 000



Kilometres
MAP GRID OF AUSTRALIA
Grid based on Transverse Mercator Projection
GDA 1994 MGA Zone 50



Author: E.Chua
Drawn: S.Coleman
Status:
Job Number: 09.063

Client: **WORLEYPARSONS**
Project: **NEWMAN TO JIMBLEBAR
TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION ASSESSMENT**

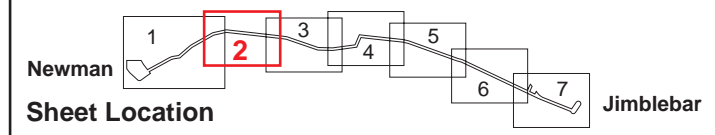
VEGETATION CONDITION

Date: 13 August 2009
Scale: 1:20 000
Figure No. **7a**
Plan No. **NJ-032**

A3

**VEGETATION
CONDITION**

- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded

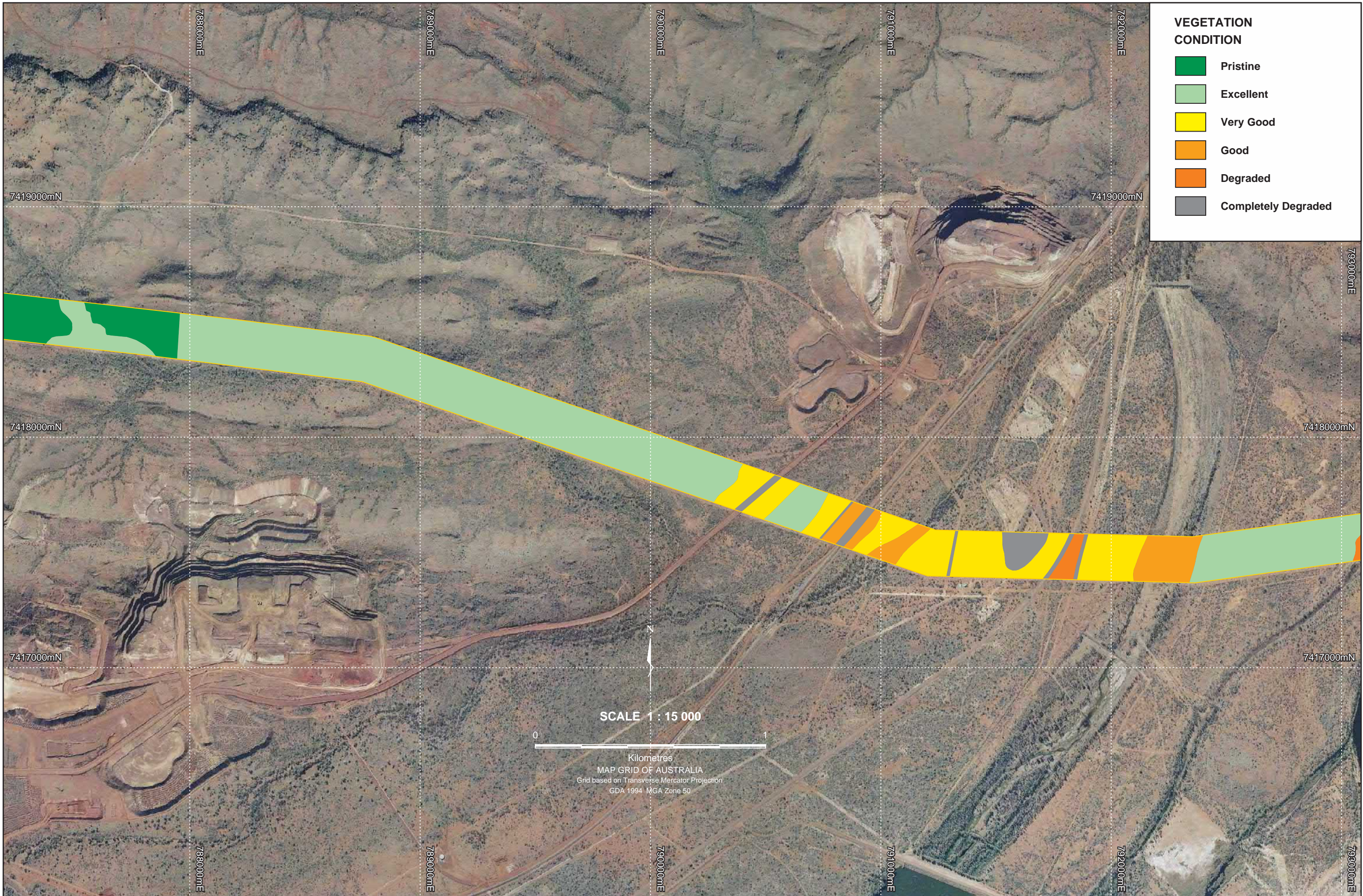


Author: E.Chua
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 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

VEGETATION CONDITION

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **7b**
 Plan No. **NJ-033**



VEGETATION CONDITION

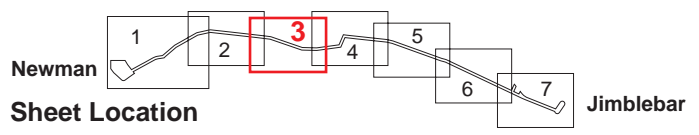
- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded

SCALE 1 : 15 000

0 ————— 1

Kilometres

MAP GRID OF AUSTRALIA
Grid based on Transverse Mercator Projection
GDA 1994 MGA Zone 50



Author: E.Chua
Drawn: S.Coleman
Status:
Job Number: 09.063

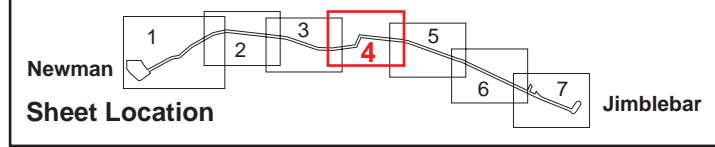
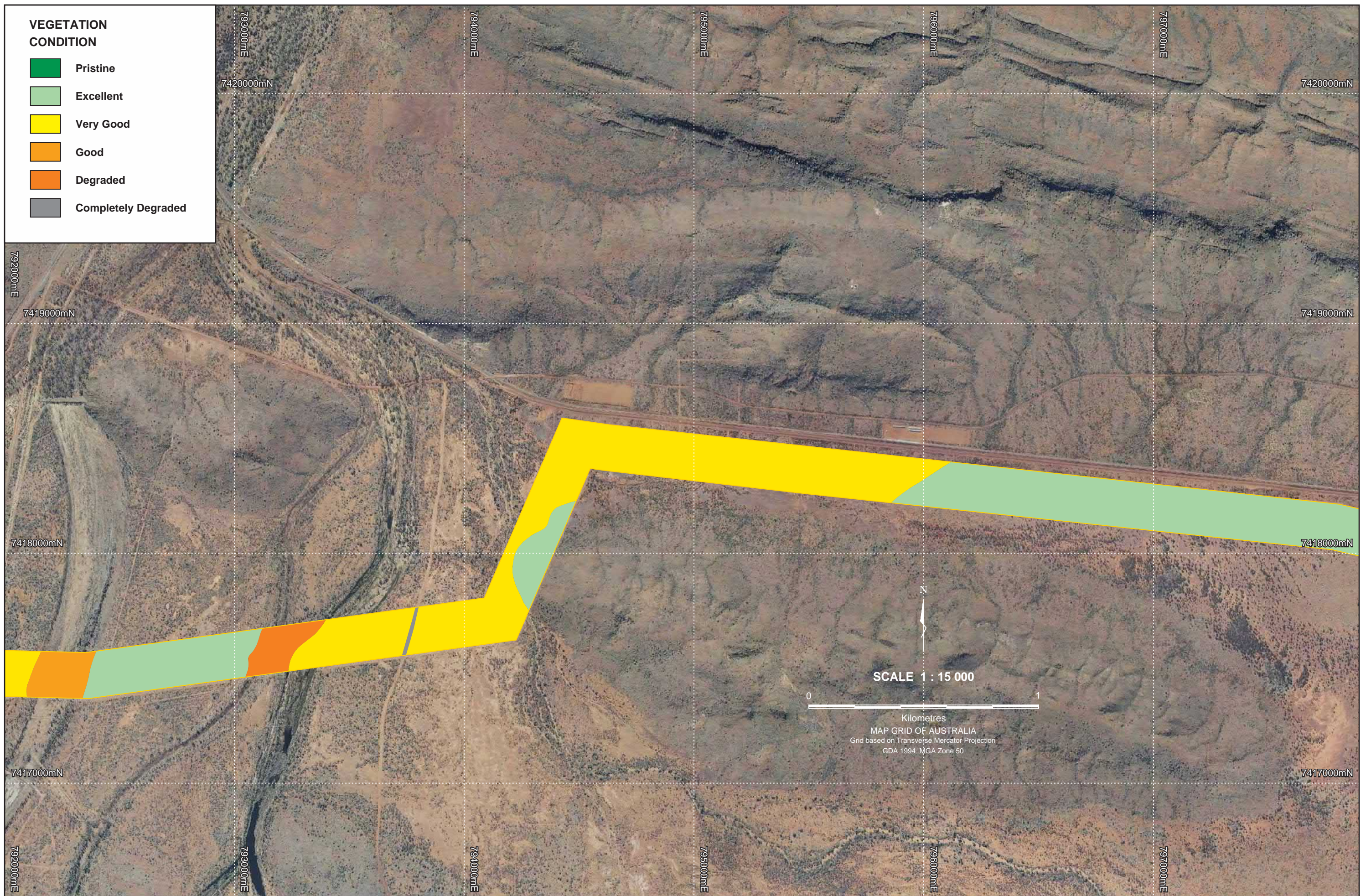
Client: **WORLEYPARSONS**
Project: **NEWMAN TO JIMBLEBAR
TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION ASSESSMENT**

VEGETATION CONDITION

Date: 13 August 2009
Scale: 1:15 000
Figure No. **7c**
Plan No. **NJ-034**

VEGETATION CONDITION

- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded

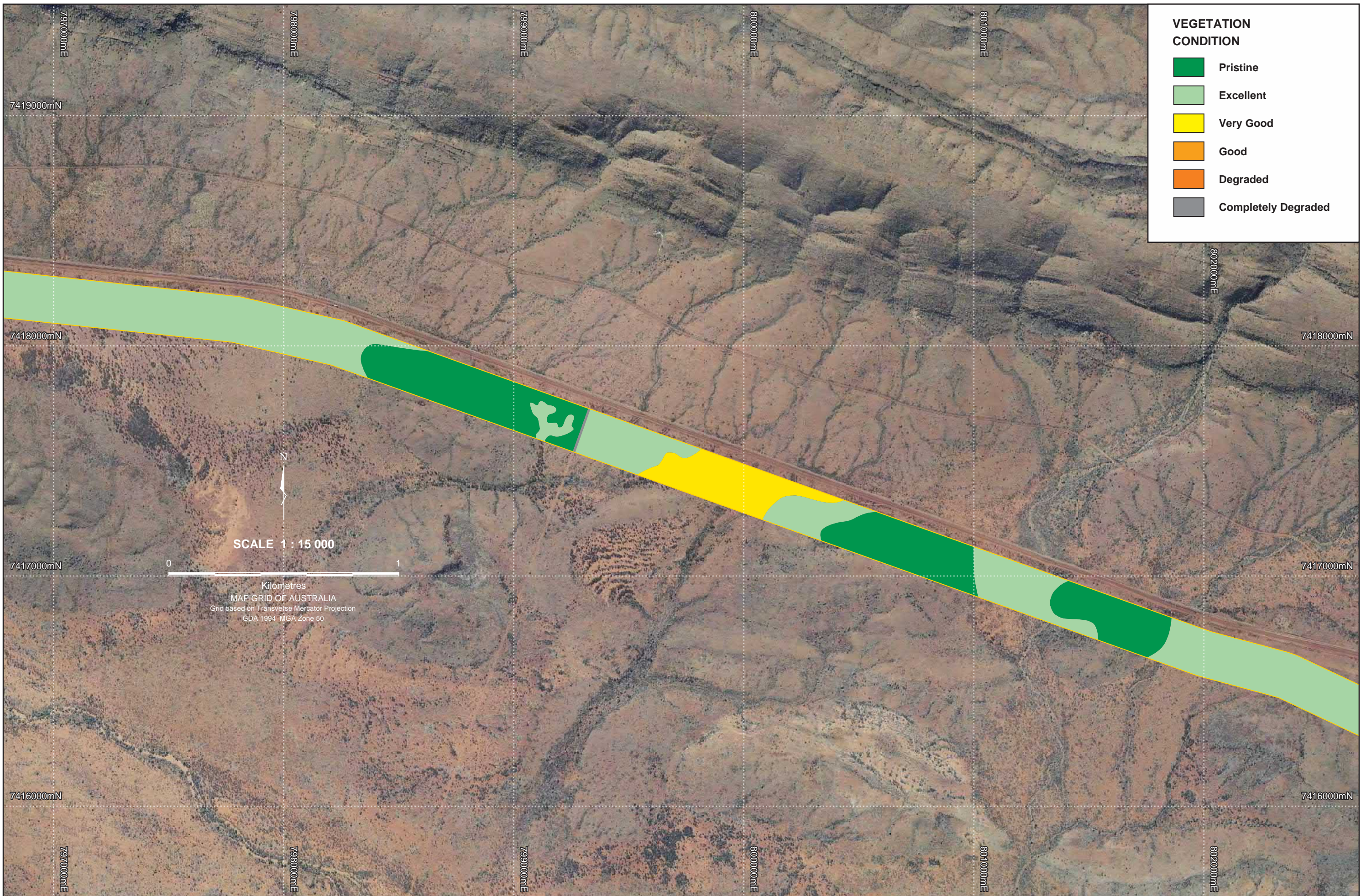


Author: E.Chua
 Drawn: S.Coleman
 Status:
 Job Number: 09.063

Client: **WORLEYPARSONS**
 Project: **NEWMAN TO JIMBLEBAR
 TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
 FLORA AND VEGETATION ASSESSMENT**

VEGETATION CONDITION

Date: 13 August 2009
 Scale: 1:15 000
 Figure No. **7d**
 Plan No. **NJ-035**



VEGETATION CONDITION

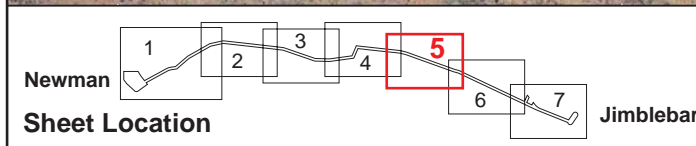
- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded

SCALE 1 : 15 000

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Kilometres

MAP GRID OF AUSTRALIA
Grid based on Transverse Mercator Projection
GDA 1994 MGA Zone 50



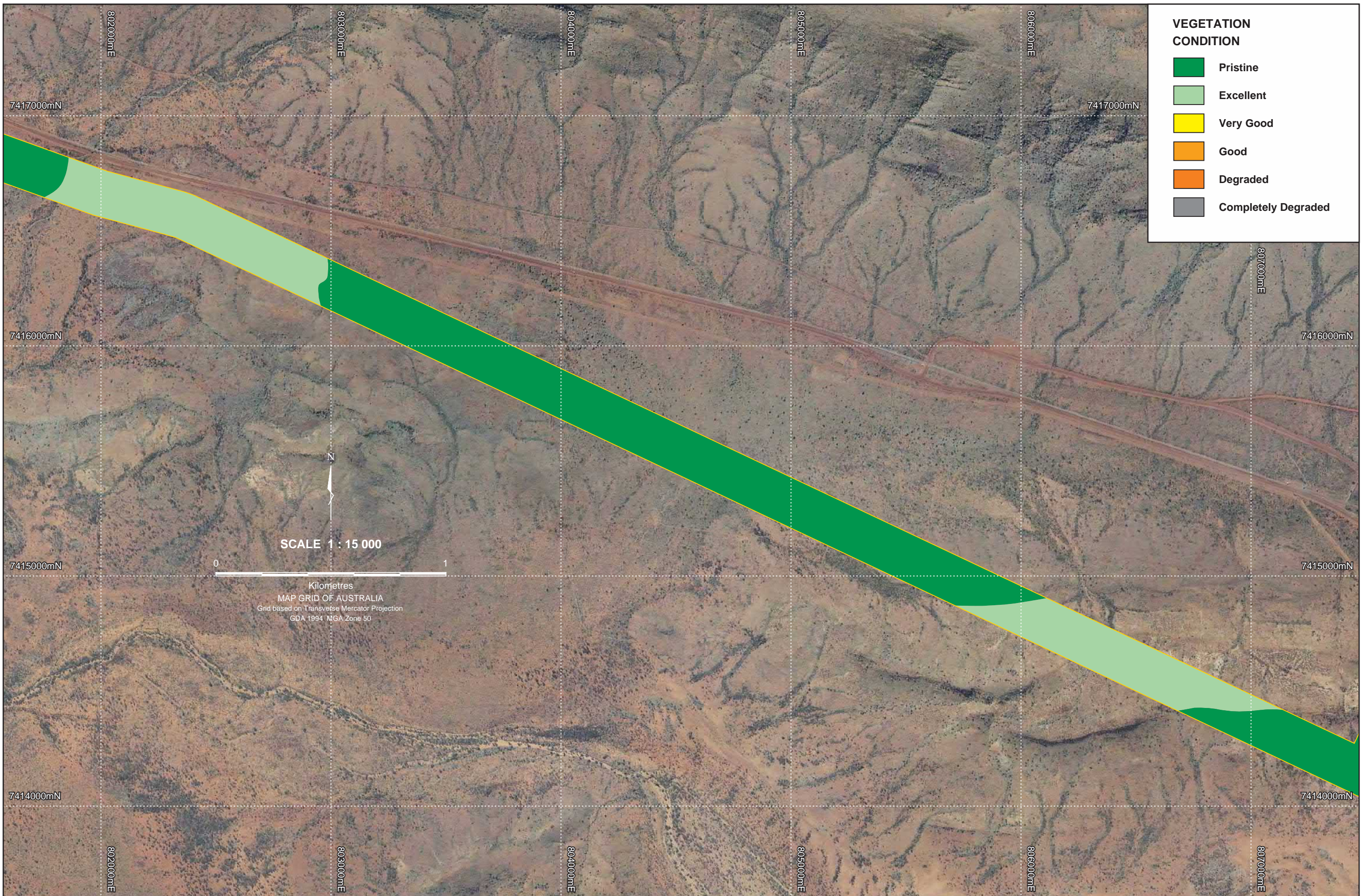
Author: E.Chua
Drawn: S.Coleman
Status:
Job Number: 09.063

Client: **WORLEYPARSONS**

Project: **NEWMAN TO JIMBLEBAR
TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION ASSESSMENT**

VEGETATION CONDITION

Date: 13 August 2009
Scale: 1:15 000
Figure No. **7e**
Plan No. **NJ-036**



VEGETATION CONDITION

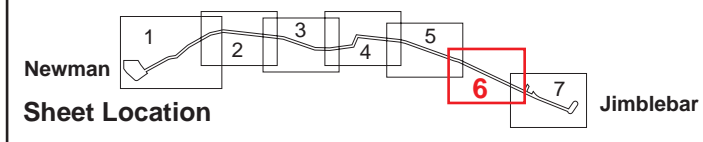
- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded

SCALE 1 : 15 000

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Kilometres

MAP GRID OF AUSTRALIA
Grid based on Transverse Mercator Projection
GDA 1994 MGA Zone 50

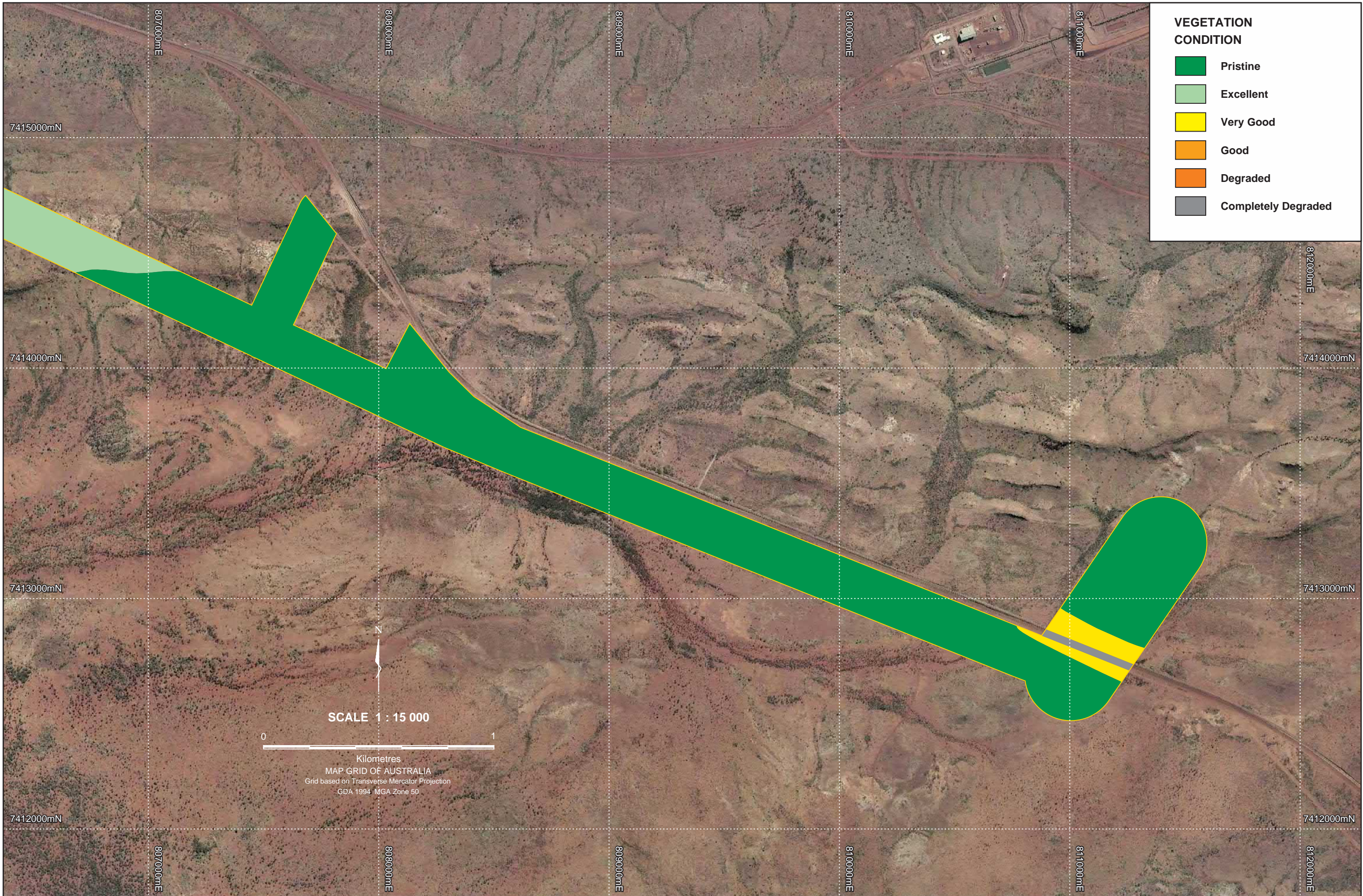


Author: E.Chua
Drawn: S.Coleman
Status:
Job Number: 09.063

Client: **WORLEYPARSONS**
Project: **NEWMAN TO JIMBLEBAR
TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION ASSESSMENT**

VEGETATION CONDITION

Date: 13 August 2009
Scale: 1:15 000
Figure No. **7f**
Plan No. **NJ-037**



VEGETATION CONDITION

- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded

SCALE 1 : 15 000

0 ————— 1

Kilometres

MAP GRID OF AUSTRALIA
Grid based on Transverse Mercator Projection
GDA 1994 MGA Zone 50

Sheet Location

Newman 1 2 3 4 5 6 7 Jimblebar

Author: E.Chua
Drawn: S.Coleman
Status:
Job Number: 09.063

Client: **WORLEYPARSONS**

Project: **NEWMAN TO JIMBLEBAR
TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION
FLORA AND VEGETATION ASSESSMENT**


VEGETATION CONDITION

Date: 13 August 2009
Scale: 1:15 000
Figure No. **7g**
Plan No. **NJ-038**

Legend

- Degraded to Completely Degraded
- Disturbed



	Client: WORLEYPARSONS	VEGETATION CONDITION	Date: 13 August 2009
	NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION		Scale: 1:1000
	Project: ASSESSMENT		Author: K.M. / S.C.
	09.063		Figure No. 7h
	A4		Plan No. NJ-042

APPENDIX A
DEFINITION OF DECLARED RARE /
PRIORITY / THREATENED FLORA
SPECIES AND SIGNIFICANT
FLORA SPECIES POTENTIALLY
OCCURRING IN THE
PROJECT AREA

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX A

RARE, PRIORITY AND THREATENED FLORA SPECIES

Appendix A1 – Definition of Rare and Priority Flora Species (DEC 2008c)

Conservation Code	Category
R	<p>Declared Rare Flora - Extant Taxa</p> <p>Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.</p>
X	<p>Declared Rare Flora - Presumed Extinct Taxa</p> <p>Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such.</p>
P1	<p>Priority One - Poorly Known Taxa</p> <p>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.</p>
P2	<p>Priority Two - Poorly Known Taxa</p> <p>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 urgently need further survey.</p>
P3	<p>Priority Three - Poorly Known Taxa</p> <p>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.</p>
P4	<p>Priority Four - Rare Taxa</p> <p>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.</p>

Appendix A2 – Categories of Threatened Flora Species
(DEC 2008c)

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

Appendix A3 – Threatened and Priority Flora Species Potentially Occurring in the Project Area

Species	Code	Description (WAH 2009)
<i>Lepidium catapycnon</i>	DRF & Vulnerable	Woody perennial herb or shrub to 0.3 m high. Found on skeletal soils on hillsides.
<i>Amaranthus</i> sp. Todd River (G. Chippendale 482)	P1	Herb.
<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>	P1	Compactly tufted perennial, grass-like or herb, 0.3–0.8 m high, lemma groove muricate. Hardpan plains.
<i>Brachyscome</i> sp. Wanna Munna Flats (S. van Leeuwen 4662)	P1	Herb.
<i>Brunonia</i> sp. long hairs (D.E. Symon 2440)	P1	Erect herb, to 0.07 m high, with long spreading hairs on the leaves; spike to 0.3 m high. Along creeklines.
<i>Crotalaria smithiana</i>	P1	Annual, herb, to 0.4 m high. Fl. yellow, Jun. Regeneration site on floodplain
<i>Eremophila rigida</i>	P1	Bushy shrub, 0.3–4 m high. Fl. cream, Sep. Red sand alluvium. Hardpan plains, stony clay depressions.
<i>Goodenia lyrata</i>	P1	Prostrate herb, with lyrate leaves. Fl. yellow, Aug. Red sandy loam. Near claypan.
<i>Goodenia</i> sp. East Pilbara (AA Mitchell PRP 727)	P1	Open, erect annual or biennial herb to 0.2 m high. Found on clay soil, calcrete pebbles, low undulating plain, or swampy plains.
<i>Goodenia</i> sp. Pilbara calcrete (A.A. Mitchell PRP 1436)	P1	Herb.
<i>Isotropis parviflora</i>	P2	Shrub, 0.1 m high. Fl. white, pink, Mar. Valley slope of ironstone plateau.
<i>Goodenia hartiana</i>	P2	Erect to spreading, multistemmed perennial, herb or shrub (sub-shrub). Fl. blue, purple, Aug – Sep. Sand. Sand dune swales, sandhills.
<i>Acacia subtiliformis</i>	P3	Shrub to tree.
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	P3	Shrub 0.5-1.5m high. Found on skeletal soils over ironstone on hill summits.
<i>Gymnanthera cunninghamii</i>	P3	Erect shrub, 1–2 m high. Fl. cream, yellow, green, Jan–Dec. Sandy soils.
<i>Nicotiana umbratica</i>	P3	Erect, short-lived annual or perennial, herb, 0.3–0.7 m high. Fl. white, Apr–Jun. Shallow soils. Rocky outcrops.
<i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)	P3	Shrub or herb.
<i>Tephrosia</i> sp. Cathedral Gorge (F.H. Mollemans 2420)	P3	Erect shrub 0.25 m. Found on clay-sand and pebbles.
<i>Themeda</i> sp. Hamersley Station (M. E. Trudgen 11431)	P3	Tussocky perennial, grass-like or herb, 0.9–1.8 m high. Fl. Aug. Red clay. Clay pan, grass plain.
<i>Eremophila magnifica</i> subsp. <i>magnifica</i>	P4	Shrub, 0.5–1.5 m high. Fl. blue, Aug–Nov. Skeletal soils over ironstone. Rocky screes.

Source: Department of Environment and Conservation Database Search (March 2009)

APPENDIX B

DEFINITION OF THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX B

DEFINITIONS OF THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

B1: Definitions of Threatened Ecological Communities

Presumed Totally Destroyed (PD)

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

- A) Records within the last 50 years have not been confirmed despite thorough searches or known or likely habitats **or**
- B) All occurrences recorded within the last 50 years have since been destroyed.

Critically Endangered (CR)

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

- A) The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% and **either or both** of the following apply (i or ii)
 - i) geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 5 years)
 - ii) modification throughout its range is continuing such that in the immediate future (within approximately 5 years) the community is unlikely to be capable of being substantially rehabilitated.
- B) Current distribution is limited, and **one or more** of the following apply (i, ii or iii):
 - i) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 5 years)
 - ii) there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes
 - iii) there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes

- C) The ecological community exists only as highly modified occurrences which may be capable of being rehabilitated if such work begins in the immediate future (within approximately 5 years)

Endangered (EN)

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

- A) The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 70% and **either or both** of the following apply (i or ii)
- i) geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term (within approximately 10 years)
 - ii) modification throughout its range is continuing such that in the short term future (within approximately 10 years) the community is unlikely to be capable of being substantially restored or rehabilitated.
- B) Current distribution is limited, and **one or more** of the following apply (i, ii or iii):
- i) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 10 years)
 - ii) there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes
 - iii) there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes
- C) The ecological community exists only as highly modified occurrences which may be capable of being rehabilitated if such work begins in the short term future (within approximately 10 years).

Vulnerable (VU)

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 in the medium to long term future. This will be determined on the basis of the best available information, by it meeting **any one or more** of the following criteria (A, B or C):

- A) The ecological community exists largely as modified occurrences which are likely to be capable of being substantially restored or rehabilitated.
- B) The ecological community can be modified or destroyed and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations.
- C) The ecological community may still be widespread but is believed likely to move into a category of higher threat in the medium to long term future because of existing or impending threatening processes.

Source: Department of Environment and Conservation (2009). *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities*. Department of Environment and Conservation, Perth, Western Australia. Online: www.naturebase.net/

B2: Definitions of Priority Ecological Communities

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

Priority One: Poorly known ecological communities Ecological communities 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.

Priority Two: Poorly known ecological communities. 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.

Priority Three: Poorly known ecological communities

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

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

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

- (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.

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

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

Source: Department of Environment and Conservation (2009). *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities*. Department of Environment and Conservation, Perth, Western Australia. Online: www.naturebase.net/

APPENDIX C
ENVIRONMENTAL WEEDS AND
DECLARED PLANT CATEGORIES
AND INTRODUCED FLORA
SPECIES POTENTIALLY
OCCURRING IN THE
PROJECT AREA

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX C

ENVIRONMENTAL WEEDS AND DECLARED PLANT CATEGORIES AND INTRODUCED FLORA SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

C1: Criteria used for Ranking Environmental Weeds

The Environmental Weed Strategy for Western Australia (CALM 1999) contains criteria for the assessment and ranking of weeds in terms of their environmental impact on biodiversity. These criteria are as follows:

- **Invasiveness** – ability to invade bushland in good to excellent condition or ability to invade waterways. (Score as yes or no).
- **Distribution** – wide current or potential distribution including consideration of known history of wide spread distribution elsewhere in the world. (Score as yes or no).
- **Environmental Impacts** – ability to change the structure, composition and function of ecosystems. In particular an ability to form a monoculture in a vegetation community. (Score as yes or no).

The rating of each weed is determined by the following scoring system:

- **High** - a weed species would have to score yes for all three criteria. Rating a weed species as high would indicate prioritising this weed for control and/or research i.e. prioritising funding to it.
- **Moderate** -a weed species would have to score yes for two of the above criteria. Rating a weed species as moderate would indicate that control or research effort should be directed to it if funds are available, however it should be monitored (possibly a reasonably high level of monitoring).
- **Mild** – a weed species scoring one of the criteria. A mild rating would indicate monitoring of the week and control where appropriate.
- **Low** – a weed species would score none of the criteria. A low ranking would mean that this species would require a low level of monitoring.

Source: Department of Conservation and Land Management (1999). *Environmental Weed Strategy for Western Australia*. Department of Conservation and Land Management, Perth, Western Australia.

C2: Standard Meanings of Declared Plant Categories

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.

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.

Treat to destroy and prevent seed set all plants:

- * Within 50m inside of the boundaries of the infestation;
- * within 50m of roads and high water mark on waterways;
- * within 50m of sheds, stock yards and houses.

Treatment must be done prior to seed set each year.

Properties with less than 20ha of infestation must treat the entire infestation.

Additional areas may be ordered to be treated.

P4

Aims to prevent infestation spreading beyond existing boundaries of infestation

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.

Treat to destroy and prevent seed set all plants:

- * within 50m inside of the boundaries of the infested property for one-leaf and 20m for two-leaf;
- * within 50m of roads and high water mark on waterways;
- * within 50m of sheds, stock yards and houses.

Treatment must be done prior to seed set each year. Properties with less than 20ha of infestation must treat the entire infestation.

Additional areas may be ordered to be treated.

Special considerations.

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.

P5

Aims to control infestations on public lands.

Source: Department of Agriculture and Food (2008). *List of Declared Plants*. Department of Agriculture and Food, Western Australia. Online: <http://www.agric.wa.gov.au/>.

C3: Introduced Flora Species Potentially Occurring in the Project Area

Species	Rating	Description (WAH 2009)
* <i>Acetosa vesicaria</i>	High	Ruby dock Common on roadsides and in disturbed areas in the arid zone.
* <i>Aerva javanica</i>	High	Kapok Bush Has become a widespread weed of roadsides, creeklines and disturbed areas.
* <i>Cenchrus ciliaris</i>	High	Buffel grass Widely planted as a pastoral grass. Has become a widespread weed of roadsides, creeklines and most vegetation types in the Pilbara.
* <i>Vachellia farnesiana</i>	High	Mimosa Bush Common in low-lying areas, river and creek banks and disturbed sites.
* <i>Cynodon dactylon</i>	Moderate	Couch grass Widely planted as a lawn grass.
* <i>Malvastrum americanum</i>	Moderate	Spiked Malvastrum Weed of river and creek margins, wastelands and arid zone habitats.
* <i>Solanum nigrum</i>	Moderate	Black Berry Nightshade Common amongst medium trees in sand, wet soil; occupying river banks, swamps and plains. Found in both disturbed and undisturbed natural vegetation.
* <i>Sonchus oleraceus</i>	Moderate	Common Sowthistle Common on roadsides and disturbed land.
* <i>Alternanthera pungens</i>	Low	Khaki Weed; Creeping chaffweed; Joyweed Found on flat plains, creek banks, drainage channels and roadsides.
* <i>Chloris virgata</i>	Low	Feathertop Rhodes Grass Commonly found on sand dunes.
* <i>Citrullus lanatus</i>	Low	Pie Melon Commonly found on disturbed areas, plains, river banks, and drainage areas.
* <i>Conyza bonariensis</i>	Low	Flaxleay Fleabane Found on a variety of soils. Often located in waste places and roadsides.

Species	Rating	Description (WAH 2009)
* <i>Setaria verticillata</i>	Low	Common and widespread weed of disturbed land, riverine edges and shrublands in the Pilbara.
* <i>Bidens bipinnata</i>	TBA	Bipinnate Beggartick Favours wetlands and is thought to be spread by cattle.
* <i>Portulaca oleracea</i>	N/A	Purslane Common on clay loam and sand and on disturbed land.
* <i>Cucumis melo</i> subsp. <i>agrestis</i>	N/A	Ulcardo Melon Common in the Kimberly and Pilbara bioregions.
* <i>Tribulus terrestris</i>	N/A	Often on sandy soils and found in waste places.

APPENDIX D

FLORA SURVEY QUADRAT AND RELEVÉ LOCATIONS

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX D

FLORA SURVEY QUADRAT LOCATIONS AND RELEVÉ LOCATIONS

D1: Newman to Jimblebar

(For the table below NJ represents Quadrats and NJR represents Relevés)

Site Number	Zone	# Easting	# Northing
NJ09	50K	778581	7416075
NJ10	50K	791971	7417546
NJ11	50K	779341	7416493
NJ12	50K	793428	7417696
NJ13	50K	780001	7416886
NJ14	50K	792487	7417502
NJ15	50K	780767	7417172
NJ16	50K	794080	7417709
NJ18	50K	794312	7417978
NJ19	51K	197593	7412800
NJ20	50K	794735	7418455
NJ21	51K	196793	7413109
NJ22	50K	795491	7418337
NJ23	51K	195641	7413505
NJ24	50K	794487	7418364
NJ25	51K	194866	7413794
NJ26	50K	796198	7418269
NJ27	51K	197947	7413426
NJ28	50K	796869	7418204
NJ30	50K	797573	7418164
NJ31	50K	803308	7416102

Site Number	Zone	# Easting	# Northing
NJ32	50K	798302	7418018
NJ33	50K	804028	7415850
NJ34	50K	798702	7417879
NJ35	50K	804680	7415479
NJ36	50K	799383	7417647
NJ37	50K	805429	7415153
NJ38	50K	800143	7417345
NJ39	50K	806128	7414858
NJ40	50K	800755	7417091
NJ41	51K	193355	7414559
NJ42	50K	801273	7416960
NJ44	50K	802036	7416632
NJ45	50K	802593	7416447
NJ46	50K	791284	7417561
NJ48	50K	786757	7418555
NJ49	50K	781444	7417731
NJ50	50K	787490	7418531
NJ52	50K	788234	7418439
NJ54	50K	789013	7418256
NJ55	50K	785925	7418658
NJ56	50K	789749	7417996
NJ57	50K	785188	7418768
NJ58	50K	790368	7417738
NJ61	50K	784507	7418898
NJ63	50K	783812	7418876
NJ65	50K	782943	7418575
NJ67	50K	782360	7418231

Site Number	Zone	# Easting	# Northing
NJR08	50K	792213	7417519
NJR10	50K	793188	7417568
NJR12	50K	794161	7417761
NJR16	50K	798543	7417891
NJR17	50K	781750	7417916
NJR18	50K	799125	7417660
NJR20	50K	800245	7417253
NJR22	50K	799736	7417479
NJR24	50K	800690	7417133
NJR26	50K	791172	7417578
NJR29	51K	197860	7413233
NJR30	50K	787517	7418556
NJR32	50K	788143	7418430
NJR43	51K	194111	7414550
NJR47	51K	193715	7414252
NJR51	50K	779174	7416406
NJR53	50K	780912	7417293
NJR59	50K	784422	7418868
NJR69	50K	790634	7417661

Coordinate from northwest corner for quadrats; Geocentric 1994 (GDA94).

D2: Newman Town Substation

Site Number	# Easting	# Northing
NJ07	780171	7415846

Australian Geocentric 1994 (GDA94), Zone 50K

APPENDIX E

SITE PHOTOGRAPHS

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX E

SITE PHOTOGRAPHS

E1: Newman to Jimblebar



NJ09



NJ10



NJ11



NJ12



NJ13



NJ14



NJ15



NJ16



NJ18



NJ19



NJ20



NJ21



NJ22



NJ23



NJ24



NJ25



NJ26



NJ27



NJ28



NJ30



NJ31



NJ32



NJ33



NJ34



NJ35



NJ36



NJ37



NJ38



NJ39



NJ40



NJ41



NJ42



NJ44



NJ45



NJ46



NJ48



NJ49



NJ50



NJ52



NJ54



NJ55



NJ56



NJ57



NJ58



NJ61



NJ63



NJ65



NJ67



NJR08



NJR10



NJR12



NJR17



NJR18



NJR20



NJR22



NJR24



NJR26



NJR29



NJR30



NJR43



NJR47



NJR51



NJR53



NJR59



NJR69

E2: Newman Town Substation



NJ07

APPENDIX F

BUSH FOREVER CONDITION

SCALE

**NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN
SUBSTATION FLORA AND VEGETATION ASSESSMENT**

APPENDIX F

F1: BUSH FOREVER CONDITION SCALE

Condition Scale Code	Condition Scale
P	Pristine (1) Pristine or nearly so, no obvious signs of disturbance
E	Excellent (2) Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
VG	Very Good (3) Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
G	Good (4) Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
D	Degraded (5) Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
CD	Completely Degraded (6) The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: Government of Western Australia (2000). *Bush Forever Volume 2: Directory of Bush Forever Sites*. Department of Environmental Protection, Perth, Western Australia.

F2: FIRE AGE DEFINITIONS

Fire Age	Definition
Recent	Less than 1 year
Young	1 – 4 years
Moderate	4 – 8 years
Old	8 – 12 years
Very Old	Greater than 12 years

APPENDIX G DATA SHEETS

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX G

DATA SHEETS

G1: Newman to Jimblebar

Site	NJ09				
Described Season	CS	Date	23/04/2009	Type Q	50 x 50 m
				Uniformity	
Location	Mount Whaleback Power Substation.				
MGA	50		778582	mE	7416075 mN
Habitat	Sandplain.				
Soil	Red, brown loam with pebbles and cobbles on surface.				
Rock	Granite, quartz and ironstone.				
Broad Floristic Formation:	<i>Acacia</i> Shrubland.				
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.				
Vegetation Sub-association:	Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia pruinocarpa</i> and <i>Acacia citrinoviridis</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> over Low Scattered Shrubs of <i>Dipteracanthus australasicus</i> subsp <i>australasicus</i> over Tussock Grassland of <i>*Cenchrus ciliaris</i> , <i>Themeda triandra</i> and on <i>Chrysopogon fallax</i> Red-Brown Loam on Sandplains.				
Veg	Good.				
Fire	Very Old.				
Note	Bare ground: 30%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Weeds, clearing for infrastructure (Rail and powerlines). Notes: Scattered <i>Corymbia hamersleyana</i> .				

SPECIES

Name	Cover	Height	Specimenn	Notes
Abutilon otocarpum	+	0.4m	NJ09.04	
Acacia adsurgens	+	0.9m	NJ09.13	lots of veins, yellow/green.
Acacia bivenosa	3%	2m	NJ01.30	
Acacia citrinoviridis	1%	4m	NJ09.12	
Acacia pachyacra	+	2m	NJ09.03	
Acacia pruinocarpa	2%	3m	NJ01.42	
Aristida contorta	1%	0.3m	NJ09.08	
Aristida inaequiglumis	1%	0.4m	NJ01.32	
Bonamia rosea	+	0.4m	NJ09.14	
Cenchrus ciliaris	60%	0.4m	NC	
Chrysocephalum aff. apiculatum	+	0.3m	NJ09.02	
Chrysopogon fallax	1%	0.7m	NJ01.38	
Cleome viscosa	+	0.4m	NJ01.22	
Corchorus lasiocarpus subsp. parvus	+	0.5m	NJ07.07	
Corymbia hamersleyana	1%	4m	NJ09.05	

<i>Cymbopogon ambiguus</i>	+	0.7m	NJ01.39
<i>Cymbopogon obtectus</i>	+	0.7m	NJ03.18
<i>Dipteracanthus australasicus</i> subsp. <i>australasicus</i>	1%	0.4m	NJ09.10
<i>Duperreya commixta</i>	+	CL	NJ01.36
<i>Enneapogon intermedius</i>	+	0.3m	NJ09.09
<i>Eremophila longifolia</i>	+	1.5m	NJ05.03
<i>Euphorbia australis</i>	+	CR	NJ01.10
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CR	NJ01.01
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	2m	NJ09.11
<i>Isotropis forrestii</i>	+	0.5m	NJ09.06
<i>Keraudrenia nephrosperma</i>	+	0.8m	NJ07.08
<i>Paraneurachne muelleri</i>	1%	0.4m	NJ01.45
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.2m	NJ01.46
<i>Ptilotus obovatus</i>	+	0.4m	NJ03.04
<i>Salsola tragus</i>	+	0.35m	NJ01.26
<i>Sclerolaena deserticola</i>	+	0.4m	NJ01.08
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.8m	NJ01.13
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	0.8m	NJ11.09
<i>Senna notabilis</i>	+	0.3m	NC
<i>Sida echinocarpa</i>	+	0.35m	NJ09.01
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.3m	NJ01.24
<i>Solanum lasiophyllum</i>	+	0.5m	NJ01.04
<i>Themeda triandra</i>	1%	0.5m	NJ09.07
<i>Trichodesma zeylanicum</i>	+	0.6m	NJ01.05

Site	NJ10		
Described	TE	Date	23/04/2009
Season		Type	Q
			50 x 50m
		Uniformity	
Location	West Jimblebar.		
MGA	50	791972	mE
			7417592 mN
Habitat	Calcrete low rise.		
Soil	Red, brown loam over scattered calcrete rock.		
Rock	Calcrete.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland (to Scattered Trees) of <i>Eucalyptus xerothermica</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> (Mallee) over Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia sclerosperma</i> and <i>Acacia ancistrocarpa</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with High Shrubland of <i>Acacia pruinocarpa</i> , <i>Acacia sclerosperma</i> and <i>Petalostylis labicheoides</i> over Scattered Tussock Grass of <i>Paraneurachne muelleri</i> on Red-Brown Loam on Calcrete Low Rise.		
Veg	Very Good.		
Fire	Old.		
Note	Aspect: South. Bare ground: 40%. Litter cover: Logs: +, Twigs: +, Lvs: 5%. Disturbance Type: Edge effect and cattle.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia citrinoviridis</i>	+	2-3m	NJ02.01
<i>Acacia pruinocarpa</i>	1%	4m	NJ04.13
<i>Acacia sclerosperma</i>	15%	2-2.5m	NJ10.02
<i>Aristida ingrata</i>	+	0.3m	NJ26.09
<i>Cenchrus ciliaris</i>	5%	0.5m	NC
<i>Corymbia candida</i> subsp. <i>dipsodes</i>	+	3m	NJ08.11
<i>Cymbopogon obtectus</i>	+	0.3m	NJ04.10
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Enneapogon lindleyanus</i>	+	0.3m	NJ04.35
<i>Eragrostis falcata</i>	+	0.3m	NJ04.29
<i>Eremophila forrestii</i>		1-2m	NJ04.15
<i>Eremophila margarethae</i>	+	0.8m	NJ10.03
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	+	4m	NJ10.14
<i>Eucalyptus xerothermica</i>	+	3-6m	NJ10.04
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.3m	NJ08.08
<i>Grevillea striata</i>	+	2-5m	NJ10.13
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	0.5-3m	NJR02.01
<i>Hibiscus burtonii</i>	+	0.3m	NJ10.08
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>	+	0.1m	NJ10.12
<i>Maireana villosa</i>	+	0.2m	NJ06.05
<i>Paraneurachne muelleri</i>	1%	0.3m	NJ04.07
<i>Paspalidium rarum</i>	+	0.2m	NJ10.10
<i>Petalostylis labicheoides</i>	2%	2-5m	NJ04.19
<i>Ptilotus exaltatus</i>	+	0.2m	NC
<i>Ptilotus obovatus</i>	+	0.6m	NJ02.07
<i>Rhynchosia minima</i>	+	CL	NC
<i>Scaevola amblyanthera</i> var. <i>centralis</i>	+	0.1m	NJ10.06

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Sclerolaena cornishiana	+	0.2m	NJ10.07
Senna artemisioides subsp. filifolia	+	2m	NJR02.02
Senna artemisioides subsp. oligophylla	+	0.6m	NJ04.05
Sida aff. fibulifera	+	<0.3m	NJ10.09
Solanum ellipticum	+	0.2m	NJ10.11
Solanum lasiophyllum	+	0.2m	NJ10.05
Triodia pungens	40%	0.6m	NJ10.01

Site	NJ11		
Described	CS	Date	23/03/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	North of Whaleback Creek.		
MGA	50	779341	mE
Habitat	Hill slope.		
Soil	Red-brown loam, surface of cobbles and pebbles.		
Rock	Granite and ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with High Open Shrubland of <i>Acacia citrinoviridis</i> , <i>Acacia bivenosa</i> and <i>Acacia pruinocarpa</i> with Low Open Woodland (to Scattered Low Trees) of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Corymbia aspera</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> over on Red-Brown Loam on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with Open Woodland of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> over Scattered Tall Shrubs of <i>Acacia dictyophleba</i> and <i>Acacia aneura</i> var. <i>aneura</i> over Scattered Shrubs of <i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i> and <i>Senna glutinosa</i> subsp. <i>glutinosa</i> over Low Scattered Shrubs of <i>Ptilotus rotundifolius</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> over Very Open Tussock Grassland of <i>Eriachne mucronata</i> , * <i>Cenchrus ciliaris</i> and <i>Cymbopogon</i> sp. on Red-Brown Loam on Hill slopes.		
Veg	Excellent.		
Fire	Very Old.		
Note	Aspect: South-East. Bare ground: 60%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Nearby rail and weeds.		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia adoxa</i> var. <i>adoxo</i>	+	0.35m	NJ11.07	
<i>Acacia aneura</i> var. <i>aneura</i>	1%	4m	NJ01.20	
<i>Acacia bivenosa</i>			NJ01.30	Associated
<i>Acacia dictyophleba</i>	1%	3m	NJ11.08	
<i>Acacia pruinocarpa</i>	+	1.5m	NJ01.42	
<i>Acacia tetragonophylla</i>	+	0.5m	NJ01.02	
<i>Aristida contorta</i>	+	0.3m	NJ09.08	
<i>Cenchrus ciliaris</i>	2%	0.4m	NC	
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>	+	0.5m	NJ07.07	
<i>Cymbopogon ambiguus</i>	1%	0.7m	NJ01.39	
<i>Cymbopogon obtectus</i>	1%	0.7m	NJ03.18	
<i>Duperreya commixta</i>	+	CL	NJ01.36	
<i>Enneapogon polyphyllus</i>			NJ01.33	Associated
<i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i>	1%	1-2m	NJ11.02	
<i>Eriachne mucronata</i>	5%	0.4m	NJ05.07	
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	+	0.3m	NJ03.08	
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	4%	12m	NJ41.01	
<i>Euphorbia australis</i>	+	0.2m	NJ01.10	
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CR	NJ01.01	
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.4m	NJ03.05	
<i>Goodenia stobbsiana</i>	+	0.2m	NJ07.05	
<i>Goodenia triodiophila</i>	+	0.2m	NJ11.11	

Hakea lorea subsp. lorea	1%	0.7m	NJ03.06
Hibiscus aff. coatesii	+	0.3m	NJ11.10
Keraudrenia nephrosperma	+	1m	NJ07.08
Maireana planifolia	+	0.3m	NJ07.14
Paraneurachne muelleri	+	0.4m	NJ01.45
Portulaca oleracea	+	0.2m	NC
Ptilotus calostachyus	+	1m	NJ07.15
Ptilotus rotundifolius	1%	1m	NJ11.01
Senna glutinosa subsp. glutinosa	1%	1.5m	NJ07.19
Senna glutinosa subsp. pruinosa	+	1.5m	NJ11.09
Senna glutinosa subsp. x luerssenii	+	1m	NJ11.05
Sida sp. Excedentifolia (J.L. Egan 1925)	+	0.3m	NJ11.04
Stenopetalum decipiens	+	0.3m	NJ11.03
Themeda triandra	1%	1m	NJ09.07
Tribulus suberosus	+	0.35m	NJ11.06
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	15%	0.4m	NJ07.02
Triodia wiseana	10%	0.6m	NJ01.29

Site NJ12

Described TE **Date** 24/04/2009 **Type** Q **50 x 50m**

Season **Uniformity**

Location Fortescue River Bed.

MGA 50 **793429 mE** **7417697 mN**

Habitat Fortescue River.

Soil Red, brown alluvial loamy clay with cobbles and pebbles.

Rock Silicate, ironstone and calcrete.

Broad Floristic Formation: *Eucalyptus* Woodland.

Vegetation Association: Woodland of *Eucalyptus camaldulensis* var. *obtusa* over Scattered Shrubs of *Melaleuca lasiandra* and *Petalosylis labicheoides* over Very Open Sedges / Tussock Grassland of *Echinochloa colona*, *Cyperus vaginatus* and *Typha domingensis* on Red-Brown Alluvial Loamy Clay on Creeklines and Rivers.

Vegetation Sub-association: Woodland of *Eucalyptus camaldulensis* var. *obtusa* and *Melaleuca lasiandra* over Scattered Tussock Grass of **Echinochloa colona* and *Leptochloa digitata* over Open Sedges of *Cyperus vaginatus* and *Schoenoplectus litoralis* over Open Herbs of *Typha domingensis* and *Centipeda minima* subsp. *macrocephala* on Red-Brown Alluvial Loamy Clay on a River.

Veg Very Good.

Fire Very Old.

Note Bare ground: 40% (20% water).
Litter cover: Logs: 2%, Twigs: 2%, Lvs: 1%.
Disturbance Type: Flooding, weeds and cattle.

SPECIES

Name	Cover	Height	Specimen Notes
Acetosa vesicaria	+	<0.1m	NJ12.12
Centipeda minima subsp. macrocephala	1%	<0.1m	NJ12.11
Cleome viscosa	+	0.2m	NC
Cucumis melo subsp. agrestis	+	CL	NJ12.06
Cyperus vaginatus	20%	0.8m	NJ12.03
Dysphania plantaginella	+	<0.1m	NJ12.16
Echinochloa colona	1%	<0.1m	NJOP16T
Eucalyptus camaldulensis var. obtusa	5-10%	5-20m	NJ12.01
Euphorbia australis	+	<0.1m	NJ12.17
Euphorbia coghlanii	+	0.1m	NJ12.09
Ipomoea muelleri	+	CL	NJ12.02
Leptochloa digitata	1%	0.3m	NJR08.04
Melaleuca lasiandra	1%	2m	NJ12.04
Phyllanthus maderaspatensis	+	0.1m	NJ12.07
Pluchea rubelliflora	1%	0.1m	NJ12.05
Schoenoplectus litoralis	2%	0.8m	NJ12.13
Sonchus oleraceus	+	<0.1m	NJ12.15
Stemodia grossa	+	<0.1m	NJ12.08
Typha domingensis	10%	0.8m	NJ12.14

Site	NJ13		
Described Season	CS	Date 23/04/2009	Type Q 50 x 50 m
Location	Next to Whaleback Rail.		
MGA	50	780001	mE 7416886 mN
Habitat	Hill slope.		
Soil	Red-brown loam surface of pebbles, cobbles and boulders.		
Rock			
Broad Floristic Formation:	<i>Triodia</i> hummock grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with High Open Shrubland of <i>Acacia citrinoviridis</i> , <i>Acacia bivenosa</i> and <i>Acacia pruinocarpa</i> with Low Open Woodland (to Scattered Low Trees) of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Corymbia aspera</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> over on Red-Brown Loam on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with Low Open Woodland of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Corymbia aspera</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> over High Open Shrubland of <i>Acacia citrinoviridis</i> , <i>Acacia bivenosa</i> and <i>Acacia inaequilatera</i> over Low Open Shrubland of <i>Acacia adoxa</i> var. <i>adoxo</i> over Very Open Tussock Grassland of <i>Cymbopogon obtectus</i> and <i>Paraneurachne muelleri</i> on Red-Brown Loam on Hill slope.		
Veg	Excellent.		
Fire	Very Old.		
Note	Bare ground: 20%. Litter cover: Logs: 1%, Twigs: +, Lvs: +. Disturbance type: Nearby tracks.		

SPECIES

Name	Cover	Height	Specimen Notes
Abutilon aff. lepidum	+	0.2m	NJ13.02
Acacia adoxa var. adoxa	3%	0.7m	NJ11.07
Acacia bivenosa	2%	2m	NJ01.30
Acacia citrinoviridis	5%	5m	NJ09.12
Acacia dictyophleba	1%	3m	NJ11.08
Acacia inaequilatera	2%	2-3m	NJ13.06
Acacia pruinocarpa	1%	4m	NJ01.42
Acacia tenuissima	+	3m	NJ13.08
Bonamia media var. villosa	+	0.1m	NJ13.11
Corchorus lasiocarpus subsp. parvus	+	0.6m	NJ07.07
Corymbia aspera	1%	6m	NJ13.12
Cymbopogon ambiguus	1%	0.5m	NJ01.39
Cymbopogon obtectus	2%	0.5m	NJ03.18
Duperreya commixta	+	CL	NJ01.36
Enneapogon polyphyllus	+	0.4m	NJ01.33
Eremophila forrestii subsp. forrestii	+	1.5m	NJ01.43
Eremophila latrobei subsp. aff. filiformis	+	1m	NJ11.02
Eriachne lanata	+	0.5m	NJ13.10
Eucalyptus gamophylla	1%	7m	NJ01.41
Eucalyptus leucophloia subsp. leucophloia	3%	10m	NJ41.01
Goodenia stobbsiana	+	0.35m	NJ07.05
Goodenia triodiophila	+	0.3m	NJ13.03
Hakea lorea subsp. lorea	2%	4m	NJ01.44
Hibiscus sturtii var. campylochlamys	+	0.4m	NJ13.07

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Indigofera monophylla	+	0.4m	NJ07.06
Paraneurachne muelleri	1%	0.4m	NJ01.45
Ptilotus calostachyus	+	0.7-1m	NJ07.15
Ptilotus exaltatus var. exaltatus	+	0.2m	NJ01.46
Ptilotus obovatus	+	0.5m	NJ03.04
Ptilotus rotundifolius	+	1.5m	NJ11.01
Senna artemisioides subsp. oligophylla	+	1m	NJ01.13
Senna glutinosa subsp. glutinosa	+	1m	NJ07.19
Sida arenicola	+	1m	NJ13.04
Solanum lasiophyllum	+	0.5m	NJ01.04
Trianthema glossostigma	+	CR	NJ13.01
Trichodesma zeylanicum	+	1m	NJ01.05
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	60%	0.4m	NJ07.02
Triodia wiseana	10%	0.7m	NJ01.29

Site	NJ14		
Described Season	TE	Date 24/03/2009	Type Q 50 x 50m
			Uniformity
Location	Fortescue River (south of Ophthalmia Dam).		
MGA	50	792489 mE	7417503 mN
Habitat	Low rise (between the creeklines of the Fortescue River).		
Soil	Red, brown loam with some very minor cracking.		
Rock	Iron and silicate.		
Broad Floristic Formation:	<i>Acacia</i> Shrubland.		
Vegetation Association:	Shrubland of <i>Acacia sclerosperma</i> over Open Hummock Grassland of <i>Triodia pungens</i> and <i>Triodia longiceps</i> on Red-Brown Loam on Low Rises and Plains.		
Vegetation Sub-association:	Shrubland of <i>Acacia sclerosperma</i> over Low Open Shrubland of <i>Eremophila margarethae</i> over Open Hummock Grassland of <i>Triodia pungens</i> and <i>Triodia longiceps</i> over Very Open Tussock Grassland of <i>*Cenchrus ciliaris</i> , <i>Paraneurachne muelleri</i> and <i>Eragrostis falcata</i> on Red-Brown Loam on Low Rise.		
Veg	Excellent.		
Fire	Old.		
Note	Bare ground: 75%. Litter cover: Logs: +, Twigs: 1%, Lvs: +. Disturbance Type: Weeds, cattle and rubbish.		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia sclerosperma</i>	15%	2-3m	NJ10.02	
<i>Acacia synchronicia</i>	+	1.2m	NJ04.14	
<i>Aristida contorta</i>	2%	0.2m	NJ06.10	
<i>Aristida holathera</i> var. <i>latifolia</i>	(+)	0.2m	NJ14.05	
<i>Boerhavia coccinea</i>	+	<0.1m	NJ14.13	
<i>Cenchrus ciliaris</i>	3%	0.2m	NC	Dominant in patches.
<i>Cenchrus setiger</i>	1%	0.3m	NJOP30T	
<i>Chrysocephalum pterochaetum</i>	+	0.2m	NJ14.09	
<i>Chrysopogon fallax</i>	+	0.5m	NJOP07T	
<i>Cleome viscosa</i>	+	0.2m	NC	
<i>Cymbopogon oblectus</i>	+	0.8m	NJ04.10	
<i>Dactyloctenium radulans</i>	+	<0.1m	NJOP05T	
<i>Duperreya commixta</i>	+	CL	NJ02.09	
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	+	0.2m	NJ14.20	
<i>Enneapogon polyphyllus</i>	+	0.3m	NJ06.09	
<i>Eragrostis falcata</i>	2%	0.5m	NJ04.29	
<i>Eragrostis tenellula</i>	+	<0.1m	NJ02.12	
<i>Eremophila margarethae</i>	10%	0.5-1m	NJOP17T	
<i>Eriachne obtusa</i>	+	<0.1m	NJ16.07	
<i>Eulalia aurea</i>	+	0.5-0.8m	NJOP06T	
<i>Euphorbia australis</i>	+	<0.1m	NJ14.01	
<i>Euphorbia coghlanii</i>	+	0.2m	NJ14.06	
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.3m	NJ08.08	
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CL	NJ26.03	
<i>Goodenia muelleriana</i>	+	<0.1m	NJ14.02	
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	1m	NJR02.01	
<i>Hibiscus burtonii</i>	+	0.1m	NJ14.17	
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	+	0.1m	NJ04.16	
<i>Paraneurachne muelleri</i>	3%	0.3m	NJ04.07	

<i>Polygala</i> aff. <i>isingii</i>	+	<0.1m	NJ14.12
<i>Portulaca</i> sp.	+	<0.1m	NJ14.15
<i>Ptilotus</i> <i>helipteroides</i>	+	0.1m	NJOP14T
<i>Ptilotus</i> <i>obovatus</i>	+	0.4m	NJ02.07
<i>Rhagodia</i> <i>eremaea</i>	+	1m	NJOP08T
<i>Rhyncharrhena</i> <i>linearis</i>	+	CL	NJ14.06A
<i>Scaevola</i> sp.	+	1m	NJ14.19
<i>Sclerolaena</i> <i>densiflora</i>	+	<0.2m	NJ14.21
<i>Senna</i> <i>artemisioides</i> subsp. <i>oligophylla</i>	+	1.2m	NJ04.05
<i>Setaria</i> <i>dielsii</i>	+	0.1m	NJOP35T
<i>Sida</i> aff. <i>fibulifera</i>	+	<0.1m	NJ10.09
<i>Solanum</i> <i>lasiophyllum</i>	+	0.4m	NJ04.18
<i>Streptoglossa</i> sp.	+	<0.1m	NJ16.15
<i>Trianthera</i> <i>triquetra</i>	+	<0.1m	NJOP02T
<i>Tribulus</i> <i>terrestris</i>	+	CL	NJOP33T
<i>Triodia</i> <i>longiceps</i>	1%	1m	NJ14.11
<i>Triodia</i> <i>pungens</i>	20%	0.8m	NJ14.03
<i>Triraphis</i> <i>mollis</i>			NJ14.05B
<i>Yakirra</i> <i>australiensis</i> var. <i>australiensis</i>	+	0.1m	NJ14.14

Site	NJ15		
Described	CS	Date	23/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	Near Whaleback Rail		
MGA	50	780767	mE
Habitat	Sandplain.		
Soil	Red-brown loam with scattered cobbles.		
Rock	Ironstone, quartz, granite.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia aneura</i> , <i>Acacia dictyophleba</i> and <i>Acacia pruinocarpa</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus xerothermica</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with Scattered Low Trees of <i>Corymbia aspera</i> and <i>Corymbia hamersleyana</i> over High Open Shrubland of <i>Acacia</i> aff. <i>aneura</i> , <i>Acacia dictyophleba</i> and <i>Acacia pruinocarpa</i> over Very Open Tussock Grassland of <i>*Cenchrus ciliaris</i> , <i>Cymbopogon obtectus</i> and <i>Enneapogon lindleyanus</i> over Scattered Herbs of <i>Sclerolaena deserticola</i> on Red-Brown Loam on Sandplain.		
Veg	Excellent.		
Fire	Very Old.		
Note	Bare ground: 60%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Weeds. Notes: Mulga bands.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia aff. aneura	3%	<5m	NJ15.02
Acacia bivenosa	+	1m	NJ01.30
Acacia dictyophleba	3%	3m	NJ11.08
Acacia pachyacra	+	0.3m	NJ09.03
Acacia pruinocarpa	2%	4m	NJ01.42
Acacia tetragonophylla	1%	3m	NJ01.02
Aerva javanica	+	0.4m	NC
Aristida contorta	1%	0.4m	NJ09.08
Boerhavia coccinea	+	CR	NJ01.21
Cenchrus ciliaris	5%	0.4m	NC
Cleome viscosa	+	0.3m	NJ01.22
Corymbia aspera	1%	10m	NJ13.12
Corymbia hamersleyana	1%	12m	NC
Cymbopogon obtectus	2%	0.5m	NJ03.18
Enchylaena tomentosa var. tomentosa	+	0.3m	NJ03.17
Enneapogon lindleyanus	1%	0.6m	NJ05.09
Enneapogon polyphyllus	1%	0.3m	NJ01.33
Eragrostis falcata	+	0.4m	NJ01.47
Eremophila lanceolata	+	0.4m	NJ05.02
Eulalia aurea	1%	0.5m	NJ15.04
Euphorbia australis	+	0.1m	NJ01.10
Evolvulus alsinoides var. villosicalyx	+	CR	NJ01.01
Gomphrena canescens subsp. canescens	+	0.25m	NJ03.05
Goodenia muelleriana	+	0.3m	NJ15.01
Goodenia prostrata	+	0.2m	NJ15.03

Hakea lorea subsp. lorea	+	0.4m	NJ15.07
Hibiscus burtonii	+	0.4m	NJ15.05
Maireana planifolia	+	1m	NJ01.28
Paraneurachne muelleri	+	0.4m	NJ01.45
Ptilotus exaltatus var. exaltatus	+	0.1m	NJ01.46
Ptilotus helipteroides	+	0.3m	NJ03.19
Ptilotus obovatus	+	0.4m	NJ03.04
Salsola tragus	+	0.3m	NJ01.26
Sclerolaena deserticola	2%	0.4m	NJ01.08
Senna artemisioides aff subsp oligophylla	+	0.5m	NJ15.08
Senna artemisioides subsp. oligophylla	+	0.5m	NJ01.13
Sida sp. verrucose glands (F.H. Mollemans 2423)	+	0.15m	NJ01.24
Solanum lasiophyllum	+	0.4m	NJ01.04
Trianthema pilosa	+	CR	NJ15.09
Tribulus macrocarpus	+	CR	NJ15.10
Trichodesma zeylanicum	+	2m	NJ01.05
Triodia pungens	30%	0.7m	NJ15.06

Site	NJ16		
Described	TE	Date	24/04/2009
Season		Type	Q
			50 x 50m
		Uniformity	
Location	Jimblebar Wye.		
MGA	50	794081	mE
			7417710 mN
Habitat	Drainage line and floodplain (wash out zone).		
Soil	Red, brown sand underlying red, brown cracked clay with scattered ironstone rocks.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Eucalyptus</i> Woodland.		
Vegetation Association:	Woodland of <i>Eucalyptus victrix</i> over High Shrubland of <i>Acacia sclerosperma</i> and <i>Acacia citrinoviridis</i> over Open Tussock Grassland of * <i>Cenchrus ciliaris</i> , <i>Enteropogon ramosus</i> and <i>Chrysopogon fallax</i> on Red-Brown Loam on Creeklines and Rivers.		
Vegetation Sub-association:	Woodland of <i>Eucalyptus victrix</i> over Open Scrub of <i>Acacia sclerosperma</i> , <i>Grevillea striata</i> and <i>Acacia</i> aff. <i>aneura</i> over Open Shrubland of <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> , <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> over Open Tussock Grassland of * <i>Cenchrus ciliaris</i> , * <i>Echinochloa colona</i> and <i>Perotis rara</i> over Very Open Herbs of <i>Dactyloctenium radulans</i> and <i>Trianthema triquetra</i> on Red-Brown Sand on Floodplain.		
Veg	Very Good to Good.		
Fire	Old.		
Note	Bare ground: 75%. Litter cover: Logs: +, Twigs: 1%, Lvs: 1%. Disturbance Type: Weeds. Notes: Very diverse range of seedlings present.		

SPECIES

Name	Cover	Height	Specimen	Notes
Acacia aff. aneura	2%	4m	NJ16.27	
Acacia sclerosperma	30%	2-3m	NJ10.02	
Acacia sclerosperma subsp. sclerosperma	3%	1m	NJ16.06	
Acacia synchronicia	4%	1.5-2m	NJ04.14	
Acacia tetragonophylla	1%	2-3m	NJ04.33	
Amyema fitzgeraldii	+	0.5m	NJ16.25	P
Aristida holathera	+	0.2m	NJ16.35	
Boerhavia coccinea	+	<0.1m	NJ14.13	
Cenchrus ciliaris	15%	0.2-0.5m	NC	
Chloris pumilio	1%	0.2m	NJ16.04	
Chrysopogon fallax	+	0.5m	NJOP07T	
Cleome viscosa	+	0.2m	NC	
Convolvulus angustissimus subsp. angustissimus	+	CL	NJ16.10	
Dactyloctenium radulans	2%	<0.1m	NJOP05T	
Dipteracanthus australasicus subsp. australasicus	+	<0.1m	NJ16.24	
Dysphania rhadinostachya	+	<0.1m	NJOP09T	
Echinochloa colona	1%	0.3m	NJOP16T	
Enteropogon ramosus	+	0.6m	NJOP37T	
Eragrostis falcata	+	0.5m	NJ16.03	
Eremophila margarethae	+	1m	NJOP17T	
Eriachne obtusa	+	0.3m	NJ16.07	
Eucalyptus victrix	1%	3m	NJ16.05	
Euphorbia australis	+	<0.1m	NJ14.01	
Euphorbia tannensis subsp. eremophila	+	0.3m	NJ08.08	
Evolvulus alsinoides var. villosicalyx	+	CL	NJ16.16	
Gomphrena sordida	+	<0.1m	NJ16.32	

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

<i>Goodenia prostrata</i>	+	<0.1m	NJ16.11
<i>Grevillea striata</i>	2%	5m	NJ16.26
<i>Ipomoea optica</i>	+	<0.1m	NJ16.37
<i>Ipomoea polymorpha</i>	+	<0.1m	NJ16.17
<i>Lepidium phlebopetalum</i>	+	<0.1m	NJ16.21
<i>Maireana villosa</i>	+	0.2m	NJ06.05
<i>Muelleranthus trifoliolatus</i>	+	<0.1m	NJ16.36
<i>Neptunia dimorphantha</i>	+	0.1m	NJ16.22
<i>Paspalidium</i> sp.	+	0.1m	NJ16.13
<i>Perotis rara</i>	1%	0.1m	NJ16.29
<i>Portulaca oleracea</i>	+	<0.1m	NJOP01T
<i>Rhagodia eremaea</i>	+	1.5m	NJOP08T
<i>Scaevola spinescens</i>	+	1m	NJ50.19
<i>Sclerolaena convexula</i>	+	<0.1m	NJ16.31
<i>Sclerolaena cuneata</i>	+	<0.1m	NJ16.08
<i>Sclerolaena densiflora</i>	+	<0.1m	NJ14.21
<i>Senna</i> sp. <i>Meekatharra</i> (E. Bailey 1-26)	+	<0.1m	NJ16.23
<i>Setaria dielsii</i>	+	0.3m	NJOP35T
<i>Sida</i> aff. <i>fibulifera</i>	+	0.5m	NJ10.09
<i>Sporobolus actinocladus</i>	+	0.3m	NJ16.02
<i>Sporobolus australasicus</i>	+	<0.1m	NJ16.19
<i>Streptoglossa</i> sp.	+	<0.1m	NJ16.15
<i>Swainsona kingii</i>	+	<0.1m	NJ16.14
<i>Trianthema triquetra</i>	2%	<0.1m	NJ16.01
<i>Tribulus terrestris</i>	+	CL	NJOP33T
<i>Triraphis mollis</i>	+	0.2m	NJ16.30
<i>Vachellia farnesiana</i>	+	1-2m	NJOP27T
<i>Vittadinia obovata</i>	+	<0.1m	NJ16.12
<i>Xerochloa imberbis</i>	+	0.2m	NJ16.33
<i>Yakirra australiensis</i> var. <i>australiensis</i>	+	0.1m	NJ14.14

Key:

P: Parasitic on on *Acacia aneura*

Site	NJ18		
Described	TE	Date	24/04/2009
Season		Type	Q
			50 x 50m
		Uniformity	
Location			
MGA	50	794313	mE 7417978 mN
Habitat	Hill slope.		
Soil	Skeletal red, brown loam with a pavement of ironstone cobbles and pebbles and some exposed bedrock.		
Rock	Ironstone.		
Broad Floristic Formation:	Triodia Hummock Grassland.		
Vegetation Association:	Hummock Grassland of Triodia basedowii and Triodia pungens with Shrubland of Acacia bivenosa and Acacia sclerosperma with Scattered Low Trees of Eucalyptus gamophylla and Eucalyptus leucophloia subsp. leucophloia on Skeletal Red-Brown Loam on Hill slope.		
Vegetation Sub-association:	Hummock Grassland of Triodia basedowii and Triodia pungens with Shrubland of Acacia bivenosa and Acacia sclerosperma over Scattered Tussock grass of Paraneurachne muelleri over Scattered Herbs of Sida fibulifera with Scattered Low Trees of Eucalyptus gamophylla and Eucalyptus leucophloia subsp. leucophloia on Skeletal Red-Brown Loam on Hill slope.		
Veg	Excellent.		
Fire	Old.		
Note	Aspect: North-east. Bare ground: 70%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Cattle, existing tracks and powerline.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia aneura ? var. conifera	+	0.5m	NJ04.30
Acacia bivenosa	10%	1.5-3m	NJ04.09
Acacia maitlandii	+	1-2m	NJ18.09
Acacia pruinocarpa	+	1m	NJ04.13
Acacia sclerosperma	1%	1m	NJ18.04
Acacia tetragonophylla	+	0.8m	NJ04.33
Acacia trudgeniana	+	1-2m	NJ18.13
Aristida contorta	+	0.1m	NJ06.10
Aristida holathera	+	0.2m	NJ16.35
Aristida inaequiglumis	+	0.3m	NJ06.17
Corchorus lasiocarpus subsp. lasiocarpus	+	0.2m	NJ04.08
Dodonaea coriacea	+	1m	NJ18.15
Duperreya commixta	+	CL	NJ02.09
Eragrostis falcata	+	0.3m	NJ04.29
Eremophila exilifolia	+	0.8m	NJOP42T
Eremophila forrestii	+	1m	NJ04.15
Eremophila margarethae	+	1m	NJ10.03
Eremophila platycalyx subsp. pardalota	+	0.6m	NJ18.08
Eriachne obtusa	+	0.3m	NJ18.06
Eriachne pulchella subsp. pulchella	+	<0.1m	NJOP39K
Eucalyptus gamophylla	1%	4m	NJ04.36
Eucalyptus leucophloia subsp. leucophloia	<2%	5-6m	NJ18.19
Hakea chordophylla	+	2.5m	NJ18.02
Hakea lorea subsp. lorea	+	1m	NJ18.10

<i>Heliotropium inexplicitum</i>	+	<0.1m	NJ18.12
<i>Maireana melanocoma</i>	+	<0.1m	NJ18.20
<i>Paraneurachne muelleri</i>	1%	0.3m	NJ04.07
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	1m	NJ04.05
<i>Senna glutinosa</i> subsp. <i>glutinosa</i> x <i>luerssenii</i>	+	1.5m	NJ18.18
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	0.5m	NJ18.17
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	+	1m	NJ06.03
<i>Sida fibulifera</i>	1%	1.5m	NJ08.05
<i>Solanum lasiophyllum</i>	+	0.3m	NJ04.18
<i>Stenopetalum decipiens</i>	+	0.3m	NJ18.03
<i>Triodia basedowii</i>	40%	0.5m	NJ18.01
<i>Triodia pungens</i>	5%	0.5m	NJ18.14

Site	NJ19		
Described	CS	Date	24/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location			
MGA	51	197593	mE
			7412801 mN
Habitat	Low rocky rise/ shale outcrop.		
Soil	Red-brown loam, lots of exposed bed rock/shale.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835), <i>Triodia pungens</i> and <i>Triodia wiseana</i> with Scattered shrubs of <i>Acacia bivenosa</i> , <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> on Red-Brown Loam on Low Rocky Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with Scattered shrubs of <i>Acacia bivenosa</i> and <i>Acacia tetragonophylla</i> over Low Open Shrubland of <i>Senna glutinosa</i> subsp. <i>x luerksenii</i> , <i>Eremophila fraseri</i> subsp. <i>fraseri</i> and <i>Indigofera monophylla</i> over Very Open Tussock Grassland of <i>Enneapogon polyphyllus</i> , <i>Aristida inaequiglumis</i> and <i>Amphipogon sericeus</i> over Very Open Herbs of <i>Gomphrena canescens</i> subsp. <i>canescens</i> on Red-Brown Loam on Low Rocky Rise.		
Veg	Pristine.		
Fire	Old.		
Note	Bare ground: 80%. Litter cover: Logs: +, Twigs: 1%, Lvs: +. Disturbance type: Nearby tracks. Notes: Low rise surrounded by open Mulga floodplain.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia bivenosa</i>	1%	2m	NJ01.30
<i>Acacia inaequilatera</i>	+	3m	NJ13.06
<i>Acacia synchronicia</i>	+	1m	NJ01.40
<i>Acacia tetragonophylla</i>	1%	1m	NJ01.02
<i>Amphipogon sericeus</i>	1%	0.3m	NJ19.13
<i>Aristida contorta</i>	+	0.2m	NJ09.08
<i>Aristida inaequiglumis</i>	1%	0.5m	NJ01.32
<i>Boerhavia coccinea</i>	+	CR	NJ01.21
<i>Chrysocephalum pterochaetum</i>	+	0.2m	NJ19.04
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>	+	0.4m	NJ07.07
<i>Cymbopogon obtectus</i>	+	0.5m	NJ03.18
<i>Enneapogon intermedius</i>	+	0.2m	NJ19.07
<i>Enneapogon polyphyllus</i>	1%	0.2m	NJ01.33
<i>Eremophila cuneifolia</i>	1%	0.5m	NJ19.02
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	+	0.5m	NJ05.14
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	1%	0.6m	NJ19.01
<i>Eremophila latrobei</i> subsp. <i>aff. filiformis</i>	+	0.5m	NJ19.12
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	+	0.1m	NJ19.08
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	2%	0.25m	NJ03.05
<i>Goodenia prostrata</i>	+	0.05m	NJ19.20
<i>Goodenia stobbsiana</i>	1%	0.3m	NJ07.05
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	0.5m	NJ19.03
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	2m	NJ19.10
<i>Hibiscus aff. coatesii</i>	+	0.2m	NJ19.14
<i>Indigofera monophylla</i>	1%	0.5m	NJ07.06

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Maireana pyramidata	+	1m	NJ19.18
Maireana triptera	+	0.3m	NJ19.05
Ptilotus calostachyus	+	1m	NJ07.15
Ptilotus clementii	+	0.4m	NJ19.16
Ptilotus exaltatus var. exaltatus	+	0.2m	NJ01.46
Ptilotus obovatus	+	0.4m	NJ03.04
Ptilotus rotundifolius	+	0.5m	NJ11.01
Salsola tragus	+	0.2m	NJ01.26
Senna artemisioides aff subsp oligophylla	+	0.5m	NJ15.08
Senna artemisioides subsp. helmsii	+	1m	NJ01.12
Senna glutinosa subsp. x luerssenii	3%	0.6m	NJ07.04
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	+	0.3m	NJ19.06
Solanum centrale	+	0.3m	NJ19.17
Solanum horridum	+	0.4m	NJ19.11
Solanum lasiophyllum	+	0.5m	NJ01.04
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	15%	0.4m	NJ19.09
Triodia wiseana	3%	0.6m	NJ01.29

Site	NJ20		
Described	KM	Date	24/04/2009
Season		Type	Q
			50 x 50m
		Uniformity	
Location			
MGA	50	794736	mE
Habitat	Plain.		
Soil	Red, brown loam with scattered cobbles and pebbles.		
Rock	Ironstone gravel.		
Broad Floristic Formation: <i>Acacia</i> Shrubland.			
Vegetation Association: Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.			
Vegetation Sub-association: Open Shrubland of <i>Acacia Sclerosperma</i> and <i>Petalostylis labicheoides</i> over Low Scattered Shrubs of <i>Acacia synchronicia</i> and <i>Senna artemisioides</i> subsp. <i>oligophylla</i> over Very Open Hummock Grassland of <i>Triodia pungens</i> over Scattered Tussock Grass of <i>*Cenchrus ciliaris</i> on Red-Brown Loam on a Plain.			
Veg	Very Good.		
Fire	Moderate.		
Note	Aspect: Gentle slope south. Bare ground: 60%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Weeds and nearby infrastructure.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia ancistrocarpa</i>	+	1.4m	NJ20.14A
<i>Acacia ligulata</i>	+	0.6m	NJ20.04
<i>Acacia maitlandii</i>	+	0.5m	NJ20.12
<i>Acacia pruinocarpa</i>	+	0.4m	NJ20.14
<i>Acacia sclerosperma</i>	25%	1-2m	NJ20.02
<i>Acacia synchronicia</i>	2%	0.5m	NJ04.14
<i>Cenchrus ciliaris</i>	1%	0.4m	NC
<i>Chrysopogon fallax</i>	+	1.0m	NJOP07T
<i>Cleome viscosa</i>	+	0.2m	NC
<i>Dactyloctenium radulans</i>	+	<0.1m	NJOP05T
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	+	0.1m	NJ14.20
<i>Enneapogon polyphyllus</i>	+	<0.1m	NJ20.08
<i>Eragrostis falcata</i>	+	0.3m	NJ04.29
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	+	0.5m	NJ20.01
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	+	0.8m	NJ06.11
<i>Eriachne aristidea</i>	+	0.3m	NJ20.10
<i>Eriachne mucronata</i>	+	0.8m	NJ20.15
<i>Eucalyptus gamophylla</i>	+	4m	NJ04.36
<i>Euphorbia australis</i>	+	<0.1m	NJ20.09
<i>Gossypium robinsonii</i>	+	1.3m	NJ02.13
<i>Hybanthus aurantiacus</i>	+	0.4m	NJ20.13
<i>Paraneurachne muelleri</i>	+	0.4m	NJ04.07
<i>Petalostylis labicheoides</i>	4%	1.5m	NJ04.19
<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>	+	0.2m	NJ06.14
<i>Ptilotus exaltatus</i>	+	<0.1m	NC

Rhagodia eremaea	+	0.6m	NJOP08T
Rhyncharrhena linearis	+	CR	NJ14.06A
Rulingia luteiflora	+	1.2m	NJ20.03
Sclerolaena densiflora	+	<0.1m	NJ14.21
Senna artemisioides subsp. oligophylla	1%	0.4m	NJ04.05
Senna glutinosa subsp. glutinosa	+	0.5m	NJ20.07
Senna sp. Meekatharra (E. Bailey 1-26)	+	0.3m	NJ20.06
Sida sp. verrucose glands (F.H. Mollemans 2423)	+	0.1m	NJ04.24
Solanum lasiophyllum	+	0.3m	NJ04.18
Triodia basedowii	+	0.4m	NJ20.11
Triodia pungens	10%	0.4m	NJ20.05

Site	NJ21		
Described	CS	Date	24/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location			
MGA	51	196795	mE
			7413109 mN
Habitat	Low Rocky Rise.		
Soil	Red-brown sandy loam surface of pebbles and cobbles.		
Rock	Ironstone, quartz and granite.		
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835), <i>Triodia pungens</i> and <i>Triodia wiseana</i> with Scattered shrubs of <i>Acacia bivenosa</i> , <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> on Red-Brown Loam on Low Rocky Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia wiseana</i> with Scattered Tall Shrubs of <i>Hakea lorea</i> subsp. <i>lorea</i> over Low Open Shrubland of <i>Eremophila fraseri</i> subsp. <i>fraseri</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> and <i>Acacia tetragonophylla</i> over Very Open Tussock Grassland of <i>Aristida contorta</i> over Scattered Herbs of <i>Gomphrena canescens</i> subsp. <i>canescens</i> on Red-Brown Sandy Loam on a Low Rocky Rise.		
Veg	Pristine to Excellent.		
Fire	Moderate.		
Note	Bare ground: 90%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Nearby road. Notes: Very open, same small areas of exposed bedrock and shale.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia bivenosa	+	3m	NJ21.08
Acacia melleodora	+	2m	NJ21.06
Acacia synchronicia	+	1m	NJ01.40
Acacia tetragonophylla	1%	0.5m	NJ01.02
Aristida contorta	10%	0.25m	NJ09.08
Boerhavia coccinea	+	CR	NJ01.21
Cleome viscosa	+	0.4m	NJ01.22
Corchorus lasiocarpus subsp. parvus	+	0.4m	NJ07.07
Enneapogon intermedius	+	0.25m	NJ19.07
Eremophila cuneifolia	+	0.3m	NJ19.02
Eremophila fraseri subsp. fraseri	2%	1m	NJ19.01
Eriachne mucronata	1%	0.4m	NJ21.03
Euphorbia australis	+	0.3m	NJ21.11
Gomphrena canescens subsp. canescens	1%	0.3m	NJ03.05
Goodenia prostrata	+	0.2m	NJ19.20
Grevillea wickhamii subsp. hispidula	+	2m	NJ21.04
Hakea lorea subsp. lorea	1%	2m	NJ05.16
Heliotropium heteranthum	+	CR	NJ05.06
Hibiscus aff. coatesii	+	0.5m	NJ19.14
Portulaca oleracea	+	CR	NJ21.07
Ptilotus exaltatus var. exaltatus	+	0.2m	NJ01.46
Ptilotus helipteroides	+	0.2m	NJ03.19
Sclerolaena deserticola	+	0.4m	NJ01.08
Senna artemisioides aff subsp oligophylla	+	0.5m	NJ21.09
Senna artemisioides subsp. helmsii	2%	0.5m	NJ01.12
Sida aff. clementii	+	0.5m	NJ21.05
Sida clementii	+	0.3m	NJ21.02

Solanum lasiophyllum	+	0.5m	NJ01.04
Tephrosia supina	+	0.3m	NJ21.10
Tribulus suberosus	+	1m	NJ21.01
Triodia wiseana	1%	0.5m	NJ01.29

Site	NJ22		
Described	KM	Date	24/04/2009
Season		Type	Q
			50 x 50m
		Uniformity	
Location			
MGA	50	795492	mE 7418338 mN
Habitat	Plain.		
Soil	Red, brown loam with scattered small pebbles.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia sclerosperma</i> , <i>Acacia synchronicia</i> and <i>Acacia ligulata</i> over Scattered Tussock Grass of <i>*Cenchrus ciliaris</i> over Scattered Herbs of <i>Dactyloctenium radulans</i> on Red-Brown Loam on a Plain.		
Veg	Very Good.		
Fire	Moderate.		
Note	Bare ground: 90%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Weeds and cattle.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia ligulata</i>	1%	2.5m	NJ22.10
<i>Acacia sclerosperma</i>	5%	2-3m	NJ22.01
<i>Acacia synchronicia</i>	4%	0.5-4m	NJ04.14
<i>Aristida contorta</i>	+	0.1m	NJ22.03
<i>Atriplex codonocarpa</i>	+	<0.1m	NJ22.08
<i>Boerhavia coccinea</i>	+	<0.1m	NJ02.03
<i>Boerhavia repleta</i>	+	<0.1m	NJ22.07
<i>Cenchrus ciliaris</i>	1%	0.4m	NC
<i>Chloris pumilio</i>	+	0.3m	NJ22.06
<i>Cleome viscosa</i>	+	0.2m	NC
<i>Dactyloctenium radulans</i>	1%	<0.1m	NJOP05T
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	+	0.1m	NJ14.20
<i>Enteropogon ramosus</i>	+	0.3m	NJ22.11
<i>Euphorbia biconvexa</i>	+	<0.1m	NJOP11T
<i>Portulaca oleracea</i>	+	<0.1m	NJOP01T
<i>Pterocaulon serrulatum</i>	+	0.3m	NJ04.27
<i>Salsola tragus</i>	+	0.3m	NJOP04T
<i>Sclerolaena cuneata</i>	+	0.1m	NJ22.02
<i>Sclerolaena densiflora</i>	+	<0.1m	NJ14.21
<i>Sclerolaena diacantha</i>	+	<0.1m	NJ22.04
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	1.6m	NJ04.05
<i>Solanum lasiophyllum</i>	+	0.3m	NJ04.18
<i>Streptoglossa cylindriceps</i>	+	<0.1m	NJ22.05
<i>Streptoglossa</i> sp.	+	<0.1m	NJ22.09
<i>Trianthema triquetra</i>	+	<0.1m	NJOP02T

Site	NJ23		
Described Season	CS	Date 24/04/2009	Type Q 50 x 50 m
Location	OB18 Access Road.		
MGA	51	195641	mE 7413505 mN
Habitat	Mulga floodplain/sandplain.		
Soil	Red-brown sandy loam - scattered pebbles on surface.		
Rock	Ironstone, granite.		
Broad Floristic Formation:	Acacia Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Scrub of <i>Acacia</i> aff. <i>aneura</i> , <i>Acacia aneura</i> var. <i>intermedia</i> and <i>Acacia citrinoviridis</i> over Scattered Low Shrubs of <i>Senna artemisioides</i> subsp. <i>helmsii</i> and <i>Eremophila forrestii</i> subsp. <i>forrestii</i> over Very Open Hummock Grassland of <i>Triodia wiseana</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) over Very Open Tussock Grassland of * <i>Cenchrus ciliaris</i> , <i>Digitaria ctenantha</i> and <i>Enneapogon polyphyllus</i> over Scattered Herbs of <i>Gomphrena canescens</i> subsp. <i>canescens</i> on Red-Brown Sandy Loam on Mulga Plain.		
Veg	Pristine to Excellent.		
Fire	Very Old.		
Note	Bare ground: 50%. Litter cover: Logs: 2%, Twigs: 1%, Lvs: +. Disturbance type: Cattle and weeds.		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia</i> aff. <i>aneura</i>	60%	>3m	NJ23.01	
<i>Acacia aneura</i> var. <i>intermedia</i>	5%	4m	NJ23.03	
<i>Acacia bivenosa</i>	+	2m	NJ21.08	
<i>Acacia citrinoviridis</i>	1%	4m	NJ07.17	
<i>Acacia tetragonophylla</i>	1%	2m	NJ01.02	
<i>Amyema fitzgeraldii</i>	+	parasite	NJ01.15	P
<i>Bidens bipinnata</i>	+	0.15m	NJ23.23	
<i>Boerhavia coccinea</i>	+	CR	NJ01.21	
<i>Bonamia rosea</i>	+	0.5m	NJ09.14	
<i>Cenchrus ciliaris</i>	3%	0.4m	NJ23.14	
<i>Cleome viscosa</i>	+	0.3m	NJ01.22	
<i>Cymbopogon oblectus</i>	+	0.4m	NJ03.18	
<i>Dactyloctenium radulans</i>	+	0.25m	NJ23.13	
<i>Digitaria ctenantha</i>	1%	0.35m	NJ23.12	
<i>Duperreya commixta</i>	+	CL	NJ01.36	
<i>Enneapogon polyphyllus</i>	1%	0.3m	NJ23.06	
<i>Eragrostis eriopoda</i>	+	0.4m	NJ23.16	
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	1%	0.6m	NJ05.14	
<i>Euphorbia coghlanii</i>	+	0.3m	NJ23.10	
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CR	NJ01.01	
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	1%	0.2m	NJ03.05	
<i>Goodenia prostrata</i>	+	0.1m	NJ19.20	
<i>Grevillea berryana</i>	+	2m	NJ23.19	
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	0.4m	NJ05.16	
<i>Hibiscus burtonii</i>	+	0.5m	NJ23.22	

<i>Indigofera georgei</i>	+	0.4m	NJ23.07
<i>Ipomoea muelleri</i>	+	0.3m	NJ23.04
<i>Iseilema macratherum</i>	+	0.3m	NJ23.09
<i>Keraudrenia nephrosperma</i>	+	0.6m	NJ07.08
<i>Maireana planifolia</i>	+	0.5m	NJ01.28
<i>Maireana planifolia x villosa</i>	+	0.35m	NJ23.17
<i>Paspalidium clementii</i>	+	0.4m	NJ23.11
<i>Perotis rara</i>	+	0.2m	NJ03.07
<i>Portulaca oleracea</i>	+	CR	NJ01.18
<i>Portulaca pilosa</i>	+	0.3m	NJ23.08
<i>Psyrax latifolia</i>	+	2m	NJ23.18
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.1m	NJ01.46
<i>Ptilotus gaudichaudii</i> var. <i>gaudichaudii</i>	+	0.4m	NJ23.02
<i>Rhynchosia minima</i>	+	CL	NJ05.12
<i>Sclerolaena deserticola</i>	+	0.4m	NJ01.08
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	1%	0.6m	NJ01.12
<i>Senna notabilis</i>	+	0.1m	NJ01.17
<i>Sida platycalyx</i>	+	0.3m	NJ23.05
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.2m	NJ01.24
<i>Solanum lasiophyllum</i>	+	0.5m	NJ01.04
<i>Trichodesma zeylanicum</i>	+	0.4m	NJ01.05
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	1%	0.4m	NJ19.09
<i>Triodia wiseana</i>	2%	0.6m	NJ01.29

Key:

P: Parasitic on on *Acacia aneura*

Site NJ24

Described TE **Date** 24/04/2009 **Type** Q 100 x 25m

Season **Uniformity**

Location

MGA 50 794487 **mE** 7418365 **mN**

Habitat Creekline.

Soil Red, brown loam with cracking clay.

Rock N/A.

Broad Floristic Formation: Eucalyptus Woodland.

Vegetation Association: Woodland of *Eucalyptus victrix* over High Shrubland of *Acacia sclerosperma* and *Acacia citrinoviridis* over Open Tussock Grassland of **Cenchrus ciliaris*, *Enteropogon ramosus* and *Chrysopogon fallax* on Red-Brown Loam on Creeklines and Rivers.

Vegetation Sub-association: Woodland of *Eucalyptus victrix* over High Open Shrubland of *Acacia sclerosperma*, *Acacia citrinoviridis* and *Acacia sclerosperma* over Open Tussock Grassland of **Cenchrus ciliaris*, *Enteropogon ramosus* and *Chrysopogon fallax* over Scattered Herbs of *Sclerolaena densiflora* on Red-Brown Loam on a Creekline.

Veg Very Good.

Fire Old.

Note Bare ground: 75%.
Litter cover: Logs: +, Twigs: 2%, Lvs: 3%.
Disturbance type: Flooding and poaching by cattle.

SPECIES

Name	Cover	Height	Specimen	Notes
Abutilon sp.	+	<0.1m	NJ24.13	
Acacia citrinoviridis	1%	4m	NJ02.01	
Acacia coriacea subsp. pendens	+	1.5m	NJ24.10	
Acacia sclerosperma	8%	3m	NJ24.04A	
Acetosa vesicaria	+	<0.1m	NJ12.12	
Amyema fitzgeraldii	+	0.3m	NJ16.25	P
Boerhavia burbidgeana	+	<0.1m	NJ24.16	
Cenchrus ciliaris	5%	0.5m	NC	
Chrysopogon fallax	2%	0.5m	NJOP07T	
Cleome viscosa	+	0.1m	NC	
Corchorus tridens	+	<0.1m	NJ24.05	
Cullen sp.	+	0.2m	NJ24.08	
Dipteracanthus australasicus subsp. australasicus	+	<0.1m	NJ24.17	
Enteropogon ramosus	5%	0.5m	NJ24.02	
Eragrostis falcata	+	<0.1m	NJ24.12	
Eremophila margarethae	+	1m	NJ24.03	
Eremophila platycalyx subsp. pardalota	+	2m	NJ24.04	
Eucalyptus victrix	10%	10-15m	NJ24.01	
Euphorbia australis	+	<0.1m	NJ14.01	
Goodenia muelleriana	+	0.1m	NJ14.02	
Hakea preissii	+	0.5m	NJ24.14	
Maireana villosa	+	0.3m	NJ06.05	
Malvastrum americanum	+	0.1m	NJ24.07	
Portulaca oleracea	+	<0.1m	NJOP01T	
Ptilotus obovatus	+	0.6m	NJ02.07	
Rhagodia eremaea	+	1.5m	NJOP08T	
Sclerolaena densiflora	1%	<0.2m	NJ14.21	
Sclerolaena eriacantha	+	<0.1m	NJ24.18	

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<i>Senna artemisioides</i> subsp. <i>filifolia</i>	+	2m	NJ24.09
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	2m	NJ06.15
<i>Setaria dielsii</i>	+	0.1m	NJOP35T
<i>Setaria dielsii</i>	+	0.2m	NJOP35T
<i>Solanum lasiophyllum</i>	+	0.1m	NJ04.18
<i>Sporobolus australasicus</i>	+	<0.1m	NJ16.19
<i>Trianthema triquetra</i>	+	0.1m	NJ24.06
<i>Tribulus macrocarpus</i>	+	CL	NJ24.15
<i>Tribulus terrestris</i>	+	<0.1m	NJOP33T

Key:

P: Parasitic on on *Acacia aneura*

Site	NJ25		
Described Season	CS	Date 24/03/2009	Type Q 50 x 50 m
Location	OB18 Access Track.		
MGA	51	194866	mE 7413794 mN
Habitat	Sandplain.		
Soil	Red-brown loam with pebbles.		
Rock	Ironstone quartz.		
Broad Floristic Formation:	<i>Acacia</i> Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia aneura</i> var ? <i>pilbarana</i> , <i>Acacia</i> aff. <i>aneura</i> and <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> over Low Open Shrubland of <i>Acacia tetragonophylla</i> and <i>Eremophila forrestii</i> subsp. <i>forrestii</i> over Tussock Grassland of <i>Aristida inaequiglumis</i> , <i>Cymbopogon obtectus</i> and <i>Aristida contorta</i> with High Scattered Herbs of <i>Goodenia prostrata</i> on Red-Brown Loam on Sandplain.		
Veg	Pristine.		
Fire	Young to Moderate.		
Note	Bare ground: 55%. Litter cover: Logs: 1%, Twigs: 1%, Lvs:+. Disturbance: Cattle. Notes: Mulga- slightly more open than NJ 23.		

SPECIES

Name	Cover	Height	Specimen	Notes
Abutilon otocarpum	+	0.3m	NJ25.04	
Acacia aff. aneura	3%	<4m	NJ25.01	
Acacia aneura var ? pilbarana	5%	4m	NJ25.03	
Acacia ancistrocarpa	+	1.5m	NJ01.03	
Acacia hilliana			NJ25.11	Associated
Acacia pruinocarpa			NJ01.42	Associated
Acacia tetragonophylla	2%	1m	NJ01.02	
Aristida contorta	10%	0.3m	NJ09.08	
Aristida inaequiglumis	30%	0.5m	NJ01.32	
Chrysocephalum aff. apiculatum	+	0.2m	NJ09.02	
Cymbopogon ambiguus	1%	0.6m	NJ01.39	
Cymbopogon obtectus	2%	0.6m	NJ03.18	
Dactyloctenium radulans	+	0.1m	NJ23.13	
Duperreya commixta	+	CL	NJ01.36	
Enneapogon polyphyllus	+	0.25m	NJ23.06	
Eremophila forrestii subsp. forrestii	1%	0.5m	NJ05.14	
Eremophila forrestii x latrobei	+	0.6m	NJ25.08	
Eremophila latrobei subsp. aff. filiformis			NJ31.16	Associated
Eulalia aurea	1%	0.5m	NJ15.04	
Evolvulus alsinoides var. villosicalyx	+	CR	NJ01.01	
Gomphrena canescens subsp. canescens	+	0.25m	NJ03.05	
Goodenia prostrata	1%	0.05m	NJ19.20	
Grevillea wickhamii subsp. hispidula	1%	3m	NJ21.04	
Hakea lorea subsp. lorea	+	2m	NJ05.16	
Hibiscus burtonii	+	0.3m	NJ25.06	
Hibiscus sturtii var. platychlamys	+	0.4m	NJ25.05	

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Hybanthus aurantiacus	+	0.35m	NJ63.01	
Indigofera monophylla			NJ07.06	Associated
Keraudrenia nephrosperma	+	1m	NJ07.08	
Paraneurachne muelleri			NJ01.45	
Portulaca oleracea	+	0.05m	NJ01.18	
Pterocaulon sphaeranthoides	+	0.3m	NJ25.02	
Ptilotus exaltatus var. exaltatus	+	0.2m	NJ01.46	
Ptilotus obovatus	+	0.4m	NJ03.01	
Sclerolaena deserticola			NJ01.08	Associated
Senna artemisioides aff subsp oligophylla	+	0.5m	NJ15.08	
Senna artemisioides subsp. helmsii	+	0.5m	NJ01.12	
Senna glutinosa subsp. x luerssenii	+	1m	NJ07.04	
Sida aff. clementii	+	0.5m	NJ21.05	
Sida platycalyx	+	0.2m	NJ25.09A	
Solanum lasiophyllum			NJ01.04	Associated
Themeda triandra	+	0.5m	NJ09.07	
Tribulus suberosus			NJ11.06	Associated
Waltheria indica	+	0.4m	NJ25.10	

Site	NJ26		
Described Season	TE	Date 25/04/2009	Type Q 50 x 50m
Location	Jimblebar Access Road.		
MGA	50	796199	mE 7418270 mN
Habitat	Open plain.		
Soil	Red, brown fine sand with small ironstones scattered on the surface.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia pachyacra</i> , <i>Acacia dictyophleba</i> and <i>Acacia bivenosa</i> with Low Open Woodland of <i>Eucalyptus xerothermica</i> over Hummock Grassland of <i>Triodia basedowii</i> over Very Open Tussock Grassland of <i>Eriachne helmsii</i> , <i>*Cenchrus ciliaris</i> and <i>Aristida ingrata</i> over Scattered Herbs of <i>Scaevola parvifolia</i> subsp. <i>pilbarae</i> on Red-Brown Fine Sand on an Open Plain.		
Veg	Excellent.		
Fire	Old to Very Old.		
Note	Aspect: Low slope which slopes to the south. Bare ground: 60%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: N/A.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia adsurgens</i>	+	2m	NJ04.26
<i>Acacia</i> aff. <i>aneura</i>	2-5%	2-2.5m	NJ26.05
<i>Acacia bivenosa</i>	1%	1.5m	NJ04.09
<i>Acacia citrinoviridis</i>	+	2-5m	NJ02.01
<i>Acacia dictyophleba</i>	3%	1.5m	NJ08.01
<i>Acacia ligulata</i>	2%	2m	NJ18.05
<i>Acacia pachyacra</i>	4%	2-2.5m	NJ26.02
<i>Acacia pruinocarpa</i>	+	1.5m	NJ04.13
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	+	1m	NJ02.02
<i>Acacia synchronicia</i>	+	1m	NJ16.28
<i>Acacia tetragonophylla</i>	+	0.3m	NJ04.33
<i>Aristida contorta</i>	+	0.1m	NJ06.10
<i>Aristida holathera</i>	+	0.2m	NJ16.35
<i>Aristida holathera</i> var. <i>latifolia</i>	+	0.2m	NJ14.05
<i>Aristida ingrata</i>	1%	1m	NJ26.09
<i>Boerhavia coccinea</i>	+	<0.1m	NJ02.03
<i>Bonamia rosea</i>	+	0.3m	NJ26.06
<i>Cenchrus ciliaris</i>	1%	0.2-0.3m	NC
<i>Cleome viscosa</i>	+	0.2m	NC
<i>Corchorus tridens</i>	+	<0.2m	NJ24.05
<i>Cymbopogon oblectus</i>	+	0.2m	NJ04.10
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Enneapogon polyphyllus</i>	+	0.1m	NJ06.09
<i>Eragrostis falcata</i>	+	0.3m	NJ04.29
<i>Eriachne helmsii</i>	1%	0.5m	NJ26.08

<i>Eucalyptus xerothermica</i>	2-5%	6m	NJ26.11
<i>Eulalia aurea</i>	+	0.5m	NJOP06T
<i>Euphorbia australis</i>	+	0.1m	NJ14.01
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.1m	NJ14.10
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CL	NJ26.03
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	1-5m	NJR02.01
<i>Hibiscus burtonii</i>	+	0.5m	NJ14.17
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	+	0.1m	NJ26.14
<i>Hybanthus aurantiacus</i>	+	0.2m	NJ26.10
<i>Ipomoea polymorpha</i>	+	<0.2m	NJ26.16
<i>Kennedia prorepens</i>	+	CL	NJ26.04
<i>Paraneurachne muelleri</i>	+	0.3m	NJ04.07
<i>Paspalidium</i> sp.	+	<0.1m	NJ16.13
<i>Perotis rara</i>	+	<0.1m	NJ16.29
<i>Petalostylis labicheoides</i>	2-5%	2.5m	NJ04.19
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	<0.1m	NJ01.46
<i>Salsola tragus</i>	+	0.1m	NJOP04T
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	1%	0.2m	NJOP16K
<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>	+	1m	NJ14.04
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	1m	NJ06.15
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	+	1.2m	NJ06.03
<i>Senna notabilis</i>	+	<0.1m	NC
<i>Senna</i> sp. <i>Meekatharra</i> (E. Bailey 1-26)	+	0.6m	NJ26.15
<i>Sida</i> aff. <i>fibulifera</i>	+	0.5m	NJ10.09
<i>Solanum centrale</i>	+	0.3m	NJ26.17
<i>Trianthema pilosa</i>	+	<0.1m	NJ26.13
<i>Trichodesma zeylanicum</i>	+	0.2m	NJOP10T
<i>Triodia basedowii</i>	40%	0.6m	NJ26.01
<i>Yakirra australiensis</i> var. <i>australiensis</i>	+	<0.1m	NJ14.14

Site	NJ27		
Described	CS	Date	24/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	North of Jimblebar Access Road.		
MGA	51	197948	mE 7413426 mN
Habitat	Low hilltop.		
Soil	Red brown sandy loam surface covered with pebbles and cobbles.		
Rock	Ironstone and quartz.		
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835), <i>Triodia pungens</i> and <i>Triodia wiseana</i> with Scattered shrubs of <i>Acacia bivenosa</i> , <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> on Red-Brown Loam on Low Rocky Hillslopes.		
Vegetation Sub-association:	Very Open Tussock Grassland of <i>Aristida contorta</i> with Low Open Shrubland of <i>Senna glutinosa</i> subsp. x <i>luerssenii</i> , <i>Eremophila fraseri</i> subsp. <i>fraseri</i> and <i>Acacia synchronicia</i> on Red-Brown Sandy Loam on a Low Hilltop.		
Veg	Pristine.		
Fire	Moderate to Old.		
Note	Bare ground: 85%. Litter cover: Logs: +, Twigs: +, Lvs: +.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia synchronicia</i>	1%	1m	NJ01.40
<i>Acacia tetragonophylla</i>	+	0.7m	NJ01.02
<i>Aristida contorta</i>	10%	0.3m	NJ09.08
<i>Boerhavia coccinea</i>	+	CR	NJ01.21
<i>Chrysocephalum pterochaetum</i>	+	0.25m	NJ27.03
<i>Cymbopogon ambiguus</i>	+	0.6m	NJ01.39
<i>Eremophila cuneifolia</i>	+	0.5m	NJ27.01
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	1%	1m	NJ19.01
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	+	0.25m	NJ03.08
<i>Euphorbia biconvexa</i>	+	0.15m	NJ01.09
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CR	NJ01.01
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.25m	NJ03.05
<i>Maireana triptera</i>	+	0.3m	NJ27.02
<i>Psyrax latifolia</i>	+	1.5m	NJ23.18
<i>Salsola tragus</i>	+	0.4m	NJ01.26
<i>Sclerolaena densiflora</i>	+	0.15m	NJ27.06
<i>Sclerolaena deserticola</i>	+	0.4m	NJ01.08
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	1%	0.5m	NJ01.12
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	1%	0.4m	NJ01.13
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	5%	1m	NJ11.05
<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)	+	0.4m	NJ27.05
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.3m	NJ01.24
<i>Solanum lasiophyllum</i>	+	0.6m	NJ01.04
<i>Streptoglossa decurrens</i>	+	0.1m	NJ27.04
<i>Tribulus suberosus</i>	+	0.9m	NJ11.06

Site	NJ28		
Described Season	TE	Date 25/04/2009	Type Q 50 x 50m
Location	Jimblebar Access Road.		
MGA	50	796870 mE	7418204 mN
Habitat	Mulga shrubland plain.		
Soil	Red, brown sandy loam with scattered small ironstones.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia</i> aff. <i>aneura</i> and <i>Acacia ancistrocarpa</i> over Hummock Grassland of <i>Triodia Pungens</i> over Open Tussock Grassland over <i>Aristida ingrata</i> , <i>Eulalia aurea</i> and * <i>Cenchrus ciliaris</i> over Scattered Herbs of <i>Sida platycalyx</i> on Red-Brown Sandy Loam on Mulga plain.		
Veg	Excellent.		
Fire	Old.		
Note	Aspect: Slightly south. Bare ground: 65%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Cattle.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia</i> aff. <i>aneura</i>	10%	3-4m	NJ28.02
<i>Acacia ancistrocarpa</i>	1%	2m	NJ28.12
<i>Acacia pachyacra</i>	+	2m	NJ26.02
<i>Acacia pruinocarpa</i>	+	1.5m	NJ04.13
<i>Acacia synchronicia</i>	+	1m	NJ04.14
<i>Aristida contorta</i>	+	0.1m	NJ06.10
<i>Aristida holathera</i>	1%	0.1m	NJ16.35
<i>Aristida ingrata</i>	20%	0.5-1m	NJ26.09
<i>Bidens bipinnata</i>	+	<0.1m	NJ02.10
<i>Boerhavia burbridgeana</i>	+	<0.1m	NJ24.16
<i>Boerhavia coccinea</i>	+	<0.1m	NJ02.03
<i>Cenchrus ciliaris</i>	2%	<0.5m	NC
<i>Cleome oxalidea</i>	+	<0.1m	NJ28.07
<i>Cleome viscosa</i>	+	0.3m	NC
<i>Cymbopogon ambiguus</i>	+	0.5m	NJ28.01
<i>Cymbopogon obtectus</i>	1%	0.3m	NJ26.12
<i>Dactyloctenium radulans</i>	+	<0.1m	NJOP05T
<i>Dysphania rhadinostachya</i>	+	<0.1m	NJOP09T
<i>Enneapogon polyphyllus</i>	+	0.1m	NJ06.09
<i>Eragrostis falcata</i>	+	0.4m	NJ04.29
<i>Eriachne aristidea</i>	+	<0.1m	NJ28.04
<i>Eriachne helmsii</i>	1%	0.5m	NJ26.08
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	+	<0.1m	NJOP39K
<i>Eulalia aurea platycalyx</i>	3%	0.6m	NJOP06T
<i>Euphorbia australis</i>	+	0.1m	NJ26.18
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.1m	NJ14.10

<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	<0.1m	NJ26.03
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.1m	NJOP12T
<i>Goodenia lamprosperma</i>	+	0.2m	NJ28.11
<i>Goodenia microptera</i>	+	<0.1m	NJ28.14
<i>Goodenia prostrata</i>	+	<0.1m	NJ16.11
<i>Hakea lorea</i> subsp. <i>lorea</i>		1m	NJR02.01
<i>Hibiscus burtonii</i>	+	0.2m	NJ04.25
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>	+	0.3m	NJ28.18
<i>Maireana planifolia</i> x <i>villosa</i>	+	0.1m	NJ28.13
<i>Maireana villosa</i>	+	<0.1m	NJ06.05
<i>Paspalidium</i> sp.	+	0.2m	NJ16.13
<i>Perotis rara</i>	+	<0.1m	NJ16.29
<i>Portulaca oleracea</i>	+	0.1m	NJOP01T
<i>Ptilotus exaltatus</i>	+	0.2m	NC
<i>Ptilotus helipteroides</i>	+	0.1m	NJOP14T
<i>Ptilotus obovatus</i>	+	0.5m	NJ02.07
<i>Ptilotus polystachyus</i> var. <i>arthrotrichus</i>	+	<0.1m	NJ28.06
<i>Rhagodia eremaea</i>	+	0.2m	NJOP08T
<i>Rhynchosia minima</i> var. <i>australis</i>	+	CL	NJ28.03
<i>Sclerolaena costata</i>	+	0.2m	NJ28.10
<i>Senna artemisioides</i> aff subsp <i>oligophylla</i>	+	0.3m	NJ28.08
<i>Senna artemisioides</i> subsp. <i>filifolia</i>	+	0.6m	NJR02.02
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.8m	NJ04.05
<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>	+	0.6m	NJ04.06
<i>Setaria verticillata</i>	+	0.2m	NJ28.16
<i>Sida platycalyx</i>	1%	<0.1m	NJ28.05
<i>Solanum lasiophyllum</i>	+	0.4m	NJ04.18
<i>Streptoglossa</i> sp.	+	<0.1m	NJ16.15
<i>Tribulus astrocarpus</i>	+	<0.1m	NJ28.15
<i>Trichodesma zeylanicum</i>	+	0.1m	NJOP10T
<i>Triodia pungens</i>	35%	0.8m	NJ28.09

Site	NJ30		
Described	TE	Date	25/04/2009
Season		Type	Q
			50 x 50m
Location	Jimblebar Access Road.		
MGA	50	797573	mE
Habitat	Plain.		
Soil	Red, brown sandy loam covered with tiny ironstones and scattered silicate pebbles in patches		
Rock	Ironstone and silicate.		
Broad Floristic Formation:	Acacia Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia</i> aff. <i>aneura</i> and <i>Acacia catenulata</i> subsp. <i>occidentalis</i> over Low Scattered Shrubs of <i>Hakea lorea</i> subsp. <i>lorea</i> and <i>Acacia bivenosa</i> over Open Hummock Grassland of <i>Triodia basedowii</i> over Very Open Tussock Grassland of <i>Aristida ingrata</i> , <i>Aristida contorta</i> and <i>Enneapogon polyphyllus</i> with Scattered Low Trees of <i>Corymbia candida</i> subsp. <i>dipsodes</i> on Red-Brown Sandy Loam on a Plain.		
Veg	Excellent to Pristine.		
Fire	Moderate.		
Note	Aspect: Slightly south. Bare ground: 80%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Cattle. Notes: Some charred trunks and few herbs present.		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia</i> aff. <i>aneura</i>	25%	8m	NJ28.02	
<i>Acacia bivenosa</i>	1%	1m	NJ04.09	
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>	3%	4-5m	NJ30.04	
<i>Acacia pachyacra</i>	+	0.8m	NJ26.02	
<i>Amyema fitzgeraldii</i>	+	0.5m	NJ16.25	P
<i>Aristida contorta</i>	1%	0.1m	NJ06.10	
<i>Aristida holathera</i>	1%	0.1m	NJ16.35	
<i>Aristida ingrata</i>	2%	0.3m	NJ26.09	
<i>Bidens bipinnata</i>	+	0.1m	NJ02.10	
<i>Boerhavia coccinea</i>	+	CL	NJ02.03	
<i>Cenchrus ciliaris</i>	1%	0.5m	NC	
<i>Cleome viscosa</i>	+	0.4m	NC	
<i>Corymbia candida</i> subsp. <i>dipsodes</i>	+	8m	NJ08.11	
<i>Cymbopogon oblectus</i>	+	0.3m	NJ26.12	
<i>Dactyloctenium radulans</i>	+	<0.1m	NJOP05T	
<i>Enneapogon caerulescens</i>	+	0.1m	NJ04.11	
<i>Enneapogon polyphyllus</i>	1%	<0.2m	NJ06.09	
<i>Eragrostis falcata</i>	1%	0.5m	NJ04.29	
<i>Eremophila forrestii</i>	+	1m	NJ04.15	
<i>Eriachne helmsii</i>	+	0.5m	NJ26.08	
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	+	<0.1m	NJOP39K	
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.3m	NJ08.08	
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CL	NJ26.03	
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.1m	NJOP12T	
<i>Hakea lorea</i> subsp. <i>lorea</i>	1%	1m	NJR02.01	

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Hibiscus burtonii	+	0.1m	NJ14.17
Ipomoea calobra	+	0.2m	NJ30.03
Maireana planifolia x villosa	+	0.2m	NJ28.13
Paraneurachne muelleri	+	0.2m	NJ04.07
Paspalidium sp.	1%	<0.1m	NJ16.13
Perotis rara	+	<0.1m	NJ16.29
Portulaca oleracea	+	<0.1m	NJOP01T
Ptilotus polystachyus var. arthrotrichus	+	<0.1m	NJ28.06
Rhagodia eremaea	+	1.2m	NJOP08T
Rhyncharrhena linearis	+	1-2m	NJ14.06A
Senna artemisioides subsp. oligophylla	+	0.8m	NJ04.05
Senna glutinosa subsp. pruinosa	+	1m	NJ18.17
Senna sp. Meekatharra (E. Bailey 1-26)	+	0.6m	NJ26.15
Solanum lasiophyllum	+	0.5m	NJ04.18
Trianthera pilosa	+	<0.1m	NJ26.13
Tribulus astrocarpus	+	<0.1m	NJ28.15
Triodia basedowii	12%	0.5-0.8m	NJ30.02
Xerochloa imberbis	(+)	<0.1m	NJ16.33

Key:

P: Parasitic on on Acacia aneura

Site	NJ31		
Described Season	CS	Date 25/04/2009	Type Q 50 x 50 m
Location	South of Access Road.		
MGA	50	803308	mE 7416102 mN
Habitat	Hillside.		
Soil	Red-brown sandy loam with surface covered with pebbles and cobbles.		
Rock			
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of <i>Acacia bivenosa</i> and <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on Red-Brown Skeletal on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with High Open Shrubland of <i>Acacia bivenosa</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> and <i>Acacia pruinocarpa</i> over Open Shrubland of <i>Acacia</i> aff. <i>sibirica</i> , <i>Acacia adsurgens</i> and <i>Senna glutinosa</i> subsp. <i>glutinosa</i> over Low Shrubland of <i>Acacia hilliana</i> , <i>Halgania solanacea</i> aff. var. <i>hirsuta</i> and <i>Scaevola</i> aff. <i>browniana</i> over Scattered Tussock Grasses of <i>Eulalia aurea</i> on Red-Brown Sandy Loam on Hillside.		
Veg	Pristine.		
Fire	Very Old.		
Note	Aspect: East. Bare ground: 30%. Litter cover: Logs: +, Twigs: +, Lvs: +. Notes: Further down slope, percentage of <i>Grevillea</i> .		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia adoxa</i> var. <i>adoxo</i>	+	0.3m	NJ11.07	
<i>Acacia adsurgens</i>	1%	1.5m	NJ31.09	
<i>Acacia</i> aff. <i>sibirica</i>	1%	1.5m	NJ31.13	
<i>Acacia bivenosa</i>	2%	3m	NJ21.08	
<i>Acacia hilliana</i>	5%	0.5m	NJ25.11	
<i>Acacia pruinocarpa</i>	1%	2m	NJ01.42	
<i>Acacia tenuissima</i>	+	0.4m	NJ31.14	
<i>Acacia tetragonophylla</i>	+	0.5m	NJ01.02	
<i>Amphipogon sericeus</i>	+	0.4m	NJ31.11	
<i>Calytrix carinata</i>	+	0.5m	NJ31.12	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			NJ31.17	Associated
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>	+	8-10m	NJ31.15	
<i>Cymbopogon obtectus</i>			NJ03.18	Associated
<i>Dodonaea coriacea</i>	+	0.7m	NJ31.03	
<i>Duperreya commixta</i>			NJ01.36	Associated
<i>Eragrostis falcata</i>	+	0.4m	NJ01.47	
<i>Eremophila cuneifolia</i>			NJ27.01	Associated
<i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i>	+	1.5m	NJ31.16	
<i>Eulalia aurea</i>	1%	0.5m	NJ15.04	
<i>Gompholobium karjini</i>			NJ31.20	Associated
<i>Gomphrena canescens</i> subsp. <i>canescens</i>			NJ03.05	Associated
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	2%	2m	NJ31.01	
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	2.5m	NJ31.10	
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>	5%	0.4m	NJ31.05	
<i>Indigofera monophylla</i>	+	0.3m	NJ07.06	

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Keraudrenia nephrosperma	+	0.6m	NJ07.08	
Polycarpaea longiflora			NJ31.19	Associated
Pterocaulon sphaeranthoides			NJ25.02	Associated
Ptilotus calostachyus	+	0.3m	NJ07.15	
Scaevola aff. browniana	1%	0.4m	NJ31.08	
Scaevola parvifolia subsp. pilbarae	+	0.4m	NJ31.06	
Sclerolaena deserticola			NJ01.08	Associated
Senna glutinosa subsp. glutinosa	1%	1.5m	NJ31.04	
Senna glutinosa subsp. pruinosa	+	0.6m	NJ07.18	
Senna glutinosa subsp. x luerssenii			NJ07.04	Associated
Senna sericea			NJ31.18	Associated
Solanum lasiophyllum			NJ01.04	Associated
Tribulus suberosus			NJ11.06	Associated
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	40%	0.5m	NJ31.07	

Site	NJ32		
Described Season	TE	Date 25/04/2009	Type Q 50 x 50 m
Location	Jimblebar road.		
MGA	50	798302	mE 7418018 mN
Habitat	Plain.		
Soil	Red-brown fine sand/loam with tiny iron stones covering surface; few scattered quartz.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia pachyacra</i> , <i>Petalostylis labicheoides</i> and <i>Acacia bivenosa</i> with Low Open Woodland of <i>Eucalyptus gamophylla</i> over Hummock Grassland of <i>Triodia basedowii</i> over Very Open Tussock Grassland of <i>Cymbopogon obtectus</i> , <i>Aristida ingrata</i> and <i>Paraneurachne muelleri</i> over Scattered Herbs of <i>Bonamia rosea</i> on Red-Brown Fine Sand/Loam on a Plain.		
Veg	Excellent to Pristine.		
Fire	Old.		
Note	Bare ground: 60%. Litter cover: Logs: +, Twig: +, Lvs: +. Disturbance type: Cattle. Notes: E. gamo plain over triodia (few acacia).		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia bivenosa</i>	1%	1-2m	NJ04.09
<i>Acacia dictyophleba</i>	2%	2-2.5m	NJ08.01
<i>Acacia ligulata</i>	+	1m	NJ18.05
<i>Acacia pachyacra</i>	2%	1-2m	NJ26.02
<i>Acacia pruinocarpa</i>	+	1m	NJ04.13
<i>Acacia tetragonophylla</i>	+	1.2m	NJ04.33
<i>Aristida contorta</i>	(+)	0.1m	NJ06.10
<i>Aristida ingrata</i>	1%	0.5m	NJ26.09
<i>Bonamia rosea</i>	1%	0.3m	NJ26.06
<i>Cenchrus ciliaris</i>	+	0.5m	NC
<i>Chrysocephalum pterochaetum</i>	+	0.2m	NJ32.06
<i>Cymbopogon obtectus</i>	2%	0.5m	NJ04.10
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Eragrostis eriopoda</i>	+	0.5m	NJ32.11
<i>Eucalyptus gamophylla</i>	5%	3-5m	NJ04.36
<i>Euphorbia australis</i>	+	<0.1m	NJ14.01
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	1m	NJ04.31
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CL	NJ26.03
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.1m	NJOP12T
<i>Hakea lorea</i> subsp. <i>lorea</i>	1%	3m	NJR02.01
<i>Hibiscus burtonii</i>	+	0.3m	NJ14.17
<i>Hibiscus sturtii</i> var. <i>truncatus</i>	+	0.3m	NJ32.05
<i>Hybanthus aurantiacus</i>	+	0.2m	NJ26.10
<i>Keraudrenia nephrosperma</i>	+	0.4m	NJ32.02
<i>Paraneurachne muelleri</i>	1%	0.5m	NJ04.07

Petalostylis labicheoides	1%	1-2m	NJ04.19
Ptilotus obovatus	+	0.6m	NJ02.07
Rhyncharrhena linearis	+	CL	NJ14.06A
Scaevola parvifolia subsp. pilbarae	+	0.2m	NJOP16K
Senna artemisioides subsp. oligophylla x helmsii	+	1m	NJ30.05
Sida cardiophylla	+	0.3m	NJ32.07
Sida sp. verrucose glands (F.H. Mollemans 2423)	+	0.3m	NJ32.04
Solanum centrale	+	0.5m	NJ26.17
Solanum lasiophyllum	+	0.5m	NJ04.18
Stylobasium spathulatum	+	1.5m	NJ32.09
Triodia basedowii	40%	0.6m	NJ32.01

Site	NJ33		
Described Season	CS	Date 25/04/2009	Type Q 50 x 50 m
Location	South of Access Road.		
MGA	50	804028	mE 7415850 mN
Habitat	Sandplain/ Drainage (minor).		
Soil	Red-brown clay loam.		
Rock			
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia schinzii</i> with Open Shrubland of <i>Acacia pachyacra</i> , <i>Acacia aneura</i> var ? <i>pilbarana</i> and <i>Acacia catenulata</i> subsp. <i>occidentalis</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> on Red-Brown Clay Loam on Sandplains.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia schinzii</i> with Low Open Woodland of <i>Eucalyptus gamophylla</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> over High Open Shrubland of <i>Acacia bivenosa</i> over Open Shrubland of <i>Eremophila longifolia</i> , <i>Acacia melleodora</i> and <i>Acacia ancistrocarpa</i> over Low Scattered Shrubs of <i>Dodonaea coriacea</i> and <i>Scaevola parvifolia</i> subsp. <i>pilbarae</i> over Very Open Tussock Grassland of <i>Eragrostis falcata</i> , <i>Eragrostis</i> aff. <i>eriopoda</i> and <i>Paraneurachne muelleri</i> over Scattered Herbs of <i>Kennedia prorepens</i> on Red-Brown Clay Loam on Plain/Drainage.		
Veg	Pristine.		
Fire	Old.		
Note	Bare ground: 50%. Litter cover: Logs: +, Twigs: +, Lvs: 1%.		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia adoxa</i> var. <i>adoxo</i>	+	0.4m	NJ11.07	
<i>Acacia ancistrocarpa</i>	1%	2m	NJ01.03	
<i>Acacia bivenosa</i>	3%	2-4m	NJ21.08	
<i>Acacia hilliana</i>	+	0.3m	NJ25.11	
<i>Acacia melleodora</i>	2%	1.5-2m	NJ33.02	
<i>Acacia pachyacra</i>		4-5m	NJ33.18	Associated
<i>Anthobolus leptomerioides</i>	+	0.5m	NJ33.17	
<i>Bonamia rosea</i>	+	0.4m	NJ09.14	
<i>Cassutha capillaris</i>	+	CL	NJ33.15	
<i>Cenchrus ciliaris</i>	+	0.4m	NC	
<i>Chrysocephalum</i> aff. <i>apiculatum</i>	+	0.3m	NJ09.02	
<i>Cymbopogon obtectus</i>	+	0.6m	NJ03.18	
<i>Dicrasyllis georgei</i>	+	0.5m	NJ33.06	
<i>Dodonaea coriacea</i>	1%	0.8m	NJ31.03	
<i>Duperreya commixta</i>	+	CL	NJ01.36	
<i>Eragrostis</i> aff. <i>eriopoda</i>	1%	0.35m	NJ33.10	
<i>Eragrostis falcata</i>	1%	0.4m	NJ01.47	
<i>Eremophila longifolia</i>	2%	1.5-2m	NJ33.08	
<i>Eriachne helmsii</i>	+	0.5m	NJ33.12B	
<i>Eriachne mucronata</i>	+	0.3m	NJ33.13	
<i>Eucalyptus gamophylla</i>	2%	8m	NJ33.07	mallee
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.4m	NJ33.09	
<i>Gompholobium karijini</i>	+	0.5m	NJ31.20	
<i>Goodenia triodiophila</i>	+	0.3m	NJ33.11	3 individuals
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	2-3m	NJ31.01	
<i>Hakea lorea</i> subsp. <i>lorea</i>	1%	4m	NJ05.16	

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>	+	0.5m	NJ31.05	
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	+	0.4m	NJ33.12	
<i>Hybanthus aurantiacus</i>	+	0.4m	NJ63.01	
<i>Indigofera monophylla</i>	+	0.4m	NJ07.06	
<i>Jasminum didymum</i> subsp. <i>lineare</i>	+	0.8m	NJ33.16	
<i>Kennedia prorepens</i>	1%	0.3m	NJ33.05	
<i>Paraneurachne muelleri</i>	1%	0.4m	NJ01.45	
<i>Ptilotus obovatus</i>	+	0.4m	NJ03.04	
<i>Scaevola acacioides</i>	+	0.4m	NJ33.01	
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	1%	0.4m	NJ31.06	
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.6m	NJ01.13	
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	1.5m	NJ07.18	
<i>Solanum</i> aff. <i>sturtianum</i>	+	0.4m	NJ33.14	10 individuals
<i>Triodia schinzii</i>	20%	1.5m	NJ33.03	

Site	NJ34		
Described	TE	Date	25/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location			
MGA	50	798702	mE
			7417880 mN
Habitat	Hillslope.		
Soil	Red-brown skeletal - exposed iron bedrock.		
Rock	Red-brown Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of <i>Acacia bivenosa</i> and <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on Red-Brown Skeletal on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> over Scattered Shrubs of <i>Acacia bivenosa</i> and <i>Ptilotus rotundifolius</i> over Low Shrubland of <i>Halgania solanacea</i> aff. var. <i>hirsuta</i> , <i>Acacia hilliana</i> and <i>Calytrix carinata</i> over Scattered Tussock Grass of <i>Amphipogon sericeus</i> on Red-Brown Skeletal on Hillslope.		
Veg	Pristine.		
Fire	Very Old.		
Note	Aspect: North. Bare ground: 45%. Litter cover: Logs: +, Twigs: +, Lvs: +. Notes: No signs of disturbance, triodia is youngish.		

SPECIES

Quad	Name	Cover C	Height	Specimen	Notes
	<i>Acacia bivenosa</i>	1%	1.5m	NJ04.09	
	<i>Acacia hilliana</i>	10%	0.5m	NJ34.01B	
	<i>Acacia pruinocarpa</i>	+	1.5m	NJ04.13	
	<i>Amphipogon sericeus</i>	1%	0.1m	NJ34.07	
	<i>Calytrix carinata</i>	1%	0.5m	NC	
	<i>Cymbopogon oblectus</i>	+	0.5m	NJ04.10	
	<i>Dodonaea coriacea</i>	+	0.5m	NJ18.15	
	<i>Eriachne lanata</i>	+	0.5m	NJ34.05	
	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	N/A	2m	NJ18.19	op
	<i>Goodenia triodiophila</i>	+	0.1m	NJ34.06	
	<i>Grevillea berryana</i>	+	2m	NJ34.08	
	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	1.5m	NJ34.10	
	<i>Hakea chordophylla</i>	+	3m	NJ18.02	scattered.
	<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>	5%	0.3m	NJ34.02	
	<i>Indigofera monophylla</i>	+	0.2m	NJ04.20	
	<i>Paraneurachne muelleri</i>	+	0.2m	NJ04.07	
	<i>Ptilotus calostachyus</i>	+	0.5m	NC	
	<i>Ptilotus exaltatus</i>	+	0.2m	NC	
	<i>Ptilotus rotundifolius</i>	1%	1m	NJ34.03	
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	1.2m	NJ18.17	
	<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	+	1m	NJ06.03	
	<i>Solanum centrale</i>	+	0.1m	NJ32.08	
	<i>Solanum lasiophyllum</i>	+	0.2m	NJ04.18	
	<i>Trianthema glossostigma</i>	+	<0.1m	NJ34.04	
	<i>Tribulus suberosus</i>	+	1.5m	NJ04.04	

Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	50%	0.3m	NJ34.01A
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Key:

OP: Within the same vegetation association (out of plot).

Site	NJ35		
Described	CS	Date	25/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	South of Access Road.		
MGA	50	804680	mE
Habitat	Sandplain.		
Soil	Red-brown clay loam.		
Rock			
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia schinzii</i> with Open Shrubland of <i>Acacia pachyacra</i> , <i>Acacia aneura</i> var ? <i>pilbarana</i> and <i>Acacia catenulata</i> subsp. <i>occidentalis</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> on Red-Brown Clay Loam on Sandplains.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia schinzii</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> over Open Shrubland of <i>Acacia pachyacra</i> , <i>Acacia aneura</i> var ? <i>pilbarana</i> and <i>Acacia catenulata</i> subsp. <i>occidentalis</i> over Scattered Tussock Grasses of <i>Eulalia aurea</i> over Scattered Herbs of <i>Kennedia prorepens</i> on Red-Brown Clay Loam on Sandplain.		
Veg	Pristine.		
Fire	Young.		
Note	Bare ground: 75%. Litter cover: Logs: 1%, Twigs: 1%, Lvs: +. Notes: Remains of burnt trees standing.		

SPECIES

Quad	Name	Cover C	Height	Specimen	Notes
	Acacia aff. aneura	+	1.5m	NJ35.05	
	Acacia aneura var ? pilbarana	3%	1m	NJ35.02	
	Acacia aff. sibirica	+	0.5-1.5m	NJ35.01	
	Acacia catenulata subsp. occidentalis	1%	1.5m	NJ35.04	
	Acacia pachyacra	3%	1.5m	NJOP1C	
	Acacia pruinocarpa	+	0.5m	NJ01.42	
	Aristida ingrata	+	0.4m	NJ35.03	
	Bonamia rosea	+	0.3m	NJ09.14	
	Chrysopogon fallax	+	0.7m	NJ01.38	
	Corymbia deserticola subsp. deserticola	+	0.8m	NJ31.15	
	Corymbia hamersleyana	1%	10m	NC	
	Cymbopogon obtectus	+	0.6m	NJ03.18	
	Dicrasyllis georgei	+	0.4m	NJ33.06	
	Digitaria brownii	+	0.5m	NJ35.07	
	Duperreya commixta			NJ01.36	Associated
	Enneapogon polyphyllus	+	0.25m	NJ23.06	
	Eragrostis aff. eriopoda	+	0.4m	NJ33.10	
	Eriachne helmsii	+	0.5m	NJ33.12B	
	Eulalia aurea	1%	0.5m	NJ15.04	
	Evolvulus alsinoides var. villosicalyx	+	CR	NJ01.01	
	Hakea lorea subsp. lorea	+	4m	NJ05.16	
	Hybanthus aurantiacus	+	0.3m	NJ63.01	
	Indigofera georgei	+	0.4m	NJ35.08	
	Kennedia prorepens	1%	0.3m	NJ33.05	
	Paraneurachne muelleri	+	0.4m	NJ01.45	
	Senna artemisioides subsp. oligophylla			NJ01.13	Associated
	Sida echinocarpa	+	0.3m	NJ09.01	

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Themeda triandra	+	0.5m	NJ09.07	
Trichodesma zeylanicum			NJ01.05	Associated
Triodia schinzii	15%	1m	NJ33.03	

Site	NJ36		
Described	TE	Date	25/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	Jimblebar road.		
MGA	50	799384	mE
			7417648 mN
Habitat	Slope - low/plain.		
Soil	Red-brown - loam - skeletal; rocks red-brown - scattered/pavement.		
Rock	Red-brown ironstone.		
Broad Floristic Formation:	Triodia Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with Open Shrubland of <i>Acacia bivenosa</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> and <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> (Trees) on Red-Brown Skeletal Loam on a Low Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of <i>Eucalyptus gamophylla</i> over Scattered Tall Shrubs of <i>Hakea lorea</i> subsp. <i>lorea</i> over Open Shrubland of <i>Acacia bivenosa</i> over Low Shrubland of <i>Halgania solanacea</i> aff. var. <i>hirsuta</i> over Very Open Tussock Grassland of <i>Paraneurachne muelleri</i> , <i>Cymbopogon obtectus</i> and <i>Eriachne mucronata</i> on Red-Brown Skeletal Loam on a Slope.		
Veg	Excellent.		
Fire	Old to Very Old.		
Note	Aspect: West. Litter cover: Log: +, Twigs: +, Lvs: +. Disturbance type: Tracks, rehab (infrastructure works) in past.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia adsurgens	+	1.5m	NJ04.26
Acacia aff. sibirica	+	2m	NJ36.07
Acacia bivenosa	7%	1-2m	NJ04.09
Acacia dictyophleba	+	1.2m	NJ08.01
Acacia melleodora	+	2m	NJ36.06
Acacia pruinocarpa	+	2m	NJ04.13
Acacia trudgeniana	+	1m	NJ36.03
Amhipogon sericeus	+	0.2m	NJ34.07
Aristida contorta	+	0.6m	NJ22.03
Aristida holathera	+	0.1m	NJ16.35
Chrysocephalum pterochaetum	+	0.2m	NJ14.09
Corchorus sidoides subsp. sidoides	+	1m	NJR16.02
Cymbopogon obtectus	4%	0.5m	NJ04.10
Eragrostis falcata	+	0.5m	NJ04.29
Eremophila exilifolia	+	0.6m	NJ18.16
Eriachne mucronata	1%	0.2m	NJ06.01
Eucalyptus gamophylla	5%	<3m	NJ04.36
Fimbristylis simulans	+	<0.1m	NJ36.01
Gompholobium karijini	+	1m	NJR16.03
Goodenia stobbsiana	+	0.1m	NJ36.02
Grevillea wickhamii subsp. hispidula	+	2m	NJ34.10
Hakea chordophylla	+	3m	NJ18.02
Hakea lorea subsp. lorea	1%	2-3m	NJR02.01
Halgania solanacea aff. var. hirsuta	20%	0.5m	NJ36.04
Hybanthus aurantiacus	+	0.3m	NJR16.04

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Indigofera monophylla	+	0.3m	NJ04.20	
Paraneurachne muelleri	5%	0.5m	NJ04.07	
Ptilotus calostachyus	+	0.5m	NC	
Ptilotus exaltatus	+	0.1m	NC	
Scaevola parvifolia subsp. pilbarae	+	0.2m	NJOP16K	
Senna artemisioides subsp. oligophylla x helmsii	+	0.6m	NJ04.06	
Senna glutinosa subsp. pruinosa	+	1.2m	NJ18.17	
Senna glutinosa subsp. x luerssenii	+	1m	NJ06.03	
Solanum centrale	+	0.2m	NJ32.08	
Solanum lasiophyllum	+	0.2m	NJ04.18	
Themeda triandra	+	0.8m	NJ36.05	
Trianthema glossostigma	+	<0.1m	NJ34.04	
Tribulus suberosus	+	0.6m	NJ04.04	
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	20%	0.4m	NJ34.01A	As at last plot.

Site	NJ37		
Described Season	CS	Date 25/04/2009	Type Q 50 x 50 m
Location	South of Access Track.		
MGA	50	805430 mE	7415154 mN
Habitat	Low Hilltop.		
Soil	Red-brown sandy loam.		
Rock	Ironstone, quartz.		
Broad Floristic Formation:	Triodia Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with Open Shrubland of <i>Acacia bivenosa</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> and <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> (Trees) on Red-Brown Skeletal Loam on a Low Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> over High Shrubland of <i>Acacia bivenosa</i> over Open Shrubland of <i>Acacia citrinoviridis</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> and <i>Keraudrenia nephrosperma</i> over Scattered Tussock Grasses of <i>Eragrostis falcata</i> and <i>Paraneurachne muelleri</i> on Red-Brown Sandy Loam on a Low Hilltop.		
Veg	Pristine.		
Fire	Old.		
Note	Bare ground: 50%. Litter cover: Logs: +, Twigs: 1%, Lvs: +. Notes: In <i>A. bivenosa</i> stand - <i>bivenosa</i> banded over hillside running east-west.		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia adoxa</i> var. <i>adoxo</i>			NJ11.07	Associated
<i>Acacia ancistrocarpa</i>	+	1.5m	NJ01.03	
<i>Acacia bivenosa</i>	15%	3m	NJ21.08	
<i>Acacia citrinoviridis</i>	2%	1.5m	NJ09.12	
<i>Acacia dictyophleba</i>	+	1m	NJ11.08	
<i>Acacia hilliana</i>			NJ25.11	Associated
<i>Acacia inaequilatera</i>			NJ13.06	Associated
<i>Acacia melleodora</i>	+	1m	NJ33.02	
<i>Aristida contorta</i>	+	0.3m	NJ09.08	
<i>Aristida inaequiglumis</i>	+	0.4m	NJ01.32	
<i>Calytrix carinata</i>	+	0.4m	NJ37.01	
<i>Chrysocephalum</i> aff. <i>apiculatum</i>	+	0.4m	NJ09.02	
<i>Cymbopogon obtectus</i>	+	0.7m	NJ03.18	
<i>Dicrastylis georgei</i>	+	0.8m	NJ33.06	
<i>Dodonaea coriacea</i>			NJ31.03	Associated
<i>Eragrostis falcata</i>	1%	0.4m	NJ01.47	
<i>Eucalyptus gamophylla</i>			NJ33.07	Associated
<i>Eulalia aurea</i>	+	0.5m	NJ15.04	
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.25m	NJ03.05	
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	0.25m	NJ31.01	
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	3m	NJ01.44	
<i>Indigofera monophylla</i>	+	0.4m	NJ07.06	
<i>Keraudrenia nephrosperma</i>	1%	1.2m	NJ07.08	
<i>Paraneurachne muelleri</i>	1%	0.4m	NJ01.45	
<i>Ptilotus obovatus</i>	+	0.5m	NJ03.04	
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	+	0.3m	NJ31.06	

<i>Senna artemisioides</i> subsp. <i>helmsii</i>	+	1m	NJ01.12
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.7m	NJ01.13
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	1%	1m	NJ11.09
<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	+	0.5m	NJ07.04
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	1m	NJ37.02
<i>Solanum lasiophyllum</i>	+	0.4m	NJ01.04
<i>Tribulus suberosus</i>	+	0.5m	NJ11.06
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	25%	0.4m	NJ31.07
<i>Triodia wiseana</i>	1%	0.5m	NJ01.29

Site	NJ38		
Described Season	TE	Date 26/04/2009	Type Q 25 x 100 m
Location	Jimblebar Road.		
MGA	50	800145	mE 7417347 mN
Habitat	Drain - depression - base of hill - creek line and surrounding floodplain.		
Soil	Red-brown loam; fine sand; covered with tiny ironstones; few red-brown cobbles and pebbles.		
Rock	Ironstone.		
Broad Floristic Formation:	Acacia Open Scrub.		
Vegetation Association:	Open Scrub of <i>Acacia monticola</i> , <i>Acacia citrinoviridis</i> and <i>Petalostylis labicheoides</i> over Open Hummock Grassland of <i>Triodia pungens</i> and <i>Triodia basedowii</i> over Scattered Low Trees <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> or <i>Eucalyptus gamophylla</i> on Red-Brown Clay Loam on Drainage Lines.		
Vegetation Sub-association:	Open Scrub of <i>Acacia monticola</i> , <i>Santalum lanceolatum</i> and <i>Acacia citrinoviridis</i> with Low Open Woodland of <i>Corymbia hamersleyana</i> and <i>Eucalyptus gamophylla</i> over Open Shrubland of <i>Petalostylis labicheoides</i> and <i>Acacia adsurgens</i> over Open Hummock Grassland of <i>Triodia pungens</i> over Open Tussock Grassland of <i>Themeda triandra</i> , <i>Paspalidium clementii</i> and <i>*Cenchrus ciliaris</i> over Scattered Herbs of <i>Tephrosia rosea</i> var. <i>glabrior</i> on Red-Brown Loam with Fine Sand on Drainage.		
Veg	Very Good to Excellent.		
Fire	Moderate.		
Note	Aspect: West. Bare ground: 50%. Litter cover: Logs: +, Twigs: 1%, Lvs: +. Disturbance type: Tracks, drill line, flood. Notes: Define boundaries around, charred wood.		

SPECIES

Name	Cover	Height	Specimen	Notes
Abutilon lepidum	+	0.3m	NJ06.07	
Acacia adsurgens only	N/A	2m	NJ38.01	op fringing
Acacia aff. aneura	+	1.5m	NJ38.02	
Acacia citrinoviridis	2%	4m	NJ02.01	
Acacia monticola	60%	2-3m	NJ63.04	
Acacia pyrifolia var. pyrifolia	+	1m	NJ02.02	
Aristida holathera	+	0.3m	NJ16.35	
Aristida ingrata	+	0.5m	NJ26.09	
Bonamia rosea	+	0.4m	NJ26.06	
Cenchrus ciliaris	5%	0.4m	NC	
Corchorus sidoides subsp. sidoides	+	0.5m	NJR16.02	
Corymbia hamersleyana	4%	4m	NC	
Cymbopogon obtectus	1%	0.6m	NJ04.10	
Duperreya commixta	+	CL	NJ02.09	
Enneapogon caerulescens	+	<0.1m	NJ04.11	
Eragrostis falcata	+	0.5m	NJ04.29	
Eragrostis tenellula	+	0.2m	NJ38.10	
Eriachne mucronata	+	0.3m	NJR22.01	
Eucalyptus gamophylla only	N/A	3-4m	NJ04.36	op fringing
Evolvulus alsinoides var. villosicalyx	+	CL	NJ26.03	
Gomphrena cunninghamii	+	0.1m	NJ38.09	

<i>Gossypium robinsonii</i>	+	1m	NJ02.13
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	1.5m	NJ34.10
<i>Hibiscus sturtii</i> var. <i>aff. grandiflorus</i>	+	0.3m	NJ28.18
<i>Hibiscus sturtii</i> var. <i>truncatus</i>	+	0.5m	NJ32.05
<i>Hybanthus aurantiacus</i>	+	<0.1m	NJ26.10
<i>Indigofera monophylla</i>	+	0.4m	NJ04.20
<i>Isotropis atropurpurea</i>	+	0.1m	NJ38.06
<i>Isotropis forrestii</i>	+	0.6m	NJ38.08
<i>Keraudrenia nephrosperma</i>	+	0.3m	NJ32.02
<i>Paraneurachne muelleri</i>	+	0.2m	NJ04.07
<i>Paspalidium clementii</i>	10%	0.1m	NJ38.05
<i>Petalostylis labicheoides</i>	5%	1-2.5m	NJ04.19
<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>	+	0.3m	NJ06.14
<i>Ptilotus exaltatus</i>	+	0.1m	NC
<i>Rhyncharrhena linearis</i>	+	CL	NJ14.06A
<i>Rulingia luteiflora</i>	+	1m	NJ38.04
<i>Santalum lanceolatum</i>	2%	2-2.5m	NJ02.05
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	+	0.2m	NJOP16K
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.6m	NJ04.05
<i>Senna glaucifolia</i>	+	1m	NJ38.03A
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	2m	NJ06.15
<i>Setaria surgens</i>	1%	0.1m	NJR22.03
<i>Sida cardiophylla</i>	+	0.3m	NJ32.07
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.2m	NJ38.03
<i>Tephrosia rosea</i> var. <i>glabrior</i>	1%	0.1m	NJ38.11
<i>Themeda triandra</i>	10%	0.6m	NJ08.02
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	+	0.2m	NJ38.07
<i>Tribulus suberosus</i>	+	0.3m	NJ04.04
<i>Trichodesma zeylanicum</i>	+	0.2m	NJOP10T
<i>Triodia basedowii</i>	+	0.3m	NJ30.01
<i>Triodia pungens</i>	20%	0.5m	NJR20.01

Key:

OP: Within the same vegetation association (out of plot).

Site	NJ39		
Described Season	CS	Date 25/04/2009	Type Q 50 x 50 m
Location	South of Access Track.		
MGA	50	806129	mE 7414858 mN
Habitat	Low Quartz valley between two low hills.		
Soil	Red-brown loam.		
Rock	Quartz, Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia angusta</i> and <i>Triodia pungens</i> with Scattered Shrubs of <i>Acacia tetragonophylla</i> , <i>Acacia bivenosa</i> and <i>Senna glutinosa</i> subsp. <i>glutinosa</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Eucalyptus trivalva</i> (Mallee) on Red-Brown Sandy Loam on Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia angusta</i> and <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia bivenosa</i> over Scattered Shrubs of <i>Eremophila cuneifolia</i> and <i>Acacia aneura</i> var ? <i>pilbarana</i> with Scattered Low Trees of <i>Eucalyptus trivalva</i> on Red-Brown Loam on Low Hills.		
Veg	Excellent.		
Fire	Moderate.		
Note	Bare ground: 65%. Litter cover: Logs: 1%, Twigs: +, Lvs: +. Disturbance type: Tracks (old- have been ripped from rehab).		

SPECIES

Quad	Name	Cover C	Height	Specimen	Notes
	Acacia aff. aneura	+	2m	NJ35.05	
	Acacia aneura var ? pilbarana	1%	1-2m	NJ35.02	
	Acacia ancistrocarpa	+	1.5m	NJ01.03	
	Acacia bivenosa	3%	3m	NJ21.08	
	Acacia pruinocarpa	+	4m	NJ01.42	
	Acacia tetragonophylla	+	1m	NJ01.02	
	Eragrostis falcata	+	0.4m	NJ01.47	
	Eremophila cuneifolia	1%	0.6m	NJ27.01	
	Eremophila latrobei subsp. aff. filiformis	+	1m	NJ39.08	
	Eucalyptus leucophloia subsp. leucophloia	+	3m	NJ39.03	
	Eucalyptus trivalva	1%	8m	NJ39.09	
	Fimbristylis simulans	+	0.2m	NJ39.02	
	Gomphrena canescens subsp. canescens	+	0.2m	NJ03.05	
	Keraudrenia nephrosperma	+	0.6m	NJ07.08	
	Lysiana casuarinae			NJ39.12	Associated. P
	Maireana georgei	1%	0.4m	NJ39.01	
	Maireana melanocoma	+	0.2m	NJ39.04	
	Ptilotus exaltatus var. exaltatus	+	0.2m	NJ01.46	
	Rulingia luteiflora	+	3m	NJ39.10	
	Santalum lanceolatum	+	1.5-2m	NJ39.11	
	Senna artemisioides subsp. oligophylla	+	0.5m	NJ01.13	
	Senna glutinosa subsp. glutinosa	+	1.5m	NJ07.19	
	Senna glutinosa subsp. pruinosa	+	1.5m	NJ11.09	
	Senna glutinosa subsp. x luerksenii	+	1.5m	NJ11.05	
	Senna sericea	+	0.3m	NJ31.18	
	Senna sp. Meekatharra (E. Bailey 1-26)	+	0.3m	NJ39.07	
	Solanum lasiophyllum	+	0.4m	NJ01.04	

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Triodia angusta	20%	0.6m	NJ39.06
Triodia pungens	15%	0.4m	NJ39.05

Key:

P: Parasitic on on Acacia aneura

Site	NJ40		
Described Season	TE	Date 26/04/2009	Type Q 50 x 50 m
Location	Jimblebar Road.		
MGA	50	800756	mE 7417091 mN
Habitat	Hill slope/top.		
Soil	Skeletal red-brown - pavement rock - cobbles and pebbles.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of <i>Acacia bivenosa</i> and <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on Red-Brown Skeletal on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> over Scattered Tall Shrubs of <i>Hakea chordophylla</i> over Open Shrubland of <i>Acacia ligulata</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> and <i>Senna glutinosa</i> subsp. <i>hispidula</i> over Low Shrubland of <i>Acacia hilliana</i> on Red-Brown Skeletal Soil on Hill slope.		
Veg	Pristine.		
Fire	Old.		
Note	Aspect: North. Bare ground: 50%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Odd track nearby.		

SPECIES

Quad	Name	Cover C	Height	Specimen	Notes
	<i>Acacia bivenosa</i>	+	1.5m	NJ04.09	
	<i>Acacia citrinoviridis</i>	+	1m	NJ02.01	
	<i>Acacia hilliana</i>	15%	0.5m	NJ34.01B	
	<i>Acacia ligulata</i>	1%	1.5m	NJ18.05	
	<i>Acacia pruinocarpa</i>	+	1m	NJ04.13	
	<i>Amphipogon sericeus</i>	+	0.5m	NJ34.07	
	<i>Calytrix carinata</i>	+	0.5m	NC	
	<i>Codonocarpus cotinifolius</i>	+	2m	NJ40.03	op
	<i>Corchorus sidoides</i> subsp. <i>sidoides</i>	+	0.3m	NJR16.02	
	<i>Dodonaea coriacea</i>	+	0.6m	NJ18.15	
	<i>Eragrostis falcata</i>	+	0.2m	NJ04.29	
	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	N/A	5m	NJ18.19	op
	<i>Fimbristylis simulans</i>	+	<0.1m	NJ36.01	
	<i>Goodenia triodiophila</i>	+	0.2m	NJ34.06	
	<i>Grevillea striata</i>	+	1.5m	NJ40.02	
	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	1%	2m	NJ34.10	
	<i>Hakea chordophylla</i>	1%	3m	NJ18.02	
	<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>	+	0.3m	NJ34.02	
	<i>Indigofera monophylla</i>	+	0.3m	NJ04.20	
	<i>Ptilotus calostachyus</i>	+	0.5m	NC	
	<i>Ptilotus rotundifolius</i>	1%		NJ34.03	
	<i>Senna artemisioides</i> aff subsp <i>oligophylla</i>	+	1m	NJ28.08	
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.6m	NJ04.05	
	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	1%	1.5m	NJ40.01	
	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	1%	1m	NJ06.03	
	<i>Senna sericea</i>	+	1m	NJOP50T	

Tribulus suberosus	+	1m	NJ04.04
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	50%	0.3m	NJ34.01A

Key:

OP: Within the same vegetation association (out of plot).

Site	NJ41		
Described Season	CS	Date 25/04/2009	Type Q 50 x 50 m
Location	South of Shovelanna sub-station.		
MGA	51	193355	mE 7414559 mN
Habitat	Rocky Quartz hillside.		
Soil	Red-brown sandy loam surface covered with cobbles and boulders.		
Rock	Quartz.		
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia angusta</i> and <i>Triodia pungens</i> with Scattered Shrubs of <i>Acacia tetragonophylla</i> , <i>Acacia bivenosa</i> and <i>Senna glutinosa</i> subsp. <i>glutinosa</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Eucalyptus trivalva</i> (Mallee) on Red-Brown Sandy Loam on Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia angusta</i> with Scattered Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> over Scattered Shrubs of <i>Acacia tetragonophylla</i> and <i>Senna glutinosa</i> subsp. <i>glutinosa</i> over Low Scattered Shrubs of <i>Eremophila cuneifolia</i> on Red-Brown Sandy Loam on Hillside.		
Veg	Excellent to Pristine.		
Fire	Old.		
Note	Aspect: North. Bare ground: 80%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Old track nearby.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia aff. aneura		4m	NJ41.02
Acacia ancistrocarpa	+	1m	NJ01.03
Acacia bivenosa	+	2-3m	NJ21.08
Acacia dictyophleba	+	1m	NJ11.08
Acacia inaequilatera	+	0.5m	NJ13.06
Acacia monticola	+	0.4m	NJ41.05
Acacia pruinocarpa	+	0.2m	NJ01.42
Acacia tenuissima	+	0.3m	NJ31.14
Acacia tetragonophylla	1%	1.5-2m	NJ01.02
Duperreya commixta	+	CL	NJ01.36
Eragrostis falcata	+	0.4m	NJ01.47
Eremophila cuneifolia	1%	0.5m	NJ27.01
Eriachne mucronata	+	0.4m	NJ05.07
Eucalyptus leucophloia subsp. leucophloia	2%	10-12m	NJ41.01
Fimbristylis simulans	+	0.2m	NJ39.02
Gossypium robinsonii			NJ41.07 Associated.
Maireana georgei	+	0.4m	NJ39.01
Maireana melanocoma	+	0.5m	NJ39.04
Ptilotus exaltatus var. exaltatus	+	0.2m	NJ01.46
Scaevola spinescens	+	0.5m	NJ41.06
Senna glutinosa subsp. glutinosa	1%	1.5m	NJ31.04
Senna glutinosa subsp. pruinosa	+	1.5m	NJ11.09
Sida echinocarpa	+	0.4m	NJ41.03
Solanum lasiophyllum	+	0.4m	NJ01.04
Tribulus suberosus	+	0.6m	NJ11.06
Triodia angusta	20%	0.4m	NJ39.06

Site	NJ42		
Described	TE	Date	26/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	Jimblebar road.		
MGA	50	801273	mE
			7616961 mN
Habitat	Drainage/ flood plain/ washout zone.		
Soil	Red-brown sandy loam; rocks and pebbles here.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia aneura</i> , <i>Acacia dictyophleba</i> and <i>Acacia pruinocarpa</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus xerothermica</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> over High Open Shrubland of <i>Acacia</i> aff. <i>aneura</i> , <i>Acacia citrinoviridis</i> and <i>Acacia pruinocarpa</i> over Low Scattered Shrubs of <i>Senna artemisioides</i> subsp. <i>oligophylla</i> and <i>Ptilotus obovatus</i> over Tussock Grassland of <i>*Cenchrus ciliaris</i> , <i>Paspalidium clementii</i> and <i>Paraneurachne muelleri</i> over Scattered Herbs of <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> and <i>Trichodesma zeylanicum</i> on Red-Brown Sandy Loam on a Drainage.		
Veg	Very Good to Excellent.		
Fire	Young.		
Note	Bare ground: 60%. Litter cover: Logs: 1%, Twigs: 1%; Lvs: 10%. Disturbance type: Cows, charred wood, weeds, fire? Notes: Lots of dead trees in this area - fire?		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Abutilon cryptopetalum</i>			NJ42.07B	
<i>Abutilon otocarpum</i>			NJ42.10	
<i>Acacia adsurgens</i>	+	1.5m	NJ38.01	
<i>Acacia</i> aff. <i>aneura</i>	5%	2-5m	NJ42.02	
<i>Acacia</i> aff. <i>sibirica</i>	+	<0.6m	NJ42.15	
<i>Acacia aneura</i> var. <i>intermedia</i>	+	0.2m	NJ23.03	
<i>Acacia bivenosa</i>	+	2m	NJ04.09	
<i>Acacia citrinoviridis</i>	3%	2m	NJ02.01	
<i>Acacia dictyophleba</i>	+	1.5m	NJ08.01	
<i>Acacia pruinocarpa</i>	2%	2m	NJ04.13	
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	+	0.4m	NJ50.17	
<i>Acacia tetragonophylla</i>	+	2m	NJ04.33	
<i>Amyema fitzgeraldii</i>	+	0.5m	NJ16.25	P
<i>Aristida contorta</i>	+	0.1m	NJ22.03	
<i>Aristida holathera</i>	+	0.2m	NJ16.35	
<i>Aristida ingrata</i>	1%	0.5m	NJ26.09	
<i>Bidens bipinnata</i>	+	<0.1m	NJ02.10	
<i>Boerhavia repleta</i>	+	<0.1m	NJ42.03	
<i>Cenchrus ciliaris</i>	30%	0.5m	NC	
<i>Cleome viscosa</i>	+	0.3m	NC	
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>	+	0.3m	NJ04.08	
<i>Corymbia hamersleyana</i>	2%	5-6m	NC	
<i>Dactyloctenium radulans</i>	(+)	0.1m	NJOP05T	

<i>Dicrastylis cordifolia</i>	+	0.2m	NJ42.06
<i>Digitaria ctenantha</i>	+ (5%)	0.1m	NJ42.08
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	+	<0.1m	NJ42.12
<i>Enneapogon lindleyanus</i>	+	0.3m	NJ04.35
<i>Enneapogon polyphyllus</i>	1%	<0.1m	NJ06.09
<i>Eragrostis</i> aff. <i>eriopoda</i>	1%	0.5m	NJ42.05
<i>Eremophila forrestii</i>	+	0.5m	NJ04.15
<i>Eriachne mucronata</i>	+	0.4m	NJR22.01
<i>Eulalia aurea</i>		0.6m	NJOP06T
<i>Euphorbia australis</i>	+	0.1m	NJ14.01
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.3m	NJ08.08
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	2%	CL	NJ26.03
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.2m	NJOP12T
<i>Gossypium robinsonii</i>	+	2m	NJ02.13
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	0.6m	NJR02.01
<i>Heliotropium tanythrix</i>	+	<0.1m	NJ42.14
<i>Hibiscus burtonii</i>	+	0.3m	NJ04.25
<i>Hibiscus sturtii</i> var. <i>platychlams</i>	+	0.2m	NJ26.14
<i>Hybanthus aurantiacus</i>	+	0.3m	NJR16.04
<i>Indigofera georgei</i>	+	0.5m	NJ42.17
<i>Melhanina</i> aff. <i>oblongifolia</i>	+	0.3m	NJ42.07A
<i>Mollugo molluginea</i>	+	<0.1m	NJ42.01
<i>Paraneurachne muelleri</i>	2%	<0.5m	NJ04.07
<i>Paspalidium clementii</i>	8%	<0.5m	NJ38.05
<i>Perotis rara</i>	1%	<0.1m	NJ16.29
<i>Petalostylis labicheoides</i>	+	1.5m	NJ04.19
<i>Portulaca oleracea</i>	+	<0.1m	NJOP01T
<i>Ptilotus clementii</i>	+	0.2m	NJ04.12
<i>Ptilotus exaltatus</i>	+	0.2m	NC
<i>Ptilotus helipteroides</i>	+	<0.1m	NJOP14T
<i>Ptilotus obovatus</i>	1%	0.6m	NJ02.07
<i>Rhagodia eremaea</i>	+	1m	NJOP08T
<i>Rhynchosia minima</i>	+	CL	NC
<i>Rulingia luteiflora</i>	1%	2m	NJ38.04
<i>Salsola tragus</i>	+	0.6m	NJOP04T
<i>Sclerolaena costata</i>	+	<0.1m	NJ28.10
<i>Senna artemisioides</i> aff subsp <i>oligophylla</i>	+	0.5m	NJ28.08
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	1%	1m	NJ04.05
<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>	1%	1m	NJ04.06
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	2m	NJ40.01
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	+	1m	NJ06.03
<i>Setaria dielsii</i>	+	<0.1m	NJOP35T
<i>Setaria verticillata</i>	+	0.3m	NJ28.16
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.3m	NJ42.09
<i>Solanum lasiophyllum</i>	+	0.2m	NJ10.05
<i>Tephrosia rosea</i> var. <i>glabrior</i>	1%	0.1m	NJ38.11
<i>Trianthema pilosa</i>	+	<0.1m	NJ26.13
<i>Tribulus macrocarpus</i>	+	<0.1m	NJ42.04
<i>Trichodesma zeylanicum</i>	1%	0.3m	NJOP10T
<i>Triodia pungens</i>	8%	0.5m	NJR20.01

Key:

P: Parasitic on on *Acacia aneura*

Site	NJ44		
Described Season	TE	Date 26/04/2009	Type Q 50 x 50 m
Location	Jimble-Y.		
MGA	50	802036	mE 7416633 mN
Habitat	Drainage- floodplain.		
Soil	Red-brown fine sand with scattered pebbles and rocks.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> Shrubland.		
Vegetation Association:	Open Scrub (to Open Shrubland) of <i>Acacia aneura</i> , <i>Acacia sclerosperma</i> and <i>Acacia bivenosa</i> over over Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus xerothermica</i> and <i>Eucalyptus gamophylla</i> (Mallee) on Red-Brown Sandy Loam on Plains.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia ayersiana</i> , <i>Acacia bivenosa</i> and <i>Acacia pruinocarpa</i> with Low Open Woodland of <i>Eucalyptus gamophylla</i> over Shrubland of <i>Acacia</i> aff. <i>aneura</i> , <i>Eremophila forrestii</i> and <i>Acacia</i> aff. <i>sibirica</i> over Low Open Shrubland of <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Acacia hilliana</i> and <i>Anthobolus leptomerioides</i> over Hummock Grassland of <i>Triodia basedowii</i> over High Very Open Tussock Grassland of <i>Paraneurachne muelleri</i> and * <i>Cenchrus ciliaris</i> on Red-Brown Fine Sand on a Drainage.		
Veg	Excellent.		
Fire	Moderate.		
Note	Bare ground: 50%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Drill lines nearby. Notes: Number of dead trees and shrubs - fire in the past.		

SPECIES

Name	Cover	Height	Specimen Notes
Abutilon otocarpum	+	<0.1m	NJ42.10
Acacia adoxa	+	0.2m	NC
Acacia adsurgens	1%	2-2.5m	NJ38.01
Acacia aff. aneura	20%	1-2m	NJ44.01
Acacia aff. sibirica	1%	2-3m	NJ44.09
Acacia ayersiana	5%	1-3m	NJ44.08
Acacia bivenosa	15%	2m	NJ04.09
Acacia hilliana	2%	0.3m	NJ34.01
Acacia maitlandii	+	1.5m	NJ18.09
Acacia pachyacra	+	1m	NJ26.02
Acacia pruinocarpa	2%	2m	NJ04.13
Acacia pyrifolia var. pyrifolia	+	1m	NJ50.17
Acacia synchronicia	1%	0.5m	NJ04.14
Anthobolus leptomerioides	1%	1m	NJ04.22
Aristida holathera	1%	<0.2m	NJ16.35
Aristida ingrata	%	<0.1m	NJ26.09
Cenchrus ciliaris	2%	1.5m	NC
Codonocarpus cotinifolius	+	2m	NJ40.03
Corchorus sidoides subsp. sidoides	+	<0.2m	NJR16.02
Cymbopogon obtectus	+	0.6m	NJ04.10
Dodonaea coriacea	+	1m	NJ18.15
Duperreya commixta	+	CL	NJ02.09
Enneapogon polyphyllus	+	0.1m	NJ06.09
Eragrostis aff. eriopoda	+	0.5m	NJ42.05

<i>Eremophila forrestii</i>	2%	1.5m	NJ04.15
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>	+	1.5m	NJR18.01
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	+	1.2m	NJ06.11
<i>Eucalyptus gamophylla</i>	3%	2-3m	NJ04.36
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	+	2m	NJ18.19
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CL	NJ26.03
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	2m	NJ34.10
<i>Hakea chordophylla</i>	+	1.5m	NJ18.02
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>	+	0.3m	NJ34.02
<i>Hibiscus burtonii</i>	+	0.3m	NJ10.08
<i>Hibiscus sturtii</i> var. <i>truncatus</i>	+	0.3m	NJ32.05
<i>Indigofera monophylla</i>	+	0.2m	NJ04.20
<i>Keraudrenia nephrosperma</i>	+	1m	NJ32.02
<i>Panicum effusum</i>	+	<0.8m	NJ44.05
<i>Paraneurachne muelleri</i>	3%	0.5m	NJ04.07
<i>Paspalidium clementii</i>	+	0.3m	NJ38.05
<i>Ptilotus clementii</i>	+	<0.1m	NJ04.12
<i>Ptilotus obovatus</i>	+	0.5m	NJ02.07
<i>Rhagodia eremaea</i>	+	2m	NJOP08T
<i>Santalum lanceolatum</i>	1	2m	NJ02.05
<i>Sclerolaena cuneata</i>	+	0.1m	NJ16.34
<i>Sclerolaena eriacantha</i>	+	0.2m	NJ44.15
<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>	2%	0.5-1m	NJ44.06
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	+	1-1.5m	NJ06.03
<i>Sida cardiophylla</i>	+	0.3m	NJ32.07
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.3m	NJ44.03
<i>Solanum</i> aff. <i>sturtianum</i>	+	1.2m	NJ44.02
<i>Solanum centrale</i>	+	0.2m	NJ32.08
<i>Solanum lasiophyllum</i>	+	0.5m	NJ04.18
<i>Tribulus suberosus</i>	+	1m	NJ04.04
<i>Trichodesma zeylanicum</i>	+	<0.1m	NJOP10T
<i>Triodia basedowii</i>	40%	0.6m	NJ44.07

Site	NJ45		
Described Season	CS	Date	25/04/2009
		Type	Q
			25 x 100 m
		Uniformity	
Location			
MGA	50	802594	mE
			7416447 mN
Habitat	Minor drainage.		
Soil	Red-brown loam.		
Rock	Ironstone.		
Broad Floristic Formation:	Acacia Open Scrub.		
Vegetation Association:	Open Scrub of <i>Acacia melleodora</i> , <i>Petalostylis labicheoides</i> and <i>Acacia ancistrocarpa</i> over Very Open Hummock Grassland of <i>Triodia wiseana</i> and <i>Triodia pungens</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus xerothermica</i> on Red-Brown Loam on Minor Drainage Lines.		
Vegetation Sub-association:	Open Scrub of <i>Acacia melleodora</i> , <i>Petalostylis labicheoides</i> and <i>Acacia ancistrocarpa</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> over Scattered Shrubs of <i>Acacia catenulata</i> subsp. <i>occidentalis</i> and <i>Acacia aneura</i> var ? <i>pilbarana</i> over Low Scattered Shrubs of <i>Gompholobium karijini</i> over Very Open Hummock Grassland of <i>Triodia wiseana</i> and <i>Triodia angusta</i> over Scattered Tussock Grassland of <i>Paraneurachne muelleri</i> on Red-Brown Loam on a Minor Drainage.		
Veg	Pristine.		
Fire	Very Old.		
Note	Bare ground: 30%. Litter cover: Logs: 2%, Twigs: 2%, Lvs: 30%.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia aneura</i> var ? <i>pilbarana</i>	1%	1m	NJ35.02
<i>Acacia ancistrocarpa</i>	1%	2.5m	NJ01.03
<i>Acacia catenulata</i> subsp. <i>occidentalis</i>	1%	1.5m	NJ45.03
<i>Acacia melleodora</i>	60%	3-4m	NJ33.02
<i>Acacia pruinocarpa</i>	+	1m	NJ01.42
<i>Aristida inaequiglumis</i>	+	0.5m	NJ01.32
<i>Bonamia rosea</i>	+	0.4m	NJ09.14
<i>Corymbia hamersleyana</i>	2%	10-12m	NC
<i>Duperreya commixta</i>	+	CL	NJ01.36
<i>Eragrostis</i> aff. <i>eriopoda</i>	+	0.4m	NJ33.10
<i>Eriachne mucronata</i>	+	0.4m	NJ45.04
<i>Gompholobium karijini</i>	1%	1m	NJ31.20
<i>Hibiscus burtonii</i>	+	0.4m	NJ45.02
<i>Hybanthus aurantiacus</i>	+	0.3m	NJ63.01
<i>Indigofera monophylla</i>	+	0.4m	NJ07.06
<i>Keraudrenia nephrosperma</i>	+	0.4m	NJ07.08
<i>Paraneurachne muelleri</i>	2%	0.4m	NJ01.45
<i>Petalostylis labicheoides</i>	20%	3-4m	NJ45.01
<i>Rulingia luteiflora</i>	+	1m	NJ39.10
<i>Santalum lanceolatum</i>	+	1m	NJ55.05
<i>Solanum lasiophyllum</i>	+	0.3m	NJ01.04
<i>Themeda triandra</i>	+	0.5m	NJ09.07
<i>Triodia angusta</i>	1%	0.4m	NJ39.06
<i>Triodia wiseana</i>	2%	0.4m	NJ01.29

Site	NJ46		
Described	TE	Date	26/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	West of Jimble-Wye.		
MGA	50	791336	mE
			7417532 mN
Habitat	Plain - between creeklines.		
Soil	Red-brown loam - ripped, burrow lines, pebbles and cobbles, calcrete fragments, ironstone, silica mixed.		
Rock	Ironstone and Calcrete.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia aneura</i> , <i>Acacia dictyophleba</i> and <i>Acacia pruinocarpa</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus xerothermica</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with Scattered Low Trees of <i>Corymbia aspera</i> and <i>Eucalyptus xerothermica</i> over High Shrubland of <i>Acacia aneura</i> ?var. <i>conifera</i> , <i>Acacia sclerosperma</i> and <i>Acacia pruinocarpa</i> over Open Shrubland of <i>Acacia synchronicia</i> , <i>Eremophila forrestii</i> and <i>Acacia rhodophloia</i> over Very Open Tussock Grassland of <i>*Cenchrus ciliaris</i> and <i>Paraneurachne muelleri</i> on Red-Brown Loam on a Plain.		
Veg	Very Good.		
Fire	Old.		
Note	Bare ground: 80%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Weeds, rip lines, track, drill lines, powerlines, cow manure. Notes: May have been rehab.		

SPECIES

Name	Cover	Height	Specimen Notes
Abutilon otocarpum	+	<0.1m	NJ42.10
Acacia aff. sibirica	1%	2m	NJ46.09
Acacia aneura ? var. conifera	5%	2-3m	NJ04.30
Acacia pruinocarpa	5%	3m	NJ04.13
Acacia rhodophloia	1%	2m	NJ46.10
Acacia sclerosperma	5%	2-4m	NJ10.02
Acacia synchronicia	1%	1.5m	NJ04.14
Acacia tetragonophylla	+	0.5m	NJ04.33
Aristida holathera	+	0.1m	NJ16.35
Aristida ingrata	+	0.6m	NJ26.09
Bidens bipinnata	+	<0.1m	NJ02.10
Cenchrus ciliaris	10%	0.5m	NC
Corymbia aspera	1%	6-10m	NJ46.04
Cymbopogon obtectus	+	0.5m	NJ04.10
Dactyloctenium radulans	+	<0.1m	NJOP05T
Dipteracanthus australasicus subsp. australasicus	+	<0.1m	NJ46.05
Duperreya commixta	+	CL	NJ02.09
Enneapogon caerulescens	+	<0.1m	NJ46.02
Enneapogon lindleyanus	+	0.3m	NJ04.35
Enneapogon polyphyllus	+	<0.1m	NJ06.09
Eragrostis aff. eriopoda	+	0.5m	NJ42.05
Eremophila forrestii	1%	1.5m	NJ04.15
Eremophila lanceolata	+	0.2m	NJ46.07
Eucalyptus xerothermica	1%	6m	NJ26.11

<i>Euphorbia australis</i>	+	<0.2m	NJ14.01	
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.2m	NJ08.08	
<i>Hakea chordophylla</i>	+	0.3m	NJ18.02	
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	2m	NJR02.01	
<i>Hibiscus burtonii</i>	+	0.2m	NJ04.25	
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	+	0.3m	NJ26.14	
<i>Maireana planifolia</i> x <i>villosa</i>	+	<0.1m	NJ28.13	
<i>Melhania</i> aff. <i>oblongifolia</i>	+	0.2m	NJ46.03	
<i>Paraneurachne muelleri</i>	1%	<0.2m	NJ04.07	
<i>Paspalidium clementii</i>	+	<0.1m	NJ38.05	
<i>Ptilotus exaltatus</i>	+	0.1m	NC	
<i>Ptilotus polystachyus</i> var. <i>arthrotrichus</i>	+	0.1m	NJ28.06	
<i>Rhagodia eremaea</i>	+	2m	NJOP08T	
<i>Rhynchosia minima</i>	+	CL	NC	op
<i>Salsola tragus</i>	+	0.4m	NJOP04T	
<i>Sclerolaena costata</i>	+	0.2m	NJ28.10	
<i>Senna artemisioides</i> aff subsp <i>oligophylla</i>	+	0.6m	NJ28.08	
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	1m	NJ04.05	
<i>Senna notabilis</i>	+	<0.1m	NC	
<i>Sida</i> sp. <i>verrucose glands</i> (F.H. Mollemans 2423)	+	<0.2m	NJ04.24	
<i>Solanum lasiophyllum</i>	+	0.8m	NJ04.18	
<i>Tephrosia rosea</i> var. <i>glabrior</i>	+	0.2m	NJ02.04	
<i>Themeda triandra</i>	+	0.5m	NJ46.08	
<i>Tribulus suberosus</i>	+	0.2m	NJ04.04	
<i>Triodia pungens</i>	20%	0.6m	NJ46.01	

Key:

OP: Within the same vegetation association (out of plot).

Site	NJ48		
Described Season	TE	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25	Uniformity	
MGA	50	786758	mE 7418555 mN
Habitat	Plain.		
Soil	Red-brown loam some exposed calcrete and iron bands with scattered ironstone.		
Rock	Ironstone and Calcrete.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland (to Scattered Trees) of <i>Eucalyptus xerothermica</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> (Mallee) over Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia sclerosperma</i> and <i>Acacia ancistrocarpa</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland of <i>Eucalyptus gamophylla</i> and <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> over High Open Shrubland of <i>Petalostylis labicheoides</i> over Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia inaequilatera</i> and <i>Acacia ancistrocarpa</i> on Red-Brown Loam on a Plain.		
Veg	Pristine.		
Fire	Old.		
Note	Bare ground: 40%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance types: Cows. Notes: No herbs here.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia ancistrocarpa</i>	1%	2m	NJ48.07
<i>Acacia bivenosa</i>	4%	1-2m	NJ04.09
<i>Acacia inaequilatera</i>	1%	2m	NJ48.01
<i>Acacia tenuissima</i>	+	1.5m	NJ48.04
<i>Corymbia hamersleyana</i>	+	2.5m	NJ48.06
<i>Eragrostis falcata</i>	+	0.2m	NJ04.29
<i>Eucalyptus gamophylla</i>	10%	3m	NJ04.36
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>	1%	2-5m	NJ48.05
<i>Eucalyptus xerothermica</i>	+	2-3m	NJ48.03
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	2m	NJ34.10
<i>Hakea chordophylla</i>	+	2-3m	NJ18.02
<i>Petalostylis labicheoides</i>	3%	2-3m	NJ04.19
<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>	+	0.3m	NJ06.14
<i>Rhyncharrhena linearis</i>	+	CL	NJ14.06A
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.3m	NJ04.05
<i>Triodia pungens</i>	65%	0.5-1m	NJ48.02

Site	NJ49		
Described Season	CS	Date 26/04/2009	Type Q 50 x 50 m
Location	OB23 Access Track.		
MGA	50	781446	mE 7417731 mN
Habitat	Rocky Plain.		
Soil	Red-brown clay loam with cobbles, boulders and exposed bedrock.		
Rock	Ironstone, calcrete.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland (to Scattered Trees) of <i>Eucalyptus xerothermica</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> (Mallee) over Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia sclerosperma</i> and <i>Acacia ancistrocarpa</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> over Scattered Low Trees of <i>Eucalyptus xerothermica</i> over High Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia pruinocarpa</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> over Scattered Shrubs of <i>Acacia</i> aff. <i>aneura</i> over Scattered Tussock Grasses of <i>Themeda triandra</i> , <i>Aristida inaequiglumis</i> and <i>*Cenchrus ciliaris</i> on Red-Brown Clay Loam on a Rocky Plain.		
Veg	Excellent.		
Fire	Moderate and Very Old.		
Note	Bare ground: 50%. Litter cover: Logs: 1%, Twigs: +, Lvs: +. Disturbance type: Nearby road. Notes: Patchy burn.		

SPECIES

Name	Cover	Height	Specimen Notes
Abutilon otocarpum	+	0.3m	NJ49.05
Acacia aff. aneura	1%	1.5m	NJ49.08
Acacia aff. sibirica	+	0.5m	NJ49.06
Acacia aneura	1%	0.5-1m	NJ49.04
Acacia bivenosa	10%	3m	NJ21.08
Acacia citrinoviridis	+	4m	NJ07.17
Acacia pruinocarpa	3%	2m	NJ01.42
Acacia synchronica	+	2m	NJ01.40
Aristida inaequiglumis	1%	0.6m	NJ01.32
Cenchrus ciliaris	1%	0.4m	NC
Corchorus crozophorifolius	+	0.4m	NJ49.07
Duperreya commixta	+	CL	NJ01.36
Enneapogon polyphyllus	+	0.2m	NJ01.33
Eucalyptus xerothermica	1%	6m	NJ49.03
Hakea lorea subsp. lorea	1%	2.5m	NJ05.16
Hibiscus burtonii	+	0.3m	NJ49.10
Keraudrenia nephrosperma	+	0.4m	NJ49.09
Petalostylis labicheoides	+	2m	NJ07.10
Ptilotus exaltatus var. exaltatus	+	0.2m	NJ01.46
Senna artemisioides subsp. oligophylla	+	1.5m	NJ01.13
Tephrosia rosea var. glabrior	+	0.2-0.5m	NJ49.11
Themeda triandra	2%	0.4m	NJ09.07
Triodia pungens	50%	0.5m	NJ49.02

Site	NJ50		
Described Season	TE	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25	Uniformity	
MGA	50	787482 mE	7418525 mN
Habitat	V-valley/ creekline/ floodplain; disintegrating channels in vegetation.		
Soil	Red-brown alluvial- scattered pebbles and cobbles; river creek in the past with rocks, gravel		
Rock	Ironstone and Quartz.		
Broad Floristic Formation:	<i>Acacia</i> High Shrubland.		
Vegetation Association:	High Shrubland of <i>Acacia citrinoviridis</i> , <i>Acacia bivenosa</i> and <i>Petalostylis labicheoides</i> over Hummock Grassland of <i>Triodia pungens</i> with Scattered Low Trees of <i>Eucalyptus xerothermica</i> on Red-Brown Alluvial on Drainage Lines and Floodplains.		
Vegetation Sub-association:	High Shrubland of <i>Petalostylis labicheoides</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> and <i>Acacia citrinoviridis</i> with Low Open Woodland of <i>Eucalyptus xerothermica</i> , <i>Corymbia hamersleyana</i> and <i>Santalum lanceolatum</i> over Open Heath of <i>Rulingia luteiflora</i> and <i>Acacia bivenosa</i> over Low Open Shrubland of <i>Tephrosia densa</i> over Open Hummock Grassland of <i>Triodia pungens</i> over Scattered Herbs of <i>Bonamia rosea</i> and <i>Trichodesma zeylanicum</i> on Red-Brown Alluvial on a Drainage.		
Veg	Excellent.		
Fire	Old.		
Note	Bare ground: 30%. Litter cover: Logs: 1%, Twigs: 2%, Lvs: 1%. Disturbance type: Weeds, flood, kangaroos. Notes: Drainage line between "El, Ah, Tb" hill slopes; Fresh roo poo and caves here.		

SPECIES

Name	Cover	Height	Specimen	Notes
Abutilon amplum	+	0.6m	NJ50.12	
Acacia adsurgens	+	2m	NJ38.01	
Acacia bivenosa	15%	2-2.5m	NJ04.09	
Acacia citrinoviridis	10%	2-5m	NJ02.01	
Acacia pyrifolia var. pyrifolia	20%	2-3m	NJ50.17	
Aerva javanica	+	0.8m	NC	
Aristida holathera	+	0.2m	NJ16.35	
Aristida ingrata	1%	0.3m	NJ26.09	
Bidens bipinnata	+	<0.2m	NJ02.10	
Bonamia rosea	1%	0.3m	NJ50.03	
Cenchrus ciliaris	30%		NC	
Chrysocephalum aff. apiculatum	+	0.1m	NJ50.02	
Cleome viscosa	+	0.4m	NC	
Corchorus lasiocarpus subsp. lasiocarpus	+	0.3m	NJ04.08	
Corymbia hamersleyana	5%	15m	NJ50.01	
Cucumis maderaspatanus	+	CL	NJOP01K	
Cymbopogon ambiguus	+	0.6m	NJ50.18	
Dipteracanthus australasicus subsp. australasicus	+	<0.1m	NJ46.05	
Duperreya commixta	+	CL	NJ02.09	
Enneapogon lindleyanus	+	0.3m	NJ04.35	
Eremophila latrobei subsp. glabra	+	1m	NJOP37K	
Eriachne mucronata	1%	0.5m	NJR22.01	
Eucalyptus xerothermica	N/A	10-15m	NJR26.03	dom op.
Eulalia aurea	2%	0.5m	NJOP06T	
Euphorbia australis	+	0.3m	NJ14.01	

<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CL	NJ26.03
<i>Goodenia stobbsiana</i>	+	0.2m	NJ36.02
<i>Gossypium robinsonii</i>	+	1m	NJ02.13
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	0.5m	NJ34.10
<i>Hibiscus haynaldii</i>	+	0.4m	NJ50.09
<i>Hybanthus aurantiacus</i>	+	0.3m	NJR16.04
<i>Indigofera georgei</i>	+	0.5m	NJ50.10
<i>Indigofera monophylla</i>	+	0.5m	NJ04.20
<i>Isotropis atropurpurea</i>	+	0.5m	NJ38.06
<i>Jasminum didymum</i> subsp. <i>lineare</i>	+	CL	NJ50.07
<i>Leiocarpa semicalva</i>	+	<0.1m	NJ50.11
<i>Leptopus decaisnei</i> var. <i>orbicularis</i>	+	<0.1m	NJ50.15
<i>Malvastrum americanum</i>	+	<0.1m	NC
<i>Melhania</i> aff. <i>oblongifolia</i>	+	0.2m	NJ50.13
<i>Paspalidium clementii</i>	1%	0.1m	NJ38.05
<i>Petalostylis labicheoides</i>	20%	2-3m	NJ50.16
<i>Polymeria</i> aff. <i>ambigua</i>	+	<0.1m	NJ50.08
<i>Ptilotus exaltatus</i>	+	0.3m	NC
<i>Ptilotus obovatus</i>	+	1m	NJ02.07
<i>Rhagodia eremaea</i>	+	1m	NJOP08T
<i>Rhynchosia minima</i>	+	CL	NC
<i>Rulingia luteiflora</i>	20%	2m	NJ38.04
<i>Salsola tragus</i>	+	0.3m	NJOP04T
<i>Santalum lanceolatum</i>	2%	2-3m	NJ02.05
<i>Scaevola spinescens</i>	+	1.5m	NJ50.19
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.6m	NJ04.05
<i>Senna artemisioides</i> subsp. <i>artemisioides</i>	+	0.6m	NC
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.3m	NJ04.24
<i>Solanum lasiophyllum</i>	+	0.3m	NJ10.05
<i>Tephrosia densa</i>	5%	0.6m	NJ57.08
<i>Themeda triandra</i>	+	0.5m	NJ08.02
<i>Trichodesma zeylanicum</i>	1%	<1-2.5m	NJOP10T
<i>Triodia pungens</i>	25%	0.8m	NJ48.02

Key:

OP: Within the same vegetation association (out of plot).

Site	NJ52		
Described Season	TE	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25	Uniformity	
MGA	50	788235	mE 7418439 mN
Habitat	Low hill slope.		
Soil	Skeletal; covered in red-brown rocks, pebble and cobble pavement and exposed bedrock.		
Rock	Ironstone and Quartz.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of <i>Acacia bivenosa</i> and <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> on Red-Brown Skeletal on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> over Open Shrubland of <i>Acacia bivenosa</i> over Low Open Shrubland of <i>Acacia hilliana</i> and <i>Eremophila exilifolia</i> over Scattered Tussock Grass of <i>Amphipogon sericeus</i> on Red-Brown Skeletal on Low Hillslope.		
Veg	Excellent.		
Fire	Moderate.		
Note	Aspect: South. Bare ground: 70%. Litter cover: Logs: +, Twigs: +, Lvs: +.		

SPECIES

Quad	Name	Cover C	Height	Specimen	Notes
	<i>Acacia bivenosa</i>	8%	1-1.5m	NJ04.09	
	<i>Acacia citrinoviridis</i>	+	2m	NJ02.01	op
	<i>Acacia hilliana</i>	5%	0.5m	NJ34.01	
	<i>Amphipogon sericeus</i>	1%	<0.2m	NJ52.02	
	<i>Calytrix carinata</i>	+	0.5m	NC	
	<i>Codonocarpus cotinifolius</i>	+	2m	NJ40.03	op
	<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>	+	0.5m	NJ04.08	
	<i>Eremophila exilifolia</i>	1%	0.5m	NJ18.16	
	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	1%	3m	NJ18.19	
	<i>Gompholobium karijini</i>	+	1m	NJR16.03	
	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	1m	NJ34.10	
	<i>Hakea chordophylla</i>	+	3m	NJ18.02	
	<i>Hibiscus sturtii</i>	+	0.1m	NJ52.03	
	<i>Keraudrenia nephrosperma</i>	+	0.5m	NJ32.02	
	<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>	+	0.3m	NJ06.14	
	<i>Ptilotus rotundifolius</i>	+	0.6m	NJ34.03	
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.6m	NJ04.05	
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	1m	NJ18.17	
	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	+	1m	NJ06.03	
	<i>Sida cardiophylla</i>	+	0.2m	NJ32.07	
	<i>Solanum lasiophyllum</i>	+	0.5m	NJ04.18	
	<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	35%	0.3m	NJ52.01	

Key:

OP: Within the same vegetation association (out of plot).

Site	NJ54		
Described Season	TE	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25	Uniformity	
MGA	50	789013	mE 7418256 mN
Habitat	Drainage lines and associated floodplain.		
Soil	Red-brown alluvial; creek bed has gravel banks, rocks and pebbles and cobbles.		
Rock	Quartz and Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> High Shrubland.		
Vegetation Association:	High Shrubland of <i>Acacia citrinoviridis</i> , <i>Acacia bivenosa</i> and <i>Petalostylis labicheoides</i> over Hummock Grassland of <i>Triodia pungens</i> with Scattered Low Trees of <i>Eucalyptus xerothermica</i> on Red-Brown Alluvial on Drainage Lines and Floodplains.		
Vegetation Sub-association:	High Shrubland of <i>Petalostylis labicheoides</i> , <i>Rulingia luteiflora</i> and <i>Acacia citrinoviridis</i> over Low Open Woodland of <i>Acacia bivenosa</i> and <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> with Open Woodland of <i>Eucalyptus xerothermica</i> and <i>Corymbia hamersleyana</i> over Low Scattered Shrubs of <i>Tephrosia rosea</i> var. <i>glabrior</i> , <i>Tephrosia densa</i> and <i>Kennedia prorepens</i> over Open Hummock Grassland of <i>Triodia pungens</i> over Tussock Grassland of <i>*Cenchrus ciliaris</i> , <i>Eulalia aurea</i> and <i>Themeda triandra</i> on Red-Brown Alluvial on Drainage.		
Veg	Excellent.		
Fire	Old.		
Note	Aspect: Slight East. Bare ground: 25%. Litter cover: Logs: +, Twigs: 2%, Lvs: 1%. Disturbance type: Flooding, weeds. Notes: Lots of Buffel grass near river banks.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia bivenosa</i>	5%	1-2.5m	NJ04.09
<i>Acacia citrinoviridis</i>	10%	2-4m	NJ02.01
<i>Acacia pachyacra</i>	+	2m	NJ26.02
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	5%	2-3m	NJ50.17
<i>Aristida holathera</i>	+	0.2m	NJ16.35
<i>Aristida ingrata</i>	+	0.6m	NJ26.09
<i>Bidens bipinnata</i>	+	0.2m	NJ02.10
<i>Boerhavia coccinea</i>	+	<0.1m	NJ02.03
<i>Bonamia rosea</i>	+	0.3m	NJ26.06
<i>Cenchrus ciliaris</i>	30%	0.6m	NC
<i>Chrysocephalum</i> aff. <i>apiculatum</i>	+	0.2m	NJ50.02
<i>Cleome viscosa</i>	+	0.2m	NC
<i>Corymbia hamersleyana</i>	3%	10-15m	NJ48.06
<i>Cucumis maderaspatanus</i>	+	CL	NJOP01K
<i>Cymbopogon ambiguus</i>	+	0.6m	NJ50.18
<i>Cymbopogon obtectus</i>	+	0.8m	NJ04.10
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Enneapogon lindleyanus</i>	1%	0.1m	NJ50.04
<i>Eremophila latrobei</i> subsp. <i>glabra</i>	+	2m	NJOP37K
<i>Eremophila longifolia</i>	+	1m	NJ54.01
<i>Eriachne mucronata</i>	1%	0.5m	NJR22.01
<i>Eucalyptus xerothermica</i>	5%	10-15m	NJR26.03
<i>Eulalia aurea</i>	11%	0.2m	NJ54.04
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	+	CL	NJ54.02

<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CL	NJ26.03
<i>Gossypium robinsonii</i>	+	1.5m	NJ02.13
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	2m	NJ34.10
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	3m	NJR02.01
<i>Hybanthus aurantiacus</i>	+	0.3m	NJR16.04
<i>Indigofera georgei</i>	+	1-2m	NJ50.10
<i>Isotropis atropurpurea</i>	+	0.3m	NJ38.06
<i>Kennedia prorepens</i>	1%	CL; <0.1m	NJ54.03
<i>Melhania</i> aff. <i>oblongifolia</i>	+	0.3m	NJ50.13
<i>Paspalidium clementii</i>	1%	0.2m	NJ38.05
<i>Petalostylis labicheoides</i>	10%	2-3m	NJ50.16
<i>Polymeria</i> aff. <i>ambigua</i>	+	<0.2m	NJ50.08
<i>Pterocaulon sphaeranthoides</i>	+	0.3m	NJ25.02
<i>Ptilotus exaltatus</i>	+	0.2m	NC
<i>Ptilotus obovatus</i>	+	0.6m	NJ02.07
<i>Rhyncharrhena linearis</i>	+	CL	NJ14.06A
<i>Rhynchosia minima</i>	+	CL	NC
<i>Rulingia luteiflora</i>	10%	2-3m	NJ38.04
<i>Santalum lanceolatum</i>	+	2m	NJ02.05
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	+	<0.1m	NJOP16K
<i>Scaevola spinescens</i>	+	1.2m	NJ50.19
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	1m	NJ04.05
<i>Setaria verticillata</i>	+	0.6m	NJ28.16
<i>Solanum lasiophyllum</i>	+	0.6m	NJ04.18
<i>Tephrosia densa</i>	1%	0.2m	NJ57.08
<i>Tephrosia rosea</i> var. <i>glabrior</i>	2%	0.5m	NJ38.11
<i>Themeda triandra</i>	1%	0.6m	NJ08.02
<i>Trichodesma zeylanicum</i>	+	0.2m	NJOP10T
<i>Triodia pungens</i>	30%	0.5-0.8m	NJ48.02

Site	NJ55		
Described Season	CS	Date 27/04/2009	Type Q 25 x 100 m
Location	OB23/25		Uniformity
MGA	50	785926	mE 7418659 mN
Habitat	Minor Drainage.		
Soil	Red-brown clay loam, some scattered pebbles and cobbles.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> Open Scrub.		
Vegetation Association:	Open Scrub of <i>Acacia melleodora</i> , <i>Petalostylis labicheoides</i> and <i>Acacia ancistrocarpa</i> over Very Open Hummock Grassland of <i>Triodia wiseana</i> and <i>Triodia pungens</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus xerothermica</i> on Red-Brown Loam on Minor Drainage Lines.		
Vegetation Sub-association:	Open Scrub of <i>Acacia melleodora</i> , <i>Petalostylis labicheoides</i> and <i>Acacia bivenosa</i> over Scattered Shrubs of <i>Acacia bivenosa</i> , <i>Santalum lanceolatum</i> and <i>Rulingia luteiflora</i> over Hummock Grassland of <i>Triodia pungens</i> over Very Open Tussock Grassland of <i>Eriachne mucronata</i> , <i>Eriachne tenuiculmis</i> and * <i>Cenchrus ciliaris</i> on Red- Brown Clay Loam on a Minor Drainage		
Veg	Pristine.		
Fire	Very Old.		
Note	Bare ground: 40%. Litter cover: Logs: 10%, Twigs: 5%, Lvs: 5%. Notes: Very dense shrubland - very open underneath.		

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia bivenosa</i>	2%	2.5m	NJ01.30	
<i>Acacia melleodora</i>	40%	2m	NJ33.02	
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	+	2m	NJ55.02	
<i>Bonamia rosea</i>	+	0.3m	NJ09.14	
<i>Cenchrus ciliaris</i>	1%	0.5m	NJ55.11	
<i>Corymbia hamersleyana</i>	+	10m	NJ55.07	
<i>Cymbopogon ambiguus</i>	+	0.5m	NJ55.15	
<i>Cymbopogon obtectus</i>	+	0.6m	NJ03.18	
<i>Duperreya commixta</i>	+	CL	NJ01.36	
<i>Enneapogon lindleyanus</i>	+	0.4m	NJ55.14	
<i>Eriachne mucronata</i>	2%	0.4m	NJ55.08	
<i>Eriachne tenuiculmis</i>	1%	0.6m	NJ55.10	
<i>Eucalyptus gamophylla</i>	+	8m	NJ01.41	
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	+	8m	NJ55.16	
<i>Eulalia aurea</i>	+	0.7m	NJ15.04	
<i>Hybanthus aurantiacus</i>	+	0.4m	NJ55.06	
<i>Paraneurachne muelleri</i>	1%	0.4m	NJ01.45	
<i>Petalostylis labicheoides</i>	20%	2.5m	NJ07.10	
<i>Rhynchosia minima</i>	+	CL	NJ05.12	
<i>Rulingia luteiflora</i>	1%	1.5m	NJ39.10	
<i>Santalum lanceolatum</i>	1%	1.5m	NJ55.05	
<i>Scaevola spinescens</i>	1%	0.4-1m	NJ55.01	
<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>	+	1.5m	NJ55.09	
<i>Sida</i> aff. <i>echinocarpa</i>	+	0.4m	NJ55.17	
<i>Stylobasium spathulatum</i> nearby hill.			NJ55.18	Associated on
<i>Themeda triandra</i>	1%	0.4m	NJ09.07	

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Trichodesma zeylanicum	+	0.2m	NJ01.05	
Triodia angusta nearby hill.			NJ55.20	Associated on
Triodia pungens	50%	0.6m	NJ55.03	

Site	NJ56		
Described	TE	Date	27/04/2009
Season		Type	Q
			50 x 50 m
		Uniformity	
Location	OB23/25		
MGA	50	789750	mE
			7417996 mN
Habitat	Floodplain / dryland.		
Soil	Red-brown sandy with a little loam; scattered with a few ironstone and quartz cobbles and		
Rock			
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland (to Scattered Trees) of <i>Eucalyptus xerothermica</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> (Mallee) over Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia sclerosperma</i> and <i>Acacia ancistrocarpa</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland of <i>Eucalyptus xerothermica</i> , <i>Corymbia hamersleyana</i> and <i>Eucalyptus gamophylla</i> over High Shrubland of <i>Acacia sclerosperma</i> , <i>Acacia tenuissima</i> and <i>Acacia bivenosa</i> over Scattered Shrubs of <i>Eremophila longifolia</i> over Low Scattered Shrubs of <i>Ptilotus obovatus</i> over Very Open Tussock Grassland of <i>*Cenchrus ciliaris</i> , <i>Aristida ingrata</i> and <i>Eulalia aurea</i> on Red-Brown Sand-Loam on Floodplain.		
Veg	Excellent to Pristine.		
Fire	Old.		
Note	Bare ground: 35%. Litter cover: Logs: +, Twigs: +, Lvs: +. Disturbance type: Cattle. Notes: Big triodia hummocks.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia bivenosa</i>	1%	2-3m	NJ04.09
<i>Acacia inaequilatera</i>	+	1.5m	NJ48.01
<i>Acacia sclerosperma</i>	20%	1.5-3m	NJ10.02
<i>Acacia synchronicia</i>	+	0.5m	NJ16.28
<i>Acacia tenuissima</i>	2%	2.5m	NJ48.04
<i>Aristida holathera</i>	+	<0.1m	NJ16.35
<i>Aristida ingrata</i>	2%	0.3m	NJ26.09
<i>Capparis lasiantha</i>	+	CL	NJ56.03
<i>Cenchrus ciliaris</i>	5%	0.5m	NC
<i>Chrysopogon fallax</i>	+	0.3m	NJOP07T
<i>Corymbia candida</i> subsp. <i>dipsodes</i>	+	4m	NJ08.11
<i>Corymbia hamersleyana</i>	2%	3-5m	NJ48.06
<i>Cymbopogon obtectus</i>	+	0.5m	NJ04.10
<i>Digitaria ctenantha</i>	+	0.5m	NJ42.08
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Eragrostis falcata</i>	+	0.4m	NJ04.29
<i>Eremophila longifolia</i>	1%	2m	NJ54.01
<i>Eucalyptus gamophylla</i>	1%	2m	NJ04.36
<i>Eucalyptus xerothermica</i>	5%	10m	NJR26.03
<i>Eulalia aurea</i>	3%	0.5m	NJOP06T
<i>Hakea chordophylla</i>	1%	3m	NJ18.02
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	0.2m	NJR02.01
<i>Hibiscus sturtii</i>	+	<0.1m	NJ52.03
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>	+	0.2m	NJ26.14

Maireana planifolia x villosa	+	0.3m	NJ28.13
Ptilotus obovatus	1%	0.5m	NJ02.07
Rhagodia eremaea	+	1m	NJOP08T
Senna artemisioides subsp. oligophylla	+	1.2m	NJ04.05
Solanum centrale	+	0.2m	NJ32.08
Solanum lasiophyllum	+	0.5m	NJ04.18
Triodia pungens	65%	0.5-0.8m	NJ56.02

Site	NJ57		
Described Season	CS	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25	Uniformity	
MGA	50	785189	mE 7418768 mN
Habitat	Rocky hillside.		
Soil	Red-brown loam, surface covered with cobbles and some exposed bedrock.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Shrubs of <i>Acacia synchronicia</i> and <i>Acacia bivenosa</i> over on Red-Brown Loam on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Shrubs of <i>Acacia maitlandii</i> and <i>Acacia bivenosa</i> over Low Scattered Shrubs of <i>Senna glutinosa</i> subsp. x <i>luerssenii</i> and <i>Acacia synchronicia</i> over Scattered Tussock Grass of <i>Eriachne mucronata</i> on Red-Brown Loam on Hillside.		
Veg	Pristine.		
Fire	Old.		
Note	Bare ground: 30%. Litter cover: Logs: +, Twigs: 1%, Lvs: 1%. Notes: Big skink.		

SPECIES

Quad	Name	Cover C	Height	Specimen Notes
	<i>Acacia bivenosa</i>	1%	2m	NJ01.30
	<i>Acacia maitlandii</i>	1%	2m	NJ57.05
	<i>Acacia synchronicia</i>	1%	1m	NJ01.40
	<i>Amphipogon sericeus</i>	+	0.4m	NJ57.02
	<i>Aristida contorta</i>	+	0.4m	NJ09.08
	<i>Cymbopogon oblectus</i>	+	0.6m	NJ03.18
	<i>Dampiera candidans</i>	+	0.5m	NJ57.10
	<i>Eriachne mucronata</i>	1%	0.4m	NJ57.04
	<i>Fimbristylis simulans</i>	+	0.2m	NJ57.03
	<i>Goodenia stobbsiana</i>	+	0.5m	NJ07.05
	<i>Hakea lorea</i> subsp. <i>lorea</i>	+	0.5m	NJ05.16
	<i>Hibiscus</i> aff. <i>coatesii</i>	+	0.6m	NJ57.12
	<i>Paraneurachne muelleri</i>	+	0.4m	NJ01.45
	<i>Ptilotus calostachyus</i>	+	0.6m	NJ07.15
	<i>Ptilotus obovatus</i>	+	0.5m	NJ03.01
	<i>Schizachyrium fragile</i>	+	0.3m	NJ57.07
	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	1m	NJ31.04
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	1m	NJ11.09
	<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	1%	1m	NJ07.04
	<i>Sida</i> sp. <i>Pilbara</i> (A.A. Mitchell PRP 1543)	+	0.4m	NJ57.09
	<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)	+	0.2m	NJ57.11
	<i>Solanum lasiophyllum</i>	+	0.5m	NJ01.04
	<i>Tephrosia densa</i>	+	0.3m	NJ57.08
	<i>Tribulus suberosus</i>	+	1m	NJ11.06
	<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	70%	0.5m	NJ57.01
	<i>Triumfetta maconochieana</i>	+	0.4m	NJ57.06

Site	NJ58		
Described Season	TE	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25.		
MGA	50	790369	mE 7417737 mN
Habitat	Plain.		
Soil	Red-brown loam - pavement in places - quartz and ironstone cobbles and pebbles.		
Rock	Quartz and Ironstone.		
Broad Floristic Formation:	Triodia Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of <i>Eucalyptus gamophylla</i> over Open Shrubland of <i>Acacia bivenosa</i> , <i>Ptilotus obovatus</i> and <i>Stylobasium spathulatum</i> on Red-Brown Loam on a Plain.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of <i>Eucalyptus gamophylla</i> over High Open Shrubland of <i>Hakea chordophylla</i> , <i>Acacia citrinoviridis</i> and <i>Acacia</i> aff. <i>aneura</i> over Open Shrubland of <i>Acacia bivenosa</i> , <i>Ptilotus obovatus</i> and <i>Stylobasium spathulatum</i> over Very Open Tussock Grassland of <i>*Cenchrus ciliaris</i> on Red-Brown Loam on a Plain.		
Veg	Excellent.		
Fire	Old.		
Note	Aspect: North-East. Litter cover: Logs: +, Twigs: 1%, Lvs: +. Disturbance type: Near haul road; cows.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia</i> aff. <i>aneura</i>	1%	2.5m	NJ58.02
<i>Acacia bivenosa</i>	5%	1-2.5m	NJ04.09
<i>Acacia citrinoviridis</i>	1%	2-2.5m	NJ02.01
<i>Acacia inaequilatera</i>	+	0.6m	NJ48.01
<i>Acacia pruinocarpa</i>	+	1-2m	NJ04.13
<i>Acacia synchronicia</i>	+	1.2m	NJ04.14
<i>Aristida holathera</i>	+	0.2m	NJ16.35
<i>Aristida ingrata</i>	+	0.6m	NJ26.09
<i>Cenchrus ciliaris</i>	3%	0.5m	NC
<i>Chrysocephalum</i> aff. <i>apiculatum</i>	+	0.1m	NJ50.02
<i>Codonocarpus cotinifolius</i>	+	3m	NJ40.03
<i>Cymbopogon obtectus</i>	+	2-2.5m	NJ26.12
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Enneapogon polyphyllus</i>	+	<0.1m	NJ06.09
<i>Eragrostis falcata</i>	+	0.2m	NJ04.29
<i>Eragrostis tenellula</i>	+	<0.1m	NJ02.12
<i>Eremophila forrestii</i>	+	1m	NJ04.15
<i>Eremophila maculata</i> subsp. <i>brevifolia</i>	+	0.2m	NJ14.09
<i>Eucalyptus gamophylla</i>	5%	3m	NJ04.36
<i>Euphorbia australis</i>	+	<0.1m	NJ58.04
<i>Hakea chordophylla</i>	1%	3m	NJ18.02
<i>Hibiscus</i> aff. <i>coatesii</i>	+	1m	NJ58.03
<i>Hibiscus burtonii</i>	+	0.2m	NJ14.17
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	+	0.1m	NJ26.14
<i>Keraudrenia nephrosperma</i>	+	0.6m	NJ32.02
<i>Maireana planifolia</i> x <i>villosa</i>	+	0.2m	NJ28.13

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Paraneurachne muelleri	+	0.4m	NJ04.07
Ptilotus clementii	+	0.1m	NJ04.12
Ptilotus exaltatus	+	0.1m	NC
Ptilotus obovatus	2%	1.2m	NJ02.07
Rhagodia eremaea	+	1.5	NJOP08T
Senna artemisioides subsp. oligophylla	+	1m	NJ04.05
Senna glutinosa subsp. x luerssenii	+	1m	NJ06.03
Solanum lasiophyllum	+	0.5m	NJ04.18
Stylobasium spathulatum	1%	2m	NJ58.01
Triodia pungens	40%	0.5-1m	NJ56.02
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	5%	0.3m	NJ52.01

Site	NJ61		
Described Season	CS	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25	Uniformity	
MGA	50	784507	mE 7418899 mN
Habitat	Low Rocky Hill.		
Soil	Red-brown loam with cobbles and pebbles with some exposed bedrock.		
Rock	Ironstone and Quartz.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Shrubs of <i>Acacia synchronicia</i> and <i>Acacia bivenosa</i> over on Red-Brown Loam on Hillslopes.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of <i>Acacia synchronicia</i> , <i>Acacia bivenosa</i> and <i>Tribulus suberosus</i> over Scattered Grasses of * <i>Cenchrus ciliaris</i> and <i>Aristida contorta</i> on Red-Brown Loam on a Low Hill.		
Veg	Excellent.		
Fire	Old.		
Note	Bare ground: 35%. Litter cover: Logs: 1%, Twigs: 1%, Lvs: +. Disturbance type: Weeds - two roads nearby.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia aff. aneura	+	1.5m	NJ61.03
Acacia bivenosa	1%	1.5m	NJ01.30
Acacia synchronicia	1%	1-1.5m	NJ01.40
Amphipogon sericeus	+	0.4m	NJ61.06
Aristida contorta	1%	0.3m	NJ09.08
Cenchrus ciliaris	1%	0.4m	NC
Cymbopogon oblectus	+	0.6m	NJ03.18
Duperreya commixta	+	CL	NJ01.36
Enneapogon intermedius	+	0.35m	NJ61.04
Eremophila latrobei subsp. aff. filiformis	+	1-1.5m	NJ47.01
Eremophila latrobei subsp. glabra	+	0.5m	NJ61.05
Gomphrena canescens subsp. canescens	+	0.2m	NJ03.05
Goodenia stobbsiana	+	0.3m	NJ07.05
Gossypium australe	+	0.3m	NJ61.01
Ptilotus obovatus	+	0.5m	NJ03.01
Senna glutinosa subsp. glutinosa	+	1.5m	NJ31.04
Senna glutinosa subsp. x luerssenii	1%	1.5m	NJ07.04
Sida aff. echinocarpa	+	0.4m	NJ61.02
Solanum lasiophyllum	+	0.5m	NJ01.04
Tribulus suberosus	1%	1m	NJ11.06
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	65%	1m	NJOPC14

Site	NJ63		
Described Season	CS	Date 27/04/2009	Type Q 25 x 100 m
Location	OB23/25	Uniformity	
MGA	50	783813	mE 7418877 mN
Habitat	Drainage - minor.		
Soil	Red-brown clay loam, surface covered with pebbles and cobbles.		
Rock	Ironstone.		
Broad Floristic Formation:	Acacia Open Scrub.		
Vegetation Association:	Open Scrub of <i>Acacia monticola</i> , <i>Acacia citronoviridis</i> and <i>Petalostylis labicheoides</i> over Open Hummock Grassland of <i>Triodia pungens</i> and <i>Triodia basedowii</i> over Scattered Low Trees <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> or <i>Eucalyptus gamophylla</i> on Red-Brown Clay Loam on Drainage Lines.		
Vegetation Sub-association:	Open Scrub of <i>Acacia monticola</i> , <i>Petalostylis labicheoides</i> and <i>Santalum lanceolatum</i> over Low Scattered Shrubs of <i>Acacia</i> aff. <i>aneura</i> and <i>Acacia bivenosa</i> over Open Hummock Grassland of <i>Triodia pungens</i> over Very Open Tussock Grassland of <i>Themeda triandra</i> , <i>Paraneurachne muelleri</i> and <i>Cymbopogon obtectus</i> on Red-Brown Clay Loam on a Minor Drainage.		
Veg	Excellent.		
Fire	Very Old.		
Note	Litter cover: Logs: 10%, Twigs: 5%, Lvs: 15%. Notes: Lots of debris.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia aff. aneura	1%	1m	NJ63.10
Acacia bivenosa	1%	1.5m	NJ01.30
Acacia maitlandii	+	1.5m	NJ57.05
Acacia monticola	50%	3m	NJ63.04
Bidens bipinnata	+	0.25m	NC
Bonamia rosea	+	0.3m	NJ09.14
Cenchrus ciliaris	+	0.4m	NC
Cleome viscosa	+	0.4m	NJ01.22
Corchorus lasiocarpus subsp. parvus	+	CR	NJ63.07
Cymbopogon obtectus	1%	0.6m	NJ03.18
Dampiera candidans	+	0.3m	NJ57.10
Duperreya commixta	+	CL	NJ01.36
Eragrostis aff. eriopoda	+	0.4m	NJ63.09
Eriachne mucronata	1%	0.4m	NJ55.08
Eucalyptus gamophylla	1%	8m	NJ01.41
Euphorbia coghlanii	+	0.4m	NJ63.05
Evolvulus alsinoides var. villosicalyx	+	CR	NJ01.01
Gossypium robinsonii	+	2.5m	NJ41.07
Hybanthus aurantiacus	+	0.3m	NJ63.01
Melhania aff. oblongifolia	+	0.3m	NJ63.03
Paraneurachne muelleri	3%	0.4m	NJ01.45
Paspalidium clementii	+	0.6m	NJ63.09B
Petalostylis labicheoides	3%	2m	NJ07.10
Rhynchosia minima	+	CR	NJ05.12
Santalum lanceolatum	1%	2m	NJ55.05
Senna artemisioides subsp. oligophylla	+	1.5m	NJ01.13
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	+	0.4m	NJ63.06

Sida sp. verrucose glands (F.H. Mollemans 2423)	+	0.5m	NJ63.08
Solanum lasiophyllum	+	0.5m	NJ01.04
Themeda triandra	3%	0.4m	NJ09.07
Triodia pungens	25%	0.5m	NJ55.03

Site	NJ65		
Described Season	CS	Date 27/04/2009	Type Q 50 x 50 m
Location	OB23/25	Uniformity	
MGA	50	782944	mE 7418575 mN
Habitat	Low rocky hill top.		
Soil	Red-brown loam, surface of cobbles and pebbles.		
Rock	Ironstone - some quartz.		
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with Open Shrubland of <i>Acacia bivenosa</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> and <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> (Trees) on Red-Brown Skeletal Loam on a Low Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) and <i>Triodia wiseana</i> with Low Open Woodland of <i>Eucalyptus gamophylla</i> and <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> over Open Shrubland of <i>Acacia ancistrocarpa</i> , <i>Acacia tenuissima</i> and <i>Keraudrenia nephrosperma</i> over Very Open Tussock Grassland of <i>Amphipogon sericeus</i> , <i>Paraneurachne muelleri</i> and <i>Cymbopogon obtectus</i> on Red-Brown Loam on Hilltop.		
Veg	Very Good to Excellent.		
Fire	Old.		
Note	Bare ground: 80%. Litter cover: Logs: 1%, Twigs: 3%, Lvs: 1%. Disturbance type: Nearby roads and powerlines. Notes: Very Open.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia adsurgens	+	2m	NJ59.03
Acacia aff. aneura	+	2m	NJ65.06
Acacia ancistrocarpa	2%	1.2m	NJ01.03
Acacia bivenosa	2%	0.5m	NJ01.30
Acacia inaequilatera	+	0.5m	NJ13.06
Acacia tenuissima	1%	1.5m	NJ65.04
Amphipogon sericeus	1%	0.4m	NJ61.06
Aristida contorta	+	0.3m	NJ09.08
Cenchrus ciliaris	+	0.4m	NC
Corymbia hamersleyana	+	8m	NC
Cymbopogon obtectus	1%	0.6m	NJ03.18
Dicrastylis cordifolia	+	1m	NJ33.06
Duperreya commixta	+	CR	NJ01.36
Eucalyptus gamophylla	2%	8m	NJ65.02
Eucalyptus leucophloia subsp. leucophloia	1%	10m	NJ41.01
Fimbristylis simulans	+	0.2m	NJ65.08
Gompholobium karijini	+	0.5m	NJ31.20
Gomphrena canescens subsp. canescens	+	0.2m	NJ03.05
Goodenia stobbsiana	+	0.2m	NJ07.05
Hakea lorea subsp. lorea	+	1m	NJ05.16
Hibiscus sturtii	+	0.4m	NJ65.07
Hibiscus sturtii var. campylochlamys	+	0.4m	NJ65.03
Hybanthus aurantiacus	+	0.3m	NJ63.01
Indigofera monophylla	+	0.4m	NJOPC17

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

Keraudrenia nephrosperma	1%	1m	NJ65.05
Maireana planifolia	+	1m	NJ01.28
Paraneurachne muelleri	1%	0.4m	NJ01.45
Ptilotus calostachyus	+	0.5m	NJ07.15
Ptilotus obovatus	+	0.5m	NJ03.04
Senna artemisioides subsp. helmsii	+	1.5m	NJ01.12
Senna artemisioides subsp. oligophylla	+	1.5m	NJ01.13
Senna glutinosa subsp. x luerssenii	+	1.5m	NJ11.05
Solanum lasiophyllum	+	0.5m	NJ01.04
Trianthera glossostigma	+	CR	NJ65.01
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	15%	0.4m	NJ31.07
Triodia wiseana	5%	0.6m	NJ01.29

Site	NJ67		
Described Season	CS	Date	27/04/2009 Type Q
			50 x 50 m
Location	OB23/25		
MGA	50	782361	mE 7418232 mN
Habitat	Floodplain.		
Soil	Red-brown sandy loam with some scattered pebbles and cobbles.		
Rock	Ironstone and some quartz.		
Broad Floristic Formation:	Triodia Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia aneura</i> , <i>Acacia dictyophleba</i> and <i>Acacia pruinocarpa</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus xerothermica</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with Open Shrubland of <i>Acacia</i> aff. <i>aneura</i> and <i>Acacia inaequilatera</i> over Very Open Tussock Grassland of <i>Paraneurachne muelleri</i> , <i>Eragrostis</i> aff. <i>eripoda</i> and <i>Cymbopogon obtectus</i> on Red-Brown Sandy Loam on Floodplain.		
Veg	Excellent.		
Fire	Moderate.		
Note	Bare ground: 75%. Litter cover: Logs: 1%, Twigs: +, Lvs: +. Disturbance type: Wind row. Notes: Very open.		

SPECIES

Name	Cover	Height	Specimen Notes
Abutilon otocarpum	+	0.4m	NJ67.08
Acacia aff. aneura	3%	2m	NJ67.04
Acacia bivenosa	+	2m	NJ01.30
Acacia inaequilatera	3%	1m	NJ13.06
Acacia pachyacra	+	1.5m	NJOPC1
Acacia pruinocarpa	+	1m	NJ01.42
Aristida contorta	+	0.3m	NJ09.08
Aristida holathera var. holathera	1%	0.4m	NJ67.03
Aristida inaequiglumis	+	0.4m	NJ01.32
Bonamia rosea	+	0.5m	NJ09.14
Cenchrus ciliaris	1%	0.4m	NC
Cleome viscosa	+	0.4m	NJ01.22
Cymbopogon obtectus	1%	0.6m	NJ03.18
Eragrostis aff. eripoda	1%	0.4m	NJ35.06
Eragrostis eripoda	1%	0.5m	NJ23.16
Eremophila forrestii subsp. forrestii	+	1m	NJ01.43
Eucalyptus gamophylla	+	6m	NJ01.41
Euphorbia australis	+	0.2m	NJ67.11
Evolvulus alsinoides var. villosicalyx	+	CR	NJ01.01
Gompholobium karijini	+	0.5m	NJ31.20
Gomphrena canescens subsp. canescens	+	0.2m	NJ03.05
Goodenia microptera	+	0.4m	NJOPCS19
Hibiscus burtonii	+	0.4m	NJ67.05
Hybanthus aurantiacus	+	0.4m	NJ63.01
Keraudrenia nephrosperma	+	1m	NJ07.08
Paraneurachne muelleri	2%	0.4m	NJ01.45

WORLEYPARSONS – Newman to Jimblebar Transmission Line and Newman Town Substation Flora and Vegetation Assessment

<i>Portulaca oleracea</i>	+	0.2m	NJ67.06
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.2m	NJ01.46
<i>Ptilotus helipteroides</i>	+	0.3m	NJ03.19
<i>Salsola tragus</i>	+	0.4m	NJ01.26
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	1.5m	NJ01.13
<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	+	1.5m	NJ11.05
<i>Sida cardiophylla</i>	+	0.3m	NJ67.02
<i>Solanum lasiophyllum</i>	+	0.5m	NJ01.04
<i>Themeda triandra</i>	1%	0.6m	NJ09.07
<i>Triodia pungens</i>	25%	0.5m	NJ67.09
<i>Yakirra australiensis</i> var. <i>australiensis</i>	+	0.25m	NJ67.07

Site NJR08

Described TE **Date** 23/04/2009 **Type** R

Season **Uniformity**

Location Jimblebar- Wye.

MGA 50 792213 **mE** 7417519 **mN**

Habitat Main creek line - fortescue.

Soil Red-brown clay - alluvial.

Rock

Broad Floristic Formation: Eucalyptus Woodland.

Vegetation Association: Woodland of *Eucalyptus camaldulensis* var. *obtusa* over Scattered Shrubs of *Melaleuca lasiandra* and *Petalostylis labicheoides* over Very Open Sedges / Tussock Grassland of *Echinochloa colona*, *Cyperus vaginatus* and *Typha dogingensis* on Red-Brown Alluvial Loamy Clay on Creeklines and Rivers.

Vegetation Sub-association: Woodland of *Eucalyptus camaldulensis* var. *obtusa* over Open Shrubland of *Petalostylis labicheoides* over Scattered Tussock Grass of **Echinochloa colona* on Red-Brown Alluvial Clay on a Creek.

Veg Good.

Fire Young to Recent.

Note Bare ground: 95%.
Litter cover: Logs: 1%, Twigs: 2%, Lvs: +.
Disturbance type: Fire, weeds.
Notes: Recently burnt.

SPECIES

Name	Cover	Height	Specimen Notes
Bidens bipinnata	+	0.2m	NJ02.10
Corchorus tridens	+	<0.1m	NJR08.05
Echinochloa colona	2%	<0.1m	NJOP16T
Eucalyptus camaldulensis var. obtusa	10%	3-15m	NJR08.06
Leptochloa digitata	+	0.5-1m	NJR08.04
Petalostylis labicheoides	2%	0.5-2m	NJR08.07
Typha domingensis	+	0.5m	NJR08.01

Site NJR10

Described TE **Date** 24/04/2009 **Type** R

Season **Uniformity**

Location Fortescue river area.

MGA 50 793190 **mE** 7417569 **mN**

Habitat Creekline - eroded immediate floodplain. Different vegetation unit to other side.

Soil Red-brown alluvial - exposed calcrete, gravel banks - calcrete and ironstone pebbles and cobbles.

Rock Ironstone, quartz and calcrete.

Broad Floristic Formation: *Eucalyptus* Open Woodland.

Vegetation Association: Open Woodland of *Eucalyptus camaldulensis* var. *obtusa* over Closed (to Open) Tussock Grassland of **Cenchrus ciliaris*, **Cenchrus setiger* and **Echinochloa colona* over Very Open Herbs of **Malvastrum americanum* on Red-Brown Clay Loam on Creeklines and Rivers.

Vegetation Sub-association: Open Woodland of *Eucalyptus camaldulensis* var. *obtusa* over Tussock Grassland of **Echinochloa colona*, *Themedia triandra* and **Cenchrus setiger* on Red-Brown Alluvial on a Creekline.

Veg Degraded.

Fire Young.

Note Bare ground: 65%.
Litter cover: Logs: 1%, Twigs: 2%, Lvs: 1%.
Disturbance type: Poached, flood, weeds, cattle.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Cenchrus ciliaris</i>	1%	0.2m	NC
<i>Cenchrus setiger</i>	1%	0.2m	NJOP30T
<i>Cleome viscosa</i>	+	0.2m	NC
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	+	1m	NJ08.04
<i>Datura leichhardtii</i>	+	0.2m	NJOP32T
<i>Dichanthium fecundum</i>	+	0.5m	NJR10.01
<i>Echinochloa colona</i>	30%	<0.1m	NJOP16T
<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i>	<2%	20m	NJ12.01
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	0.5m	NJ08.08
<i>Ipomoea muelleri</i>	+	CL	NJ12.02
<i>Malvastrum americanum</i>	+	0.1m	NC
<i>Phyllanthus maderaspatensis</i>	+	0.1m	NJ12.07
<i>Themedia triandra</i>	3%	0.4m	NJ08.02

Site NJR12

Described TE **Date** 24/04/2009 **Type** R

Season **Uniformity**

Location Jimblebar-Wye.

MGA 50 794161 **mE** 7417762 **mN**

Habitat Low rocky rise.

Soil Red-brown loam, covered with ironstone pavement; few scattered quartz.

Rock Ironstone.

Broad Floristic Formation: *Triodia* Hummock Grassland.

Vegetation Association: Hummock Grassland of *Triodia basedowii* and *Triodia pungens* with High Open Shrubland of *Acacia bivenosa*, *Acacia synchronicia* and *Acacia sclerosperma* with Scattered Low Trees of *Eucalyptus gamophylla* (Mallee) and *Eucalyptus leucophloia* subsp. *leucophloia* on Skeletal Red-Brown Loam on Low Hillslopes.

Vegetation Sub-association: High Shrubland of *Acacia synchronicia*, *Acacia aneura* ? var. *conifera* and *Grevillea striata* over Scattered Shrubs of *Acacia tetragonophylla* over Low Scattered Shrubs of *Solanum lasiophylla* over Scattered Tussock Grasses of **Cenchrus ciliaris* on Red-Brown Loam on Low Rise.

Veg Very Good.

Fire Old to Very Old.

Note Aspect: North.
Bare ground: 95%.
Litter cover: Logs: +, Twigs: +, Lvs: +.
Disturbance type: Denuded - maybe natural; cow tracks/poo.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia aneura</i> ? var. <i>conifera</i>	1%	4m	NJ04.30
<i>Acacia synchronicia</i>	10%	2-3m	NJR12.02
<i>Acacia tetragonophylla</i>	1%	2m	NJ04.33
<i>Cenchrus ciliaris</i>	2%	0.5m	NC
<i>Eremophila macmillaniana</i>	+	0.6m	NC
<i>Goodenia prostrata</i>	+	CL	NJR12.01
<i>Grevillea striata</i>	1%	3-4m	NJ40.02
<i>Portulaca oleracea</i>	+	<0.1m	NJOP01T
<i>Ptilotus helipteroides</i>	+	<0.1m	NJOP14T
<i>Sclerolaena cuneata</i>	+	<0.1m	NJ16.34
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	+	0.5m	NJ06.03
<i>Solanum lasiophyllum</i>	1-2%	0.6m	NJ04.18
<i>Streptoglossa</i> sp.	+	<0.1m	NJ16.15

Site	NJR16		
Described Season	TE	Date	Type R Uniformity
Location			
MGA	50	798543	mE 7417891 mN
Habitat	Small drainage line through hillslope.		
Soil	Red-brown alluvial sand with exposed Iron bedrock.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Acacia</i> Open Shrubland.		
Vegetation Association:	Open Shrubland of <i>Acacia adsurgens</i> over Low Shrubland of <i>Gompholobium karijini</i> , <i>Halgania solanacea</i> aff. var. <i>hirsuta</i> and <i>Santalum lanceolatum</i> over Scattered Hummock Grasses of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) on Red-Brown Alluvial Sand on Drainage Lines.		
Vegetation Sub-association:	Open Shrubland of <i>Acacia adsurgens</i> with Low Shrubland of <i>Gompholobium karijini</i> , <i>Halgania solanacea</i> aff. var. <i>hirsuta</i> and <i>Santalum lanceolatum</i> over Scattered Hummock Grasses of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) over Scattered Tussock Grasses of <i>Cymbopogon obtectus</i> on Red-Brown Alluvial Sand on Drainage through Hillslope.		
Veg	Pristine.		
Fire			
Note			

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia adsurgens</i>	10%	2m	NJ04.26
<i>Acacia bivenosa</i>			NJ04.09
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>	+	0.1m	NJR16.02
<i>Cymbopogon obtectus</i>	1%	0.5m	NJ04.10
<i>Eragrostis falcata</i>	+	0.5m	NJ04.29
<i>Gompholobium karijini</i>	10%	1m	NJR16.03
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>	1%	0.5m	NJ36.04
<i>Hybanthus aurantiacus</i>	+	0.1m	NJR16.04
<i>Paraneurachne muelleri</i>	+	0.4m	NJ04.07
<i>Santalum lanceolatum</i>	1%	1m	NJ02.05
<i>Senna stricta</i>	+	0.5m	NJR16.01
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	2%	0.5m	NJ34.01A

Site NJR17

Described CS **Date** 23/04/2009 **Type** R

Season **Uniformity**

Location River

MGA 50 781750 **mE** 7417917 **mN**

Habitat River.

Soil Red-brown loam with cobbles and boulders on surface.

Rock Mixed.

Broad Floristic Formation: *Acacia* Open Scrub.

Vegetation Association: Open Scrub of *Acacia monticola*, *Acacia citrinoviridis* and *Petalostylis labicheoides* over Open Hummock Grassland of *Triodia pungens* and *Triodia basedowii* over Scattered Low Trees *Eucalyptus leucophloia* subsp. *leucophloia* or *Eucalyptus gamophylla* on Red-Brown Clay Loam on Drainage Lines.

Vegetation Sub-association: Open Scrub of *Acacia monticola*, *Acacia citrinoviridis* and *Petalostylis labicheoides* with Open Woodland of *Corymbia hamersleyana* over Low Open Shrubland of *Tephrosia rosea* var. *glabrior* over Very Open Tussock Grassland of **Cenchrus ciliaris* and *Eulalia aurea* on Red-Brown Loam on a River.

Veg Pristine to Excellent.

Fire Very Old.

Note Bare ground: 90%.
Litter cover: Logs: 1%, Twigs: +, Lvs: +.
Disturbance type: Weeds.
Notes: Lots of frogs.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia citrinoviridis</i>	1%	3m	NJ09.12
<i>Acacia maitlandii</i>	+	2m	NJ17.08
<i>Acacia monticola</i>	1%	2.5m	NJ17.04
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	1%	1.5m	NJ17.07
<i>Cenchrus ciliaris</i>	2%	0.4m	NC
<i>Cleome viscosa</i>	+	0.4m	NJ01.22
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>	+	0.4m	NJ07.07
<i>Corymbia hamersleyana</i>	10%	12m	NC
<i>Cymbopogon procerus</i>	4%	0.6m	NJ17.03
<i>Cyperus viscidulus</i>	+	0.5m	NJ17.06
<i>Eulalia aurea</i>	1%	0.4m	NJ15.04
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	2-3m	NJ17.01
<i>Petalostylis labicheoides</i>	2%	2m	NJ07.10
<i>Phyllanthus maderaspatensis</i>	+	0.3m	NJ17.05
<i>Rhynchosia minima</i>	+	CR	NJ05.12
<i>Sporobolus australasicus</i>	+	0.4m	NJ01.34
<i>Tephrosia rosea</i> var. <i>glabrior</i>	3%	0.5m	NJ17.02

Site NJR18

Described TE **Date** 25/04/2009 **Type** R

Season **Uniformity**

Location

MGA 50 799125 **mE** 7417660 **mN**

Habitat Minor Creek Line.

Soil Red-brown sandy alluvial soil with rocks and pebbles.

Rock Red-brown ironstone.

Broad Floristic Formation: Acacia Open Scrub.

Vegetation Association: Open Scrub of *Acacia monticola*, *Acacia citronoviridis* and *Petalostylis labicheoides* over Open Hummock Grassland of *Triodia pungens* and *Triodia basedowii* over Scattered Low Trees *Eucalyptus leucophloia* subsp. *leucophloia* or *Eucalyptus gamophylla* on Red-Brown Clay Loam on Drainage Lines.

Vegetation Sub-association: Open Scrub of *Acacia citrinoviridis* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* over Low Scattered Shrubs of *Eremophila latrobei* subsp. *filiformis* over Very Open Hummock Grassland of *Triodia basedowii* over Scattered Tussock Grasses of *Eragrostis falcata* on Red-Brown Alluvial Sand on a Creek.

Veg Excellent.

Fire Old.

Note Bare ground: 90%.
Litter cover: Logs: +, Twigs: 1%, Lvs: +.
Disturbance type: Poached, some infrastructure development nearby, cows.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia citrinoviridis</i>	30%	2-3m	NJ02.01
<i>Eragrostis falcata</i>	1%	0.5m	NJ04.29
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>	1%	1m	NJR18.01
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	2%	3m	NJ18.19
<i>Keraudrenia nephrosperma</i>	+	1m	NJR18.03
<i>Psyrax latifolia</i>	+	1m	NJR18.02
<i>Triodia basedowii</i>	10%	0.3m	NJ18.01

Site NJR20

Described TE **Date** 26/04/2009 **Type** R

Season **Uniformity**

Location

MGA 50 800246 **mE** 7417253 **mN**

Habitat Gully of hillslopes.

Soil Red-brown iron with cobbles and pebbles and exposed outcrop of bedrocks.

Rock Ironstone.

Broad Floristic Formation: Acacia Open Scrub.

Vegetation Association: Open Scrub of *Acacia monticola*, *Acacia citronoviridis* and *Petalostylis labicheoides* over Open Hummock Grassland of *Triodia pungens* and *Triodia basedowii* over Scattered Low Trees *Eucalyptus leucophloia* subsp. *leucophloia* or *Eucalyptus gamophylla* on Red-Brown Clay Loam on Drainage Lines.

Vegetation Sub-association: Open Scrub of *Acacia monticola* and *Gossypium robinsonii* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* over Very Open Hummock Grassland of *Triodia pungens* over Open Tussock Grassland of *Themeda triandra*, *Cymbopogon oblectus* and *Paraneurachne muelleri* on Red-Brown Iron on Hillslope.

Veg Excellent.

Fire Very Old.

Note Bare ground: 60%.
Litter cover: Logs: +, Twigs: +, Lvs: 1%.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia bivenosa</i>	+	1m	NJ04.09
<i>Acacia monticola</i>	20%	2m	NJ63.04
<i>Cenchrus ciliaris</i>	+	0.3m	NC
<i>Cymbopogon oblectus</i>	1%	0.6m	NJ04.10
<i>Duperreya commixta</i>	+	CL	NJ02.09
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	2%	5m	NJ18.19
<i>Gossypium robinsonii</i>	1%	1.5m	NJ02.13
<i>Paraneurachne muelleri</i>	1%	0.5m	NJ04.07
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	1m	NJ18.17
<i>Themeda triandra</i>	10%	0.5m	NJ08.02
<i>Trichodesma zeylanicum</i>	+	0.3m	NJOP10T
<i>Triodia pungens</i>	10%	0.5m	NJR20.01

Site	NJR22		
Described	TE	Date	26/04/2009 Type R
Season		Uniformity	
Location	Jimblebar road.		
MGA	50	799736 mE	7417480 mN
Habitat	Drainage line.		
Soil	Red-brown skeletal - alluvial loam with sand and gravel bans, cobbles and pebbles and eroded channels.		
Rock	Ironstone.		
Broad Floristic Formation:	Acacia Open Scrub.		
Vegetation Association:	Open Scrub of <i>Acacia monticola</i> , <i>Acacia citronoviridis</i> and <i>Petalostylis labicheoides</i> over Open Hummock Grassland of <i>Triodia pungens</i> and <i>Triodia basedowii</i> over Scattered Low Trees <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> or <i>Eucalyptus gamophylla</i> on Red-Brown Clay Loam on Drainage Lines.		
Vegetation Sub-association:	Open Scrub of <i>Acacia citrinoviridis</i> , <i>Acacia maitlandii</i> and <i>Acacia catenulata</i> subsp. <i>occidentalis</i> over Very Open Hummock Grassland of <i>Triodia pungens</i> over Very Open Tussock Grassland of <i>Eriachne mucronata</i> on Red-Brown Alluvial Loam on Drainage.		
Veg	Very Good.		
Fire	Old.		
Note	Bare ground: 80%. Litter cover: Logs: +, Logs: 1%, Twigs: +. Disturbance type: Poached, cows, flood.		

SPECIES

Name	Cover	Height	Specimen Notes
Acacia aneura ? var. conifera	+	2m	NJ04.30
Acacia catenulata subsp. occidentalis	3%	3m	NJR22.02
Acacia citrinoviridis	40%	4-6m	NJ02.01
Acacia maitlandii	5%	2-3m	NJ18.09
Acacia pruinocarpa	1%	5m	NJ04.13
Acacia tetragonophylla	+	3m	NJ04.33
Aristida contorta	+	<0.1m	NJ22.03
Duperreya commixta	+	CL	NJ02.09
Eremophila latrobei subsp. filiformis	+	2m	NJR18.01
Eriachne mucronata	10%	0.5m	NJR22.01
Euphorbia australis	+	0.3m	NJ26.18
Gossypium robinsonii	+	1.5m	NJ02.13
Hakea chordophylla	+	3m	NJ18.02
Hybanthus aurantiacus	+	0.3m	NJR16.04
Themeda triandra	+	0.5-1m	NJ08.02
Trichodesma zeylanicum	+	0.2m	NJOP10T
Triodia pungens	10%	0.5m	NJR20.01

Site NJR24

Described TE **Date** 26/04/2009 **Type** R

Season **Uniformity**

Location Jimblebar road.

MGA 50 **800691 mE** **7417133 mN**

Habitat Gully/vally V-shaped.

Soil Red-brown skeletal loam- slightly alluvial with exposed bedrock of ironstone; cobbles, rocks and pebbles.

Rock Red/brown/black ironstone.

Broad Floristic Formation: *Triodia* Hummock Grassland.

Vegetation Association: Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Skeletal on Hillslopes.

Vegetation Sub-association: Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* over Open Shrubland of *Acacia bivenosa* over Scattered Low Shrubs of *Acacia adoxa* var. *adoxa* on Red-Brown Skeletal Loam on a Gully.

Veg Excellent to Pristine.

Fire Old.

Note Aspect: North.
Litter cover: Logs: +, Twigs: +, Lvs: +.
Notes: Little drainage valley- few located on side of hill - GPS coord in map.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia adoxa</i> var. <i>adoxa</i>	1%		NC
<i>Acacia bivenosa</i>	3%	1-2m	NJ04.09
<i>Acacia pachyacra</i>	+	1.2m	NJ26.02
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	4%	5m	NJ18.19
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	1.5m	NJ34.10
<i>Indigofera monophylla</i>	+	0.4m	NJ04.20
<i>Maireana georgei</i>	+	0.2m	NJR24.01
<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	+	1m	NJ06.03
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	40%	0.5m	NJ34.01A
<i>Triodia pungens</i>	1%	0.5m	NJR20.01

Site NJR26

Described TE **Date** 26/04/2009 **Type** R

Season **Uniformity**

Location West of Jimble-Wye.

MGA 50 791172 **mE** 7417579 **mN**

Habitat Creek.

Soil Red-brown alluvial loam with exposed calcrete -gravel banks, banks of red-brown ironstone rocks, cobbles and pebbles.

Rock Ironstone and some calcrete.

Broad Floristic Formation: Eucalyptus Woodland.

Vegetation Association: Woodland of *Eucalyptus victrix* over High Shrubland of *Acacia sclerosperma* and *Acacia citrinoviridis* over Open Tussock Grassland of **Cenchrus ciliaris*, *Enteropogon ramosus* and *Chrysopogon fallax* on Red-Brown Loam on Creeklines and Rivers.

Vegetation Sub-association: Woodland of *Eucalyptus victrix* over High Open Shrubland of *Acacia citrinoviridis* over Open Tussock Grassland of **Echinochloa colona* and **Cenchrus ciliaris* over Scattered Sedges of *Cyperus vaginatus* on Red-Brown Alluvial Loam on a Creek.

Veg Very Good to Good.

Fire Old.

Note Bare ground: 80%.
Litter cover: Logs: +, Twigs: +, Lvs: +.
Disturbance type: Weeds, infrastructure development.

SPECIES

Name	Cover	Height	Specimen Notes
Acacia citrinoviridis	8%	4m	NJ02.01
Acacia pyrifolia var. pyrifolia	+	1.5m	NJ02.02
Cenchrus ciliaris	10%	0.5m	NC
Cleome viscosa	+	<0.1m	NC
Cyperus vaginatus	2%	0.5m	NJ12.03
Echinochloa colona	3%	0.2m	NJOP16T
Eriachne mucronata	+	0.4m	NJR22.01
Eucalyptus victrix	25%	15m	NJR26.01
Eucalyptus xerothermica	+	6-10m	NJR26.03
Gossypium robinsonii	+	0.5m	NJ02.13
Petalostylis labicheoides	+	2m	NJ04.19
Setaria dielsii	+	0.3m	NJOP35T
Tephrosia rosea var. glabrior	+	0.5m	NJ02.04

Site NJR29

Described CS **Date** 24/04/2009 **Type** R

Season **Uniformity**

Location North of Jimblebar Access Road.

MGA 51 197861 **mE** 7413233 **mN**

Habitat Low hill top/plateau.

Soil Red-brown sandy loam - surface with scattered pebbles and cobbles with some exposed bedrock.

Rock Ironstone, quartz.

Broad Floristic Formation: *Triodia* Open Hummock Grassland.

Vegetation Association: Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia pungens* and *Triodia wiseana* with Scattered shrubs of *Acacia bivenosa*, *Acacia synchronicia* and *Acacia tetragonophylla* on Red-Brown Loam on Low Rocky Hillslopes.

Vegetation Sub-association: Open Hummock Grassland of *Triodia pungens* with Low Open Shrubland of *Eremophila fraseri* subsp. *fraseri*, *Senna glutinosa* subsp. *x luerssenii*, *Senna artemisioides* subsp. *helmsii* and *Senna artemisioides* subsp. *oligophylla* on Red-Brown Sandy Loam on Hilltop.

Veg Pristine.

Fire Old.

Note Bare ground: 75%
Litter cover: Logs: +, Twigs: +, Lvs: +.
Notes: A few dead trunks present - assuming they are *A. aneura* that have died naturally.

SPECIES

Name	Cover	Height	Specimen Notes
Acacia aff. sibirica	1%	0.5m	NJ29.01
Acacia inaequilatera	+	2m	NJ13.06
Cenchrus ciliaris	+	0.4m	NC
Cymbopogon oblectus	+	0.6m	NJ03.18
Eremophila fraseri subsp. fraseri	2%	0.6m	NJ19.01
Senna artemisioides subsp. helmsii	1%	0.5m	NJ01.12
Senna artemisioides subsp. oligophylla	1%	0.5m	NJ01.13
Senna glutinosa subsp. x luerssenii	2%	1m	NJ07.04
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	+	0.4m	NJ27.05
Triodia pungens	25%	0.6m	NJ29.02

Site NJR30

Described KM **Date** 27/04/2009 **Type** R

Season **Uniformity**

Location

MGA 50 787518 **mE** 7418556 **mN**

Habitat Rocky Gully on hill slope (scree slope).

Soil Red-brown loam (skeletal soil) - mostly rocks and a few boulders.

Rock Ironstone.

Broad Floristic Formation: *Acacia* High Shrubland.

Vegetation Association: High Shrubland of *Acacia ligulata*, *Acacia pruinocarpa* and *Petalostylis labicheoides* over Closed Hummock Grassland of *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Loam on Hillslopes and Drainage Lines.

Vegetation Sub-association: High Shrubland of *Acacia citrinoviridis* and *Acacia pruinocarpa* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* over Shrubland of *Acacia ligulata* and *Petalostylis labicheoides* over Low Scattered Shrubs of *Ptilotus astrolasius* var. *astrolasius* over Closed Hummock Grassland of *Triodia pungens* on Red-Brown Loam on Gully/ Hillslope.

Veg Pristine.

Fire Moderate.

Note Aspect: South-west.
Bare ground: 20%.
Litter cover: Logs: +, Twigs: +, Lvs: +.

SPECIES

Name	Cover	Height	Specimen	Notes
<i>Acacia citrinoviridis</i> rocky edge.	4%	6m	NJ02.01	Growing along
<i>Acacia ligulata</i>	15%	1-2m	NJ18.05	
<i>Acacia pruinocarpa</i> rocky edge.	4%	4m	NJ04.13	Growing along
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	5%	2-4m	NJ18.19	
<i>Petalostylis labicheoides</i>	1%	1.5m	NJ04.19	
<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>	1%	0.3m	NJ06.14	
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	2m	NJ40.01	
<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	+	2m	NJ06.03	
<i>Triodia pungens</i>	75%	0.4m	NJR30.01	

Site NJR32

Described TE **Date** 27/04/2009 **Type** R

Season **Uniformity**

Location

MGA 50 788144 **mE** 7418431 **mN**

Habitat Drain off hill slope community.

Soil

Rock

Broad Floristic Formation: Acacia High Shrubland.

Vegetation Association: High Shrubland of *Acacia citrinoviridis*, *Acacia bivenosa* and *Petalostylis labicheoides* over Hummock Grassland of *Triodia pungens* with Scattered Low Trees of *Eucalyptus xerothermica* on Red-Brown Alluvial on Drainage Lines and Floodplains.

Vegetation Sub-association: High Shrubland of *Petalostylis labicheoides* with Scattered Low Trees of *Corymbia hamersleyana* over Low Shrubland of *Gompholobium karijini*, *Acacia hilliana* and *Eremophila exilifolia* over Hummock Grassland of *Triodia pungens* over Scattered Tussock Grasses of *Erichane mucronata* on Hillslope

Veg Excellent.

Fire

Note

SPECIES

Name	Cover	Height	Specimen Notes
Acacia bivenosa	+	1.5m	NJ04.09
Acacia hilliana	5%	0.5m	NJ34.01
Codonocarpus cotinifolius	+	2.5m	NJ40.03
Corymbia hamersleyana	1%	5m	NJ48.06
Eremophila exilifolia	5%	0.5m	NJ18.16
Eriachne mucronata	1%	0.5m	NJR22.01
Eucalyptus leucophloia subsp. leucophloia	+	1-2m	NJ18.19
Gompholobium karijini	5%	0.5m	NJR16.03
Gossypium robinsonii	+	1-2m	NJ02.13
Grevillea wickhamii subsp. hispidula	1%	2m	NJ34.10
Petalostylis labicheoides	5%	2-3m	NJ50.16
Senna glutinosa subsp. pruinosa	+	1m	NJ18.17
Senna glutinosa subsp. x luerssenii	+	1m	NJ06.03
Triodia pungens	60%	0.5m	NJ48.02
Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)	1%	0.2m	NJ52.01

Site NJR43

Described CS **Date** 25/04/2009 **Type** R

Season **Uniformity**

Location South of Access Road.

MGA 51 194112 **mE** 7414551 **mN**

Habitat Rocky Quartz hillside.

Soil Red-brown sandy loam, surface covered with pebbles and cobbles.

Rock Quartz.

Broad Floristic Formation: *Triodia* Open Hummock Grassland.

Vegetation Association: Open Hummock Grassland of *Triodia angusta* and *Triodia pungens* with Scattered Shrubs of *Acacia tetragonophylla*, *Acacia bivenosa* and *Senna glutinosa* subsp. *glutinosa* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* and *Eucalyptus trivalva* (Mallee) on Red-Brown Sandy Loam on Hillslopes.

Vegetation Sub-association: Open Hummock Grassland of *Triodia angusta* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Sandy Loam on Hillside.

Veg Pristine.

Fire Very Old.

Note Aspect: North.
Bare ground: 70%.
Litter cover: Logs: +, Twigs: +, Lvs: +.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia bivenosa</i>	+	3m	NJ21.08
<i>Acacia tenuissima</i>	+	1m	NJ31.14
<i>Eremophila cuneifolia</i>	+	0.5m	NJ27.01
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	3%	10m	NJ41.01
<i>Eucalyptus trivalva</i>			NJ39.09 Associated.
<i>Maireana georgei</i>	+	0.4m	NJ39.01
<i>Maireana melanocoma</i>	+	0.4m	NJ39.04
<i>Ptilotus obovatus</i> var. <i>obovatus</i>	+	0.5m	NJ43.01
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	1m	NJ31.04
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	1m	NJ11.09
<i>Solanum lasiophyllum</i>	+	0.4m	NJ01.04
<i>Tribulus suberosus</i>	+	0.7m	NJ11.06
<i>Triodia angusta</i>	20%	0.6m	NJ41.04

Site	NJR47		
Described	CS	Date	26/04/2009 Type R
Season		Uniformity	
Location	Base of Shovelanna spur.		
MGA	51	193715 mE	7414252 mN
Habitat	Low rocky hillside - very low slope.		
Soil	Red-brown sandy loam surface of pebbles and cobbles.		
Rock	Quartz and Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Open Hummock Grassland.		
Vegetation Association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835), <i>Triodia pungens</i> and <i>Triodia wiseana</i> with Scattered shrubs of <i>Acacia bivenosa</i> , <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> on Red-Brown Loam on Low Rocky Hillslopes.		
Vegetation Sub-association:	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of <i>Acacia aneura</i> var ? <i>pilbarana</i> over Low Open Shrubland of <i>Senna glutinosa</i> subsp. x <i>luerssenii</i> , <i>Acacia synchronicia</i> and <i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i> over Scattered Tussock Grasses of <i>Eragrostis eriopoda</i> and <i>Aristida inaequiglumis</i> on Red-Brown Sand Loam on Hillside.		
Veg	Pristine.		
Fire	Moderate.		
Note	Bare ground: 70%. Litter cover: Logs: 1%, Twigs: +, Lvs: +.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia aneura</i> var ? <i>pilbarana</i>	3%	2m	NJ35.02
<i>Acacia bivenosa</i>	+	2m	NJ21.08
<i>Acacia hilliana</i>	+	0.5m	NJ25.11
<i>Acacia pachyacra</i>	+	2m	NJOPIC
<i>Acacia pruinocarpa</i>	+	1m	NJ01.42
<i>Acacia synchronicia</i>	1%	1m	NJ01.40
<i>Acacia tetragonophylla</i>	+	0.7m	NJ01.02
<i>Aristida inaequiglumis</i>	1%	0.6m	NJ01.32
<i>Eragrostis eriopoda</i>	1%	0.4m	NJ23.16
<i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i>	1%	1m	NJ47.01
<i>Eucalyptus gamophylla</i>	+	0.7m	NJ01.41
<i>Glycine canescens</i>	+	CL	NJ47.02
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.2m	NJ03.05
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+	2.5m	NJ31.01
<i>Maireana georgei</i>	+	0.2m	NJ39.01
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	1.5m	NJ31.04
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	1m	NJ11.09
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	1%	1.5m	NJ07.04
<i>Senna sericea</i>	+	0.6m	NJ31.18
<i>Solanum lasiophyllum</i>	+	0.5m	NJ01.04
<i>Tribulus suberosus</i>	+	0.5m	NJ11.06
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	30%	0.6m	NJ31.07

Site NJR51

Described CS **Date** 26/04/2009 **Type** R

Season **Uniformity**

Location Along Whaleback Rail.

MGA 50 779175 **mE** 7416406 **mN**

Habitat River.

Soil Red-brown clay loam with pebbles, cobbles and boulders.

Rock Ironstone.

Broad Floristic Formation: *Eucalyptus* Open Woodland.

Vegetation Association: Open Woodland of *Eucalyptus camaldulensis* var. obtusa over Closed (to Open) Tussock Grassland of **Cenchrus ciliaris*, **Cynodon dactylon* and *Echinochloa colona* over Very Open Herbs of **Malvastrum americanum* on Red-Brown Clay Loam on Creeklines and Rivers.

Vegetation Sub-association: Open Woodland of *Eucalyptus camaldulensis* var. obtusa over Scattered Shrubs of *Abutilon amplum* over Closed Tussock Grassland of **Cenchrus ciliaris*, **Cynodon dactylon* and *Eulalia aurea* over Very Open Herbs of **Malvastrum americanum* on Red-Brown Clay Loam on a River.

Veg Good.

Fire Old.

Note Bare ground: 30%.
Litter cover: Logs: 1%, Twigs: 1%, Lvs: 3%.
Disturbance type: Weeds.
Notes: Lots of debris.

SPECIES

Name	Cover	Height	Specimen Notes
Abutilon amplum	1%	1.5m	NJ51.04
Acacia ancistrocarpa	+	0.5m	NJ01.03
Acacia citrinoviridis	+	1m	NJ07.17
Acetosa vesicaria	+	0.5m	NC
Ammannia auriculata			NJ51.08C
Cenchrus ciliaris	70%	0.4m	NC
Cleome viscosa	+	0.5m	NJ01.22
Cynodon dactylon	5%	0.4m	NJ51.03
Cyperus difformis	+	0.4m	NJ51.07
Echinochloa colona	1%	0.2-0.5m	NJ51.08
Eucalyptus camaldulensis var. obtusa	8%	10-12m	NJ51.01
Eulalia aurea	1%	0.5m	NJ15.04
Euphorbia biconvexa	+	0.4m	NJ01.09
Glinus lotoides			NJ51.08B
Malvastrum americanum	5%	0.5m	NC
Pterocaulon sphaeranthoides	+	0.4m	NJ51.05
Tephrosia rosea var. glabrior	+	0.5m	NJ51.02
Vachellia farnesiana	+	1m	NJ51.09

Site	NJR53		
Described Season	CS	Date	26/04/2009 Type R
			Uniformity
Location	North of Whaleback rail.		
MGA	50	780913 mE	7417293 mN
Habitat	Minor drainage.		
Soil	Red-brown clay loam.		
Rock	Ironstone.		
Broad Floristic Formation:	<i>Triodia</i> Hummock Grassland.		
Vegetation Association:	Hummock Grassland of <i>Triodia pungens</i> with High Open Shrubland of <i>Acacia aneura</i> , <i>Acacia dictyophleba</i> and <i>Acacia pruinocarpa</i> with Scattered Low Trees of <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> (Mallee) and <i>Eucalyptus xerothermica</i> on Red-Brown Loam on Plains and Floodplains.		
Vegetation Sub-association:	Hummock Grassland of <i>Triodia pungens</i> with Low Open Woodland of <i>Eucalyptus xerothermica</i> and <i>Corymbia deserticola</i> subsp. <i>deserticola</i> over High Open Shrubland of <i>Acacia aneura</i> var. <i>longicarpa</i> and <i>Acacia bivenosa</i> over Tussock Grassland of <i>Chrysopogon fallax</i> , * <i>Cenchrus ciliaris</i> and <i>Themeda triandra</i> on Red-Brown Clay Loam on a Minor Drainage.		
Veg	Good.		
Fire	Old.		
Note	Bare ground: 20%. Litter cover: Logs: 1%, Twigs: 1%, Lvs: +. Disturbance type: Weeds, cattle.		

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia aneura</i> var. <i>longicarpa</i>	3%	10m	NJ53.01
<i>Acacia bivenosa</i>	1%	2m	NJ01.30
<i>Acacia dictyophleba</i>	+	2m	NJ11.08
<i>Cenchrus ciliaris</i>	20%	0.4m	NC
<i>Chrysopogon fallax</i>	30%	0.6m	NJ01.38
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>	2%	10m	NJ31.15
<i>Corymbia hamersleyana</i>	5%	12m	NC
<i>Enneapogon polyphyllus</i>	+	0.3m	NJ01.33
<i>Eucalyptus xerothermica</i>	7%	12m	NJ10.04
<i>Eulalia aurea</i>	1%	0.4m	NJ15.04
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	CR	NJ01.01
<i>Maireana planifolia</i>	+	1m	NJ01.28
<i>Malvastrum americanum</i>	+	0.4m	NC
<i>Paraneurachne muelleri</i>	1%	0.4m	NJ01.45
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	1.5m	NJ01.13
<i>Themeda triandra</i>	2%	0.5m	NJ09.07
<i>Triodia pungens</i>	30%	0.5m	NJR20.01
<i>Vachellia farnesiana</i>	+	CR	NJ51.09 (site NJR51)

Site NJR59

Described CS **Date** 27/04/2009 **Type** R

Season **Uniformity**

Location OB23/25

MGA 50 784423 **mE** 7418869 **mN**

Habitat Low hillslope.

Soil Red-brown loam, surface covered with pebbles and cobbles.

Rock Ironstone.

Broad Floristic Formation: *Acacia* Shrubland.

Vegetation Association: Shrubland of *Acacia bivenosa* and *Acacia adsurgens* over Very Open Hummock Grassland of *Triodia wiseana* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* on Red-Brown Loam on Hillslopes.

Vegetation Sub-association: Shrubland of *Acacia bivenosa* and *Acacia adsurgens* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* over Very Open Hummock Grassland of *Triodia wiseana* over Scattered Tussock Grasses of *Paraneurachne muelleri* and *Eragrostis eriopoda* on Red-Brown Loam on Hillslope.

Veg Pristine.

Fire Old.

Note Aspect: South.
Litter cover: Logs: +, Twigs: 1%, Lvs: 30%.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia adsurgens</i>	1%	2m	NJ59.03
<i>Acacia bivenosa</i>	30%	1.5-2m	NJ01.30
<i>Acacia citrinoviridis</i>	+	2m	NJ07.17
<i>Cymbopogon obtectus</i>	+	0.6m	NJ03.18
<i>Duperreya commixta</i>	+	CL	NJ01.36
<i>Enneapogon polyphyllus</i>	+	0.4m	NJ01.33
<i>Eragrostis eriopoda</i>	1%	0.4m	NJ59.02
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	1%	10m	NJ41.01
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	0.3m	NJ03.05
<i>Hibiscus burtonii</i>			NJ59.05
<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	+	0.3m	NJ59.04
<i>Paraneurachne muelleri</i>	1%	0.4m	NJ01.45
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.2m	NJ01.46
<i>Ptilotus helipteroides</i>	+	0.2m	NJ03.19
<i>Ptilotus obovatus</i>	+	0.5m	NJ03.01
<i>Rhyncharrhena linearis</i>	+	CR	NJ59.01
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	1m	NJ01.13
<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)	+	0.4m	NJ57.11
<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)	+	0.3m	NJ01.24
<i>Solanum lasiophyllum</i>	+	0.5m	NJ01.04
<i>Triodia pungens</i>	10%	0.5m	NJR20.01

Site NJR69

Described CS **Date** 27/04/2009 **Type** R

Season **Uniformity**

Location

MGA 50 790635 **mE** 7417662 **mN**

Habitat Sandplain.

Soil Red-brown clay loam, surface of pebbles and cobbles.

Rock Ironstone.

Broad Floristic Formation: *Triodia* Hummock Grassland.

Vegetation Association: Hummock Grassland of *Triodia pungens* with Low Open Woodland (to Scattered Trees) of *Eucalyptus xerothermica*, *Eucalyptus gamophylla* (Mallee) and *Eucalyptus socialis* subsp. *eucentrica* (Mallee) over Open Shrubland of *Acacia bivenosa*, *Acacia sclerosperma* and *Acacia ancistrocarpa* on Red-Brown Loam on Plains and Floodplains.

Vegetation Sub-association: Hummock Grassland of *Triodia pungens* with Scattered Low Trees of *Eucalyptus trivalva* and *Eucalyptus gamophylla* over Open Shrubland of *Acacia bivenosa*, *Acacia synchronicia* and *Acacia sclerosperma* on Red-Brown Clay Loam on Sandplain.

Veg Excellent.

Fire Very Old

Note Bare ground: 40%.
Litter cover: Logs: +, Twigs: +, Lvs: +.
Disturbance type: Nearby powerline and track and cattle.
Notes: Very big hummocks. Small drainage in middle.

SPECIES

Name	Cover	Height	Specimen Notes
<i>Acacia bivenosa</i>	1%	1.5m	NJ01.30
<i>Acacia inaequilatera</i>	+	1m	NJ13.06
<i>Acacia ligulata</i>	+	0.9m	NJ69.02
<i>Acacia sclerosperma</i>	1%	1.5m	NJ69.01
<i>Acacia synchronicia</i>	1%	2m	NJ01.40
<i>Cenchrus ciliaris</i>	+	0.4m	NC
<i>Codonocarpus cotinifolius</i>	+	4m	NC
<i>Duperreya commixta</i>	+	CR	NJ01.36
<i>Eucalyptus gamophylla</i>	1%	8m	NJ01.41
<i>Eucalyptus trivalva</i>	1%	5m	NJ39.09
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	2m	NJ05.16
<i>Petalostylis labicheoides</i>	+	2m	NJ07.10
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	+	1m	NJ01.12
<i>Solanum lasiophyllum</i>	+	0.4m	NJ01.04
<i>Triodia pungens</i>	60%	0.5m	NJR20.01

Site NJOP

SPECIES

Name	Specimen	Notes
<i>Abutilon fraseri</i>	NJOP58T	787457, 7418514 - 21
<i>Acacia adoxa</i> var. <i>adoxo</i>	NJOP28K	797953, 7418084 - on hillslope
<i>Acacia</i> aff. <i>adsurgens</i>	NJOPCS13	
<i>Acacia aneura</i> var. <i>longicarpa</i>	NJOP6E	
<i>Acacia hilliana</i>	NJOP27K	797873, 7418094 - on hillslope
<i>Acacia pachyacra</i>	NJOP1C	804634, 7415515
<i>Aerva javanica</i>	CAPOK	790939, 7417659 - railway siding
<i>Aristida ingrata</i>	NJOP25K from NJ22 to NJ24	no coordinates - just used to describe veg
<i>Bonamia rosea</i>	NJOP3C	
<i>Bulbostylis barbata</i>	NJOP59T	787457, 7418514
<i>Capparis lasiantha</i>	NJOP61T	787457, 7418514
<i>Cenchrus ciliaris</i>	NJOP27T	
<i>Cenchrus ciliaris</i>	NC	792106, 7417521 - all along flood plain
<i>Cenchrus ciliaris</i>	NJOP30T	
<i>Cenchrus setiger</i>	NJOP30T	749344, 7417781 - all along area
<i>Chrysocephalum pterochaetum</i>	NJOP36K	787139, 7418571 - plain
<i>Clerodendrum floribundum</i> var. <i>angustifolium</i>	NJOP53T	787457, 7418514
<i>Clerodendrum floribundum</i> var. <i>angustifolium</i>	NJOP55T	787474, 7418468
<i>Codonocarpus cotinifolius</i>	NJOP09K	793101, 7417677
<i>Corchorus tridens</i>	NJOP07K	793315, 7417623
<i>Corymbia aspera</i>	NJOP52T	787457, 7418514 - 21
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>	NJOP47T	799035, 7417730 - small patch in low area
<i>Cucumis melo</i> subsp. <i>agrestis</i>	NJOP41T	794234, 7417780
<i>Datura leichhardtii</i>	NJOP08K	793191, 7417567 - NC same ID as NJOP32T
<i>Datura leichhardtii</i>	NJOP32T	793233, 7417634 - lots
<i>Dodonaea pachyneura</i>	NJOP60T	787457, 7418514
<i>Echinochloa colona</i>	NJOP29T	
<i>Echinochloa colona</i>	NJOP16T	792204, 7417574 - all along river
<i>Enteropogon ramosus</i>	NJOP37T	793119, 7417557 - 1
<i>Eremophila exilifolia</i>	NJOP42T	794251, 7417867 - scattered in area
<i>Eremophila lanceolata</i>	NJOP2C	804844, 7415448 - 7
<i>Eremophila lanceolata</i>	NJOP4C	804902, 7415428 - 10
<i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i>	NJOP43T	798414, 7417931
<i>Eremophila latrobei</i> subsp. <i>glabra</i>	NJOP37K	787454, 7418480 - rocky hill top
<i>Eremophila longifolia</i>	NJOP34K	787010, 7418590 - plain
<i>Eremophila margarethae</i>	NJOP17T	793755, 7417687 - 7 population
<i>Eremophila margarethae</i>	NJOP10K	793087, 7417687 - 2 individuals
<i>Eremophila margarethae</i>	NJOP11K	793061, 7417695 - 1 individual - NC
<i>Eremophila margarethae</i>	NJOP12K	793020, 7417671 - 3 individuals - NC
<i>Eremophila margarethae</i>	NJOP13K	792986, 7417578 - 10 individuals - NC
<i>Eremophila margarethae</i>	NJOP26T	793556, 7417675 - 12
<i>Eremophila margarethae</i>	NJOP24T	793625, 7417666 - 30
<i>Eremophila margarethae</i>	NJOP23T	793627, 7417737 - 1
<i>Eremophila margarethae</i>	NJOP22T	793662, 7417739 - 20
<i>Eremophila margarethae</i>	NJOP20T	793683, 7417742 - 10
<i>Eremophila margarethae</i>	NJOP03K	793723, 7417696 - 3 individuals
<i>Eremophila margarethae</i>	NJOP18T	793738, 7417720 - 3
<i>Eremophila margarethae</i>	NJOP14K	792937, 7417521 - 15 individuals - NC
<i>Eremophila margarethae</i>	NJOP05K	793645, 7417669 - ~40 individuals - NC
<i>Eremophila margarethae</i>	NJOP15K	792918, 7417494 - 40 individuals - NC

<i>Eremophila margarethae</i>	NJOP04K	793685, 7417707 - ~40 individuals - NC
<i>Eremophila margarethae</i>	NJOP22K	792494, 7417501 -90 individuals in 60m - NC
<i>Eremophila margarethae</i>	NJOP21K	792588, 7417500 ~50 individuals in 50 m- NC
<i>Eremophila margarethae</i>	NJOP19K	792690, 7417515 - ~110 individuals in 50 m
<i>Eremophila margarethae</i>	NJOP19T	793712, 7417735 - 10
<i>Eremophila margarethae</i>	NJOP25T	793556, 7417675 - 3
<i>Eremophila margarethae</i>	NJOP06K	793586, 7417650 - ~30 individuals
<i>Eremophila margarethae</i>	NJOP18K	792793, 7417569 - 60 individuals in 70 m -NC
<i>Eriachne lanata</i>	NJOP29K	797953, 7418084 - on hillslope
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	NJOP39K	
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	NJOP32K	799509, 7417581 - drainage area
<i>Ficus brachypoda</i>	NJOP56T	787650, 7418489
<i>Fimbristylis simulans</i>	NJOP2E	
<i>Gomphrena cunninghamii</i>	NJOPC10	
<i>Goodenia microptera</i>	NJOPCS19	
<i>Goodenia muelleriana</i>	NJOPCS18	
<i>Goodenia nuda</i>	NJOP21T	793683, 7417742 - 3
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)	NJOP45T	798614, 7417872 - 2
<i>Goodenia triodiophila</i>	NJOP8C	193709, 7414393
<i>Goodenia triodiophila</i>	NJOP44T	798414, 7417931
<i>Goodenia vilmorinae</i>	NJOPE3	197359, 7412905 - 1
<i>Gossypium sturtianum</i>	NJOP36T	793119, 7417557 - 20
<i>Grevillea berryana</i>	NJOP5E	
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>	NJOP46T	798787, 7417794 - 3
<i>Hibiscus haynaldii</i>	NJOP14	
<i>Indigofera monophylla</i>	NJOPC17	
<i>Isotropis atropurpurea</i>	NJOP7C	195837, 7413848
<i>Keraudrenia nephrosperma</i>	NJOP33K	802275, 7416514
<i>Lepidium phlebopetalum</i>	NJOP24K	795429, 7418353
<i>Maireana planifolia</i>	NJOPC6	
<i>Malvastrum americanum</i>	NJOP31T	
<i>Nicotiana benthamiana</i>	NJOP51T	800542, 7417124
<i>Paraneurachne muelleri</i>	NJOPCS21	deformed
<i>Ptilotus clementii</i>	NJOP35K	787010, 7418590 - plain
<i>Ptilotus clementii</i>	NJOPemma	
<i>Ptilotus helipteroides</i> var. <i>helipteroides</i>	NJOP30K	801165, 7416996 - floodplain
<i>Ptilotus polystachyus</i> var. <i>arthrotrichus</i>	NJOPC6	
<i>Ptilotus roei</i>	NJOPC7	195838, 7413483
<i>Ptilotus schwartzii</i> var. <i>schwartzii</i>	NJOP4E	
<i>Rulingia luteiflora</i>	TECOL1	
<i>Rutidosis helichrysoides</i>	NJOP38K	789573, 7418082 - plain
<i>Santalum lanceolatum</i>	NJOP1E	805177, 7415303 - 3
<i>Scaevola acacioides</i>	NJOP26K	797873, 7418094 - on hillslope
<i>Senna sericea</i>	NJOP50T	800761, 7417059 - 1
<i>Senna stricta</i>	NJOPC5	
<i>Senna venusta</i>	NJOP57T	787650, 7418489
<i>Setaria dielsii</i>	NJOP35T	793119, 7417557 - heaps
<i>Setaria dielsii</i>	NJOP35T	793209, 7417594 - numerous
<i>Sida platycalyx</i>	NJOPCS22	
<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)	NJOP31K	800571, 7417170 - rocky outcrop
<i>Sida</i> sp. <i>golden calyces</i> (H.N. Foote 32)	NJOP54T	787474, 7418468 - 22
<i>Tribulus terrestris</i>	NJOP33T	793223, 7417598 - 1
<i>Triodia angusta</i>	NJOP15C	
<i>Vachellia farnesiana</i>	NJOP27T	793564, 7417704 - 1
<i>Vachellia farnesiana</i>	NJOP28T	793606, 7417660 - 1
<i>Vachellia farnesiana</i>	NJOP29T	793522, 7417739 - 1
<i>Vachellia farnesiana</i>	NJOP31T	793233, 7417634 - 1

Vachellia farnesiana	NJOP39T	792373, 7417469 - 1
Vachellia farnesiana	NJOP40T	793736, 7417867 - few

G2: Newman Town Substation

Site NJ07

Described Season	CS	Date	4/22/2009	Type	Q	Uniformity	
Location	Newman Sub-Station.						
MGA	50		780171	mE			7415846 mN
Habitat	Low Hill.						
Soil	Red, brown sandy loam with a surface covering of pebbles and cobbles.						
Rock	Ironstone.						
Vegetation	Open Hummock Grassland of <i>Triodia wiseana</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of <i>Eucalyptus leucophloia</i> over High Shrubland of <i>Acacia bivenosa</i> , <i>A. kempeana</i> and <i>A. aneura</i> var. <i>aneura</i> over Very Open Tussock Grassland of <i>*Cenchrus ciliaris</i> on Red-Brown Sandy Loam on a Low Hill.						
Veg	Degraded to Completely Degraded.						
Fire	Very Old.						
Notes	Broad Floristic Formation: <i>Triodia</i> Open Hummock Grassland. Aspect: South. Bare ground: 60%. Litter cover: Logs: 2%, Twigs: 1%, Lvs: +. Disturbance type: Roads, sub-station and powerline.						

SPECIES

Name	Cover	Height	Specimen	Notes
Abutilon fraseri	+	0.4m	NJ05.08	
Acacia aneura var. aneura	3%	3m	NJ01.20	
Acacia bivenosa	10%	2m	NJ01.30	
Acacia citrinoviridis	+	5m	NJ07.17	
Acacia kempeana	4%	3m	NJ07.03	
Acacia pruinocarpa	2%	5m	NJ01.42	
Acacia synchronicia	+	1m	NJ01.40	
Acacia tetragonophylla	+	0.5m	NJ01.02	
Aerva javanica	+	0.8m	NC	
Cenchrus ciliaris	10%	0.4m	NC	
Codonocarpus cotinifolius	+	0.4m	NC	
Corchorus lasiocarpus var. parvus	+	0.5m	NJ07.07	
Cymbopogon ambiguus	1%	0.4m	NJ01.39	
Cymbopogon obtectus	+	0.4m	NJ03.18	
Duperreya commixta	+	CR	NJ01.36	
Enneapogon polyphyllus	+	0.4m	NJ01.33	
Eucalyptus gamophylla	1%	5m	NJ01.41	
Eucalyptus leucophloia	6%	10m	NC	
Euphorbia australis	+	0.2m	NJ01.10	
Gomphrena canescens subsp. canescens	+	0.4m	NJ03.05	
Goodenia stobbsiana	+	0.3m	NJ07.05	
Hakea chordophylla	+	0.5m	NJ07.13	
Hakea lorea subsp. lorea	+	0.2m	NJ03.06	
Indigofera monophylla	+	0.25m	NJ07.06	
Keraudrenia nephrosperma	+	0.8m	NJ07.08	
Maireana planifolia	2%	0.5-1.5m	NJ01.28	
Paraneurachne muelleri	1%	0.4m	NJ01.45	
Petalostylis labicheoides	1%	1-2m	NJ07.10	

<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>	+	0.35m	NJ07.01
<i>Ptilotus calostachyus</i>	+	0.5m	NJ07.15
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.2m	NJ01.46
<i>Ptilotus helipteroides</i>	+	0.3m	NJ03.19
<i>Ptilotus obovatus</i> var. <i>obovatus</i>	+	1m	NJ07.11
<i>Sclerolaena deserticola</i>	+	0.4m	NJ01.08
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	+	0.4m	NJ01.13
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	+	0.5m	NJ07.19
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	+	0.5m	NJ07.18
<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	+	0.3m	NJ07.04
<i>Senna stricta</i>	+	1m	NJ07.12
<i>Sida</i> sp. <i>Pilbara</i> (A.A. Mitchell PRP 1543)	+	0.5m	NJ07.16
<i>Sida</i> sp. <i>spiciform panicles</i> (E. Leyland s.n. 14/8/90)	+	0.5m	NJ07.09
<i>Solanum lasiophyllum</i>	+	0.4m	NJ01.04
<i>Triodia</i> sp. <i>Shovelanna Hill</i> (S. van Leeuwen 3835)	10%	0.25m	NJ07.02
<i>Triodia wiseana</i>	15%	0.6m	NJ01.29

APPENDIX H

FLORA SPECIES INVENTORY

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX H

FLORA SPECIES INVENTORY

H1: Newman to Jimblebar

Family	Species Name
Acanthaceae	<i>Dipteracanthus australasicus</i> subsp. <i>australasicus</i>
Adiantaceae	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>
Aizoaceae	<i>Trianthera glossostigma</i>
	<i>Trianthera pilosa</i>
	<i>Trianthera triquetra</i>
Amaranthaceae	* <i>Aerva javanica</i>
	<i>Amaranthus cuspidifolius</i>
	<i>Amaranthus undulatus</i>
	<i>Gomphrena canescens</i> subsp. <i>canescens</i>
	<i>Gomphrena cunninghamii</i>
	<i>Gomphrena sordida</i>
	<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>
	<i>Ptilotus calostachyus</i>
	<i>Ptilotus clementii</i>
	<i>Ptilotus exaltatus</i>
	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
	<i>Ptilotus gaudichaudii</i> var. <i>gaudichaudii</i>
	<i>Ptilotus helipteroides</i>
	<i>Ptilotus obovatus</i>
	<i>Ptilotus polystachyus</i> var. <i>arthrotrichus</i>
	<i>Ptilotus roei</i>
	<i>Ptilotus rotundifolius</i>
<i>Ptilotus schwartzii</i> var. <i>schwartzii</i>	
Apiaceae	<i>Trachymene oleracea</i> subsp. <i>oleracea</i>
Asclepiadaceae	<i>Rhyncharrhena linearis</i>
Asteraceae	? <i>Pluchea rubelliflora</i>
	* <i>Bidens bipinnata</i>
	<i>Centipeda minima</i> subsp. <i>macrocephala</i>
	<i>Chrysocephalum</i> aff. <i>apiculatum</i>
	<i>Chrysocephalum pterochaetum</i>
	<i>Leiocarpa semicalva</i>
	<i>Pluchea rubelliflora</i>
	<i>Pterocaulon serrulatum</i>
	<i>Pterocaulon sphaeranthoides</i>

Family	Species Name
	<i>Rutidosia helichrysoidea</i>
	* <i>Sonchus oleraceus</i>
	<i>Streptoglossa cylindriceps</i>
	<i>Streptoglossa decurrens</i>
	<i>Streptoglossa</i> sp.
	<i>Vittadinia obovata</i>
Boraginaceae	<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>
	<i>Heliotropium heteranthum</i>
	<i>Heliotropium inexplicitum</i>
	<i>Heliotropium tanythrix</i>
	<i>Trichodesma zeylanicum</i>
Brassicaceae	<i>Lepidium phlebopetalum</i>
	<i>Stenopetalum decipiens</i>
Caesalpiniaceae	<i>Petalostylis labicheoides</i>
	<i>Senna artemisioides</i> aff subsp <i>oligophylla</i>
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>
	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>
	<i>Senna artemisioides</i> subsp. x <i>artemisioides</i>
	<i>Senna glaucifolia</i>
	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>
	<i>Senna glutinosa</i> subsp. <i>glutinosa</i> x <i>luerssenii</i>
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>
	<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>
	<i>Senna notabilis</i>
	<i>Senna sericea</i>
	<i>Senna</i> sp. Meekatharra (E. Bailey 1-26)
	<i>Senna stricta</i>
	<i>Senna venusta</i>
Capparaceae	<i>Capparis lasiantha</i>
	<i>Cleome oxalidea</i>
	<i>Cleome viscosa</i>
Caryophyllaceae	<i>Polycarpaea longiflora</i>
Chenopodiaceae	<i>Atriplex codonocarpa</i>
	<i>Dysphania plantaginella</i>
	<i>Dysphania rhadinostachya</i>
	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>
	<i>Maireana georgei</i>
	<i>Maireana melanocoma</i>
	<i>Maireana planifolia</i>

Family	Species Name
	<i>Maireana planifolia</i> x <i>villosa</i>
	<i>Maireana pyramidata</i>
	<i>Maireana triptera</i>
	<i>Maireana villosa</i>
	<i>Rhagodia eremaea</i>
	<i>Salsola tragus</i>
	<i>Sclerolaena convexula</i>
	<i>Sclerolaena cornishiana</i>
	<i>Sclerolaena costata</i>
	<i>Sclerolaena cuneata</i>
	<i>Sclerolaena densiflora</i>
	<i>Sclerolaena deserticola</i>
	<i>Sclerolaena diacantha</i>
	<i>Sclerolaena eriacantha</i>
Chloanthaceae	<i>Dicrastylis cordifolia</i>
	<i>Dicrastylis georgei</i>
Convolvulaceae	<i>Bonamia media</i> var. <i>villosa</i>
	<i>Bonamia rosea</i>
	<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>
	<i>Duperreya commixta</i>
	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>
	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>
	<i>Ipomoea calobra</i>
	<i>Ipomoea coptica</i>
	<i>Ipomoea muelleri</i>
	<i>Ipomoea polymorpha</i>
	<i>Polymeria</i> aff. <i>ambigua</i>
Cucurbitaceae	<i>Cucumis maderaspatanus</i>
	* <i>Cucumis melo</i> subsp. <i>agrestis</i>
Cyperaceae	<i>Bulbostylis barbata</i>
	<i>Cyperus difformis</i>
	<i>Cyperus ixiocarpus</i>
	<i>Cyperus vaginatus</i>
	<i>Fimbristylis simulans</i>
	<i>Schoenoplectus litoralis</i>
Euphorbiaceae	<i>Euphorbia australis</i>
	<i>Euphorbia biconvexa</i>
	<i>Euphorbia coghlanii</i>
	<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>
	<i>Leptopus decaisnei</i> var. <i>orbicularis</i>
	<i>Phyllanthus maderaspatensis</i>

Family	Species Name
	<i>Sauropus trachyspermus</i>
Goodeniaceae	<i>Dampiera candidans</i>
	<i>Goodenia lamprosperma</i>
	<i>Goodenia microptera</i>
	<i>Goodenia muelleriana</i>
	<i>Goodenia nuda</i>
	<i>Goodenia prostrata</i>
	<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)
	<i>Goodenia stobbsiana</i>
	<i>Goodenia triodiophila</i>
	<i>Goodenia vilmoriniae</i>
	<i>Scaevola acacioides</i>
	<i>Scaevola</i> aff. <i>browniana</i>
	<i>Scaevola amblyanthera</i> var. <i>centralis</i>
	<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>
	<i>Scaevola</i> sp.
	<i>Scaevola spinescens</i>
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>
Lauraceae	<i>Cassytha capillaris</i>
Loranthaceae	<i>Amyema fitzgeraldii</i>
	<i>Lysiana casuarinae</i>
Lythraceae	<i>Ammannia auriculata</i>
Malvaceae	<i>Abutilon</i> aff. <i>lepidum</i>
	<i>Abutilon amplum</i>
	<i>Abutilon cryptopetalum</i>
	<i>Abutilon fraseri</i>
	<i>Abutilon lepidum</i>
	<i>Abutilon otoparpum</i>
	<i>Abutilon</i> sp.
	<i>Gossypium australe</i>
	<i>Gossypium robinsonii</i>
	<i>Gossypium sturtianum</i>
	<i>Hibiscus</i> aff. <i>coatesii</i>
	<i>Hibiscus burtonii</i>
	<i>Hibiscus haynaldii</i>
	<i>Hibiscus sturtii</i>
	<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>
	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>
	<i>Hibiscus sturtii</i> var. <i>platychlamys</i>
	<i>Hibiscus sturtii</i> var. <i>truncatus</i>
<i>*Malvastrum americanum</i>	

Family	Species Name
	<i>Sida</i> aff. <i>clementii</i>
	<i>Sida</i> aff. <i>echinocarpa</i>
	<i>Sida</i> aff. <i>fibulifera</i>
	<i>Sida</i> <i>arenicola</i>
	<i>Sida</i> <i>cardiophylla</i>
	<i>Sida</i> <i>clementii</i>
	<i>Sida</i> <i>echinocarpa</i>
	<i>Sida</i> <i>fibulifera</i>
	<i>Sida</i> <i>platycalyx</i>
	<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)
	<i>Sida</i> sp. <i>golden calyces</i> (H.N. Foote 32) PN
	<i>Sida</i> sp. <i>Pilbara</i> (A.A. Mitchell PRP 1543)
	<i>Sida</i> sp. <i>spiciform panicles</i> (E. Leyland s.n. 14/8/90)
	<i>Sida</i> sp. <i>verrucose glands</i> (F.H. Mollemans 2423)
Mimosaceae	<i>Acacia</i> <i>adoxa</i>
	<i>Acacia</i> <i>adoxa</i> var. <i>adoxa</i>
	<i>Acacia</i> <i>adsurgens</i>
	<i>Acacia</i> aff. <i>adsurgens</i>
	<i>Acacia</i> aff. <i>stowardii</i>
	<i>Acacia</i> <i>ancistrocarpa</i>
	<i>Acacia</i> <i>aneura</i> ? var. <i>conifera</i>
	<i>Acacia</i> <i>aneura</i> var. ? <i>pilbarana</i>
	<i>Acacia</i> <i>aneura</i> var. <i>aneura</i>
	<i>Acacia</i> <i>aneura</i> var. <i>intermedia</i>
	<i>Acacia</i> <i>aneura</i> var. <i>longicarpa</i>
	<i>Acacia</i> <i>aneura</i> var. <i>pilbarana</i>
	<i>Acacia</i> <i>aneura</i> var. <i>tenuis</i>
	<i>Acacia</i> <i>ayersiana</i>
	<i>Acacia</i> <i>bivenosa</i>
	<i>Acacia</i> <i>catenulata</i> subsp. <i>occidentalis</i>
	<i>Acacia</i> <i>citrinoviridis</i>
	<i>Acacia</i> <i>coriacea</i> subsp. <i>pendens</i>
	<i>Acacia</i> <i>dictyophleba</i>
	<i>Acacia</i> <i>hilliana</i>
	<i>Acacia</i> <i>inaequilatera</i>
	<i>Acacia</i> <i>ligulata</i>
	<i>Acacia</i> <i>maitlandii</i>
	<i>Acacia</i> <i>melleodora</i>
	<i>Acacia</i> <i>monticola</i>
	<i>Acacia</i> <i>pachyacra</i>
	<i>Acacia</i> <i>pruinocarpa</i>

Family	Species Name
	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>
	<i>Acacia rhodophloia</i>
	<i>Acacia sclerosperma</i>
	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>
	<i>Acacia synchronicia</i>
	<i>Acacia tenuissima</i>
	<i>Acacia tetragonophylla</i>
	<i>Acacia trudgeniana</i>
	<i>Neptunia dimorphantha</i>
	* <i>Vachellia farnesiana</i>
	Molluginaceae
<i>Mollugo molluginea</i>	
Moraceae	<i>Ficus brachypoda</i>
Myoporaceae	<i>Eremophila cuneifolia</i>
	<i>Eremophila exilifolia</i>
	<i>Eremophila forrestii</i> ? subsp. <i>forrestii</i>
	<i>Eremophila forrestii</i> subsp. <i>forrestii</i>
	<i>Eremophila forrestii</i> x <i>latrobei</i>
	<i>Eremophila fraseri</i> subsp. <i>fraseri</i>
	<i>Eremophila lanceolata</i>
	<i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i>
	<i>Eremophila latrobei</i> subsp. <i>filiformis</i>
	<i>Eremophila latrobei</i> subsp. <i>glabra</i>
	<i>Eremophila latrobei</i> subsp. <i>latrobei</i>
	<i>Eremophila longifolia</i>
	<i>Eremophila macmillaniana</i>
	<i>Eremophila maculata</i> subsp. <i>brevifolia</i>
	<i>Eremophila margarethae</i>
	<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>
Myrtaceae	<i>Calytrix carinata</i>
	<i>Corymbia aspera</i>
	<i>Corymbia candida</i> subsp. <i>dipsodes</i>
	<i>Corymbia deserticola</i> subsp. <i>deserticola</i>
	<i>Corymbia hamersleyana</i>
	<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i>
	<i>Eucalyptus gamophylla</i>
	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
	<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>
	<i>Eucalyptus trivalva</i>
	<i>Eucalyptus victrix</i>
	<i>Eucalyptus xerothermica</i>

Family	Species Name
	<i>Melaleuca lasiandra</i>
Nyctaginaceae	<i>Boerhavia burbridgeana</i>
	<i>Boerhavia coccinea</i>
	<i>Boerhavia repleta</i>
Oleaceae	<i>Jasminum didymum</i> subsp. <i>lineare</i>
Papilionaceae	<i>Cullen</i> sp.
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>
	<i>Glycine canescens</i>
	<i>Gompholobium karjini</i>
	<i>Indigofera georgei</i>
	<i>Indigofera monophylla</i>
	<i>Isotropis atropurpurea</i>
	<i>Isotropis forrestii</i>
	<i>Kennedia prorepens</i>
	<i>Muelleranthus trifoliolatus</i>
	<i>Rhynchosia minima</i>
	<i>Swainsona kingii</i>
	<i>Tephrosia densa</i>
	<i>Tephrosia rosea</i> var. <i>glabrior</i>
<i>Tephrosia supina</i>	
Poaceae	<i>Amphipogon sericeus</i>
	<i>Aristida contorta</i>
	<i>Aristida holathera</i>
	<i>Aristida holathera</i> var. <i>holathera</i>
	<i>Aristida holathera</i> var. <i>latifolia</i>
	<i>Aristida inaequiglumis</i>
	<i>Aristida ingrata</i>
	* <i>Cenchrus ciliaris</i>
	* <i>Cenchrus setiger</i>
	<i>Chloris pumilio</i>
	<i>Chrysopogon fallax</i>
	<i>Cymbopogon ambiguus</i>
	<i>Cymbopogon obtectus</i>
	<i>Cymbopogon procerus</i>
	* <i>Cynodon dactylon</i>
	<i>Dactyloctenium radulans</i>
	<i>Dichanthium fecundum</i>
	<i>Digitaria brownii</i>
	<i>Digitaria ctenantha</i>
	* <i>Echinochloa colona</i>
	<i>Enneapogon caeruleus</i>

Family	Species Name
	<i>Enneapogon intermedius</i>
	<i>Enneapogon lindleyanus</i>
	<i>Enneapogon polyphyllus</i>
	<i>Enteropogon ramosus</i>
	<i>Eragrostis</i> aff. <i>eriopoda</i>
	<i>Eragrostis eriopoda</i>
	<i>Eragrostis falcata</i>
	<i>Eragrostis tenellula</i>
	<i>Eriachne aristidea</i>
	<i>Eriachne helmsii</i>
	<i>Eriachne lanata</i>
	<i>Eriachne mucronata</i>
	<i>Eriachne obtusa</i>
	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>
	<i>Eriachne tenuiculmis</i>
	<i>Eulalia aurea</i>
	<i>Iseilema macratherum</i>
	<i>Leptochloa digitata</i>
	<i>Panicum effusum</i>
	<i>Paraneurachne muelleri</i>
	<i>Paspalidium clementii</i>
	<i>Paspalidium rarum</i>
	<i>Paspalidium</i> sp.
	<i>Perotis rara</i>
	<i>Schizachyrium fragile</i>
	<i>Setaria dielsii</i>
	<i>Setaria surgens</i>
	* <i>Setaria verticillata</i>
	<i>Sporobolus actinocladius</i>
	<i>Sporobolus australasicus</i>
	<i>Themeda triandra</i>
	<i>Triodia angusta</i>
	<i>Triodia basedowii</i>
	<i>Triodia longiceps</i>
	<i>Triodia pungens</i>
	<i>Triodia schinzii</i>
	<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)
	<i>Triodia wiseana</i>
	<i>Triraphis mollis</i>
	<i>Xerochloa imberbis</i>
	<i>Yakirra australiensis</i> var. <i>australiensis</i>

Family	Species Name
Polygalaceae	<i>Polygala aff. isingii</i>
Polygonaceae	* <i>Acetosa vesicaria</i>
Portulacaceae	* <i>Portulaca oleracea</i>
	<i>Portulaca pilosa</i>
	<i>Portulaca sp.</i>
Proteaceae	<i>Grevillea berryana</i>
	<i>Grevillea striata</i>
	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
	<i>Hakea chordophylla</i>
	<i>Hakea lorea</i> subsp. <i>lorea</i>
	<i>Hakea preissii</i>
Rubiaceae	<i>Psydrax latifolia</i>
Santalaceae	<i>Anthobolus leptomerioides</i>
	<i>Santalum lanceolatum</i>
Sapindaceae	<i>Dodonaea coriacea</i>
	<i>Dodonaea pachyneura</i>
Scrophulariaceae	<i>Stemodia grossa</i>
Solanaceae	* <i>Datura leichhardtii</i>
	<i>Nicotiana benthamiana</i>
	<i>Solanum aff. sturtianum</i>
	<i>Solanum centrale</i>
	<i>Solanum ellipticum</i>
	<i>Solanum horridum</i>
Sterculiaceae	<i>Keraudrenia nephrosperma</i>
	<i>Melhania sp.</i>
	<i>Rulingia luteiflora</i>
	<i>Waltheria indica</i>
Surianaceae	<i>Stylobasium spathulatum</i>
Tiliaceae	<i>Corchorus crozophorifolius</i>
	<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>
	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>
	<i>Corchorus sidoides</i> subsp. <i>sidoides</i>
	<i>Corchorus tridens</i>
	<i>Triumfetta maconochieana</i>
Typhaceae	<i>Typha domingensis</i>
Verbenaceae	<i>Clerodendrum floribundum</i> var. <i>angustifolium</i>
Violaceae	<i>Hybanthus aurantiacus</i>
Zygophyllaceae	<i>Tribulus astrocarpus</i>
	<i>Tribulus macrocarpus</i>
	<i>Tribulus suberosus</i>

Family	Species Name
	* <i>Tribulus terrestris</i>

H2: Newman Town Substation

Family	Species Name
Amaranthaceae	* <i>Aerva javanica</i>
	<i>Gomphrena canescens</i> subsp. <i>canescens</i>
	<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>
	<i>Ptilotus calostachyus</i>
	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
	<i>Ptilotus helipteroides</i>
	<i>Ptilotus obovatus</i> var. <i>obovatus</i>
Caesalpinaceae	<i>Petalostylis labicheoides</i>
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>
	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>
	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
<i>Senna stricta</i>	
Chenopodiaceae	<i>Maireana planifolia</i>
	<i>Sclerolaena deserticola</i>
Convolvulaceae	<i>Duperreya commixta</i>
Euphorbiaceae	<i>Euphorbia australis</i>
Goodeniaceae	<i>Goodenia stobbsiana</i>
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>
Malvaceae	<i>Abutilon fraseri</i>
	<i>Sida</i> sp. Hamersley Range (K. Newbey 10692)
	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)
	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)
Mimosaceae	<i>Acacia aneura</i> var. <i>aneura</i>
	<i>Acacia bivenosa</i>
	<i>Acacia citrinoviridis</i>
	<i>Acacia kempeana</i>
	<i>Acacia pruinocarpa</i>
	<i>Acacia synchronicia</i>
	<i>Acacia tetragonophylla</i>
Myrtaceae	<i>Eucalyptus gamophylla</i>
	<i>Eucalyptus leucophloia</i>
Papilionaceae	<i>Indigofera monophylla</i>
Poaceae	* <i>Cenchrus ciliaris</i>
	<i>Cymbopogon ambiguus</i>
	<i>Cymbopogon obtectus</i>
	<i>Enneapogon polyphyllus</i>

Family	Species Name
	<i>Paraneurachne muelleri</i>
	<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)
	<i>Triodia wiseana</i>
Proteaceae	<i>Hakea chordophylla</i>
	<i>Hakea lorea</i> subsp. <i>lorea</i>
Solanaceae	<i>Solanum lasiophyllum</i>
Sterculiaceae	<i>Keraudrenia nephrosperma</i>
Tiliaceae	<i>Corchorus lasiocarpus</i> var. <i>parvus</i>

APPENDIX I MATRIX OF SPECIES FOUND WITHIN EACH SITE

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
? Pluchea rubelliflora									
Abutilon aff. lepidum					+				
Abutilon amplum									
Abutilon cryptopetalum									
Abutilon fraseri									
Abutilon lepidum									
Abutilon otocarpum	+								
Abutilon sp.									
Acacia adoxa									
Acacia adoxa var. adoxa			+		3%				
Acacia adsurgens	+								
Acacia aff. adsurgens									
Acacia aff. stowardii									
Acacia ancistrocarpa									
Acacia aneura ? var. conifera									+
Acacia aneura var. ? pilbarana									
Acacia aneura var. aneura			1%						
Acacia aneura var. intermedia									
Acacia aneura var. longicarpa									
Acacia aneura var. pilbarana								2%	
Acacia aneura var. tenuis							3%		
Acacia ayersiana									
Acacia bivenosa	3%		nc		2%		+		10%
Acacia catenulata subsp. occidentalis									
Acacia citrinoviridis	1%	+			5%				
Acacia coriacea subsp. pendens									
Acacia dictyophleba			1%		1%		3%		
Acacia hilliana									
Acacia inaequilatera					2%				
Acacia ligulata									
Acacia kempeana									
Acacia maitlandii									+
Acacia melleodora									
Acacia monticola									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
Acacia pachyacra	+						+		
Acacia pruinocarpa	2%	1%	+		1%		2%		+
Acacia pyrifolia var. pyrifolia									
Acacia rhodophloia									
Acacia sclerosperma		15%					15%	30%	1%
Acacia sclerosperma subsp. sclerosperma								3%	
Acacia synchronicia						+		4%	
Acacia tenuissima					+				
Acacia tetragonophylla			+				1%	1%	+
Acacia trudgeniana									+
*Acetosa vesicaria				+					
*Aerva javanica							+		
Amaranthus cuspidifolius									
Amaranthus undulatus									
Ammannia auriculata									
Amphipogon sericeus									
Amyema fitzgeraldii								+	
Anthobolus leptomerioides									
Aristida contorta	1%		+			2%	1%		+
Aristida holathera								+	+
Aristida holathera var. holathera									
Aristida holathera var. latifolia						(+)			
Aristida inaequiglumis	1%								+
Aristida ingrata		+							
Atriplex codonocarpa									
*Bidens bipinnata									
Boerhavia burbridgeana									
Boerhavia coccinea						+	+	+	
Boerhavia repleta									
Bonamia media var. villosa					+				
Bonamia rosea	+								
Bulbostylis barbata									
Calytrix carinata									
Capparis lasiantha									

APPENDIX I
Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
Cassya capillaris									
*Cenchrus ciliaris	60%	5%	2%			3%	5%	15%	
*Cenchrus setiger						1%			
Centipeda minima subsp. macrocephala				1%					
Cheilanthes sieberi subsp. sieberi									
Chloris pumilio								1%	
Chrysocephalum aff. apiculatum	+								
Chrysocephalum pterochaetum						+			
Chrysopogon fallax	1%					+		+	
Cleome oxalidea									
Cleome viscosa	+			+		+	+	+	
Clerodendrum floribundum var. angustifolium									
Codonocarpus cotinifolius									
Convolvulus angustissimus subsp. angustissimus								+	
Corchorus crozophorifolius									
Corchorus lasiocarpus subsp. lasiocarpus									+
Corchorus lasiocarpus subsp. parvus	+		+		+				
Corchorus sidoides subsp. sidoides									
Corchorus tridens									
Corymbia aspera					1%		1%		
Corymbia candida subsp. dipsodes		+							
Corymbia deserticola subsp. deserticola									
Corymbia hamersleyana	1%						1%		
Crotalaria medicaginea var. neglecta									
Cucumis maderaspatanus									
*Cucumis melo subsp. agrestis				+					
Cullen sp.									
Cymbopogon ambiguus	+		1%		1%				
Cymbopogon obtectus	+	+	1%		2%	+	2%		
Cymbopogon procerus									
*Cynodon dactylon									
Cyperus difformis									
Cyperus ixiocarpus									
Cyperus vaginatus				20%					

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
Dactyloctenium radulans						+		2%	
Dampiera candidans									
*Datura leichhardtii									
Dichanthium fecundum									
Dicrastylis cordifolia									
Dicrastylis georgei									
Digitaria brownii									
Digitaria ctenantha									
Dipteracanthus australasicus subsp. australasicus	1%							+	
Dodonaea coriacea									+
Dodonaea pachyneura									
Duperreya commixta	+	+	+		+	+			+
Dysphania plantaginella				+					
Dysphania rhadinostachya								+	
*Echinochloa colona				1%				1%	
Enchylaena tomentosa var. tomentosa						+	+		
Enneapogon caerulescens									
Enneapogon intermedius	+								
Enneapogon lindleyanus		+					1%		
Enneapogon polyphyllus			nc		+	+	1%		
Enteropogon ramosus								+	
Eragrostis aff. eriopoda									
Eragrostis eriopoda									
Eragrostis falcata		+				2%	+	+	+
Eragrostis tenellula						+			
Eremophila cuneifolia									
Eremophila exilifolia									+
Eremophila forrestii ? subsp. forrestii		nc							+
Eremophila forrestii subsp. forrestii					+				
Eremophila forrestii x latrobei									
Eremophila fraseri subsp. fraseri									
Eremophila lanceolata							+		
Eremophila latrobei subsp. aff. filiformis			1%		+				
Eremophila latrobei subsp. filiformis									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
<i>Eremophila latrobei</i> subsp. <i>glabra</i>									
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>									
<i>Eremophila longifolia</i>	+								
<i>Eremophila macmillaniana</i>									
<i>Eremophila maculata</i> subsp. <i>brevifolia</i>									
<i>Eremophila margarethae</i>		+				10%		+	+
<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>									+
<i>Eriachne aristidea</i>						+		+	+
<i>Eriachne helmsii</i>									
<i>Eriachne lanata</i>					+				
<i>Eriachne mucronata</i>			5%						
<i>Eriachne obtusa</i>						+		+	+
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>			+						+
<i>Eriachne tenuiculmis</i>									
<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i>				5-10%					
<i>Eucalyptus gamophylla</i>					1%				1%
<i>Eucalyptus leucophloia</i>									
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>		+	4%		3%				<2%
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>									
<i>Eucalyptus trivalva</i>									
<i>Eucalyptus victrix</i>								1%	
<i>Eucalyptus xerothermica</i>		+							
<i>Eulalia aurea</i>						+	1%		
<i>Euphorbia australis</i>	+		+	+		+	+	+	
<i>Euphorbia biconvexa</i>									
<i>Euphorbia coghlanii</i>				+		+			
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>		+				+		+	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>									
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+		+			+	+	+	
<i>Ficus brachypoda</i>									
<i>Fimbristylis simulans</i>									
<i>Glinus lotoides</i>									
<i>Glycine canescens</i>									
<i>Gompholobium karrijini</i>									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
<i>Gomphrena canescens</i> subsp. <i>canescens</i>			+				+		
<i>Gomphrena cunninghamii</i>									
<i>Gomphrena sordida</i>								+	
<i>Goodenia lamprosperma</i>									
<i>Goodenia microptera</i>									
<i>Goodenia muelleriana</i>						+	+		
<i>Goodenia nuda</i>									
<i>Goodenia prostrata</i>							+	+	
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)									
<i>Goodenia stobbsiana</i>			+		+				
<i>Goodenia triodiophila</i>			+		+				
<i>Goodenia vilmorinae</i>									
<i>Gossypium australe</i>									
<i>Gossypium robinsonii</i>									
<i>Gossypium sturtianum</i>									
<i>Grevillea berryana</i>									
<i>Grevillea striata</i>		+						2%	
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>									
<i>Hakea chordophylla</i>									+
<i>Hakea lorea</i> subsp. <i>lorea</i>	+	+	1%		2%	+	+		+
<i>Hakea preissii</i>									
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>									
<i>Heliotropium heteranthum</i>									
<i>Heliotropium inexplicitum</i>									+
<i>Heliotropium tanythrix</i>									
<i>Hibiscus</i> aff. <i>coatesii</i>			+						
<i>Hibiscus burtonii</i>		+				+	+		
<i>Hibiscus haynaldii</i>									
<i>Hibiscus sturtii</i>									
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>									
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>					+				
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>		+				+			
<i>Hibiscus sturtii</i> var. <i>truncatus</i>									
<i>Hybanthus aurantiacus</i>									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
Indigofera georgei									
Indigofera monophylla					+				
Ipomoea calobra									
Ipomoea coptica								+	
Ipomoea muelleri				+					
Ipomoea polymorpha								+	
Iseilema macrathrum									
Isotropis atropurpurea									
Isotropis forrestii	+								
Jasminum didymum subsp. lineare									
Kennedia prorepens									
Keraudrenia nephrosperma	+		+						
Leiocarpa semicalva									
Lepidium phlebopetalum								+	
Leptochloa digitata				1%					
Leptopus decaisnei var. orbicularis									
Lysiana casuarinae									
Maireana georgei									
Maireana melanocoma									+
Maireana planifolia			+				+		
Maireana planifolia x villosa									
Maireana pyramidata									
Maireana triptera									
Maireana villosa		+						+	
*Malvastrum americanum									
Melaleuca lasiandra					2%				
Melhania sp.									
Mollugo molluginea									
Muelleranthus trifoliolatus								+	
Neptunia dimorphantha								+	
Nicotiana benthamiana									
Panicum effusum									
Paraneurachne muelleri	1%	1%	+		1%	3%	+		1%
Paspalidium clementii									

APPENDIX I
Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
Paspalidium rarum		+				+			
Paspalidium sp.								+	
Perotis rara								1%	
Petalostylis labicheoides		2%							
Phyllanthus maderaspatensis				+					
Pluchea rubelliflora				1%					
Polycarpaea longiflora									
Polygala aff. isingii						+			
Polymeria aff. ambigua									
*Portulaca oleracea			+					+	
Portulaca pilosa									
Portulaca sp.						+			
Psydrax latifolia									
Pterocaulon serrulatum									
Pterocaulon sphaeranthoides									
Ptilotus astrolasius var. astrolasius									
Ptilotus calostachyus			+		+				
Ptilotus clementii									
Ptilotus exaltatus		+							
Ptilotus exaltatus var. exaltatus	+				+		+		
Ptilotus gaudichaudii var. gaudichaudii									
Ptilotus helipteroides						+	+		
Ptilotus obovatus	+	+			+	+	+		
Ptilotus polystachyus var. arthrotrichus									
Ptilotus roei									
Ptilotus rotundifolius			1%		+				
Ptilotus schwartzii var. schwartzii									
Rhagodia eremaea						+		+	
Rhyncharrhena linearis						+			
Rhynchosia minima		+							
Rulingia luteiflora									
Rutidosis helichrysoides									
Salsola tragus	+						+		
Santalum lanceolatum									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
Sauropus trachyspermus									
Scaevola acacioides									
Scaevola aff. browniana									
Scaevola amblyanthera var. centralis		+							
Scaevola parvifolia subsp. pilbarae									
Scaevola sp.						+			
Scaevola spinescens								+	
Schizachyrium fragile									
Schoenoplectus litoralis				2%					
Sclerolaena convexula								+	
Sclerolaena cornishiana		+							
Sclerolaena costata									
Sclerolaena cuneata								+	
Sclerolaena densiflora						+		+	
Sclerolaena deserticola	+						2%		
Sclerolaena diacantha									
Sclerolaena eriacantha									
Senna artemisioides aff subsp oligophylla							+		
Senna artemisioides subsp. filifolia		+							
Senna artemisioides subsp. helmsii									
Senna artemisioides subsp. oligophylla	+	+			+	+	+		+
Senna artemisioides subsp. oligophylla x helmsii									
Senna artemisioides subsp. x artemisioides									
Senna glaucifolia									
Senna glutinosa subsp. glutinosa			1%		+				
Senna glutinosa subsp. glutinosa x luerssenii									+
Senna glutinosa subsp. pruinosa	+		+						+
Senna glutinosa subsp. x luerssenii			+						+
Senna notabilis	+								
Senna sericea									
Senna sp. Meekatharra (E. Bailey 1-26)								+	
Senna stricta									
Senna venusta									
Setaria dielsii						+		+	

APPENDIX I
Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
Setaria surgens									
*Setaria verticillata									
Sida aff. clementii									
Sida aff. echinocarpa									
Sida aff. fibulifera		+				+		+	
Sida arenicola					+				
Sida cardiophylla									
Sida clementii									
Sida echinocarpa	+								
Sida fibulifera									1%
Sida platycalyx									
Sida sp. Excedentifolia (J.L. Egan 1925)			+						
Sida sp. golden calyces (H.N. Foote 32) PN									
Sida sp. Pilbara (A.A. Mitchell PRP 1543)									
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)									
Sida sp. verrucose glands (F.H. Mollemans 2423)	+						+		
Solanum aff. sturtianum									
Solanum centrale									
Solanum ellipticum		+							
Solanum horridum									
Solanum lasiophyllum	+	+			+	+	+		+
*Sonchus oleraceus				+					
Sporobolus actinocladus								+	
Sporobolus australasicus								+	
Stemodia grossa				+					
Stenopetalum decipiens			+						+
Streptoglossa cylindriceps									
Streptoglossa decurrens									
Streptoglossa sp.						+		+	
Stylobasium spathulatum									
Swainsona kingii								+	
Tephrosia densa									
Tephrosia rosea var. glabrior									
Tephrosia supina									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ09	NJ10	NJ11	NJ12	NJ13	NJ14	NJ15	NJ16	NJ18
<i>Themeda triandra</i>	1%		1%						
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>									
<i>Trianthema glossostigma</i>					+				
<i>Trianthema pilosa</i>							+		
<i>Trianthema triquetra</i>						+		2%	
<i>Tribulus astrocarpus</i>									
<i>Tribulus macrocarpus</i>							+		
<i>Tribulus suberosus</i>			+						
* <i>Tribulus terrestris</i>						+		+	
<i>Trichodesma zeylanicum</i>	+				+		+		
<i>Triodia angusta</i>									
<i>Triodia basedowii</i>									40%
<i>Triodia longiceps</i>						1%			
<i>Triodia pungens</i>		40%				20%	30%		5%
<i>Triodia schinzii</i>									
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)			15%		60%				
<i>Triodia wiseana</i>			10%		10%				
<i>Triraphis mollis</i>						nc		+	
<i>Triumfetta maconochieana</i>									
<i>Typha domingensis</i>				10%					
* <i>Vachellia farnesiana</i>								+	
<i>Vittadinia obovata</i>								+	
<i>Waltheria indica</i>									
<i>Xerochloa imberbis</i>								+	
<i>Yakirra australiensis</i> var. <i>australiensis</i>						+		+	

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27
? Pluchea rubelliflora									
Abutilon aff. lepidum									
Abutilon amplum									
Abutilon cryptopetalum									
Abutilon fraseri									
Abutilon lepidum									
Abutilon otoparpum							+		
Abutilon sp.						+			
Acacia adoxa									
Acacia adoxa var. adoxa									
Acacia adsurgens								+	
Acacia aff. adsurgens									
Acacia aff. stowardii									
Acacia ancistrocarpa		+					+		
Acacia aneura ? var. conifera									
Acacia aneura var. ? pilbarana							5%		
Acacia aneura var. aneura									
Acacia aneura var. intermedia					5%				
Acacia aneura var. longicarpa									
Acacia aneura var. pilbarana									
Acacia aneura var. tenuis					60%		3%	2-5%	
Acacia ayersiana									
Acacia bivenosa	1%		+		+			1%	
Acacia catenulata subsp. occidentalis									
Acacia citrinoviridis					1%	1%		+	
Acacia coriacea subsp. pendens						+			
Acacia dictyophleba								3%	
Acacia hilliana							nc		
Acacia inaequilatera	+								
Acacia ligulata		+		1%				2%	
Acacia kempeana									
Acacia maitlandii		+							
Acacia melleodora			+						
Acacia monticola									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27
Acacia pachyacra								4%	
Acacia pruinocarpa		+					nc	+	
Acacia pyrifolia var. pyrifolia								+	
Acacia rhodophloia									
Acacia sclerosperma		25%		5%		8%			
Acacia sclerosperma subsp. sclerosperma									
Acacia synchronicia	+	2%	+	4%				+	1%
Acacia tenuissima									
Acacia tetragonophylla	1%		1%		1%		2%	+	+
Acacia trudgeniana									
*Acetosa vesicaria						+			
*Aerva javanica									
Amaranthus cuspidifolius									
Amaranthus undulatus									
Ammannia auriculata									
Amphipogon sericeus	1%								
Amyema fitzgeraldii					+	+			
Anthobolus leptomerioides									
Aristida contorta	+		10%	+			10%	+	10%
Aristida holathera								+	
Aristida holathera var. holathera								+	
Aristida holathera var. latifolia								+	
Aristida inaequiglumis	1%						30%		
Aristida ingrata								1%	
Atriplex codonocarpa				+					
*Bidens bipinnata					+				
Boerhavia burbridgeana						+			
Boerhavia coccinea	+		+	+	+			+	+
Boerhavia repleta				+					
Bonamia media var. villosa									
Bonamia rosea					+			+	
Bulbostylis barbata									
Calytrix carinata									
Capparis lasiantha									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27	
Cassutha capillaris										
*Cenchrus ciliaris		1%		1%	3%	5%		1%		
*Cenchrus setiger										
Centipeda minima subsp. macrocephala										
Cheilanthes sieberi subsp. sieberi										
Chloris pumilio				+						
Chrysocephalum aff. apiculatum							+			
Chrysocephalum pterochaetum	+								+	
Chrysopogon fallax		+				2%				
Cleome oxalidea										
Cleome viscosa		+	+	+	+	+		+		
Clerodendrum floribundum var. angustifolium										
Codonocarpus cotinifolius										
Convolvulus angustissimus subsp. angustissimus										
Corchorus crozophorifolius										
Corchorus lasiocarpus subsp. lasiocarpus										
Corchorus lasiocarpus subsp. parvus	+		+							
Corchorus sidoides subsp. sidoides										
Corchorus tridens						+		+		
Corymbia aspera										
Corymbia candida subsp. dipsodes										
Corymbia deserticola subsp. deserticola										
Corymbia hamersleyana										
Crotalaria medicaginea var. neglecta										
Cucumis maderaspatanus										
*Cucumis melo subsp. agrestis										
Cullen sp.						+				
Cymbopogon ambiguus							1%		+	
Cymbopogon obtectus	+				+		2%	+		
Cymbopogon procerus										
*Cynodon dactylon										
Cyperus difformis										
Cyperus ixiocarpus										
Cyperus vaginatus										

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27
<i>Dactyloctenium radulans</i>		+		1%	+		+		
<i>Dampiera candidans</i>									
* <i>Datura leichhardtii</i>									
<i>Dichanthium fecundum</i>									
<i>Dicrastylis cordifolia</i>									
<i>Dicrastylis georgei</i>									
<i>Digitaria brownii</i>									
<i>Digitaria ctenantha</i>					1%				
<i>Dipteracanthus australasicus</i> subsp. <i>australasicus</i>						+			
<i>Dodonaea coriacea</i>									
<i>Dodonaea pachyneura</i>									
<i>Duperreya commixta</i>		+			+		+	+	
<i>Dysphania plantaginella</i>									
<i>Dysphania rhadinostachya</i>									
* <i>Echinochloa colona</i>									
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>		+		+					
<i>Enneapogon caerulescens</i>									
<i>Enneapogon intermedius</i>	+		+						
<i>Enneapogon lindleyanus</i>									
<i>Enneapogon polyphyllus</i>	1%	+			1%		+	+	
<i>Enteropogon ramosus</i>				+		5%			
<i>Eragrostis</i> aff. <i>eripoda</i>									
<i>Eragrostis eripoda</i>					+				
<i>Eragrostis falcata</i>		+				+		+	
<i>Eragrostis tenellula</i>									
<i>Eremophila cuneifolia</i>	1%		+						+
<i>Eremophila exilifolia</i>									
<i>Eremophila forrestii</i> ? subsp. <i>forrestii</i>									
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	+	+			1%		1%		
<i>Eremophila forrestii</i> x <i>latrobei</i>							+		
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	1%		2%						1%
<i>Eremophila lanceolata</i>									
<i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i>	+						nc		
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27	
Eremophila latrobei subsp. glabra										
Eremophila latrobei subsp. latrobei		+								
Eremophila longifolia										
Eremophila macmillaniana										
Eremophila maculata subsp. brevifolia										
Eremophila margarethae							+			
Eremophila platycalyx subsp. pardalota							+			
Eriachne aristidea		+								
Eriachne helmsii									1%	
Eriachne lanata										
Eriachne mucronata		+	1%							
Eriachne obtusa										
Eriachne pulchella subsp. pulchella	+									+
Eriachne tenuiculmis										
Eucalyptus camaldulensis var. obtusa										
Eucalyptus gamophylla		+								
Eucalyptus leucophloia										
Eucalyptus leucophloia subsp. leucophloia										
Eucalyptus socialis subsp. eucentrica										
Eucalyptus trivalva										
Eucalyptus victrix							10%			
Eucalyptus xerothermica									2-5%	
Eulalia aurea								1%	+	
Euphorbia australis		+	+				+		+	
Euphorbia biconvexa				+						+
Euphorbia coghlanii						+				
Euphorbia tannensis subsp. eremophila									+	
Evolvulus alsinoides var. decumbens										
Evolvulus alsinoides var. villosicalyx						+		+	+	+
Ficus brachypoda										
Fimbristylis simulans										
Glinus lotoides										
Glycine canescens										
Gompholobium karrijini										

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27	
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	2%		1%		1%		+		+	
<i>Gomphrena cunninghamii</i>										
<i>Gomphrena sordida</i>										
<i>Goodenia lamprosperma</i>										
<i>Goodenia microptera</i>										
<i>Goodenia muelleriana</i>						+				
<i>Goodenia nuda</i>										
<i>Goodenia prostrata</i>	+		+		+		1%			
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)										
<i>Goodenia stobbsiana</i>	1%									
<i>Goodenia triodiophila</i>										
<i>Goodenia vilmoriniae</i>										
<i>Gossypium australe</i>										
<i>Gossypium robinsonii</i>		+								
<i>Gossypium sturtianum</i>										
<i>Grevillea berryana</i>					+					
<i>Grevillea striata</i>										
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+		+				1%			
<i>Hakea chordophylla</i>										
<i>Hakea lorea</i> subsp. <i>lorea</i>	+		1%		+		+	+		
<i>Hakea preissii</i>						+				
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>										
<i>Heliotropium heteranthum</i>			+							
<i>Heliotropium inexplicitum</i>										
<i>Heliotropium tanythrix</i>										
<i>Hibiscus</i> aff. <i>coatesii</i>	+		+							
<i>Hibiscus burtonii</i>					+		+	+		
<i>Hibiscus haynaldii</i>										
<i>Hibiscus sturtii</i>										
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>										
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>										
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>							+	+		
<i>Hibiscus sturtii</i> var. <i>truncatus</i>										
<i>Hybanthus aurantiacus</i>		+					+	+		

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27
Indigofera georgei					+				
Indigofera monophylla	1%						nc		
Ipomoea calobra									
Ipomoea coptica									
Ipomoea muelleri					+				
Ipomoea polymorpha								+	
Iseilema macratherum					+				
Isotropis atropurpurea									
Isotropis forrestii									
Jasminum didymum subsp. lineare									
Kennedia prorepens								+	
Keraudrenia nephrosperma					+		+		
Leiocarpa semicalva									
Lepidium phlebopetalum									
Leptochloa digitata									
Leptopus decaisnei var. orbicularis									
Lysiana casuarinae									
Maireana georgei									
Maireana melanocoma									
Maireana planifolia					+				
Maireana planifolia x villosa					+				
Maireana pyramidata	+								
Maireana triptera	+								+
Maireana villosa						+			
*Malvastrum americanum						+			
Melaleuca lasiandra									
Melhania sp.									
Mollugo molluginea									
Muelleranthus trifoliolatus									
Neptunia dimorphantha									
Nicotiana benthamiana									
Panicum effusum									
Paraneurachne muelleri		+					nc	+	
Paspalidium clementii					+				

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27
Paspalidium rarum									
Paspalidium sp.								+	
Perotis rara					+			+	
Petalostylis labicheoides		4%						2-5%	
Phyllanthus maderaspatensis									
Pluchea rubelliflora									
Polycarpaea longiflora									
Polygala aff. isingii									
Polymeria aff. ambigua									
*Portulaca oleracea			+	+	+	+	+		
Portulaca pilosa					+				
Portulaca sp.									
Psydrax latifolia					+				+
Pterocaulon serrulatum				+					
Pterocaulon sphaeranthoides							+		
Ptilotus astrolasius var. astrolasius		+							
Ptilotus calostachyus	+								
Ptilotus clementii	+								
Ptilotus exaltatus		+							
Ptilotus exaltatus var. exaltatus	+		+		+		+	+	
Ptilotus gaudichaudii var. gaudichaudii					+				
Ptilotus helipteroides			+						
Ptilotus obovatus	+					+	+		
Ptilotus polystachyus var. arthrotrichus									
Ptilotus roei									
Ptilotus rotundifolius	+								
Ptilotus schwartzii var. schwartzii									
Rhagodia eremaea		+				+			
Rhyncharrhena linearis		+							
Rhynchosia minima					+				
Rulingia luteiflora		+							
Rutidosis helichrysoides									
Salsola tragus	+			+				+	+
Santalum lanceolatum									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27
Sauropus trachyspermus						+			
Scaevola acacioides									
Scaevola aff. browniana									
Scaevola amblyanthera var. centralis									
Scaevola parvifolia subsp. pilbarae								1%	
Scaevola sp.									
Scaevola spinescens									
Schizachyrium fragile									
Schoenoplectus litoralis									
Sclerolaena convexula									
Sclerolaena cornishiana									
Sclerolaena costata									
Sclerolaena cuneata				+					
Sclerolaena densiflora		+		+		1%			+
Sclerolaena deserticola			+		+		nc		+
Sclerolaena diacantha				+					
Sclerolaena eriacantha						+			
Senna artemisioides aff subsp oligophylla	+		+				+		
Senna artemisioides subsp. filifolia						+			
Senna artemisioides subsp. helmsii	+		2%		1%		+		1%
Senna artemisioides subsp. oligophylla		1%		+					1%
Senna artemisioides subsp. oligophylla x helmsii								+	
Senna artemisioides subsp. x artemisioides									
Senna glaucifolia									
Senna glutinosa subsp. glutinosa		+				+		+	
Senna glutinosa subsp. glutinosa x luerssenii									
Senna glutinosa subsp. pruinosa									
Senna glutinosa subsp. x luerssenii	3%						+	+	5%
Senna notabilis					+			+	
Senna sericea									
Senna sp. Meekatharra (E. Bailey 1-26)		+						+	
Senna stricta									
Senna venusta									
Setaria dielsii						+			

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27	
Setaria surgens										
*Setaria verticillata										
Sida aff. clementii			+				+			
Sida aff. echinocarpa										
Sida aff. fibulifera								+		
Sida arenicola										
Sida cardiophylla										
Sida clementii			+							
Sida echinocarpa										
Sida fibulifera										
Sida platycalyx					+		+			
Sida sp. Excedentifolia (J.L. Egan 1925)										
Sida sp. golden calyces (H.N. Foote 32) PN										
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	+									
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)									+	
Sida sp. verrucose glands (F.H. Mollemans 2423)		+			+				+	
Solanum aff. sturtianum										
Solanum centrale	+							+		
Solanum ellipticum										
Solanum horridum	+									
Solanum lasiophyllum	+	+	+	+	+	+	nc		+	
*Sonchus oleraceus										
Sporobolus actinocladus										
Sporobolus australasicus						+				
Stemodia grossa										
Stenopetalum decipiens										
Streptoglossa cylindriceps				+						
Streptoglossa decurrens									+	
Streptoglossa sp.				+						
Stylobasium spathulatum										
Swainsona kingii										
Tephrosia densa										
Tephrosia rosea var. glabrior										
Tephrosia supina			+							

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ19	NJ20	NJ21	NJ22	NJ23	NJ24	NJ25	NJ26	NJ27	
<i>Themeda triandra</i>							+			
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>										
<i>Trianthema glossostigma</i>										
<i>Trianthema pilosa</i>								+		
<i>Trianthema triquetra</i>				+		+				
<i>Tribulus astrocarpus</i>										
<i>Tribulus macrocarpus</i>						+				
<i>Tribulus suberosus</i>			+				nc		+	
* <i>Tribulus terrestris</i>						+				
<i>Trichodesma zeylanicum</i>					+			+		
<i>Triodia angusta</i>										
<i>Triodia basedowii</i>		+						40%		
<i>Triodia longiceps</i>										
<i>Triodia pungens</i>		10%								
<i>Triodia schinzii</i>										
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	15%				1%					
<i>Triodia wiseana</i>	3%		1%		2%					
<i>Triraphis mollis</i>										
<i>Triumfetta maconochieana</i>										
<i>Typha domingensis</i>										
* <i>Vachellia farnesiana</i>										
<i>Vittadinia obovata</i>										
<i>Waltheria indica</i>							+			
<i>Xerochloa imberbis</i>										
<i>Yakirra australiensis</i> var. <i>australiensis</i>								+		

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37
? Pluchea rubelliflora									
Abutilon aff. lepidum									
Abutilon amplum									
Abutilon cryptopetalum									
Abutilon fraseri									
Abutilon lepidum									
Abutilon otocarpum									
Abutilon sp.									
Acacia adoxa									
Acacia adoxa var. adoxa			+		+				nc
Acacia adsurgens			1%					+	
Acacia aff. adsurgens									
Acacia aff. stowardii			1%				+	+	
Acacia ancistrocarpa	1%				1%				+
Acacia aneura ? var. conifera									
Acacia aneura var. ? pilbarana							3%		
Acacia aneura var. aneura									
Acacia aneura var. intermedia									
Acacia aneura var. longicarpa									
Acacia aneura var. pilbarana									
Acacia aneura var. tenuis	10%	25%					+		
Acacia ayersiana									
Acacia bivenosa		1%	2%	1%	3%	1%		7%	15%
Acacia catenulata subsp. occidentalis		3%					1%		
Acacia citrinoviridis									2%
Acacia coriacea subsp. pendens									
Acacia dictyophleba				2%				+	+
Acacia hilliana			5%		+	10%			nc
Acacia inaequilatera									nc
Acacia ligulata				+					
Acacia kempeana									
Acacia maitlandii									
Acacia melleodora					2%			+	+
Acacia monticola									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37
Acacia pachyacra	+	+		2%	nc		3%		
Acacia pruinocarpa	+		1%	+		+	+	+	
Acacia pyrifolia var. pyrifolia									
Acacia rhodophloia									
Acacia sclerosperma									
Acacia sclerosperma subsp. sclerosperma									
Acacia synchronicia	+								
Acacia tenuissima			+						
Acacia tetragonophylla			+	+					
Acacia trudgeniana								+	
*Acetosa vesicaria									
*Aerva javanica									
Amaranthus cuspidifolius									
Amaranthus undulatus									
Ammannia auriculata									
Amphipogon sericeus			+			1%		+	
Amyema fitzgeraldii		+							
Anthobolus leptomerioides					+				
Aristida contorta	+	1%		(+)				+	+
Aristida holathera	1%	1%						+	
Aristida holathera var. holathera									
Aristida holathera var. latifolia									
Aristida inaequiglumis									+
Aristida ingrata	20%	2%		1%			+		
Atriplex codonocarpa									
*Bidens bipinnata	+	+							
Boerhavia burbridgeana	+								
Boerhavia coccinea	+	+							
Boerhavia repleta									
Bonamia media var. villosa									
Bonamia rosea				1%	+		+		
Bulbostylis barbata									
Calytrix carinata			+			1%			+
Capparis lasiantha									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37	
Cassutha capillaris					+					
*Cenchrus ciliaris	2%	1%		+	+					
*Cenchrus setiger										
Centipeda minima subsp. macrocephala										
Cheilanthes sieberi subsp. sieberi			nc							
Chloris pumilio										
Chrysocephalum aff. apiculatum					+				+	
Chrysocephalum pterochaetum				+				+		
Chrysopogon fallax							+			
Cleome oxalidea	+									
Cleome viscosa	+	+								
Clerodendrum floribundum var. angustifolium										
Codonocarpus cotinifolius										
Convolvulus angustissimus subsp. angustissimus										
Corchorus crozophorifolius										
Corchorus lasiocarpus subsp. lasiocarpus										
Corchorus lasiocarpus subsp. parvus										
Corchorus sidoides subsp. sidoides								+		
Corchorus tridens										
Corymbia aspera										
Corymbia candida subsp. dipsodes		N/A								
Corymbia deserticola subsp. deserticola			+				+			
Corymbia hamersleyana							1%			
Crotalaria medicaginea var. neglecta										
Cucumis maderaspatanus										
*Cucumis melo subsp. agrestis										
Cullen sp.										
Cymbopogon ambiguus	+									
Cymbopogon obtectus	1%	+	nc	2%	+	+	+	4%	+	
Cymbopogon procerus										
*Cynodon dactylon										
Cyperus difformis										
Cyperus ixiocarpus										
Cyperus vaginatus										

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37	
<i>Dactyloctenium radulans</i>	+	+								
<i>Dampiera candidans</i>										
* <i>Datura leichhardtii</i>										
<i>Dichanthium fecundum</i>										
<i>Dicrastylis cordifolia</i>				+						
<i>Dicrastylis georgei</i>					+		+		+	
<i>Digitaria brownii</i>							+			
<i>Digitaria ctenantha</i>										
<i>Dipteracanthus australasicus</i> subsp. <i>australasicus</i>										
<i>Dodonaea coriacea</i>			+		1%	+				nc
<i>Dodonaea pachyneura</i>										
<i>Duperreya commixta</i>			nc	+	+		nc			
<i>Dysphania plantaginella</i>										
<i>Dysphania rhadinostachya</i>	+									
* <i>Echinochloa colona</i>										
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>										
<i>Enneapogon caerulescens</i>		+								
<i>Enneapogon intermedius</i>										
<i>Enneapogon lindleyanus</i>										
<i>Enneapogon polyphyllus</i>	+	1%					+			
<i>Enteropogon ramosus</i>										
<i>Eragrostis</i> aff. <i>eripoda</i>					1%		+			
<i>Eragrostis eripoda</i>				+						
<i>Eragrostis falcata</i>	+	1%	+		1%			+		1%
<i>Eragrostis tenellula</i>										
<i>Eremophila cuneifolia</i>			nc							
<i>Eremophila exilifolia</i>								+		
<i>Eremophila forrestii</i> ? subsp. <i>forrestii</i>		+								
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>										
<i>Eremophila forrestii</i> x <i>latrobei</i>										
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>										
<i>Eremophila lanceolata</i>										
<i>Eremophila latrobei</i> subsp. aff. <i>filiformis</i>			+							
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>										

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37
<i>Eremophila latrobei</i> subsp. <i>glabra</i>									
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>									
<i>Eremophila longifolia</i>					2%				
<i>Eremophila macmillaniana</i>									
<i>Eremophila maculata</i> subsp. <i>brevifolia</i>									
<i>Eremophila margarethae</i>									
<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>									
<i>Eriachne aristidea</i>	+	+							
<i>Eriachne helmsii</i>	1%	+			+		+		
<i>Eriachne lanata</i>						+			
<i>Eriachne mucronata</i>					+			1%	
<i>Eriachne obtusa</i>									
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	+	+							
<i>Eriachne tenuiculmis</i>									
<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i>									
<i>Eucalyptus gamophylla</i>				5%	2%			5%	nc
<i>Eucalyptus leucophloia</i>									
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>						N/A			
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>									
<i>Eucalyptus trivalva</i>									
<i>Eucalyptus victrix</i>									
<i>Eucalyptus xerothermica</i>									
<i>Eulalia aurea</i>	3%		1%				1%		+
<i>Euphorbia australis</i>	+			+					
<i>Euphorbia biconvexa</i>									
<i>Euphorbia coghlanii</i>									
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	+	+		+	+				
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>									
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+	+		+			+		
<i>Ficus brachypoda</i>									
<i>Fimbristylis simulans</i>								+	
<i>Glinus lotoides</i>									
<i>Glycine canescens</i>									
<i>Gompholobium karrijini</i>			nc		+			+	

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37	
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+	+	nc	+						+
<i>Gomphrena cunninghamii</i>										
<i>Gomphrena sordida</i>										
<i>Goodenia lamprosperma</i>	+									
<i>Goodenia microptera</i>	+									
<i>Goodenia muelleriana</i>										
<i>Goodenia nuda</i>										
<i>Goodenia prostrata</i>	+									
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)										
<i>Goodenia stobbsiana</i>									+	
<i>Goodenia triodiophila</i>					+	+				
<i>Goodenia vilmorinae</i>										
<i>Gossypium australe</i>										
<i>Gossypium robinsonii</i>										
<i>Gossypium sturtianum</i>										
<i>Grevillea berryana</i>						+				
<i>Grevillea striata</i>										
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>			2%		+	+		+	+	
<i>Hakea chordophylla</i>						+		+		
<i>Hakea lorea</i> subsp. <i>lorea</i>	nc	1%	+	1%	1%		+	1%	+	
<i>Hakea preissii</i>										
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>			5%		+	5%		20%		
<i>Heliotropium heteranthum</i>										
<i>Heliotropium inexplicitum</i>										
<i>Heliotropium tanythrix</i>										
<i>Hibiscus</i> aff. <i>coatesii</i>										
<i>Hibiscus burtonii</i>	+	+		+						
<i>Hibiscus haynaldii</i>										
<i>Hibiscus sturtii</i>										
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>	+									
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>										
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>					+					
<i>Hibiscus sturtii</i> var. <i>truncatus</i>				+						
<i>Hybanthus aurantiacus</i>				+	+		+	+		

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar									
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37	
Indigofera georgei							+			
Indigofera monophylla			+		+	+		+	+	
Ipomoea calobra		+								
Ipomoea coptica										
Ipomoea muelleri										
Ipomoea polymorpha										
Iseilema macrathetrum										
Isotropis atropurpurea										
Isotropis forrestii										
Jasminum didymum subsp. lineare					+					
Kennedia prorepens					1%		1%			
Keraudrenia nephrosperma			+	+					1%	
Leiocarpa semicalva										
Lepidium phlebopetalum										
Leptochloa digitata										
Leptopus decaisnei var. orbicularis										
Lysiana casuarinae										
Maireana georgei										
Maireana melanocoma										
Maireana planifolia										
Maireana planifolia x villosa	+	+								
Maireana pyramidata										
Maireana triptera										
Maireana villosa	+									
*Malvastrum americanum										
Melaleuca lasiandra										
Melhania sp.										
Mollugo molluginea										
Muelleranthus trifoliolatus										
Neptunia dimorphantha										
Nicotiana benthamiana										
Panicum effusum										
Paraneurachne muelleri		+		1%	1%	+	+	5%	1%	
Paspalidium clementii										

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37
Paspalidium rarum									
Paspalidium sp.	+	1%							
Perotis rara	+	+							
Petalostylis labicheoides				1%					
Phyllanthus maderaspatensis									
Pluchea rubelliflora									
Polycarpaea longiflora			nc						
Polygala aff. isingii									
Polymeria aff. ambigua									
*Portulaca oleracea	+	+							
Portulaca pilosa									
Portulaca sp.									
Psydrax latifolia									
Pterocaulon serrulatum									
Pterocaulon sphaeranthoides			nc						
Ptilotus astrolasius var. astrolasius									
Ptilotus calostachyus			+			+		+	
Ptilotus clementii									
Ptilotus exaltatus	+					+		+	
Ptilotus exaltatus var. exaltatus									
Ptilotus gaudichaudii var. gaudichaudii									
Ptilotus helipteroides	+								
Ptilotus obovatus	+			+	+				+
Ptilotus polystachyus var. arthrotrichus	+	+							
Ptilotus roei									
Ptilotus rotundifolius						1%			
Ptilotus schwartzii var. schwartzii									
Rhagodia eremaea	+	+							
Rhyncharrhena linearis		+		+					
Rhynchosia minima	+								
Rulingia luteiflora									
Rutidosis helichrysoides									
Salsola tragus									
Santalum lanceolatum									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37
Sauropus trachyspermus									
Scaevola acacioides					+				
Scaevola aff. browniana			1%						
Scaevola amblyanthera var. centralis									
Scaevola parvifolia subsp. pilbarae			+	+	1%			+	+
Scaevola sp.									
Scaevola spinescens									
Schizachyrium fragile									
Schoenoplectus litoralis									
Sclerolaena convexula									
Sclerolaena cornishiana									
Sclerolaena costata	+								
Sclerolaena cuneata									
Sclerolaena densiflora									
Sclerolaena deserticola			nc						
Sclerolaena diacantha									
Sclerolaena eriacantha									
Senna artemisioides aff subsp oligophylla	+								
Senna artemisioides subsp. filifolia	+								
Senna artemisioides subsp. helmsii									+
Senna artemisioides subsp. oligophylla	+	+			+		nc		+
Senna artemisioides subsp. oligophylla x helmsii	+			+				+	
Senna artemisioides subsp. x artemisioides									
Senna glaucifolia									
Senna glutinosa subsp. glutinosa			1%						
Senna glutinosa subsp. glutinosa x luerssenii									
Senna glutinosa subsp. pruinosa		+	+		+	+		+	1%
Senna glutinosa subsp. x luerssenii			nc			+		+	+
Senna notabilis									
Senna sericea			nc						
Senna sp. Meekatharra (E. Bailey 1-26)		+							
Senna stricta									
Senna venusta									
Setaria dielsii									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37
Setaria surgens									
*Setaria verticillata	+								
Sida aff. clementii									
Sida aff. echinocarpa									
Sida aff. fibulifera									
Sida arenicola									
Sida cardiophylla				+					
Sida clementii									
Sida echinocarpa							+		
Sida fibulifera									
Sida platycalyx	1%								
Sida sp. Excedentifolia (J.L. Egan 1925)									
Sida sp. golden calyces (H.N. Foote 32) PN									
Sida sp. Pilbara (A.A. Mitchell PRP 1543)									
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)									
Sida sp. verrucose glands (F.H. Mollemans 2423)				+					+
Solanum aff. sturtianum					+				
Solanum centrale				+		+		+	
Solanum ellipticum									
Solanum horridum									
Solanum lasiophyllum	+	+	nc	+		+		+	+
*Sonchus oleraceus									
Sporobolus actinocladus									
Sporobolus australasicus									
Stemodia grossa									
Stenopetalum decipiens									
Streptoglossa cylindriceps									
Streptoglossa decurrens									
Streptoglossa sp.	+								
Stylobasium spathulatum				+					
Swainsona kingii									
Tephrosia densa									
Tephrosia rosea var. glabrior									
Tephrosia supina									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJ28	NJ30	NJ31	NJ32	NJ33	NJ34	NJ35	NJ36	NJ37
<i>Themeda triandra</i>							+	+	
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>									
<i>Trianthema glossostigma</i>						+		+	
<i>Trianthema pilosa</i>		+							
<i>Trianthema triquetra</i>									
<i>Tribulus astrocarpus</i>	+	+							
<i>Tribulus macrocarpus</i>									
<i>Tribulus suberosus</i>			nc			+		+	+
* <i>Tribulus terrestris</i>									
<i>Trichodesma zeylanicum</i>	+						nc		
<i>Triodia angusta</i>									
<i>Triodia basedowii</i>		12%		40%					
<i>Triodia longiceps</i>									
<i>Triodia pungens</i>	35%								
<i>Triodia schinzii</i>					20%		15%		
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)			40%			50%		20%	25%
<i>Triodia wiseana</i>									1%
<i>Triraphis mollis</i>									
<i>Triumfetta maconochieana</i>									
<i>Typha domingensis</i>									
* <i>Vachellia farnesiana</i>									
<i>Vittadinia obovata</i>									
<i>Waltheria indica</i>									
<i>Xerochloa imberbis</i>		(+)							
<i>Yakirra australiensis</i> var. <i>australiensis</i>									

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimbleb									
SPECIES NAME	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
? Pluchea rubelliflora									
Abutilon aff. lepidum									
Abutilon amplum									
Abutilon cryptopetalum					nc				
Abutilon fraseri									
Abutilon lepidum	+								
Abutilon otoparpum					nc	+		+	
Abutilon sp.									
Acacia adoxa						+			
Acacia adoxa var. adoxa									
Acacia adsurgens	N/A				+	1%			
Acacia aff. adsurgens									
Acacia aff. stowardii					+	1%		1%	
Acacia ancistrocarpa		+		+			1%		1%
Acacia aneura ? var. conifera								5%	
Acacia aneura var. ? pilbarana		1%					1%		
Acacia aneura var. aneura									
Acacia aneura var. intermedia					+				
Acacia aneura var. longicarpa									
Acacia aneura var. pilbarana									
Acacia aneura var. tenuis	+	+		nc	5%	20%			
Acacia ayersiana						5%			
Acacia bivenosa		3%	+	+	+	15%			4%
Acacia catenulata subsp. occidentalis							1%		
Acacia citrinoviridis	2%		+		3%				
Acacia coriacea subsp. pendens									
Acacia dictyophleba				+	+				
Acacia hilliania			15%			2%			
Acacia inaequilatera				+					1%
Acacia ligulata			1%						
Acacia kempeana									
Acacia maitlandii						+			
Acacia melleodora							60%		
Acacia monticola	60%			+					

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb								
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
Acacia pachyacra						+			
Acacia pruinocarpa		+	+	+	2%	2%	+	5%	
Acacia pyrifolia var. pyrifolia	+				+	+			
Acacia rhodophloia								1%	
Acacia sclerosperma								5%	
Acacia sclerosperma subsp. sclerosperma									
Acacia synchronicia						1%		1%	
Acacia tenuissima				+					+
Acacia tetragonophylla		+		1%	+			+	
Acacia trudgeniana									
*Acetosa vesicaria									
*Aerva javanica									
Amaranthus cuspidifolius					+				
Amaranthus undulatus									
Ammannia auriculata									
Amphipogon sericeus			+						
Amyema fitzgeraldii					+				
Anthobolus leptomerioides						1%			
Aristida contorta					+				
Aristida holathera	+				+	1%		+	
Aristida holathera var. holathera									
Aristida holathera var. latifolia									
Aristida inaequiglumis							+		
Aristida ingrata	+				1%	%		+	
Atriplex codonocarpa									
*Bidens bipinnata					+			+	
Boerhavia burbridgeana									
Boerhavia coccinea									
Boerhavia repleta					+				
Bonamia media var. villosa									
Bonamia rosea	+						+		
Bulbostylis barbata									
Calytrix carinata			+						
Capparis lasiantha									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb								
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
Cassytha capillaris									
*Cenchrus ciliaris	5%				30%	2%		10%	
*Cenchrus setiger									
Centipeda minima subsp. macrocephala									
Cheilanthes sieberi subsp. sieberi									
Chloris pumilio									
Chrysocephalum aff. apiculatum									
Chrysocephalum pterochaetum									
Chrysopogon fallax									
Cleome oxalidea									
Cleome viscosa					+				
Clerodendrum floribundum var. angustifolium									
Codonocarpus cotinifolius			+			+			
Convolvulus angustissimus subsp. angustissimus									
Corchorus crozophorifolius									
Corchorus lasiocarpus subsp. lasiocarpus					+				
Corchorus lasiocarpus subsp. parvus									
Corchorus sidoides subsp. sidoides	+		+			+			
Corchorus tridens									
Corymbia aspera								1%	
Corymbia candida subsp. dipsodes									
Corymbia deserticola subsp. deserticola									
Corymbia hamersleyana	4%				2%		2%		+
Crotalaria medicaginea var. neglecta									
Cucumis maderaspatanus									
*Cucumis melo subsp. agrestis									
Cullen sp.									
Cymbopogon ambiguus									
Cymbopogon obtectus	1%					+		+	
Cymbopogon procerus									
*Cynodon dactylon									
Cyperus difformis									
Cyperus ixiocarpus									
Cyperus vaginatus									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb								
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
Dactyloctenium radulans					(+)			+	
Dampiera candidans									
*Datura leichhardtii									
Dichanthium fecundum									
Dicrastylis cordifolia					+				
Dicrastylis georgei									
Digitaria brownii									
Digitaria ctenantha					+ (5%)				
Dipteracanthus australasicus subsp. australasicus								+	
Dodonaea coriacea			+			+			
Dodonaea pachyneura									
Duperreya commixta	+			+	+	+	+	+	
Dysphania plantaginella									
Dysphania rhadinostachya									
*Echinochloa colona									
Enchylaena tomentosa var. tomentosa					+				
Enneapogon caerulescens	+							+	
Enneapogon intermedius									
Enneapogon lindleyanus					+			+	
Enneapogon polyphyllus					1%	+		+	
Enteropogon ramosus									
Eragrostis aff. eriopoda					1%	+	+	+	
Eragrostis eriopoda									
Eragrostis falcata	+	+	+	+					+
Eragrostis tenellula	+								
Eremophila cuneifolia		1%		1%					
Eremophila exilifolia									
Eremophila forrestii ? subsp. forrestii					+	2%		1%	
Eremophila forrestii subsp. forrestii									
Eremophila forrestii x latrobei									
Eremophila fraseri subsp. fraseri									
Eremophila lanceolata								+	
Eremophila latrobei subsp. aff. filiformis		+							
Eremophila latrobei subsp. filiformis						+			

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb								
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
<i>Eremophila latrobei</i> subsp. <i>glabra</i>									
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>						+			
<i>Eremophila longifolia</i>									
<i>Eremophila macmillaniana</i>									
<i>Eremophila maculata</i> subsp. <i>brevifolia</i>									
<i>Eremophila margarethae</i>									
<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>									
<i>Eriachne aristidea</i>	+				+				
<i>Eriachne helmsii</i>									
<i>Eriachne lanata</i>									
<i>Eriachne mucronata</i>	+			+	+		+		
<i>Eriachne obtusa</i>									
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>									
<i>Eriachne tenuiculmis</i>									
<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i>									
<i>Eucalyptus gamophylla</i>	N/A					3%			10%
<i>Eucalyptus leucophloia</i>									
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>		+	N/A	2%		+			
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>									1%
<i>Eucalyptus trivalva</i>		1%							
<i>Eucalyptus victrix</i>									
<i>Eucalyptus xerothermica</i>								1%	+
<i>Eulalia aurea</i>					nc				
<i>Euphorbia australis</i>					+			+	
<i>Euphorbia biconvexa</i>									
<i>Euphorbia coghlanii</i>									
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>					+			+	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>									
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+				2%	+			
<i>Ficus brachypoda</i>									
<i>Fimbristylis simulans</i>		+	+	+					
<i>Glinus lotoides</i>									
<i>Glycine canescens</i>									
<i>Gompholobium karrijini</i>							1%		

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb								
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
<i>Gomphrena canescens</i> subsp. <i>canescens</i>		+			+				
<i>Gomphrena cunninghamii</i>	+								
<i>Gomphrena sordida</i>									
<i>Goodenia lamprosperma</i>									
<i>Goodenia microptera</i>									
<i>Goodenia muelleriana</i>									
<i>Goodenia nuda</i>									
<i>Goodenia prostrata</i>									
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)									
<i>Goodenia stobbsiana</i>									
<i>Goodenia triodiophila</i>			+						
<i>Goodenia vilmorinae</i>									
<i>Gossypium australe</i>									
<i>Gossypium robinsonii</i>	+			nc	+				
<i>Gossypium sturtianum</i>									
<i>Grevillea berryana</i>									
<i>Grevillea striata</i>			+						
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+		1%			+			+
<i>Hakea chordophylla</i>			1%			+		+	+
<i>Hakea lorea</i> subsp. <i>lorea</i>					+			+	
<i>Hakea preissii</i>									
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>			+			+			
<i>Heliotropium heteranthum</i>									
<i>Heliotropium inexplicitum</i>									
<i>Heliotropium tanythrix</i>					+				
<i>Hibiscus</i> aff. <i>coatesii</i>									
<i>Hibiscus burtonii</i>					+	+	+	+	
<i>Hibiscus haynaldii</i>									
<i>Hibiscus sturtii</i>									
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>	+								
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>									
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>					+			+	
<i>Hibiscus sturtii</i> var. <i>truncatus</i>	+					+			
<i>Hybanthus aurantiacus</i>	+				+		+		

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimbleb									
SPECIES NAME	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
Indigofera georgei					+				
Indigofera monophylla	+		+			+	+		
Ipomoea calobra									
Ipomoea coptica									
Ipomoea muelleri									
Ipomoea polymorpha									
Iseilema macrathetrum									
Isotropis atropurpurea	+								
Isotropis forrestii	+								
Jasminum didymum subsp. lineare									
Kennedia prorepens									
Keraudrenia nephrosperma	+	+				+	+		
Leiocarpa semicalva									
Lepidium phlebopetalum									
Leptochloa digitata									
Leptopus decaisnei var. orbicularis									
Lysiana casuarinae		nc							
Maireana georgei		1%		+					
Maireana melanocoma		+		+					
Maireana planifolia									
Maireana planifolia x villosa								+	
Maireana pyramidata									
Maireana triptera									
Maireana villosa									
*Malvastrum americanum									
Melaleuca lasiandra									
Melhania sp.					+			+	
Mollugo molluginea					+				
Muelleranthus trifoliolatus									
Neptunia dimorphantha									
Nicotiana benthamiana									
Panicum effusum						+			
Paraneurachne muelleri	+				2%	3%	2%	1%	
Paspalidium clementii	10%				8%	+		+	

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb								
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
Paspalidium rarum									
Paspalidium sp.									
Perotis rara					1%				
Petalostylis labicheoides	5%				+		20%		3%
Phyllanthus maderaspatensis									
Pluchea rubelliflora									
Polycarpaea longiflora									
Polygala aff. isingii									
Polymeria aff. ambigua									
*Portulaca oleracea					+				
Portulaca pilosa									
Portulaca sp.									
Psydrax latifolia									
Pterocaulon serrulatum									
Pterocaulon sphaeranthoides									
Ptilotus astrolasius var. astrolasius	+								+
Ptilotus calostachyus			+						
Ptilotus clementii					+	+			
Ptilotus exaltatus	+				+			+	
Ptilotus exaltatus var. exaltatus		+		+					
Ptilotus gaudichaudii var. gaudichaudii									
Ptilotus helipteroides					+				
Ptilotus obovatus					1%	+			
Ptilotus polystachyus var. arthrotrichus								+	
Ptilotus roei									
Ptilotus rotundifolius			1%						
Ptilotus schwartzii var. schwartzii									
Rhagodia eremaea					+	+		+	
Rhyncharrhena linearis	+								+
Rhynchosia minima					+			+	
Rulingia luteiflora	+	+			1%		+		
Rutidosis helichrysoides									
Salsola tragus					+			+	
Santalum lanceolatum	2%	+				1	+		

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimbleb									
SPECIES NAME	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
Sauropus trachyspermus									
Scaevola acacioides									
Scaevola aff. browniana									
Scaevola amblyanthera var. centralis									
Scaevola parvifolia subsp. pilbarae	+								
Scaevola sp.									
Scaevola spinescens				+					
Schizachyrium fragile									
Schoenoplectus litoralis									
Sclerolaena convexula									
Sclerolaena cornishiana									
Sclerolaena costata					+			+	
Sclerolaena cuneata						+			
Sclerolaena densiflora									
Sclerolaena deserticola									
Sclerolaena diacantha									
Sclerolaena eriacantha						+			
Senna artemisioides aff subsp oligophylla			+		+			+	
Senna artemisioides subsp. filifolia									
Senna artemisioides subsp. helmsii									
Senna artemisioides subsp. oligophylla	+	+	+		1%			+	+
Senna artemisioides subsp. oligophylla x helmsii					1%	2%			
Senna artemisioides subsp. x artemisioides									
Senna glaucifolia	+								
Senna glutinosa subsp. glutinosa	+	+	1%	1%	+				
Senna glutinosa subsp. glutinosa x luerssenii									
Senna glutinosa subsp. pruinosa		+		+					
Senna glutinosa subsp. x luerssenii		+	1%		+	+			
Senna notabilis								+	
Senna sericea		+	+						
Senna sp. Meekatharra (E. Bailey 1-26)		+							
Senna stricta									
Senna venusta									
Setaria dielsii					+				

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb									
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48	
Setaria surgens	1%									
*Setaria verticillata					+					
Sida aff. clementii										
Sida aff. echinocarpa										
Sida aff. fibulifera										
Sida arenicola										
Sida cardiophylla	+					+				
Sida clementii										
Sida echinocarpa				+						
Sida fibulifera										
Sida platycalyx										
Sida sp. Excedentifolia (J.L. Egan 1925)										
Sida sp. golden calyces (H.N. Foote 32) PN										
Sida sp. Pilbara (A.A. Mitchell PRP 1543)										
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)										
Sida sp. verrucose glands (F.H. Mollemans 2423)	+				+	+		+		
Solanum aff. sturtianum						+				
Solanum centrale						+				
Solanum ellipticum										
Solanum horridum										
Solanum lasiophyllum		+		+	+	+	+	+		
*Sonchus oleraceus										
Sporobolus actinocladus										
Sporobolus australasicus										
Stemodia grossa										
Stenopetalum decipiens										
Streptoglossa cylindriceps										
Streptoglossa decurrens										
Streptoglossa sp.										
Stylobasium spathulatum										
Swainsona kingii										
Tephrosia densa										
Tephrosia rosea var. glabrior	1%				1%			+		
Tephrosia supina										

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimbleb								
	NJ38	NJ39	NJ40	NJ41	NJ42	NJ44	NJ45	NJ46	NJ48
<i>Themeda triandra</i>	10%						+	+	
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	+								
<i>Trianthema glossostigma</i>									
<i>Trianthema pilosa</i>					+				
<i>Trianthema triquetra</i>									
<i>Tribulus astrocarpus</i>									
<i>Tribulus macrocarpus</i>					+				
<i>Tribulus suberosus</i>	+		+	+		+		+	
* <i>Tribulus terrestris</i>									
<i>Trichodesma zeylanicum</i>	+				1%	+			
<i>Triodia angusta</i>		20%		15%			1%		
<i>Triodia basedowii</i>	+					40%			
<i>Triodia longiceps</i>									
<i>Triodia pungens</i>	20%	15%			8%			20%	65%
<i>Triodia schinzii</i>									
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)			50%						
<i>Triodia wiseana</i>							2%		
<i>Triraphis mollis</i>									
<i>Triumfetta maconochieana</i>									
<i>Typha domingensis</i>									
* <i>Vachellia farnesiana</i>									
<i>Vittadinia obovata</i>									
<i>Waltheria indica</i>									
<i>Xerochloa imberbis</i>									
<i>Yakirra australiensis</i> var. <i>australiensis</i>									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman to
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
? Pluchea rubelliflora									
Abutilon aff. lepidum									
Abutilon amplum		+							
Abutilon cryptopetalum									
Abutilon fraseri									
Abutilon lepidum									
Abutilon otocarpum	+								
Abutilon sp.									
Acacia adoxa									
Acacia adoxa var. adoxa									
Acacia adsurgens		+							
Acacia aff. adsurgens									
Acacia aff. stowardii	+								
Acacia ancistrocarpa									
Acacia aneura ? var. conifera									
Acacia aneura var. ? pilbarana	1%								
Acacia aneura var. aneura									
Acacia aneura var. intermedia									
Acacia aneura var. longicarpa									
Acacia aneura var. pilbarana									
Acacia aneura var. tenuis	1%							1%	+
Acacia ayersiana									
Acacia bivenosa	10%	15%	8%	5%	2%	1%	1%	5%	1%
Acacia catenulata subsp. occidentalis									
Acacia citrinoviridis	+	10%	+	10%				1%	
Acacia coriacea subsp. pendens									
Acacia dictyophleba									
Acacia hilliana			5%						
Acacia inaequilatera						+		+	
Acacia ligulata									
Acacia kempeana									
Acacia maitlandii							1%		
Acacia melleodora					40%				
Acacia monticola									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman tc
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
Acacia pachyacra				+					
Acacia pruinocarpa	3%							+	
Acacia pyrifolia var. pyrifolia		20%		5%	+				
Acacia rhodophloia									
Acacia sclerosperma						20%			
Acacia sclerosperma subsp. sclerosperma									
Acacia synchronicia	+					+	1%	+	1%
Acacia tenuissima						2%			
Acacia tetragonophylla									
Acacia trudgeniana									
*Acetosa vesicaria									
*Aerva javanica		+							
Amaranthus cuspidifolius									
Amaranthus undulatus		+							
Ammannia auriculata									
Amphipogon sericeus			1%				+		+
Amyema fitzgeraldii									
Anthobolus leptomerioides									
Aristida contorta							+		1%
Aristida holathera		+		+		+		+	
Aristida holathera var. holathera									
Aristida holathera var. latifolia									
Aristida inaequiglumis	1%								
Aristida ingrata		1%		+		2%		+	
Atriplex codonocarpa									
*Bidens bipinnata		+		+					
Boerhavia burbridgeana									
Boerhavia coccinea				+					
Boerhavia repleta									
Bonamia media var. villosa									
Bonamia rosea		1%		+	+				
Bulbostylis barbata									
Calytrix carinata			+						
Capparis lasiantha						+			

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman to
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
Cassya capillaris									
*Cenchrus ciliaris	1%	30%		30%	1%	5%		3%	1%
*Cenchrus setiger									
Centipeda minima subsp. macrocephala									
Cheilanthes sieberi subsp. sieberi									
Chloris pumilio									
Chrysocephalum aff. apiculatum		+		+				+	
Chrysocephalum pterochaetum									
Chrysopogon fallax						+			
Cleome oxalidea									
Cleome viscosa		+		+					
Clerodendrum floribundum var. angustifolium									
Codonocarpus cotinifolius			+					+	
Convolvulus angustissimus subsp. angustissimus									
Corchorus crozophorifolius	+								
Corchorus lasiocarpus subsp. lasiocarpus		+	+						
Corchorus lasiocarpus subsp. parvus									
Corchorus sidoides subsp. sidoides									
Corchorus tridens									
Corymbia aspera									
Corymbia candida subsp. dipsodes						+			
Corymbia deserticola subsp. deserticola									
Corymbia hamersleyana		5%		3%	+	2%			
Crotalaria medicaginea var. neglecta									
Cucumis maderaspatanus		+		+					
*Cucumis melo subsp. agrestis									
Cullen sp.									
Cymbopogon ambiguus		+		+	+				
Cymbopogon obtectus				+	+	+	+	+	+
Cymbopogon procerus									
*Cynodon dactylon									
Cyperus difformis									
Cyperus ixiocarpus									
Cyperus vaginatus									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar							Newman tc	
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
Dactyloctenium radulans									
Dampiera candidans							+		
*Datura leichhardtii									
Dichanthium fecundum									
Dicrastylis cordifolia									
Dicrastylis georgei									
Digitaria brownii									
Digitaria ctenantha						+			
Dipteracanthus australasicus subsp. australasicus		+							
Dodonaea coriacea									
Dodonaea pachyneura									
Duperreya commixta	+	+		+	+	+		+	+
Dysphania plantaginella									
Dysphania rhadinostachya									
*Echinochloa colona									
Enchylaena tomentosa var. tomentosa									
Enneapogon caerulescens									
Enneapogon intermedius									+
Enneapogon lindleyanus		+		1%	+				
Enneapogon polyphyllus	+							+	
Enteropogon ramosus									
Eragrostis aff. eriopoda									
Eragrostis eriopoda									
Eragrostis falcata						+		+	
Eragrostis tenellula								+	
Eremophila cuneifolia									
Eremophila exilifolia			1%						
Eremophila forrestii ? subsp. forrestii								+	
Eremophila forrestii subsp. forrestii									
Eremophila forrestii x latrobei									
Eremophila fraseri subsp. fraseri									
Eremophila lanceolata									
Eremophila latrobei subsp. aff. filiformis									+
Eremophila latrobei subsp. filiformis									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman tc
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
<i>Eremophila latrobei</i> subsp. <i>glabra</i>		+		+					+
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>									
<i>Eremophila longifolia</i>				+		1%			
<i>Eremophila macmillaniana</i>									
<i>Eremophila maculata</i> subsp. <i>brevifolia</i>								+	
<i>Eremophila margarethae</i>									
<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>									
<i>Eriachne aristidea</i>									
<i>Eriachne helmsii</i>									
<i>Eriachne lanata</i>									
<i>Eriachne mucronata</i>		1%		1%	2%		1%		
<i>Eriachne obtusa</i>									
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>									
<i>Eriachne tenuiculmis</i>					1%				
<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i>									
<i>Eucalyptus gamophylla</i>					+	1%		5%	
<i>Eucalyptus leucophloia</i>									
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>			1%		+				
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>									
<i>Eucalyptus trivalva</i>									
<i>Eucalyptus victrix</i>									
<i>Eucalyptus xerothermica</i>	1%	N/A		5%		5%			
<i>Eulalia aurea</i>		2%		1%	+	3%			
<i>Euphorbia australis</i>		+						+	
<i>Euphorbia biconvexa</i>									
<i>Euphorbia coghlanii</i>									
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>									
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>				+					
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>		+		+					
<i>Ficus brachypoda</i>									
<i>Fimbristylis simulans</i>							+		
<i>Glinus lotoides</i>									
<i>Glycine canescens</i>									
<i>Gompholobium karrijini</i>			+						

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman to
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
<i>Gomphrena canescens</i> subsp. <i>canescens</i>									+
<i>Gomphrena cunninghamii</i>									
<i>Gomphrena sordida</i>									
<i>Goodenia lamprosperma</i>									
<i>Goodenia microptera</i>									
<i>Goodenia muelleriana</i>									
<i>Goodenia nuda</i>									
<i>Goodenia prostrata</i>									
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)									
<i>Goodenia stobbsiana</i>		+					+		+
<i>Goodenia triodiophila</i>									
<i>Goodenia vilmorinae</i>									
<i>Gossypium australe</i>									+
<i>Gossypium robinsonii</i>		+		+					
<i>Gossypium sturtianum</i>									
<i>Grevillea berryana</i>									
<i>Grevillea striata</i>									
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>		+	+	+					
<i>Hakea chordophylla</i>			+			1%		1%	
<i>Hakea lorea</i> subsp. <i>lorea</i>	1%			+		+	+		
<i>Hakea preissii</i>									
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>									
<i>Heliotropium heteranthum</i>									
<i>Heliotropium inexplicitum</i>									
<i>Heliotropium tanythrix</i>									
<i>Hibiscus</i> aff. <i>coatesii</i>							+	+	
<i>Hibiscus burtonii</i>	+							+	
<i>Hibiscus haynaldii</i>		+							
<i>Hibiscus sturtii</i>			+			+			
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>									
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>									
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>						+		+	
<i>Hibiscus sturtii</i> var. <i>truncatus</i>									
<i>Hybanthus aurantiacus</i>		+		+	+				

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar							Newman tc	
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
Indigofera georgei		+		+					
Indigofera monophylla		+							
Ipomoea calobra									
Ipomoea coptica									
Ipomoea muelleri									
Ipomoea polymorpha									
Iseilema macrathetrum									
Isotropis atropurpurea		+		+					
Isotropis forrestii									
Jasminum didymum subsp. lineare		+							
Kennedia prorepens				1%					
Keraudrenia nephrosperma	+		+					+	
Leiocarpa semicalva		+							
Lepidium phlebopetalum									
Leptochloa digitata									
Leptopus decaisnei var. orbicularis		+							
Lysiana casuarinae									
Maireana georgei									
Maireana melanocoma									
Maireana planifolia									
Maireana planifolia x villosa						+		+	
Maireana pyramidata									
Maireana triptera									
Maireana villosa									
*Malvastrum americanum		+							
Melaleuca lasiandra									
Melhania sp.		+		+					
Mollugo molluginea									
Muelleranthus trifoliolatus									
Neptunia dimorphantha									
Nicotiana benthamiana									
Panicum effusum									
Paraneurachne muelleri					1%		+	+	
Paspalidium clementii		1%		1%					

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman tc
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
Paspalidium rarum									
Paspalidium sp.									
Perotis rara									
Petalostylis labicheoides	+	20%		10%	20%				
Phyllanthus maderaspatensis									
Pluchea rubelliflora									
Polycarpaea longiflora									
Polygala aff. isingii									
Polymeria aff. ambigua		+		+					
*Portulaca oleracea									
Portulaca pilosa									
Portulaca sp.									
Psydrax latifolia									
Pterocaulon serrulatum									
Pterocaulon sphaeranthoides				+					
Ptilotus astrolasius var. astrolasius			+						
Ptilotus calostachyus							+		
Ptilotus clementii								+	
Ptilotus exaltatus		+		+				+	
Ptilotus exaltatus var. exaltatus	+								
Ptilotus gaudichaudii var. gaudichaudii									
Ptilotus helipteroides									
Ptilotus obovatus		+		+		1%	+	2%	+
Ptilotus polystachyus var. arthrotrichus									
Ptilotus roei									
Ptilotus rotundifolius			+						
Ptilotus schwartzii var. schwartzii									
Rhagodia eremaea		+				+		+	
Rhyncharrhena linearis				+					
Rhynchosia minima		+		+	+				
Rulingia luteiflora		20%		10%	1%				
Rutidosis helichrysoides									
Salsola tragus		+							
Santalum lanceolatum		2%		+	1%				

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman tc
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
Sauropus trachyspermus									
Scaevola acacioides									
Scaevola aff. browniana									
Scaevola amblyanthera var. centralis									
Scaevola parvifolia subsp. pilbarae				+					
Scaevola sp.									
Scaevola spinescens		+		+	1%				
Schizachyrium fragile							+		
Schoenoplectus litoralis									
Sclerolaena convexula									
Sclerolaena cornishiana									
Sclerolaena costata									
Sclerolaena cuneata									
Sclerolaena densiflora									
Sclerolaena deserticola									
Sclerolaena diacantha									
Sclerolaena eriacantha									
Senna artemisioides aff subsp oligophylla									
Senna artemisioides subsp. filifolia									
Senna artemisioides subsp. helmsii									
Senna artemisioides subsp. oligophylla	+	+	+	+		+		+	
Senna artemisioides subsp. oligophylla x helmsii					+				
Senna artemisioides subsp. x artemisioides		+							
Senna glaucifolia									
Senna glutinosa subsp. glutinosa							+		+
Senna glutinosa subsp. glutinosa x luerssenii									
Senna glutinosa subsp. pruinosa			+				+		
Senna glutinosa subsp. x luerssenii			+				1%	+	1%
Senna notabilis									
Senna sericea									
Senna sp. Meekatharra (E. Bailey 1-26)									
Senna stricta									
Senna venusta									
Setaria dielsii									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman tc
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
Setaria surgens									
*Setaria verticillata				+					
Sida aff. clementii									
Sida aff. echinocarpa					+				+
Sida aff. fibulifera									
Sida arenicola									
Sida cardiophylla			+						
Sida clementii									
Sida echinocarpa									
Sida fibulifera									
Sida platycalyx									
Sida sp. Excedentifolia (J.L. Egan 1925)							+		
Sida sp. golden calyces (H.N. Foote 32) PN									
Sida sp. Pilbara (A.A. Mitchell PRP 1543)							+		
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)									
Sida sp. verrucose glands (F.H. Mollemans 2423)		+							
Solanum aff. sturtianum									
Solanum centrale						+			
Solanum ellipticum									
Solanum horridum									
Solanum lasiophyllum		+	+	+		+	+	+	+
*Sonchus oleraceus									
Sporobolus actinocladus									
Sporobolus australasicus									
Stemodia grossa									
Stenopetalum decipiens									
Streptoglossa cylindriceps									
Streptoglossa decurrens									
Streptoglossa sp.									
Stylobasium spathulatum					nc			1%	
Swainsona kingii									
Tephrosia densa		5%		1%			+		
Tephrosia rosea var. glabrior	+			2%					
Tephrosia supina									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ar								Newman tc
	NJ49	NJ50	NJ52	NJ54	NJ55	NJ56	NJ57	NJ58	NJ61
<i>Themeda triandra</i>	2%	+		1%	1%				
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>									
<i>Trianthema glossostigma</i>									
<i>Trianthema pilosa</i>									
<i>Trianthema triquetra</i>									
<i>Tribulus astrocarpus</i>									
<i>Tribulus macrocarpus</i>									
<i>Tribulus suberosus</i>							+		1%
* <i>Tribulus terrestris</i>									
<i>Trichodesma zeylanicum</i>		1%		+	+				
<i>Triodia angusta</i>					nc				
<i>Triodia basedowii</i>									
<i>Triodia longiceps</i>									
<i>Triodia pungens</i>	50%	25%		30%	50%	65%		40%	
<i>Triodia schinzii</i>									
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)			35%				70%	5%	5%
<i>Triodia wiseana</i>									
<i>Triraphis mollis</i>									
<i>Triumfetta maconochieana</i>							+		
<i>Typha domingensis</i>									
* <i>Vachellia farnesiana</i>									
<i>Vittadinia obovata</i>									
<i>Waltheria indica</i>									
<i>Xerochloa imberbis</i>									
<i>Yakirra australiensis</i> var. <i>australiensis</i>									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
? Pluchea rubelliflora									
Abutilon aff. lepidum									
Abutilon amplum									
Abutilon cryptopetalum									
Abutilon fraseri				nc					
Abutilon lepidum									
Abutilon otocarpum			+						
Abutilon sp.									
Acacia adoxa									
Acacia adoxa var. adoxa				nc					
Acacia adsurgens		+						10%	
Acacia aff. adsurgens				nc					
Acacia aff. stowardii									
Acacia ancistrocarpa		2%							
Acacia aneura ? var. conifera							1%		
Acacia aneura var. ? pilbarana									
Acacia aneura var. aneura									
Acacia aneura var. intermedia									
Acacia aneura var. longicarpa				nc					
Acacia aneura var. pilbarana	1%								
Acacia aneura var. tenuis		+	3%						
Acacia ayersiana									
Acacia bivenosa	1%	2%	+					nc	
Acacia catenulata subsp. occidentalis									
Acacia citrinoviridis									1%
Acacia coriacea subsp. pendens									
Acacia dictyophleba									
Acacia hilliana				nc					
Acacia inaequilatera		+	3%						
Acacia ligulata									
Acacia kempeana									
Acacia maitlandii	+								+
Acacia melleodora									
Acacia monticola	50%								1%

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
Acacia pachyacra			+	nc					
Acacia pruinocarpa			+						
Acacia pyrifolia var. pyrifolia									1%
Acacia rhodophloia									
Acacia sclerosperma									
Acacia sclerosperma subsp. sclerosperma									
Acacia synchronicia							10%		
Acacia tenuissima		1%							
Acacia tetragonophylla							1%		
Acacia trudgeniana									
*Acetosa vesicaria									
*Aerva javanica				nc					
Amaranthus cuspidifolius									
Amaranthus undulatus									
Ammannia auriculata									
Amphipogon sericeus		1%							
Amyema fitzgeraldii									
Anthobolus leptomerioides									
Aristida contorta		+	+						
Aristida holathera									
Aristida holathera var. holathera			1%						
Aristida holathera var. latifolia									
Aristida inaequiglumis			+						
Aristida ingrata				nc					
Atriplex codonocarpa									
*Bidens bipinnata	+				+				
Boerhavia burbridgeana									
Boerhavia coccinea									
Boerhavia repleta									
Bonamia media var. villosa									
Bonamia rosea	+		+	nc					
Bulbostylis barbata				nc					
Calytrix carinata									
Capparis lasiantha				nc					

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
Cassya capillaris									
*Cenchrus ciliaris	+	+	1%	nc		1%	2%		2%
*Cenchrus setiger				nc		1%			
Centipeda minima subsp. macrocephala									
Cheilanthes sieberi subsp. sieberi									
Chloris pumilio									
Chrysocephalum aff. apiculatum									
Chrysocephalum pterochaetum				nc					
Chrysopogon fallax									
Cleome oxalidea									
Cleome viscosa	+		+			+			+
Clerodendrum floribundum var. angustifolium				nc					
Codonocarpus cotinifolius				nc					
Convolvulus angustissimus subsp. angustissimus									
Corchorus crozophorifolius									
Corchorus lasiocarpus subsp. lasiocarpus									
Corchorus lasiocarpus subsp. parvus	+								+
Corchorus sidoides subsp. sidoides								+	
Corchorus tridens				nc	+				
Corymbia aspera				nc					
Corymbia candida subsp. dipsodes									
Corymbia deserticola subsp. deserticola				nc					
Corymbia hamersleyana		+							10%
Crotalaria medicaginea var. neglecta						+			
Cucumis maderaspatanus									
*Cucumis melo subsp. agrestis				nc					
Cullen sp.									
Cymbopogon ambiguus									
Cymbopogon obtectus	1%	1%	1%					1%	
Cymbopogon procerus									4%
*Cynodon dactylon									
Cyperus difformis									
Cyperus ixiocarpus									+
Cyperus vaginatus					+				

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
Dactyloctenium radulans									
Dampiera candidans	+								
*Datura leichhardtii				nc		+			
Dichanthium fecundum						+			
Dicrastylis cordifolia									
Dicrastylis georgei		+							
Digitaria brownii									
Digitaria ctenantha									
Dipteracanthus australasicus subsp. australasicus									
Dodonaea coriacea									
Dodonaea pachyneura				nc					
Duperreya commixta	+	+							
Dysphania plantaginella									
Dysphania rhadinostachya									
*Echinochloa colona				nc	2%	30%			
Enchylaena tomentosa var. tomentosa									
Enneapogon caerulescens									
Enneapogon intermedius									
Enneapogon lindleyanus									
Enneapogon polyphyllus									
Enteropogon ramosus				nc					
Eragrostis aff. eriopoda	+		1%						
Eragrostis eriopoda			1%						
Eragrostis falcata								+	
Eragrostis tenellula									
Eremophila cuneifolia									
Eremophila exilifolia				nc					
Eremophila forrestii ? subsp. forrestii									
Eremophila forrestii subsp. forrestii			+						
Eremophila forrestii x latrobei									
Eremophila fraseri subsp. fraseri									
Eremophila lanceolata				nc					
Eremophila latrobei subsp. aff. filiformis				nc					
Eremophila latrobei subsp. filiformis									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
<i>Eremophila latrobei</i> subsp. <i>glabra</i>				nc					
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>									
<i>Eremophila longifolia</i>				nc					
<i>Eremophila macmillaniana</i>							+		
<i>Eremophila maculata</i> subsp. <i>brevifolia</i>									
<i>Eremophila margarethae</i>				nc					
<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>									
<i>Eriachne aristidea</i>									
<i>Eriachne helmsii</i>									
<i>Eriachne lanata</i>				nc					
<i>Eriachne mucronata</i>	1%								
<i>Eriachne obtusa</i>									
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>				nc					
<i>Eriachne tenuiculmis</i>									
<i>Eucalyptus camaldulensis</i> var. <i>obtusa</i>					10%	<2%			
<i>Eucalyptus gamophylla</i>	1%	2%	+						
<i>Eucalyptus leucophloia</i>									
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>		1%		nc					
<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i>									
<i>Eucalyptus trivalva</i>									
<i>Eucalyptus victrix</i>						10%			
<i>Eucalyptus xerothermica</i>									
<i>Eulalia aurea</i>									1%
<i>Euphorbia australis</i>			+						
<i>Euphorbia biconvexa</i>									
<i>Euphorbia coghlanii</i>	+								
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>						+			
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>									
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	+		+						
<i>Ficus brachypoda</i>				nc					
<i>Fimbristylis simulans</i>		+		nc					
<i>Glinus lotoides</i>									
<i>Glycine canescens</i>									
<i>Gompholobium karrijini</i>		+	+					10%	

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
<i>Gomphrena canescens</i> subsp. <i>canescens</i>		+	+						
<i>Gomphrena cunninghamii</i>				nc					
<i>Gomphrena sordida</i>									
<i>Goodenia lamprosperma</i>									
<i>Goodenia microptera</i>			+	nc					
<i>Goodenia muelleriana</i>				nc					
<i>Goodenia nuda</i>				nc					
<i>Goodenia prostrata</i>							+		
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)				nc					
<i>Goodenia stobbsiana</i>		+							
<i>Goodenia triodiophila</i>				nc					
<i>Goodenia vilmorinae</i>				nc					
<i>Gossypium australe</i>									
<i>Gossypium robinsonii</i>	+								
<i>Gossypium sturtianum</i>				nc					
<i>Grevillea berryana</i>				nc					
<i>Grevillea striata</i>							1%		
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>									+
<i>Hakea chordophylla</i>									
<i>Hakea lorea</i> subsp. <i>lorea</i>		+							
<i>Hakea preissii</i>									
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>				nc				1%	
<i>Heliotropium heteranthum</i>									
<i>Heliotropium inexplicitum</i>									
<i>Heliotropium tanythrix</i>									
<i>Hibiscus</i> aff. <i>coatesii</i>									
<i>Hibiscus burtonii</i>			+						
<i>Hibiscus haynaldii</i>				nc					
<i>Hibiscus sturtii</i>		+							
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>									
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>		+							
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>									
<i>Hibiscus sturtii</i> var. <i>truncatus</i>									
<i>Hybanthus aurantiacus</i>	+	+	+					+	

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
Indigofera georgei									
Indigofera monophylla		+		nc					
Ipomoea calobra									
Ipomoea coptica									
Ipomoea muelleri						+			
Ipomoea polymorpha									
Iseilema macrathetum									
Isotropis atropurpurea				nc					
Isotropis forrestii									
Jasminum didymum subsp. lineare									
Kennedia prorepens									
Keraudrenia nephrosperma		1%	+	nc					
Leiocarpa semicalva									
Lepidium phlebopetalum				nc					
Leptochloa digitata					+				
Leptopus decaisnei var. orbicularis									
Lysiana casuarinae									
Maireana georgei									
Maireana melanocoma									
Maireana planifolia		+		nc					
Maireana planifolia x villosa									
Maireana pyramidata									
Maireana triptera									
Maireana villosa									
*Malvastrum americanum				nc		+			
Melaleuca lasiandra									
Melhania sp.	+								
Mollugo molluginea									
Muelleranthus trifoliolatus									
Neptunia dimorphantha									
Nicotiana benthamiana				nc					
Panicum effusum									
Paraneurachne muelleri	3%	1%	2%	nc				+	
Paspalidium clementii	+								

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
Paspalidium rarum									
Paspalidium sp.									
Perotis rara									
Petalostylis labicheoides	3%				2%				2%
Phyllanthus maderaspatensis						+			+
Pluchea rubelliflora									
Polycarpaea longiflora									
Polygala aff. isingii									
Polymeria aff. ambigua									
*Portulaca oleracea			+				+		
Portulaca pilosa									
Portulaca sp.									
Psydrax latifolia									
Pterocaulon serrulatum									
Pterocaulon sphaeranthoides									
Ptilotus astrolasius var. astrolasius									
Ptilotus calostachyus		+							
Ptilotus clementii				nc					
Ptilotus exaltatus									
Ptilotus exaltatus var. exaltatus			+						
Ptilotus gaudichaudii var. gaudichaudii									
Ptilotus helipteroides			+	nc			+		
Ptilotus obovatus		+							
Ptilotus polystachyus var. arthrotrichus				nc					
Ptilotus roei				nc					
Ptilotus rotundifolius									
Ptilotus schwartzii var. schwartzii				nc					
Rhagodia eremaea									
Rhyncharrhena linearis									
Rhynchosia minima	+								+
Rulingia luteiflora				nc					
Rutidosis helichrysoides				nc					
Salsola tragus			+						
Santalum lanceolatum	1%			nc				1%	

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
Sauropus trachyspermus									
Scaevola acacioides				nc					
Scaevola aff. browniana									
Scaevola amblyanthera var. centralis									
Scaevola parvifolia subsp. pilbarae									
Scaevola sp.									
Scaevola spinescens									
Schizachyrium fragile									
Schoenoplectus litoralis									
Sclerolaena convexula									
Sclerolaena cornishiana									
Sclerolaena costata									
Sclerolaena cuneata							+		
Sclerolaena densiflora									
Sclerolaena deserticola									
Sclerolaena diacantha									
Sclerolaena eriacantha									
Senna artemisioides aff subsp oligophylla									
Senna artemisioides subsp. filifolia									
Senna artemisioides subsp. helmsii		+							
Senna artemisioides subsp. oligophylla	+	+	+						
Senna artemisioides subsp. oligophylla x helmsii									
Senna artemisioides subsp. x artemisioides									
Senna glaucifolia									
Senna glutinosa subsp. glutinosa									
Senna glutinosa subsp. glutinosa x luerssenii									
Senna glutinosa subsp. pruinosa									
Senna glutinosa subsp. x luerssenii		+	+				+		
Senna notabilis									
Senna sericea				nc					
Senna sp. Meekatharra (E. Bailey 1-26)									
Senna stricta				nc				+	
Senna venusta				nc					
Setaria dielsii				nc					

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
Setaria surgens									
*Setaria verticillata									
Sida aff. clementii									
Sida aff. echinocarpa									
Sida aff. fibulifera									
Sida arenicola									
Sida cardiophylla			+						
Sida clementii									
Sida echinocarpa									
Sida fibulifera									
Sida platycalyx				nc					
Sida sp. Excedentifolia (J.L. Egan 1925)				nc					
Sida sp. golden calyces (H.N. Foote 32) PN				nc					
Sida sp. Pilbara (A.A. Mitchell PRP 1543)									
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	+								
Sida sp. verrucose glands (F.H. Mollemans 2423)	+								
Solanum aff. sturtianum									
Solanum centrale									
Solanum ellipticum									
Solanum horridum									
Solanum lasiophyllum	+	+	+				1-2%		
*Sonchus oleraceus									
Sporobolus actinocladus									
Sporobolus australasicus									+
Stemodia grossa									
Stenopetalum decipiens									
Streptoglossa cylindriceps									
Streptoglossa decurrens									
Streptoglossa sp.							+		
Stylobasium spathulatum									
Swainsona kingii									
Tephrosia densa									
Tephrosia rosea var. glabrior									3%
Tephrosia supina									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Jimblebar								
	NJ63	NJ65	NJ67	NJOP	NJR08	NJR10	NJR12	NJR16	NJR17
<i>Themeda triandra</i>	3%		1%			3%			
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>									
<i>Trianthema glossostigma</i>		+							
<i>Trianthema pilosa</i>									
<i>Trianthema triquetra</i>									
<i>Tribulus astrocarpus</i>									
<i>Tribulus macrocarpus</i>									
<i>Tribulus suberosus</i>									
* <i>Tribulus terrestris</i>				nc					
<i>Trichodesma zeylanicum</i>									
<i>Triodia angusta</i>				nc					
<i>Triodia basedowii</i>									
<i>Triodia longiceps</i>									
<i>Triodia pungens</i>	25%		25%						
<i>Triodia schinzii</i>									
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)		15%						2%	
<i>Triodia wiseana</i>		5%							
<i>Triraphis mollis</i>									
<i>Triumfetta maconochieana</i>									
<i>Typha domingensis</i>					+				
* <i>Vachellia farnesiana</i>				nc					
<i>Vittadinia obovata</i>									
<i>Waltheria indica</i>									
<i>Xerochloa imberbis</i>									
<i>Yakirra australiensis</i> var. <i>australiensis</i>			+						

APPENDIX I

Matrix of Species Found Within Each Site

Newman to Jimblebar									
SPECIES NAME	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
? Pluchea rubelliflora									
Abutilon aff. lepidum									
Abutilon amplum									
Abutilon cryptopetalum									
Abutilon fraseri									
Abutilon lepidum									
Abutilon otocarpum									
Abutilon sp.									
Acacia adoxa									
Acacia adoxa var. adoxa				1%					
Acacia adsurgens									
Acacia aff. adsurgens									
Acacia aff. stowardii						1%			
Acacia ancistrocarpa									
Acacia aneura ? var. conifera			+						
Acacia aneura var. ? pilbarana									
Acacia aneura var. aneura									
Acacia aneura var. intermedia									
Acacia aneura var. longicarpa									
Acacia aneura var. pilbarana									
Acacia aneura var. tenuis									
Acacia ayersiana									
Acacia bivenosa		+		3%				+	+
Acacia catenulata subsp. occidentalis			3%						
Acacia citrinoviridis	30%		40%		8%		4%		
Acacia coriacea subsp. pendens									
Acacia dictyophleba									
Acacia hilliana								5%	
Acacia inaequilatera						+			
Acacia ligulata							15%		
Acacia kempeana									
Acacia maitlandii			5%						
Acacia melleodora									
Acacia monticola		20%							

APPENDIX I

Matrix of Species Found Within Each Site

ewman to Jimblebar									
SPECIES NAME	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Acacia pachyacra				+					
Acacia pruinocarpa			1%				4%		
Acacia pyrifolia var. pyrifolia					+				
Acacia rhodophloia									
Acacia sclerosperma									
Acacia sclerosperma subsp. sclerosperma									
Acacia synchronicia									
Acacia tenuissima									+
Acacia tetragonophylla			+						
Acacia trudgeniana									
*Acetosa vesicaria									
*Aerva javanica									
Amaranthus cuspidifolius									
Amaranthus undulatus									
Ammannia auriculata									
Amphipogon sericeus									
Amyema fitzgeraldii									
Anthobolus leptomerioides									
Aristida contorta									
Aristida holathera									
Aristida holathera var. holathera									
Aristida holathera var. latifolia									
Aristida inaequiglumis									
Aristida ingrata									
Atriplex codonocarpa									
*Bidens bipinnata									
Boerhavia burbridgeana									
Boerhavia coccinea									
Boerhavia repleta									
Bonamia media var. villosa									
Bonamia rosea									
Bulbostylis barbata									
Calytrix carinata									
Capparis lasiantha									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
<i>Cassutha capillaris</i>									
* <i>Cenchrus ciliaris</i>		+			10%	+			
* <i>Cenchrus setiger</i>									
<i>Centipeda minima</i> subsp. <i>macrocephala</i>									
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>									
<i>Chloris pumilio</i>									
<i>Chrysocephalum</i> aff. <i>apiculatum</i>									
<i>Chrysocephalum pterochaetum</i>									
<i>Chrysopogon fallax</i>									
<i>Cleome oxalidea</i>									
<i>Cleome viscosa</i>					+				
<i>Clerodendrum floribundum</i> var. <i>angustifolium</i>									
<i>Codonocarpus cotinifolius</i>								+	
<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>									
<i>Corchorus crozophorifolius</i>									
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>									
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>									
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>									
<i>Corchorus tridens</i>									
<i>Corymbia aspera</i>									
<i>Corymbia candida</i> subsp. <i>dipsodes</i>									
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>									
<i>Corymbia hamersleyana</i>								1%	
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>									
<i>Cucumis maderaspatanus</i>									
* <i>Cucumis melo</i> subsp. <i>agrestis</i>									
<i>Cullen</i> sp.									
<i>Cymbopogon ambiguus</i>									
<i>Cymbopogon obtectus</i>		1%				+			
<i>Cymbopogon procerus</i>									
* <i>Cynodon dactylon</i>									
<i>Cyperus difformis</i>									
<i>Cyperus ixiocarpus</i>									
<i>Cyperus vaginatus</i>					2%				

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Dactyloctenium radulans									
Dampiera candidans									
*Datura leichhardtii									
Dichanthium fecundum									
Dicrastylis cordifolia									
Dicrastylis georgei									
Digitaria brownii									
Digitaria ctenantha									
Dipteracanthus australasicus subsp. australasicus									
Dodonaea coriacea									
Dodonaea pachyneura									
Duperreya commixta		+	+						
Dysphania plantaginella									
Dysphania rhadinostachya									
*Echinochloa colona					3%				
Enchylaena tomentosa var. tomentosa									
Enneapogon caerulescens									
Enneapogon intermedius									
Enneapogon lindleyanus									
Enneapogon polyphyllus									
Enteropogon ramosus									
Eragrostis aff. eriopoda									
Eragrostis eriopoda									
Eragrostis falcata	1%								
Eragrostis tenellula									
Eremophila cuneifolia									+
Eremophila exilifolia							5%		
Eremophila forrestii ? subsp. forrestii									
Eremophila forrestii subsp. forrestii									
Eremophila forrestii x latrobei									
Eremophila fraseri subsp. fraseri						2%			
Eremophila lanceolata									
Eremophila latrobei subsp. aff. filiformis									
Eremophila latrobei subsp. filiformis	1%		+						

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Eremophila latrobei subsp. glabra									
Eremophila latrobei subsp. latrobei									
Eremophila longifolia									
Eremophila macmillaniana									
Eremophila maculata subsp. brevifolia									
Eremophila margarethae									
Eremophila platycalyx subsp. pardalota									
Eriachne aristidea									
Eriachne helmsii									
Eriachne lanata									
Eriachne mucronata			10%		+			1%	
Eriachne obtusa									
Eriachne pulchella subsp. pulchella									
Eriachne tenuiculmis									
Eucalyptus camaldulensis var. obtusa									
Eucalyptus gamophylla									
Eucalyptus leucophloia									
Eucalyptus leucophloia subsp. leucophloia	2%	2%		4%			5%	+	3%
Eucalyptus socialis subsp. eucentrica									
Eucalyptus trivalva									nc
Eucalyptus victrix					25%				
Eucalyptus xerothermica					+				
Eulalia aurea									
Euphorbia australis			+						
Euphorbia biconvexa									
Euphorbia coghlanii									
Euphorbia tannensis subsp. eremophila									
Evolvulus alsinoides var. decumbens									
Evolvulus alsinoides var. villosicalyx									
Ficus brachypoda									
Fimbristylis simulans									
Glinus lotoides									
Glycine canescens									
Gompholobium karrijini								5%	

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Gomphrena canescens subsp. canescens									
Gomphrena cunninghamii									
Gomphrena sordida									
Goodenia lamprosperma									
Goodenia microptera									
Goodenia muelleriana									
Goodenia nuda									
Goodenia prostrata									
Goodenia sp. Sandy Creek (R.D. Royce 1653)									
Goodenia stobbsiana									
Goodenia triodiophila									
Goodenia vilmorinae									
Gossypium australe									
Gossypium robinsonii		1%	+		+			+	
Gossypium sturtianum									
Grevillea berryana									
Grevillea striata									
Grevillea wickhamii subsp. hispidula				+				1%	
Hakea chordophylla			+						
Hakea lorea subsp. lorea									
Hakea preissii									
Halgania solanacea aff. var. hirsuta									
Heliotropium heteranthum									
Heliotropium inexplicitum									
Heliotropium tanythrix									
Hibiscus aff. coatesii									
Hibiscus burtonii									
Hibiscus haynaldii									
Hibiscus sturtii									
Hibiscus sturtii var. aff. grandiflorus									
Hibiscus sturtii var. campylochlamys									
Hibiscus sturtii var. platychlamys									
Hibiscus sturtii var. truncatus									
Hybanthus aurantiacus			+						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Indigofera georgei									
Indigofera monophylla				+					
Ipomoea calobra									
Ipomoea coptica									
Ipomoea muelleri									
Ipomoea polymorpha									
Iseilema macratherum									
Isotropis atropurpurea									
Isotropis forrestii									
Jasminum didymum subsp. lineare									
Kennedia prorepens									
Keraudrenia nephrosperma	+								
Leiocarpa semicalva									
Lepidium phlebopetalum									
Leptochloa digitata									
Leptopus decaisnei var. orbicularis									
Lysiana casuarinae									
Maireana georgei				+					+
Maireana melanocoma									+
Maireana planifolia									
Maireana planifolia x villosa									
Maireana pyramidata									
Maireana triptera									
Maireana villosa									
*Malvastrum americanum									
Melaleuca lasiandra									
Melhania sp.									
Mollugo molluginea									
Muelleranthus trifoliolatus									
Neptunia dimorphantha									
Nicotiana benthamiana									
Panicum effusum									
Paraneurachne muelleri		1%							
Paspalidium clementii									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Paspalidium rarum									
Paspalidium sp.									
Perotis rara									
Petalostylis labicheoides					+		1%	5%	
Phyllanthus maderaspatensis									
Pluchea rubelliflora									
Polycarpaea longiflora									
Polygala aff. isingii									
Polymeria aff. ambigua									
*Portulaca oleracea									
Portulaca pilosa									
Portulaca sp.									
Psydrax latifolia	+								
Pterocaulon serrulatum									
Pterocaulon sphaeranthoides									
Ptilotus astrolasius var. astrolasius							1%		
Ptilotus calostachyus									
Ptilotus clementii									
Ptilotus exaltatus									
Ptilotus exaltatus var. exaltatus									
Ptilotus gaudichaudii var. gaudichaudii									
Ptilotus helipteroides									
Ptilotus obovatus									+
Ptilotus polystachyus var. arthrotrichus									
Ptilotus roei									
Ptilotus rotundifolius									
Ptilotus schwartzii var. schwartzii									
Rhagodia eremaea									
Rhyncharrhena linearis									
Rhynchosia minima									
Rulingia luteiflora									
Rutidosis helichrysoides									
Salsola tragus									
Santalum lanceolatum									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Sauropus trachyspermus									
Scaevola acacioides									
Scaevola aff. browniana									
Scaevola amblyanthera var. centralis									
Scaevola parvifolia subsp. pilbarae									
Scaevola sp.									
Scaevola spinescens									
Schizachyrium fragile									
Schoenoplectus litoralis									
Sclerolaena convexula									
Sclerolaena cornishiana									
Sclerolaena costata									
Sclerolaena cuneata									
Sclerolaena densiflora									
Sclerolaena deserticola									
Sclerolaena diacantha									
Sclerolaena eriacantha									
Senna artemisioides aff subsp oligophylla									
Senna artemisioides subsp. filifolia									
Senna artemisioides subsp. helmsii						1%			
Senna artemisioides subsp. oligophylla						1%			
Senna artemisioides subsp. oligophylla x helmsii									
Senna artemisioides subsp. x artemisioides									
Senna glaucifolia									
Senna glutinosa subsp. glutinosa							+		+
Senna glutinosa subsp. glutinosa x luerssenii									
Senna glutinosa subsp. pruinosa		+						+	+
Senna glutinosa subsp. x luerssenii				+		2%	+	+	
Senna notabilis									
Senna sericea									
Senna sp. Meekatharra (E. Bailey 1-26)									
Senna stricta									
Senna venusta									
Setaria dielsii					+				

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
Setaria surgens			+						
*Setaria verticillata									
Sida aff. clementii									
Sida aff. echinocarpa									
Sida aff. fibulifera									
Sida arenicola									
Sida cardiophylla									
Sida clementii									
Sida echinocarpa									
Sida fibulifera									
Sida platycalyx									
Sida sp. Excedentifolia (J.L. Egan 1925)									
Sida sp. golden calyces (H.N. Foote 32) PN									
Sida sp. Pilbara (A.A. Mitchell PRP 1543)									
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)						+			
Sida sp. verrucose glands (F.H. Mollemans 2423)									
Solanum aff. sturtianum									
Solanum centrale									
Solanum ellipticum									
Solanum horridum									
Solanum lasiophyllum									+
*Sonchus oleraceus									
Sporobolus actinocladus									
Sporobolus australasicus									
Stemodia grossa									
Stenopetalum decipiens									
Streptoglossa cylindriceps									
Streptoglossa decurrens									
Streptoglossa sp.									
Stylobasium spathulatum									
Swainsona kingii									
Tephrosia densa									
Tephrosia rosea var. glabrior					+				
Tephrosia supina									

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar								
	NJR18	NJR20	NJR22	NJR24	NJR26	NJR29	NJR30	NJR32	NJR43
<i>Themeda triandra</i>		10%	+						
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>									
<i>Trianthema glossostigma</i>									
<i>Trianthema pilosa</i>									
<i>Trianthema triquetra</i>									
<i>Tribulus astrocarpus</i>									
<i>Tribulus macrocarpus</i>									
<i>Tribulus suberosus</i>									+
* <i>Tribulus terrestris</i>									
<i>Trichodesma zeylanicum</i>		+	+						
<i>Triodia angusta</i>									20%
<i>Triodia basedowii</i>	10%								
<i>Triodia longiceps</i>									
<i>Triodia pungens</i>		10%	10%	1%		25%	75%	60%	
<i>Triodia schinzii</i>									
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)				40%				1%	
<i>Triodia wiseana</i>									
<i>Triraphis mollis</i>									
<i>Triumfetta maconochieana</i>									
<i>Typha domingensis</i>									
* <i>Vachellia farnesiana</i>									
<i>Vittadinia obovata</i>									
<i>Waltheria indica</i>									
<i>Xerochloa imberbis</i>									
<i>Yakirra australiensis</i> var. <i>australiensis</i>									

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
? Pluchea rubelliflora						
Abutilon aff. lepidum						
Abutilon amplum		1%				
Abutilon cryptopetalum						
Abutilon fraseri						+
Abutilon lepidum						
Abutilon otoparum						
Abutilon sp.						
Acacia adoxa						
Acacia adoxa var. adoxa						
Acacia adsurgens				1%		
Acacia aff. adsurgens						
Acacia aff. stowardii						
Acacia ancistrocarpa		+				
Acacia aneura ? var. conifera						
Acacia aneura var. ? pilbarana	3%					3%
Acacia aneura var. aneura						
Acacia aneura var. intermedia						
Acacia aneura var. longicarpa			3%			
Acacia aneura var. pilbarana						
Acacia aneura var. tenuis						
Acacia ayersiana						
Acacia bivenosa	+		1%	30%	1%	10%
Acacia catenulata subsp. occidentalis						
Acacia citrinoviridis		+		+		+
Acacia coriacea subsp. pendens						
Acacia dictyophleba			+			
Acacia hilliana	+					
Acacia inaequilatera					+	
Acacia ligulata					+	
Acacia kempeana						4%
Acacia maitlandii						
Acacia melleodora						
Acacia monticola						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
Acacia pachyacra	+					
Acacia pruinocarpa	+					2%
Acacia pyrifolia var. pyrifolia						
Acacia rhodophloia						
Acacia sclerosperma					1%	
Acacia sclerosperma subsp. sclerosperma						
Acacia synchronicia	1%				1%	+
Acacia tenuissima						
Acacia tetragonophylla	+					+
Acacia trudgeniana						
*Acetosa vesicaria		+				
*Aerva javanica						+
Amaranthus cuspidifolius						
Amaranthus undulatus		+				
Ammannia auriculata		nc				
Amphipogon sericeus						
Amyema fitzgeraldii						
Anthobolus leptomerioides						
Aristida contorta						
Aristida holathera						
Aristida holathera var. holathera						
Aristida holathera var. latifolia						
Aristida inaequiglumis	1%					
Aristida ingrata						
Atriplex codonocarpa						
*Bidens bipinnata						
Boerhavia burbridgeana						
Boerhavia coccinea						
Boerhavia repleta						
Bonamia media var. villosa						
Bonamia rosea						
Bulbostylis barbata						
Calytrix carinata						
Capparis lasiantha						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	Newman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
<i>Cassutha capillaris</i>						
* <i>Cenchrus ciliaris</i>		70%	20%		+	10%
* <i>Cenchrus setiger</i>						
<i>Centipeda minima</i> subsp. <i>macrocephala</i>						
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>						
<i>Chloris pumilio</i>						
<i>Chrysocephalum</i> aff. <i>apiculatum</i>						
<i>Chrysocephalum pterochaetum</i>						
<i>Chrysopogon fallax</i>			30%			
<i>Cleome oxalidea</i>						
<i>Cleome viscosa</i>		+				
<i>Clerodendrum floribundum</i> var. <i>angustifolium</i>						
<i>Codonocarpus cotinifolius</i>					+	+
<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>						
<i>Corchorus crozophorifolius</i>						
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>						
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>						+
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>						
<i>Corchorus tridens</i>						
<i>Corymbia aspera</i>						
<i>Corymbia candida</i> subsp. <i>dipsodes</i>						
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>			2%			
<i>Corymbia hamersleyana</i>			5%			
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>						
<i>Cucumis maderaspatanus</i>						
* <i>Cucumis melo</i> subsp. <i>agrestis</i>						
<i>Cullen</i> sp.						
<i>Cymbopogon ambiguus</i>						1%
<i>Cymbopogon obtectus</i>				+		+
<i>Cymbopogon procerus</i>						
* <i>Cynodon dactylon</i>		5%				
<i>Cyperus difformis</i>		+				
<i>Cyperus ixiocarpus</i>						
<i>Cyperus vaginatus</i>						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
Dactyloctenium radulans						
Dampiera candidans						
*Datura leichhardtii						
Dichanthium fecundum						
Dicrastylis cordifolia						
Dicrastylis georgei						
Digitaria brownii						
Digitaria ctenantha						
Dipteracanthus australasicus subsp. australasicus						
Dodonaea coriacea						
Dodonaea pachyneura						
Duperreya commixta				+	+	+
Dysphania plantaginella						
Dysphania rhadinostachya						
*Echinochloa colona		1%				
Enchylaena tomentosa var. tomentosa						
Enneapogon caerulescens						
Enneapogon intermedius						
Enneapogon lindleyanus						
Enneapogon polyphyllus			+	+		+
Enteropogon ramosus						
Eragrostis aff. eriopoda						
Eragrostis eriopoda	1%			1%		
Eragrostis falcata						
Eragrostis tenellula						
Eremophila cuneifolia						
Eremophila exilifolia						
Eremophila forrestii ? subsp. forrestii						
Eremophila forrestii subsp. forrestii						
Eremophila forrestii x latrobei						
Eremophila fraseri subsp. fraseri						
Eremophila lanceolata						
Eremophila latrobei subsp. aff. filiformis	1%					
Eremophila latrobei subsp. filiformis						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
Eremophila latrobei subsp. glabra						
Eremophila latrobei subsp. latrobei						
Eremophila longifolia						
Eremophila macmillaniana						
Eremophila maculata subsp. brevifolia						
Eremophila margarethae						
Eremophila platycalyx subsp. pardalota						
Eriachne aristidea						
Eriachne helmsii						
Eriachne lanata						
Eriachne mucronata						
Eriachne obtusa						
Eriachne pulchella subsp. pulchella						
Eriachne tenuiculmis						
Eucalyptus camaldulensis var. obtusa		8%				
Eucalyptus gamophylla	+				1%	1%
Eucalyptus leucophloia						6%
Eucalyptus leucophloia subsp. leucophloia				1%		
Eucalyptus socialis subsp. eucentrica						
Eucalyptus trivalva					1%	
Eucalyptus victrix						
Eucalyptus xerothermica			7%			
Eulalia aurea		1%	1%			
Euphorbia australis						+
Euphorbia biconvexa		+				
Euphorbia coghlanii						
Euphorbia tannensis subsp. eremophila						
Evolvulus alsinoides var. decumbens						
Evolvulus alsinoides var. villosicalyx			+			
Ficus brachypoda						
Fimbristylis simulans						
Glinus lotoides		nc				
Glycine canescens	+					
Gompholobium karijini						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	+			+		+
<i>Gomphrena cunninghamii</i>						
<i>Gomphrena sordida</i>						
<i>Goodenia lamprosperma</i>						
<i>Goodenia microptera</i>						
<i>Goodenia muelleriana</i>						
<i>Goodenia nuda</i>						
<i>Goodenia prostrata</i>						
<i>Goodenia</i> sp. Sandy Creek (R.D. Royce 1653)						
<i>Goodenia stobbsiana</i>						+
<i>Goodenia triodiophila</i>						
<i>Goodenia vilmoriniae</i>						
<i>Gossypium australe</i>						
<i>Gossypium robinsonii</i>						
<i>Gossypium sturtianum</i>						
<i>Grevillea berryana</i>						
<i>Grevillea striata</i>						
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	+					
<i>Hakea chordophylla</i>						+
<i>Hakea lorea</i> subsp. <i>lorea</i>					+	+
<i>Hakea preissii</i>						
<i>Halgania solanacea</i> aff. var. <i>hirsuta</i>						
<i>Heliotropium heteranthum</i>						
<i>Heliotropium inexplicitum</i>						
<i>Heliotropium tanythrix</i>						
<i>Hibiscus</i> aff. <i>coatesii</i>						
<i>Hibiscus burtonii</i>				nc		
<i>Hibiscus haynaldii</i>						
<i>Hibiscus sturtii</i>						
<i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>						
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>						
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>				+		
<i>Hibiscus sturtii</i> var. <i>truncatus</i>						
<i>Hybanthus aurantiacus</i>						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
Indigofera georgei						
Indigofera monophylla						+
Ipomoea calobra						
Ipomoea coptica						
Ipomoea muelleri						
Ipomoea polymorpha						
Iseilema macratherum						
Isotropis atropurpurea						
Isotropis forrestii						
Jasminum didymum subsp. lineare						
Kennedia prorepens						
Keraudrenia nephrosperma						+
Leiocarpa semicalva						
Lepidium phlebopetalum						
Leptochloa digitata						
Leptopus decaisnei var. orbicularis						
Lysiana casuarinae						
Maireana georgei	+					
Maireana melanocoma						
Maireana planifolia			+			2%
Maireana planifolia x villosa						
Maireana pyramidata						
Maireana triptera						
Maireana villosa						
*Malvastrum americanum		5%	+			
Melaleuca lasiandra						
Melhania sp.						
Mollugo molluginea						
Muelleranthus trifoliolatus						
Neptunia dimorphantha						
Nicotiana benthamiana						
Panicum effusum						
Paraneurachne muelleri			1%	1%		1%
Paspalidium clementii						

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
Paspalidium rarum						
Paspalidium sp.						
Perotis rara						
Petalostylis labicheoides					+	1%
Phyllanthus maderaspatensis						
Pluchea rubelliflora						
Polycarpaea longiflora						
Polygala aff. isingii						
Polymeria aff. ambigua						
*Portulaca oleracea						
Portulaca pilosa						
Portulaca sp.						
Psydrax latifolia						
Pterocaulon serrulatum						
Pterocaulon sphaeranthoides		+				
Ptilotus astrolasius var. astrolasius						+
Ptilotus calostachyus						+
Ptilotus clementii						
Ptilotus exaltatus						
Ptilotus exaltatus var. exaltatus				+		+
Ptilotus gaudichaudii var. gaudichaudii						
Ptilotus helipteroides				+		+
Ptilotus obovatus				+		+
Ptilotus polystachyus var. arthrotrichus						
Ptilotus roei						
Ptilotus rotundifolius						
Ptilotus schwartzii var. schwartzii						
Rhagodia eremaea						
Rhyncharrhena linearis				+		
Rhynchosia minima						
Rulingia luteiflora						
Rutidosis helichrysoides						
Salsola tragus						
Santalum lanceolatum						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
Sauropus trachyspermus						
Scaevola acacioides						
Scaevola aff. browniana						
Scaevola amblyanthera var. centralis						
Scaevola parvifolia subsp. pilbarae						
Scaevola sp.						
Scaevola spinescens						
Schizachyrium fragile						
Schoenoplectus litoralis						
Sclerolaena convexula						
Sclerolaena cornishiana						
Sclerolaena costata						
Sclerolaena cuneata						
Sclerolaena densiflora						
Sclerolaena deserticola						+
Sclerolaena diacantha						
Sclerolaena eriacantha						
Senna artemisioides aff subsp oligophylla						
Senna artemisioides subsp. filifolia						
Senna artemisioides subsp. helmsii					+	
Senna artemisioides subsp. oligophylla			+	+		+
Senna artemisioides subsp. oligophylla x helmsii						
Senna artemisioides subsp. x artemisioides						
Senna glaucifolia						
Senna glutinosa subsp. glutinosa	+					+
Senna glutinosa subsp. glutinosa x luerssenii						
Senna glutinosa subsp. pruinosa	+					+
Senna glutinosa subsp. x luerssenii	1%					+
Senna notabilis						
Senna sericea	+					
Senna sp. Meekatharra (E. Bailey 1-26)						
Senna stricta						+
Senna venusta						
Setaria dielsii						

APPENDIX I

Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
Setaria surgens						
*Setaria verticillata						
Sida aff. clementii						
Sida aff. echinocarpa						
Sida aff. fibulifera						
Sida arenicola						
Sida cardiophylla						
Sida clementii						
Sida echinocarpa						
Sida fibulifera						
Sida platycalyx						
Sida sp. Excedentifolia (J.L. Egan 1925)				+		
Sida sp. golden calyces (H.N. Foote 32) PN						
Sida sp. Pilbara (A.A. Mitchell PRP 1543)						+
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)						+
Sida sp. verrucose glands (F.H. Mollemans 2423)				+		
Solanum aff. sturtianum						
Solanum centrale						
Solanum ellipticum						
Solanum horridum						
Solanum lasiophyllum	+			+	+	+
*Sonchus oleraceus						
Sporobolus actinocladus						
Sporobolus australasicus						
Stemodia grossa						
Stenopetalum decipiens						
Streptoglossa cylindriceps						
Streptoglossa decurrens						
Streptoglossa sp.						
Stylobasium spathulatum						
Swainsona kingii						
Tephrosia densa						
Tephrosia rosea var. glabrior		+				
Tephrosia supina						

APPENDIX I
Matrix of Species Found Within Each Site

SPECIES NAME	ewman to Jimblebar					Newman Town Substation
	NJR47	NJR51	NJR53	NJR59	NJR69	NJ07
<i>Themeda triandra</i>			2%			
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>						
<i>Trianthema glossostigma</i>						
<i>Trianthema pilosa</i>						
<i>Trianthema triquetra</i>						
<i>Tribulus astrocarpus</i>						
<i>Tribulus macrocarpus</i>						
<i>Tribulus suberosus</i>	+					
* <i>Tribulus terrestris</i>						
<i>Trichodesma zeylanicum</i>						
<i>Triodia angusta</i>						
<i>Triodia basedowii</i>						
<i>Triodia longiceps</i>						
<i>Triodia pungens</i>			30%	10%		
<i>Triodia schinzii</i>						
<i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835)	30%					10%
<i>Triodia wiseana</i>					60%	15%
<i>Triraphis mollis</i>						
<i>Triumfetta maconochieana</i>						
<i>Typha domingensis</i>						
* <i>Vachellia farnesiana</i>		+	+			
<i>Vittadinia obovata</i>						
<i>Waltheria indica</i>						
<i>Xerochloa imberbis</i>						
<i>Yakirra australiensis</i> var. <i>australiensis</i>						

APPENDIX J

LOCATION OF INTRODUCED FLORA SPECIES

NEWMAN TO JIMBLEBAR TRANSMISSION LINE AND NEWMAN TOWN SUBSTATION FLORA AND VEGETATION ASSESSMENT

APPENDIX J

LOCATION OF INTRODUCED FLORA SPECIES

K1: Newman to Jimblebar

Taxa	Site Number	Zone	Easting	Northing
<i>*Acetosa vesicaria</i>	NJ12	50K	793428	7417696
	NJ24	50K	794487	7418364
	NJR51	50K	779174	7416406
<i>*Aerva javanica</i>	NJ15	50K	780767	7417172
	NJ49	50K	781444	7417731
	NJOPCAPOK	50K	790939	7417659
<i>*Bidens bipinnata</i>	NJ23	51K	195641	7413505
	NJ28	50K	796869	7418204
	NJ30	50K	797573	7418164
	NJ42	50K	801273	7416960
	NJ46	50K	791284	7417561
	NJ50	50K	787490	7418531
	NJ54	50K	789013	7418256
	NJ63	50K	783812	7418876
	NJR08	50K	792213	7417519
<i>*Cenchrus ciliaris</i>	NJ09	50K	778581	7416075
	NJ10	50K	791971	7417546
	NJ11	50K	779341	7416493
	NJ14	50K	792487	7417502
	NJ15	50K	780767	7417172
	NJ16	50K	794080	7417709
	NJ20	50K	794735	7418455
	NJ22	50K	795491	7418337
	NJ23	51K	195641	7413505

Taxa	Site Number	Zone	Easting	Northing
	NJ24	50K	794487	7418364
	NJ26	50K	796198	7418269
	NJ28	50K	796869	7418204
	NJ30	50K	797573	7418164
	NJ32	50K	798302	7418018
	NJ33	50K	804028	7415850
	NJ38	50K	800143	7417345
	NJ42	50K	801273	7416960
	NJ44	50K	802036	7416632
	NJ46	50K	791284	7417561
	NJ49	50K	781444	7417731
	NJ50	50K	787490	7418531
	NJ54	50K	789013	7418256
	NJ55	50K	785925	7418658
	NJ56	50K	789749	7417996
	NJ58	50K	790368	7417738
	NJ61	50K	784507	7418898
	NJ63	50K	783812	7418876
	NJ65	50K	782943	7418575
	NJ67	50K	782360	7418231
	NJOP27T	50K	793564	7417704
	NJOP30T	50K	793444	7417781
	NJOP	50K	792106	7417521
	NJR10	50K	793188	7417568
	NJR12	50K	794161	7417761
	NJR17	50K	781750	7417916
	NJR20	50K	800245	7417253
	NJR26	50K	791172	7417578
	NJR29	51K	197860	7413233

Taxa	Site Number	Zone	Easting	Northing
	NJR51	50K	779174	7416406
	NJR53	50K	780912	7417293
	NJR69	50K	790634	7417661
<i>*Cenchrus setiger</i>	NJ14	50K	792487	7417502
	NJOP30T	50K	793444	7417781
	NJR10	50K	793188	7417568
<i>*Cucumis melo subsp. agrestis</i>	NJ12	50K	793428	7417696
	NJOP41T	50K	794234	7417780
<i>*Cynodon dactylon</i>	NJR51	50K	779174	7416406
<i>*Datura leichhardtii</i>	NJOP08K	50K	793191	7417567
	NJOP32T	50K	793233	7417634
	NJR10	50K	793188	7417568
<i>*Echinochloa colona</i>	NJ12	50K	793428	7417696
	NJ16	50K	794080	7417709
	NJOP16T	50K	792204	7417574
	NJOP29T	50K	793522	7417739
	NJR08	50K	792213	7417519
	NJR10	50K	793188	7417568
	NJR26	50K	791172	7417578
	NJR51	50K	779174	7416406
<i>*Malvastrum americanum</i>	NJ24	50K	794487	7418364
	NJ50	50K	787490	7418531
	NJOP31T	50K	793233	7417634
	NJR10	50K	793188	7417568
	NJR51	50K	779174	7416406
	NJR53	50K	780912	7417293
<i>*Portulaca oleracea</i>	NJ11	50K	779341	7416493
	NJ16	50K	794080	7417709
	NJ21	51K	196793	7413109

Taxa	Site Number	Zone	Easting	Northing
	NJ22	50K	795491	7418337
	NJ23	51K	195641	7413505
	NJ24	50K	794487	7418364
	NJ25	51K	194866	7413794
	NJ28	50K	796869	7418204
	NJ30	50K	797573	7418164
	NJ42	50K	801273	7416960
	NJ67	50K	782360	7418231
	NJR12	50K	794161	7417761
* <i>Setaria verticillata</i>	NJ28	50K	796869	7418204
	NJ42	50K	801273	7416960
	NJ54	50K	789013	7418256
* <i>Sonchus oleraceus</i>	NJ12	50K	793428	7417696
* <i>Tribulus terrestris</i>	NJ14	50K	792487	7417502
	NJ16	50K	794080	7417709
	NJ24	50K	794487	7418364
	NJOP33T	50K	793223	7417598
* <i>Vachellia farnesiana</i>	NJ16	50K	794080	7417709
	NJOP27T	50K	793564	7417704
	NJOP28T	50K	793606	7417660
	NJOP29T	50K	793522	7417739
	NJOP31T	50K	793233	7417634
	NJOP39T	50K	792373	7417469
	NJOP40T	50K	793736	7417867
	NJR51	50K	779174	7416406
	NJR53	50K	780912	7417293

K2: Newman Town Substation

Taxa	Site Number	# Easting	# Northing
<i>*Aerva javanica</i>	NJ07	780171	7415846
<i>*Cenchrus ciliaris</i>	NJ07	780171	7415846

Australian Geocentric 1994 (GDA94), Zone 50K

APPENDIX K

CLUSTER ANALYSIS

APPENDIX K CLUSTER ANALYSIS

Newman to Jimblebar Group average

